

Digitisation

Creative destruction or digital balance:
competition or cooperation for media platforms?



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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
Website: www.die-medienanstalten.de

Responsible for the content

Thomas Fuchs
Andreas Hamann

Editors

Dr. Kristian Kunow
Aylin Ünal

Lecturer

Aylin Ünal

Translator

Johanna E. Fell

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Preface



Siegfried Schneider

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 German media authorities

In the commission of the Federal Government and the German states analysing the issue of converging media, the German states have aimed at making the provisions on platform regulation fit for the future over the past year. The working group dealing with this issue adopted a definition which is technology-neutral and open for further evolution by classifying platforms as “media platforms”. The final report of the commission which was published in June states that “for all media platforms the principles of non-discrimination and transparency shall apply”. As media authorities, we can only welcome this position — after all, the two criteria present the core of our task concerning securing pluralism.

To this end, the media authorities are following developments in the sectors of technology and media policy. The rate at which digitisation is progressing has again become evident this year. At the same time, there is no longer a clear separation of industries and competitive scenarios, but rather, overarching new co-operations can be detected. The present report on digitisation reflects this evolution and shows everyone thriving for new business models. The major commercial

broadcasting groups seek to compensate the downturn of the broadcasting business by investing in other areas which have little to do with television. In addition, programme providers offer their own media libraries and HD offers against pay to secure their place on media platforms. But what effect do these dynamics yield on the core business? Will the new offers and services also make it onto the major platforms, and will they be found there by their customers?

The results of the research presented in this report reveal a trend showing that HDTV, i.e. television with high-resolution image quality, is a success and finding its way into more and more German homes. Taking the population overall, classical linear television continues to dominate the consumption of moving images. However, the younger age group today already resorts to video on demand almost as frequently as it watches linear TV.

As regards the digitisation of the transmission infrastructures, television has never been closer to full digitisation yet. This will be helped, among other things, by the switch-off of analogue cable

reception which has been targeted for the year 2018.

Europe, too, sees full digitisation well on the way as Laurence Cribier and Ricardo Topham outline. The next evolutionary stage is already knocking on the door, namely Ultra HD or 4K offering four times the resolution of HDTV. This will ensure that television will be anything but boring in the future, too.

The digitisation of radio in Germany also experienced major progress during the last year. Johannes Kors describes in his report, among other things, the marked increases reached by digital radio and internet radio.

In their article on “disruption in the platform market”, Thomas Fuchs and Kristian Kunow show

how the traditional broadcasting platforms are undergoing a profound shake-up set in motion by new actors. The market is characterised by technological innovation and generates new business models and cooperations commanding an appropriate regulatory reaction.

The challenges brought about by the convergence of digitised media which the commission of the Federal Government and the German states also identified are numerous and the number is likely to increase even further in the future. In the light of this scenario, the future regulation of media platforms must take a flexible approach open to accommodate future evolution. The media authorities will most certainly not hinder creative disruption but will accompany the industry en route to a sound digital balance.

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NETFLIX

You Tube

vodafone

Disruption in the platform market?

Digitisation, HD and OTT shaping developments

Thomas Fuchs/Dr. Kristian Kunow

Disruptive innovation everywhere?

Once again a ghost is haunting Europe, and it is called disruption. It is ever present in the debates these days, be they of a social, economic or media and politics nature. The ghost set off from the New World, the Silicon Valley, to be more precise, and takes the form of platforms — digital platforms. They are rumoured to embody disruptive innovation. Notions of bi-directional markets and all-powerful intermediaries make the rounds. The digital platforms are claimed to alter the way in which we use media, our business activities — some proponents even go as far as arguing that they change the way we live and think. And the call for regulation can be heard in many quarters.

In the here and now, digital platforms of the type of Uber, Airbnb or even YouTube provide us with driving services, overnight options and the latest instalments of “Bibi’s Beauty Palace”. The fact that innovative technologies of the type which are undoubtedly connected to these platforms can on occasion have a disruptive effect dates back to the 1990s as an idea which is accredited to the US management and innovation scholar Clayton Christensen. Christensen classed small

copying machines or radial tyres as disruptive innovations. Having been ignored by market leaders for too long, small copiers and radial tyres fundamentally altered customer needs and thus an entire industry and the balance of power. Whether Uber or Airbnb will also manage this is still undecided. At present, at least, there is little to indicate that the established powers in the market, no matter whether it is taxi companies or hotel chains, are underestimating the dangers the digital platforms are posing for their business.

Netflix is disruptive, but ...

Netflix was a totally different affair. The US film platform which meandered through the German media industry like a ghost prior to entering the German market in 2014, presents a disruptive innovation. Shortly before making its way across the Atlantic to Germany, the last 300 shops of the Blockbuster video rental service closed their doors. In the view of many analysts the collapse of the Blockbuster empire was set in motion when, in 1997, the online video library of a certain Reed Hastings set out to mail films on DVD by post to customers. Ten years later, Netflix ex-

tended its offer by video on demand and rapidly accounted for up to 40 per cent of internet traffic in the United States. Today, hardly anyone in the USA frequents a video rental shop any more.

Listening to the debates taking place in the German television sector recently could have easily led to the conclusion that the fate Blockbuster suffered would catch up with the German television broadcasters and distributors in just a matter of months. There is no doubt that non-linear content distributed over the top (OTT) has found its place as an inherent part of the media repertoire used above all by younger consumers, and such offers will continue to expand in their relevance. As regards Netflix, however, at a share of a good 5.5 per cent of the German population resorting to this service, no trace of a disruptive effect can be stated (see chapter on the status of digital television and video consumption in this report). So what do the media platform market and the situation as regards competition actually look like today?

TV platforms

Ever since commercial broadcasting was introduced and cable networks were laid in the ground for TV transmission in Germany, platforms have played a key role for television transmission. Cable network operators such as Vodafone Kabel Deutschland or Unitymedia have since taken on gatekeeper positions being situated between the television producers and the viewers. Broadcasting regulation aiming at ensuring plurality accordingly provides for specific obligations applying to cable network operators requiring, among other things, equal access to platforms — and thus to viewers — to be provided by the network operators. The tenth amendment to the Interstate Broadcasting Treaty which entered into force in 2008 extended

these requirements from the cable network operators to providers bundling broadcasting services and comparable telemedia offers transmitted via satellite and terrestrial capacities (so-called antenna television) which they must make accessible for viewers as an overall offer. Since that time, the issues of platform providers and platform regulation have been cropping up in the context of the distribution of television content, and since then, the media authorities whose remit includes this issue have been keeping an eye on the TV platform market.

Market and competition

For a long time, the distribution of television offers was predominantly concentrated on cable alongside satellite and terrestrial TV as transmission infrastructures. IPTV which operates via the telephony connection or DSL, joined the transmission family as a further route for receiving television services only a few years ago. Cable providers as well as the providers of IPTV (e.g. Telekom with its Entertain offer) simultaneously act as network operators and platform providers by not only transporting the content to the viewer but also by bundling it and marketing it in varying packages to their customers as an overall offer. Satellite and terrestrial transmission routes have by now also made HD+ or the most recent start-up, freenet TV, available to viewers, thereby offering programme reception in the HD standard as platform operators.

Platforms on principle compete against each other, with each of them trying to provide the best content and technology offers to customers. Viewers, however, are mostly interested in the channels of the two major television groups, RTL and ProSiebenSat.1 respectively alongside the services of the public-service broadcasting corpo-

rations which always have to be distributed being classified as “must-carry” offers under the legal provisions. As a result, platform operators have only limited options for scoring points in the competition through the range of services they provide. A competitive edge can be won most likely by offering pay TV content, but demand among German TV viewers continues to be comparatively limited.

As an additional aspect to be considered, the change of a TV platform as a rule involves a change of the mode of reception for customers or television viewers. The market shares of the transmission infrastructures have remained stable in recent years; satellite and cable upfront divide up a major share of the market more or less evenly among themselves while terrestrial transmission and IPTV secure considerably smaller pieces of the cake only. Major competition exists only among cable television platforms such as Unitymedia and regional providers like NetCologne. With private households being serviced by more than one cable network operator in individual regions only, the competition among these TV platforms is fought out mostly in the sector of the housing industry which bundles the demands of hundreds, if not thousands, of tenants. As a consequence the market for platform operators kept comparatively stable for long time with only limited competition taking place between the respective platforms.

Technological development, marketing model and competition

If the TV platform market saw some movement in recent years, this was generated by technological developments and innovations. The first example in this respect is the digitisation of television reception. The resulting more efficient transmis-

sion of content enabled the televisions platforms to effect greater differentiation for their products. Digital signals offer better quality, and the range of packages is larger many times over. Terrestrial transmission as a mode of reception could retain its competitiveness vis-à-vis the cable-based transmission platforms and satellite respectively only after digitisation had started in 2006, and has since been in a position to expand its market shares. Following satellite transmission going fully digital in 2012, satellite picked up additional market shares in the wake of the digitisation of television reception via satellite at the expense of cable transmission which is still partly analogue to this day.

The innovative technology succeeding digitisation of the TV platform market is HDTV—high-resolution (or high definition) digital television. Satellite operator SES used the introduction of commercial HD television in Germany to adopt a new business model and the HD+ platform, the latter also involving a new pricing strategy. In the so-called marketing model it is ultimately no longer the content provider paying the network operator for transporting his content, but the customer paying a fee for receiving the services or having them decoded; the platform provider and the content provider then split the earnings between them. The cable television platforms have since adopted this HD marketing model, and it will also be implemented by Media Broadcast as a business model through the new terrestrial freenet TV platform. From mid-2017 onwards, viewers will also have to pay for receiving commercial HDTV services through the air.

The introduction of the new pricing systems, however, also means that the competition for viewers via pricing among the television platforms will also heat up.

SD, HD, UHD — “sustaining innovations” and finite trajectories

No matter how much movement they have provided for the TV platform market, the digitisation of television and its further advancement in the form of HDTV are no disruptive innovations. They rather present technologies which, according to the line of thought of Christensen, must be classed as “sustaining innovations”. These are innovations or technologies following a development trajectory — in the present case that of an increasingly efficient use of capacity and better image quality. This type of innovation is usually brought about by established players in the market and helps them to consolidate their position in the market. Brought to the point, such innovations do not yield novel products such as the small copier or radial tyre at the time, but advance existing products.

Another innovation of the “sustaining” type is already casting its shadows: Ultra HD (UHD), also known as 4K. The concept relates to television images with a resolution corresponding to four times that of HDTV. The first UHD television content transmitted via satellite can already be watched using a corresponding receiver. Cable and IPTV platforms are currently testing and planning their UHD transmissions.

Looking beyond the television sector it becomes clear that the technological development trajectory of a market can be finite, or can at least be broken. It may reach a point at which the next stage of development does not tally with the corresponding customer expectations, or a disruptive technology alters customer needs and captures the market. This was painfully experienced by the music industry when the audio CD was not succeeded by the audio DVD, but by the lower-quality MP3 file. And the television sector

can also point to its own innovation flop, namely 3D. Hyped as the future of television only a few years ago, 3D today leads a niche existence and no-one would be surprised, were the last proponents such as pay TV and service platform provider Sky to terminate their 3D offers in the near future.

New kids on the block — OTT platforms

That Zattoo, Netflix and YouTube play the same role for the platform operators in the television sector as Apple iTunes and Spotify do for the music industry seems obvious — it presents a challenge at best. One common characteristic of these new market entrants is their status as OTT providers: Unlike the traditional platform providers operating in the television market, Zattoo, Netflix, YouTube & Co do not use their own network infrastructures but the open internet to deliver content over the top to customers. The platforms and the content offers are comparable to the classical TV platforms to a greater or a lesser degree. And while live TV platforms such as Zattoo, Magine and the TV feature film app strongly resemble a traditional platform as regards the content provided, VOD or online video platforms of the type of Netflix, Amazon Instant Video, Maxdome or YouTube are rather dissimilar and look more like television providers delivering their offers directly or via their own platform to their viewers. Viewers and consumers in turn now increasingly perceive traditional TV platforms and OTT platforms as offering comparable content they can choose from for spending the evening in front of the television set. At the same time, the dividing line experienced between content offered live and on demand, between linear and non-linear content, is becoming increasingly blurred.

Competition or cooperation?

OTT platforms thus present not only new competition to cable and IPTV platform operators; from the perspective of the latter, this competition is playing in their own field and is resorting to its own infrastructure for the provision of competing products. For the customer, on the other hand, internet access means that the connection or the infrastructure used does no longer have to be changed when switching from the TV platform of the network operator to Zattoo.

The real innovation which Zattoo, Netflix, YouTube & Co have brought about, however, is less their mode of distribution, i.e. the provision of TV or video platforms by means of the internet, but rather the consistent exploitation of the opportunities offered by this mode of distribution. Summed up as a catchphrase, their strategy is “whatever, wherever, whenever”. All available content is made accessible to viewers no matter what end device they use, where they are or when something has been scheduled. Recommendation systems based on algorithms provide additional orientation while involving social media offers the opportunity to discuss content consumed. Depending on the end device, the available bandwidth and the material, the transmission capacity allows video to be presented in any form, starting with a postage stamp and ending with UHD quality.

The question to be asked is whether these innovations have a disruptive effect on the TV platform market. Or are they not simply “sustaining innovations” boosting development in the market and the established platforms further, as was already the case for the digitisation of television reception and HDTV? To a considerable extent, the answer will depend on the established players in the market, and far less on any regulation. It

was probably not the online library set up by Reed Hastings which felled the Blockbuster Empire, but the inadequate reaction which Blockbuster adopted to respond to changing demands of feature film and series aficionados.

There are many indicators allowing the conclusion that the established TV platforms will not make the same mistake. Firstly, there is their product policy: The core offer of many TV platform providers using cable and DSL/IPTV is now flanked by apps that fit differing end devices and customised hybrid boxes, e.g. Horizon (Unitymedia) or the Media Receiver offered by the IPTV platform Entertain. In the same vein, these providers of TV platforms have long since embraced concepts such as S-VOD, T-VOD and A-VOD, recommendation engines, replay and links to social media networks. The issues they now face alongside the challenge of how these concepts can be technically realised, in many instances via OTT in their networks, increasingly relate to questions concerning the acquisition of transmission rights and copyright issues. This, however, are matters facing the OTT competitors in the same way.

What is also becoming evident is a blurring of barriers not just between linear and non-linear transmission, but also between competition and cooperation. While TV platforms and OTT platforms compete for innovative television and video content, cooperations can be noted in other areas in which the complementarities exceed the immediate competition. As an example, VOD platform Maxdome provided by ProSiebenSat.1 is partnering television platform operators which are offering Maxdome as an S-VOD offer complementing their own T-VOD offer on their television platform. Considering indigenous product innovations and cooperations, it is not surprising that the cable network operators are consistently

extending their broadband offers — which also benefits OTT providers — and are planning to use the network capacities becoming available as a result of the pending analogue switch-off to a large degree providing broadband internet services.

For cable network operators, internet services have long since constituted a major field of business, and the extension of this field of activities now helps their own television platforms. In this context, the innovations brought about by Zattoo, Netflix, YouTube & Co have to be classified as sustaining innovations, at least as far as the cable and DSL network operators are concerned. With the control of the infrastructure becoming less and less relevant for the success of a television and video platform in the market, the network operators benefit from the OTT providers on their own television platforms also irrespective of the issue of competition or cooperation. At first sight, cable and IPTV platforms thus appear to face special challenges from the new OTT competition, but a closer look reveals that the satellite and terrestrial platforms are the operators more likely to come particularly under pressure exerted by the competition in the internet.

Conserving the species or protecting the puppy? Adequate platform regulation involving future orientation!

One fact to be noted is the impact that technological innovations exert on topical developments in the television platform market and the new business models they create while OTT platforms on the other hand shake up the market for television and video distribution. In the light of this situation, the right balance and, above all, the objectives for the regulatory instruments must not be lost out of sight.

Broadcasting law and the media authorities applying the legislation have always aimed at ensuring plurality and continue along this path. Against the backdrop of the gatekeeper function the regulation of platforms presents a proven and tested means for securing plurality. Equal access to content and equal findability of content on the platforms and user surfaces still have central relevance. This legal instrument needs to be adapted in accordance with the developments experienced in the platform market. The process cannot and must not be one of conserving the species or of protecting the puppy, or — put another way, as little as the established television platforms need promoting treatment, do the OTT platforms require special privileges.

Instead, regulation that is in keeping with the current development must firstly follow the new business models developed by the established platform operators and allow for altered cash flows between content and platform operators to be analysed regarding their equal construction. Secondly, regulation must be characterised by technology neutrality insofar as it should allow for successful OTT platforms which are relevant for the formation of opinion to be included in regulation aiming at securing plurality using clear criteria.

The route adopted by the commission of Federal Government and the German states which introduced the concept of the “media platform” must be consistently pursued and the analysis which is to the point be transferred into a tiered system of regulation in the short term. The greatest challenge in this context will most likely be doing justice to the requirement defined by the commission itself that the application must be flexible and allow for accommodating new developments.

Certain OTT platforms have by now attracted daily users by the million, especially among the younger target groups (see chapter on the status of digital television and video consumption of this report). This is accommodated by a growing relevance for the formation of public opinion. Structural differences compared to the traditional television platforms, however, would rate regulatory intervention in the form of must carry or provisions for privileged findability on Netflix, YouTube and Co. to be inappropriate.

From its structure, an OTT provider such as Netflix marketing a selected offer of its own and licensed series and films resembles a television provider. An online video platform such as YouTube by contrast is characterised by far more open access for content providers as well as viewers compared to a traditional television platform. Regulation

aiming at securing plurality must allow for these structural differences to be considered.

The fundamental requirements of equal opportunity and transparency embedded in media legislation should, however, also apply to online video platforms that have gained relevance for the formation of opinion. In case of doubt, it should be possible to reconstruct at which terms offers can access these platforms and what criteria are applied for them being found there.

Watching the developments in the platform market for television and video distribution closely and reacting adequately with regulatory measures in the interest of securing plurality has nothing to do with chasing ghosts, but is owed to accounting for really existing changes.



Digitisation in Germany: facts and figures

Current status of digital television and video consumption in Germany

June 2016

Dr. Kristian Kunow

“Current status of digitisation of broadcasting in Germany” or “in the German TV households” — after ten years with titles like these headlining the facts and figures report on the technical development of television consumption in Germany it is time for a change. The era predominantly characterised by “broadcasting” has come to an end — the digitisation of broadcasting is more or less completed and history, so to speak. And for the remaining analogue reception of television in Germany, one could cite Frank Sinatra “and now, the end is near ...” But this is by no means the end of the story: Digitisation is an on-going process, not a stagnant state — and it does not need the catchphrases of versions 2.0, 3.0 or even 4.0 to show that after digitisation is before digitisation. The results of this year’s survey on digital television and video consumption which is conducted annually on behalf of the German media authorities again provide proof of this fact as they have been doing in the past and are going to do in the future.

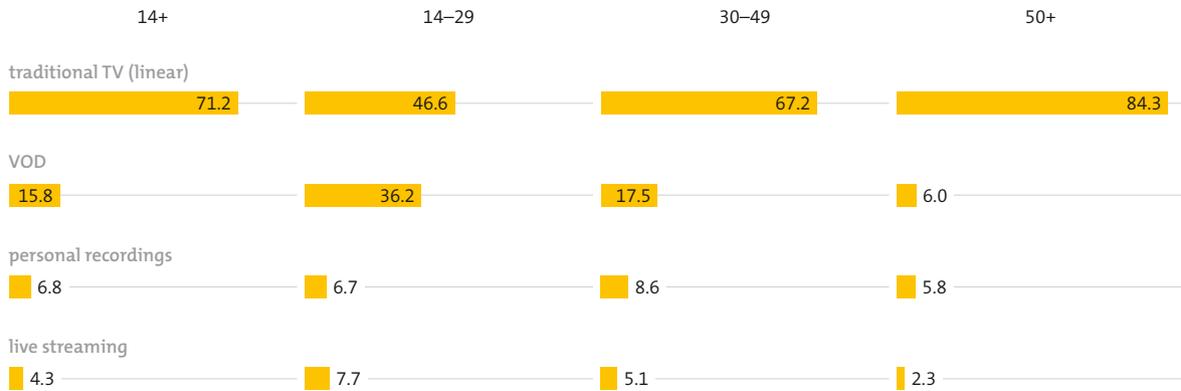
With the present, the twelfth survey, the media authorities in Germany continue their reports on the status of digitisation which they took up

eleven years ago. The survey was conducted by TNS Infratest during the early summer of 2016 and covers large sectors of digital television and video consumption; alongside the status of digitisation and the shares of the various transmission infrastructures for television in the households, it also outlines personal media consumption via HDTV, smart TV, live streaming, video on demand or the second screen.

Television dominates consumption of moving images — except among younger viewers

The fact that the consumption of moving images by the German population aged 14 years or older still largely focuses on traditional linear television is confirmed not just by the report on digitisation but by other studies as well. According to the data collected, an average 71.2 per cent of those questioned state that they watch “normal television” (Fig.1). Video on demand (VOD) accounts for 15.8 per cent of consumption overall, recordings score 6.8 per cent and live streaming via the internet comes to an average 4.3 per cent of consumption.

Fig. 1

Average consumption linear/non-linear (in per cent)

Source: TNS Infratest; Basis: 69.241 million persons aged 14 years or older in Germany

Looking at the younger age group of viewers aged 14–29 years, however, a very different picture emerges: At 36.2 per cent, VOD in this age group almost matches consumption via traditional TV which comes to 46.6 per cent. And a more detailed focus on viewers aged 14 to 19 years results in VOD at 40.9 per cent more or less levelling linear television consumption which comes to a mere 41.1 per cent of moving image consumption in this age group.

As regards VOD consumers, a comparatively large extent of overall consumption relates to VOD offers which account for an average 36.6 per cent of total consumption of moving images. In the age group 14–29 years, the rate has already reached 50.4 per cent.

Digitisation of television reception on the home stretch

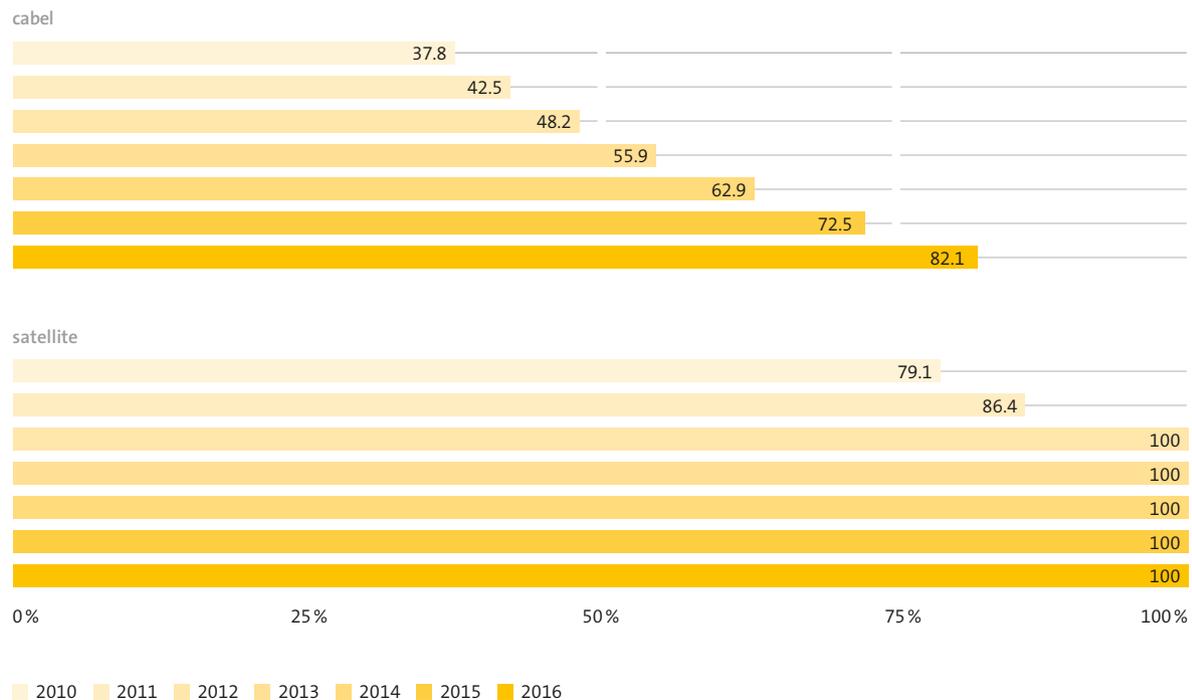
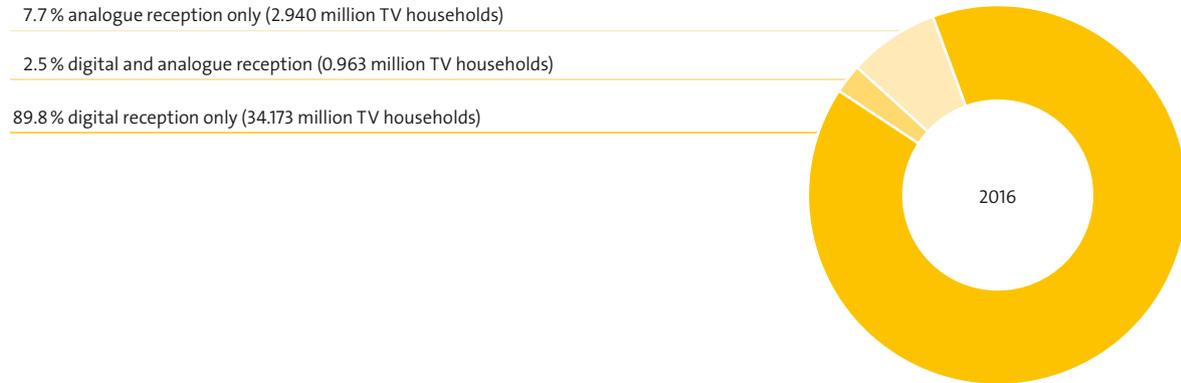
Currently, some 2.9 million households in Germany still consume exclusively analogue television services; this represents 7.7 per cent of German tele-

vision households. Slightly less than a further million households (or 2.5 per cent) in total resort to both analogue and digital television signals, using different TV receivers in the home. A large majority of 34.2 million households in Germany, however, use only digital signals for their televisions consumption.

This results in a rate of 92.3 per cent of digitisation for television reception in Germany at present. Without those households in which there is still some analogue consumption ongoing, the share comes to 89.8 per cent of television households that have been fully digitised. Compared to last year, the rate of digitisation has experienced an increase by 3.8 percentage points while the share of television households that are exclusively digital went up by as much as 5.1 percentage points. With 10.2 per cent of television households still awaiting full digitisation, the process of television reception going digital is now entering the home stretch after 15 years.

Fig. 2

Status of transmission platform digitisation



Source: TNS Infratest; Basis 2016: 38.076 milion TV households in Germany // 19.273/18.928/18.201/17.656/17.860/17.933/17.474 million cable TV households // 16.048/16.843/17.320/17.624/17.779/18.079/17.687 million satellite households in Germany

The critical point has been reached: analogue cable switch-off can commence

In the relay of broadcast digitisation, cable in a way has taken on the role of the final runner. It picked up the baton from satellite in 2012 and has since been making its way towards fully digital television. At a rate of 82.1 per cent (Fig. 2) the home straight is now in sight for cable after it passed the 80 per cent mark. When satellite consumption reached this mark during the process of digitisation of satellite transmission, a switch-off date was set and communication measures were taken to ensure a user-friendly switchover. Compared to satellite, however, the scenario for cable in the German television market is far more heterogeneous with several network operators as well as differing interests and competition at play. This will make a uniform, binding date for the switch-off of all cable networks impossible to achieve. But it would seem that the time has now come for a definitive roadmap, and full digitisation might be achieved in 2018.

One fact speaking for this thesis is the speed which the digitisation of the cable networks has developed lately; in the last two years, the increase was almost 10 percentage points each. Last year, around 27.5 per cent of German households watched television only via analogue signals while in 2014, the rate still was 37.1 per cent. Now, by contrast, a mere 3.1 million or 17.9 per cent of cable households are supplied with exclusively analogue television signals while just under 14.4 million homes have already gone digital. Another 0.8 million of these cable households have not yet gone fully digital or continue to use at least one television set at home for watching analogue services. Over the next eighteen months, a total 3.9 million television households will need to be led along the way to a fully digital television world.

Cable digitisation differing from region to region

The tasks at hand in this process differ from region to region as well as from network operator to network operator. With the rate of digitisation at just under 78 per cent, the states of Brandenburg, Bremen and Schleswig-Holstein still face the greatest task as regards the digitisation of the cable networks; similarly, Bavaria and Saarland also come to less than 80 per cent digital cable.

By contrast, Northrhine-Westphalia and Baden-Wuerttemberg as well as Saxony-Anhalt and Thuringia taken together can already demonstrate a rate of digitisation nearing 84 per cent. The lead has now been taken over by Hesse at 85.5 per cent which presents a rise of a little under 16 per cent over last year. As a result, the gap between regions with a high rate of digital cable networks and those with less digital cable customers has doubled compared to last year, and currently is as large as 8 percentage points.

In the spring of this year, Unitymedia which operates cable networks in Northrhine-Westphalia, Baden-Wuerttemberg and Hesse announced that it would stop analogue cable transmission of television signals by June 2017; this is a consistent step in the light of these development. In the Hesse city of Hanau, Unitymedia plans to go fully digital as early as September of this year in the framework of a pilot project. In the networks operated by Unitymedia, the rate of digital television households has exceeded 86.2 per cent while the rate for the networks operated by Vodafone Kabel Deutschland as the second major cable provider only comes to 81.5 per cent which is below average. Network operator Tele Columbus which underwent major expansion by acquiring other networks in recent years lags behind the

German average even more clearly at a mere 80.9 per cent.

HDTV receivers in analogue cable households often “digital-ready”

For well over three years, the commercial television services have been available to cable customers in the SD standard without encryption and hence, without any extra fee becoming due. Cable customers have not needed any so-called smartcards for decoding commercial free television services during this period. In most cases, the television set is already fitted with an integrated DVB-C tuner; this makes switching over to digital television a very simple matter. Once basic encryption has been stopped, all it takes is a channel scan for receiving the entire range of digital services available in the cable network.

Some 23 per cent of the cable households receiving only analogue television already own an HDTV receiver. Well over 14 per cent bought the set over the last six years. According to market research institute GfK, almost 70 per cent of HDTV sets sold already included a DVB-C tuner as early as 2010; the current rate exceeds 95 per cent. It would therefore be a foregone conclusion that three years after the end of basic encryption a considerable share of the cable households still consuming analogue TV only is ready for digital reception already. These analogue homes do not have to acquire a new TV set or a settop box for switching to the digital cable. This permits the reverse conclusion that the overwhelming majority of approx. 90 per cent of the total 2.9 million households resorting to analogue cable reception only will still have to acquire a new receiver for being able to consume digital offers transmitted via cable.

Analogue cable homes with comparatively limited purchasing power

This constellation invites a close look at the purchasing power available in analogue-only television households. The net income of these households averages 2,000 Euros per month; this is clearly below the income of around 2,600 Euros per month available to television households in Germany on average. One fifth of analogue cable homes in Germany has to get by with a net income of less than 1,000 Euros per month; the corresponding group in the category of digital cable households is only around 10 per cent while the rate among satellite homes (around 7 per cent) and IPTV households (6 per cent) is even lower.

Half the group is made up of pensioners, many viewers also still go through education

The comparatively limited household income in television homes resorting exclusively to analogue cable reception corresponds to the age of the person receiving the main income. Around 50 per cent of this group are persons aged 60 years or older; 46 per cent are pensioners or retirees. This age group accounts for over 45 per cent of the analogue television households having less than 1,000 Euros per month at their disposal.

Well over 26 per cent feature households where the main breadwinner is aged between 14 and 29 years — mostly school or university students or trainees. While for this group the financial aspect involved in switching to digital television reception probably plays a considerable role, in the group of analogue cable households with older main income earners the comparatively limited affinity as regards digital technologies and end devices may also play some role.

Also an issue for the housing industry

Both aspects appear to be of considerable relevance when the attempt is undertaken to pave the way towards the digital television world for cable households which only watch analogue television. This task is not restricted to the cable network operators as more than 60 per cent of the analogue-only cable households do not have a direct contract with the cable network operator. In these 1.5 million German television households, the cable fee is normally billed with the incidental costs charged by the landlord (usually a housing association). Among younger cable customers aged 14–39 years who watch analogue cable television only, the rate is particularly high at 63 per cent. As a result, the housing industry has a decisive role to play in preparing the route leading towards digital television.

Audience reach for transmission routes comparatively stable; ITPV up again

After the successful switch-off of analogue satellite transmission in 2012, the baton in the race for digitisation went to the cable. Since that time, there has largely been calm in the television infrastructure market. Satellite had caught up with cable as regards audience reached when the baton went to cable.

This year again shows satellite reception at 46.5 per cent of the television households is more or less head to head with cable which provides the television diet to 45.9 per cent of the German homes (Fig. 3). Calculated in absolute figures, this corresponds to a little under 17.7 million satellite households and a little under 17.5 cable households in Germany.¹

Still lagging far behind satellite and cable, terrestrial reception also remains comparatively stable as regards audience reach, but it had to content with slight losses again. The current data collected by TNS Infratest show that a share of 9 per cent of the German households receive terrestrial television; last year the figure had been 0.7 per cent higher. A total 3.4 million households in Germany receive terrestrial television. The rate of homes which use terrestrial television as their only mode of reception remained unchanged at 2 million compared to last year. The first set which is usually to be found in the sitting room is used by 2.6 million households for terrestrial television reception. This figure also remained more or less unchanged compared to last year.

Terrestrial television reception has been traditionally higher in regions providing not only public-service offers but also commercial services. At present, some 16.5 per cent of the television households in these core regions resort to terrestrial television reception. The rate went down by one percentage point, making the drop slightly less marked than last year. As a result of the switchover to DVB-T2 HD (also called DTT2 HD), there will be more core regions in the future, supplying a greater proportion of the population with both public-service and commercial television services through the air.

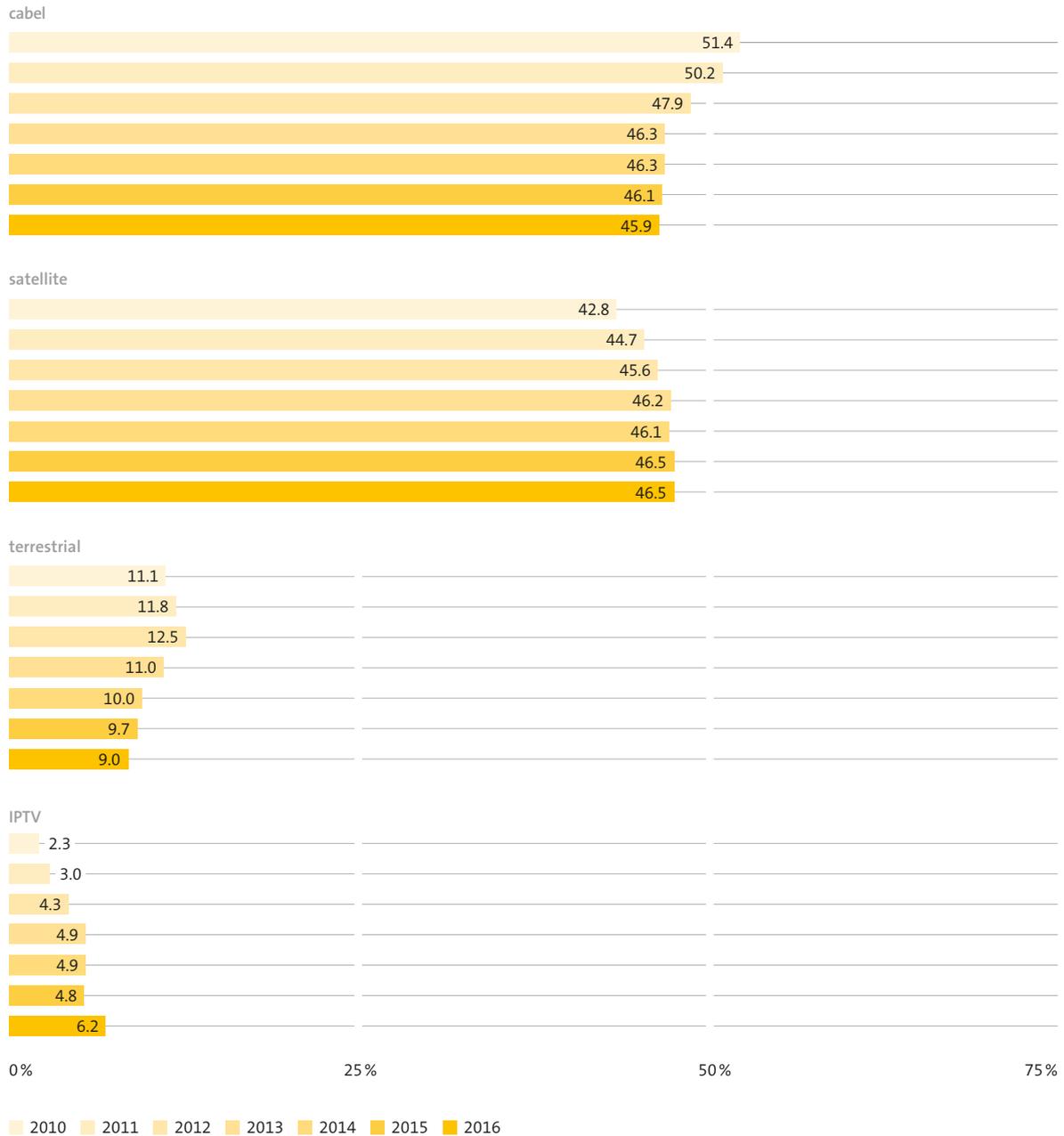
As of next year, the switchover from the old DTT standard to DTT2 HD transmission which starts in March 2017 will be interesting to observe as regards audience reach of terrestrial television. On the one hand, the switchover to the new, more efficient standard will bring a considerable increase in the number of services available and a

¹ By comparison to last year, the absolute figures in the report on digitisation have changed; this is a result, among other things, of the last micro census. The population overall and thus the basis for projecting the facts and figures for the report on

digitisation were corrected downwards (see Methodology section of this report). The smaller number of satellite and cable households in Germany can at least in part be accredited to this fact.

Fig. 3

Shares of the transmission platforms



Sum > 100% due to multiple reception

Basis: 37.464/37.668/37.977/38.157/38.557/38.899/38.076 million television households in Germany

marked improvement of picture quality. On the other hand, the television homes will require new receivers as a consequence of the switchover, be it a DTT2 HD ready television set or a settop box fitted for DTT2 HD reception. In addition, the commercial HD channels will be available only against payment of a monthly fee. In a first stage, the future DTT2 HD platform has been on air free of charge since June.

The only transmission infrastructure which could score an increase of its audience reach was IPTV. While last year 4.8 per cent of the Germany television households consumed television via IPTV, the rate for this year comes to 6.2 per cent—this is an increase of almost 30 per cent after years of stagnation. This increase in reach is probably owed to the new marketing activities. The television signals transmitted to the home via IP networks and DSL lines feature quality—no freezing

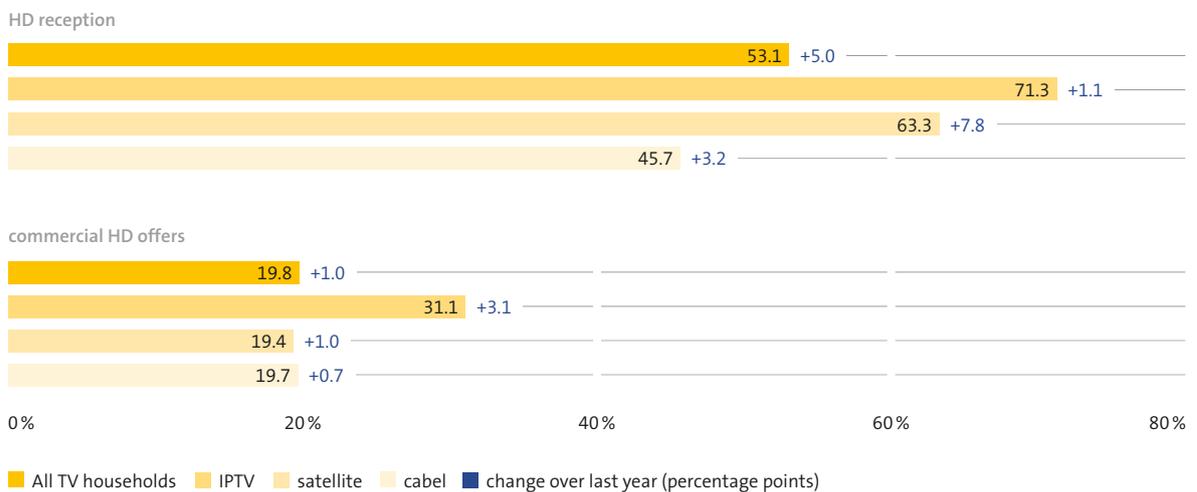
or pixeling as is the case with web TV offers transmitted in the open internet. Just under 2.4 million households benefit from these special TV services; this is around 500,000 more than last year.

HDTV conquers the sitting room, IPTV in the lead, commercial HD reception trailing

The reception of HD television is a success story. The potential for receiving television content in high-definition quality in German sitting rooms is considerable. Some 78 per cent of TV households now own at least one HD-ready television receiver. The best equipment is found in IPTV households, 93 per cent of which own an HDTV set; for satellite homes the rate comes to 81 per cent, while 76 per cent of cable households have an HD receiver. As regards homes resorting to terrestrial reception via DTT, well over 74 per cent own one or more HD-ready devices.

Fig. 4

HD reception and commercial HD offers



Source: TNS Infratest; Basis: 38.076 million television households; 17.474 million cable households; 17.687 million satellite households; 2.350 million IPTV households

The share of television homes in which HD television is actually enjoyed reflects a similar increase: At present the rate has reached around 53 per cent (Fig. 4). Unlike the services offered by public-service broadcasting, the commercial channels are usually not available in the HD standard free of charge but command a fee payable by the viewers before they are decoded. And the figures very clearly reflect this scenario: While more than half of the German television households receive HD content, only a little under 20 per cent also watch commercial content. The reception rate for HD went up by 5 percentage points overall, but the increase of the commercial HD services came to just one percentage point compared to last year. In absolute figures 20.2 million German households receive HD television; of these, 7.5 million homes also watch commercial television in HD quality.

Similarly to the penetration of HDTV receivers, actual HD reception is also led by IPTV. Some 71 per cent of IPTV households consume content in HD quality; the rate for the commercial channels comes to 31 per cent. IPTV is followed by satellite homes where the rate of HD reception has reached more than 63 per cent; here commercial TV in HD quality suffers a clear dip at 19 per cent. In cable households HD reception has climbed around 46 per cent with commercial HD television coming to a little under 20 per cent.

Ultra HD still in the starting blocks but already an important reason for a new set

If many of the market participants had their way, HD would be succeeded by Ultra HD in conquering the German sitting rooms. However, there is still some distance to cover beforehand. For the first time this year, more than half of the persons aged 14 years or more stated in the interview that they had already heard about Ultra HD or 4K. But

the number of television viewers who (knowingly) have an Ultra HD-ready television set at their disposal comes to a very low 3.7 per cent. Yet Ultra HD has now already worked its way up to one of the front places when it comes to the reasons for acquiring a new television set. Around 12 per cent of those aged 14 years or over state that Ultra HD is the most important reason. A clearly larger number give less specific grounds for the necessary replacement of the existing TV set and the wish for a larger screen.

Market leader television gains in relevance for videos, smartphones are the rising stars in the receiver arena

A look at all digital end devices reveals that the television receiver is losing ground, even though this is still happening at a high level. For 37.4 per cent of the German population, the television set still presents the most important end device (Fig. 5). By comparison to last year, the television set suffers a drop of 6 per cent. For persons aged 14 years or older, the smartphone is on the rise as their favourite with 27.6 per cent now naming it as the most important end device. This is an increase of 16 per cent compared to last year. The PC/computer (12 per cent) and the laptop/notebook (11.7 per cent) follow at a considerable distance. The tablet on the other hand could gain slightly regarding personal relevance, being named by 4.6 per cent of the population as the most important end device.

When looking only at persons aged more than 14 years who own more than one device featuring a screen, the smartphone already slightly leads the television set as regards personal relevance. A look at the age group of the 14–29 year olds demonstrates that the smartphone is the device of the future. Almost 58 per cent of those questioned in this age group consider their smartphone

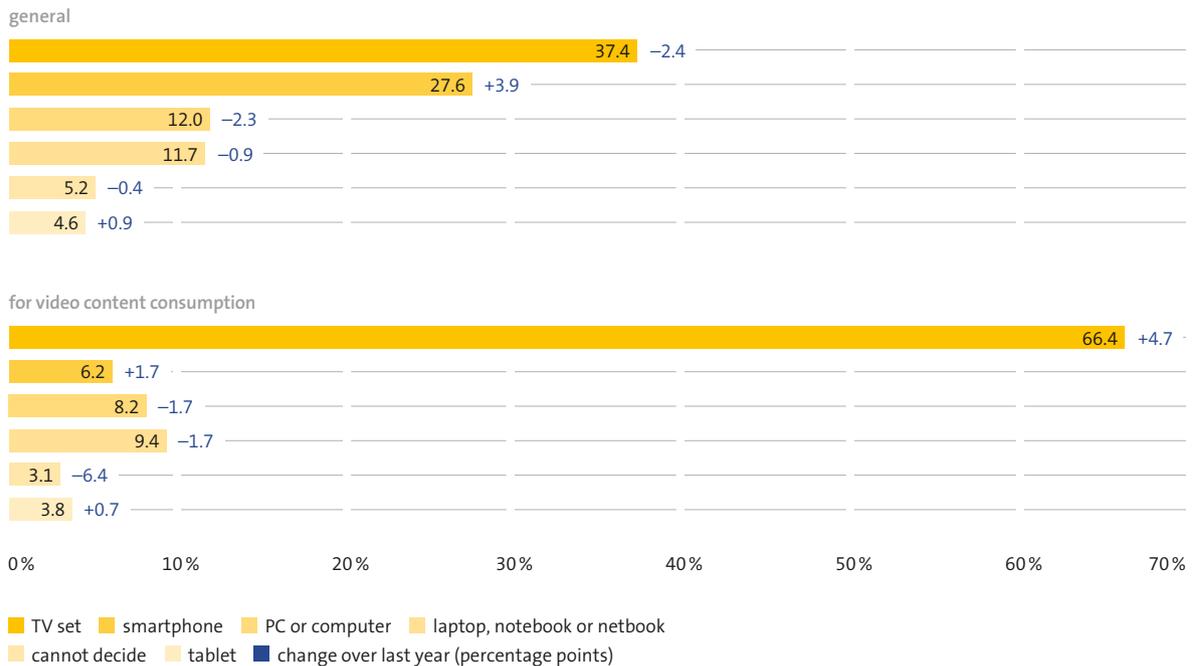
to be the device they could least do without. The television set holds top place as regards unbeatable relevance for a mere 6.7 per cent.

The general significance of the television set is likely to go down in the future. As regards video consumption, however, its importance continues unabated. 66.4 per cent of the population state that for this purpose the television set is the most important receiver. Compared to last year, the television set could increase its importance as regards video consumption by 5 percentage point. No other digital end device has such significance; the share of users for whom they present the most important end device for video consumption moved in single digits in each individual case.

Among younger consumers, the picture is changing in this respect as well, but not as profoundly as regarding the issue of the general significance of the end devices. For persons aged between 14 and 29 years, the television set is also named as the most important screen for watching moving images. Just under 40 per cent state that they could least do without the television set for this activity. The laptop/notebook holds a considerably smaller share at 20.2 per cent, and the smartphone reaches 17.1 per cent. While the smartphone is gaining in importance as the permanent companion in everyday life, these data reveal that for television and video consumption in the evening the television set with its large screen presents

Fig. 5

Most important device



Source: TNS Infratest; Basis: 69.241 million persons aged 14 years or older in Germany

the first choice. In addition, the increasing use of smart features offered by today’s television sets also helps them to maintain a prominent position for video consumption.

Buying a telly, customers get a smart TV – nearly half of the sets are “connectable”

The feature which helped the smartphone to make its breakthrough has long since also found its way into the television set. It is now no longer easy to spot a television receiver not fitted for internet connectivity, app store or HbbTV functionality. These “smart TV sets” enable viewers to access online video offers and live streaming content directly via the TV set. As an alternative, the television receiver can be supplied with internet content using another internet-ready device. Peripheral devices including settop boxes, Blu-Ray

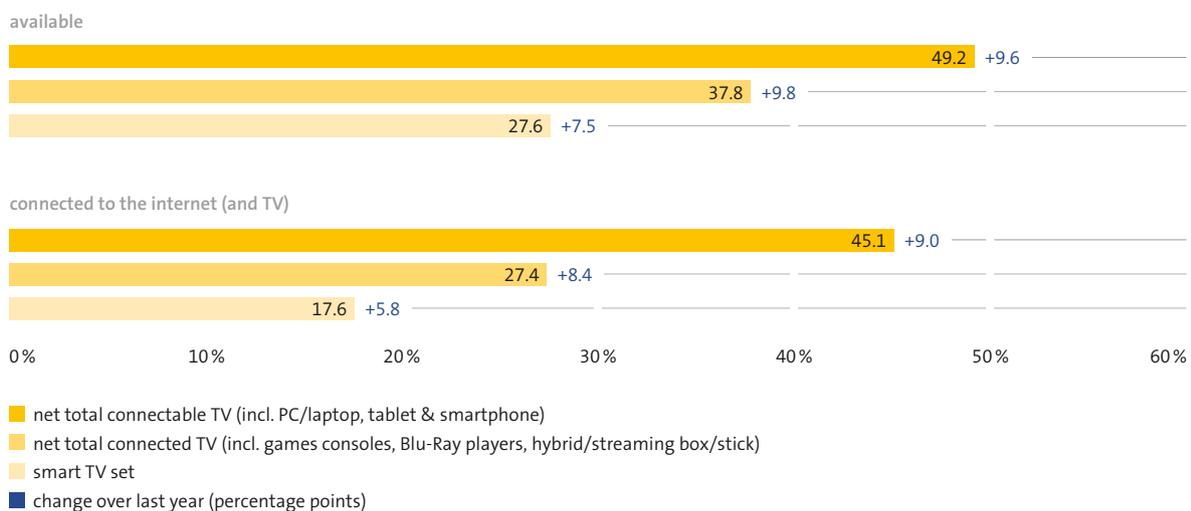
players, streaming boxes as well as tablets and laptops thus help to turn the traditional television receiver into a connectable TV.

For all these features, a broadband connection is and will remain key. The number of television households in which a broadband internet connection, be it DSL, cable or mobile, is available has been growing year by year. 74.6 per cent of German television households at present have broadband internet access at their disposal; the rate has risen by 1.3 percentage points compared to last year.

When questioned on the decisive factors guiding the purchase of a new television set, around 8 per cent of viewers in the TV homes, i.e. a very small rate, state that smart functionalities are a criterion. As a consequence, many television sets

Fig. 6

Connected TV – connected to the internet



Source: TNS Infratest; Basis: 38.076 television households in Germany

may well be acquired without the customers being aware that they bought a smart TV set.

27.6 per cent of the television households now state that they have at least one smart TV receiver at their disposal (Fig. 6). This corresponds to a clear increase of around 37 per cent. Last year, 20.1 per cent of the viewers were aware that they had a smart TV set. At present 17.6 per cent of German television households have actually connected the smart TV to the internet; at just under 64 per cent, this connection rate for smart TV sets is slightly higher than last year, bringing the figure of smart TV households to close on 6.7 million at present.

Connectable television sets are now available in 49.2 per cent of television homes in Germany, permitting almost half of the approx. 19 million TV homes to access internet content via the television set either directly or with the aid of a peripheral device such as PC/laptop, tablet or smartphone.

Smart TV most popular for VOD, online video consumption clearly up

Close on 13.2 million persons aged 14 years or older in Germany can use a smart TV set which is directly connected to the internet. Two thirds of them consume professional video content (VOD) via the smart TV, making VOD by far the top use of smart television beyond traditional television channels. A notable 35 per cent watch VOD content using the smart TV set at least once a week or up to every day. Internet radio and live streaming, however, also enjoy considerable popularity: 28 per cent of smart TV users listen to radio via the internet at least once per month using the

smart TV while around 20 per cent access live streaming offers at least once a month.

Traditional television of minor relevance for younger consumers, VOD not yet accepted by older viewers

At present, a total 38.7 per cent of the population consume video offers available via the internet, be it VOD or live streaming content at least once a month. This is equivalent to 26.8 million users in total, an increase by 12.5 per cent compared to last year.

Just under one fifth (18.9 per cent) of the population have now opted for VOD or live streaming several times per week or even every day. By comparison, 86 per cent of persons aged 14 years or older state that they watch “classical television” at least several times per week.

Daily or near-daily television consumption is still spread far wider in the German population at 70.7 per cent. However, the age of the persons is a decisive factor here as well: According to their own statements, only 46.7 per cent—i.e. less than half—of the 14–29-year-olds watch traditional television every day or almost every day. On the other hand, the age group 60 plus at close on 87 per cent is particularly large as regards this type of consumption. The data for VOD consumption show the opposite ratio: video on demand is a daily or near-daily activity for 16.2 per cent of viewers aged between 14 and 29 years of age while viewers aged 60 years or older have not yet turned to video on demand. A mere one per cent in this age group considers VOD consumption a permanent component of their daily media diet.

Video portals and media libraries head-to-head, YouTube dominates online video market

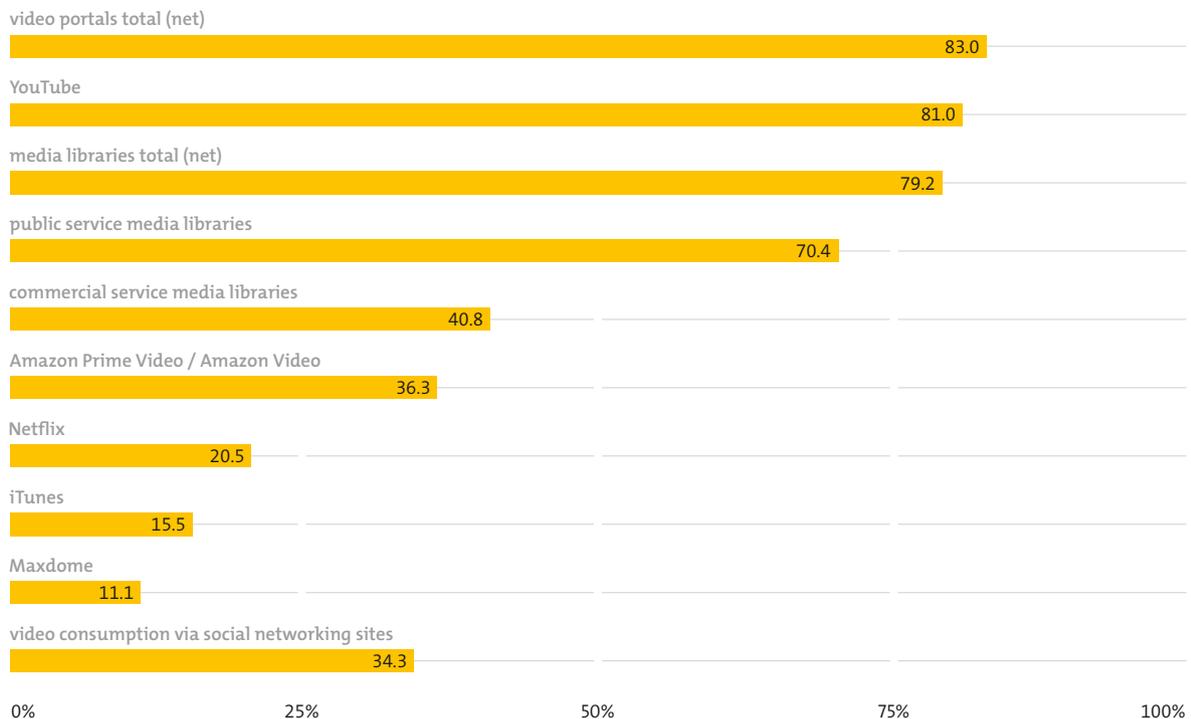
In the group of persons aged 14 years and older who consume video on demand offers on a regular basis (i.e. at least once a month), 83 per cent or four fifth resort to video portals (Fig.7). YouTube clearly dominates the offers at 81 per cent among VOD consumers. The video portals and/or YouTube are followed by the media libraries of the television broadcasters in second place. Some 79.2 per cent of viewers who regularly access video on demand content resort to media libraries. A good 70 per cent choose the libraries of the public-service broadcasters while the media libraries of

the commercial stations are accessed by just under 41 per cent. In the popularity league, Amazon Video leads (36.3 per cent), followed by Netflix (20.5 per cent), Apple iTunes (15.5 per cent) and Maxdome (11.1 per cent). Translated to the population as a whole, close on 12 per cent use the video offers provided by Amazon, 6.7 per cent opt for Netflix offers while 5.1 per cent go for Apple iTunes material and 4.5 per cent for Maxdome content.

At 91.4 per cent, YouTube also enjoys top popularity as regards daily or near-daily VOD consumption. For the group of consumers that put VOD content on par with traditional television, Amazon

Fig.7

Video offers consumed (regular VOD users)



Source: TNS Infratest; Basis: 22.732 million persons aged 14 years or older in Germany consuming professional content at least once a month via VOD

(48.8 per cent), Netflix (34.2 per cent), Apple iTunes (21.1 per cent) and Maxdome (14.6 per cent) also rank in the popularity table.

A look at the frequency of consumption of the various services underlines the predominant position YouTube holds concerning the consumption of professional video content via the internet. A little less than 5.1 million persons aged 14 years or older state that they watch professional YouTube videos every day or almost every day. Well over 1.5 million persons resort to the media libraries of the television providers at the same frequency while Amazon video offers are watched by 1.4 million viewers and Netflix by 800,000 persons aged 14 years or older in Germany. At the same time, these data on consumption underline that video on demand content is marking daily media consumption already to a similar degree as traditional television.

Social networking sites gain in relevance for video consumption

Alongside media libraries and VOD services, online videos are consumed more and more also in and via social networking sites. At present, some

34 per cent of regular VOD users uses this route. Just under 7.8 million persons aged 14 years or older in Germany in total resort to professional video content on a regular basis. This is equivalent to 11.2 per cent of the population aged 14 plus. Around 1.8 million viewers state that they access professional video content via Facebook & Co. on a daily or near-daily basis.

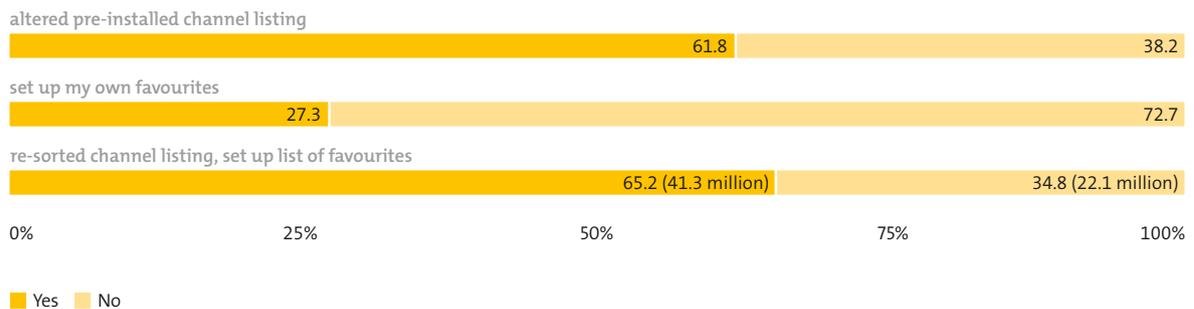
Pre-installed channel listings rarely personalised

In the social networks, the provision and consumption of videos is determined by parameters such as friends, local, previous consumption patterns and likes. Beyond the algorithms applying in social networks, however, channel listings continue to have a major impact. As “zapping” still characterises television consumption in many homes, the first places in the channel lists in the pre-installed channel listings of television sets and settop boxes continue to be highly popular.

38.2 per cent of persons aged 14 years or older who have access to a television set have not rearranged the pre-installed channel listing in line with their personal channel preferences (Fig. 8).

Fig. 8

Use of channel listings and lists of favourites



Source: TNS Infratest; Basis: 63.290 million persons in digital TV households

Alongside re-arranging the channel list, many television receivers and settop boxes also offer the option of establishing a list of favourite channels. This feature is, however, disregarded by close on three quarters or 72.8 per cent of persons aged 14 years or older watching digital television. In sum total, the share of digital TV consumers who are greatly steered in their consumption patterns by the channel sequence pre-installed ex-works comes to 34.8 per cent, corresponding to 22.1 million television viewers in Germany who have neither rearranged the channel listings nor established their own list of favourites.

EPG: little known, rarely used

Digital television sets and settop boxes usually offer a so-called electronic programme guide (EPG). The EPG is comparable to an electronic television magazine allowing viewers to look for specific services and individual programmes, to find information related to an offer and to programme the set to record something. A potential 93.7 per cent of persons aged 14 years or older in German television households have access to

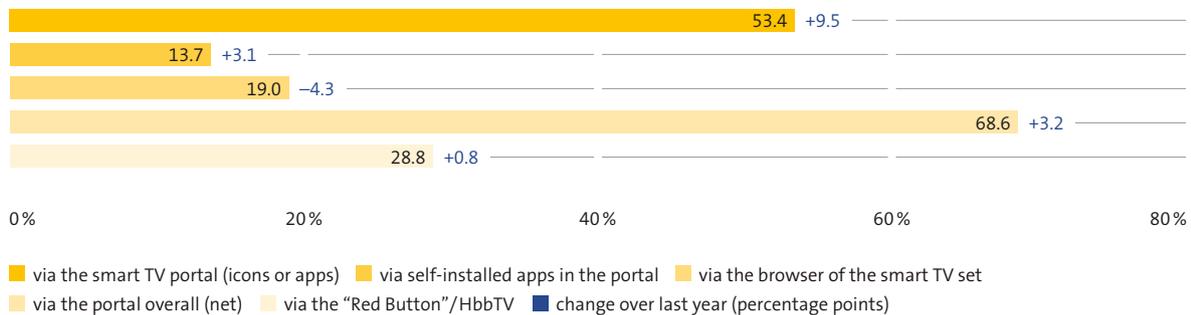
an EPG. However, the EPG is known to a mere 48.3 per cent or less than half of viewers with digital television reception at their disposal. A little under one third or 32.1 per cent use an EPG at least rarely while well over one fifth (21.1 per cent) resort to the electronic programme guide during their daily television consumption. In reverse, these data appear to indicate that most viewers either obtain information on television programmes in some other way and look for a specific programme directly, or get hooked on a programme when they change channels.

Smart TV portal more popular than Red Button/HbbTV

While the digital television receiver brought the EPG into the sitting room, the smart TV opened the door for apps and app stores that are already familiar from the smartphone and similar devices to come onto the large television screens. The app portals provided by the receiver manufacturers permit viewers among other things to access online video offers which are more and more frequently consumed directly via the smart TV

Fig. 9

Use of internet content directly via the smart TV set



Source: TNS Infratest; Basis: 13.195 million persons with access to a smart TV connected to the internet, no response: 15%

set. Alongside the user surface of the portal including pre-installed apps and the app store specified by the manufacturer, viewers can access internet offers or videos also with the help of the so-called Red Button on the remote control or the browser. Most viewers owning a smart TV set (68.6 per cent), however, prefer to go for the app portal of the manufacturer (Fig. 9). According to their own statements, a mere 13.7 per cent also access content via apps they installed themselves. Just under one third (28.8 per cent) use the so-called Red Button for accessing content provided by the TV station via the HbbTV standard directly from a television programme. A little under one fifth of viewers using a smart TV set resort to the internet browser installed in the set to find the desired content via a website.

Slightly less than half of television viewers use the second screen, mostly a smartphone

Video on demand presents the internet service which is used most frequently via smart TV sets. Shopping, online games and social networking sites, by contrast only rank on the lower places as regards their consumption on a smart TV set. For these types of internet service in particular, smartphones, tablets or PCs/laptops appear to offer better use than the television set. The use of these end devices frequently happens parallel to watching television — a scenario characterised as second screen use.

79.1 per cent of German television viewers not only have internet access, but also access to a PC or laptop; 65.7 per cent own a smartphone while 41.3 per cent use a tablet. Looking at all these end devices, the potential for second screen use among television viewers in Germany comes to 81.2 per cent. And as last year, 46.5 per cent of those questioned actually stated that they use a second screen at least rarely while watching tele-

vision. Around 26 per cent of television viewers do so on occasion while 8 per cent more or less always watch television and simultaneously use a second screen.

As regards second screens, the smartphone is used most often by far. Just under two thirds (61.7 per cent) use the smart mobile phone while the television set is switched on, a third each use a laptop (30 per cent) or a tablet (28 per cent). Asked about the services used via the second screen, most viewers state that they use e-mail and instant messenger services; this is followed by information and news as well as social networking sites such as Facebook. Only a little less than one third of viewers using a second screen make use of the second screen to access content and offers relating directly to a programme.

According to their own statements, well over one third of those aged 14 years or over devote their attention more to the smartphone, tablet or other devices than the television programme when they use two screens. Roughly the same number pay more attention to the television service while just under one third of second screen users divide their attention equally between the two screens. However, the more frequently a second screen is used by television viewers, the more they focus their attention on the second screen rather than the television programme shown via the “first screen”. Among the younger audience aged between 14 and 29 years, the use of the second screen is particularly popular at 78 per cent.

The findings regarding the second screen thus reflect a pattern that can be established for the present status of television and video consumption in Germany in general: Traditional television and the transmission infrastructures have not lost in relevance as a result of digitisation. A look at the younger age groups, however, also shows that

traditional television is losing its exclusive status. Consumption of moving images increasingly takes place via the internet and the various OTT platforms with consumers, and not just younger ones, dividing their attention evenly between linear television and non-linear offers more and more frequently. The data appear to indicate that on

the one hand, television, TV sets and the classical routes of transmission will also enjoy considerable attention in the future; on the other hand, television and video consumption are only just starting to work out a digital balance. The media authorities will continue to watch and systematically analyse this balancing act.

The progress of digital radio in Germany

June 2016

Johannes Kors

The digitisation of television has so far relegated radio going digital to the sidelines. Now, this appears to be gradually changing: The results of the survey for the report on digitisation which in 2016 was conducted for the third time in succession show positive growth for digital radio; internet radio is also on the up. Radio consumption via cable and satellite, on the other hand, is going down while VHF still retains its solid lead regarding radio consumption in the home. The results again underline the relevance radio has as mobile media for consumers.

The trend towards radio consumption by means of digital infrastructures and receivers has become unmissable: More than a third of the population are already listening to radio via the world-wide web. One seventh of the German population is now resorting to digital radio. The number of digital radio receivers featuring the DAB+ standard (Digital Audio Broadcasting — DAB) went up again in 2016 by 29 per cent over last year. The controversy in the industry concerning radio as a genre apparently left listeners largely unimpressed — they resort to both digital modes of reception more and more and select their consumption

according to where they are and what mode they prefer. No matter whether this is the internet or DAB, digital radio reception is gaining in use, especially among younger age groups who prove their status as early adapters. The market penetration of digital radio in Germany could be even higher if a greater range of services were on offer and digital radio were given consistent backing by media politicians; the development in the south-eastern states of Germany provides proof of the effect such an approach can yield.

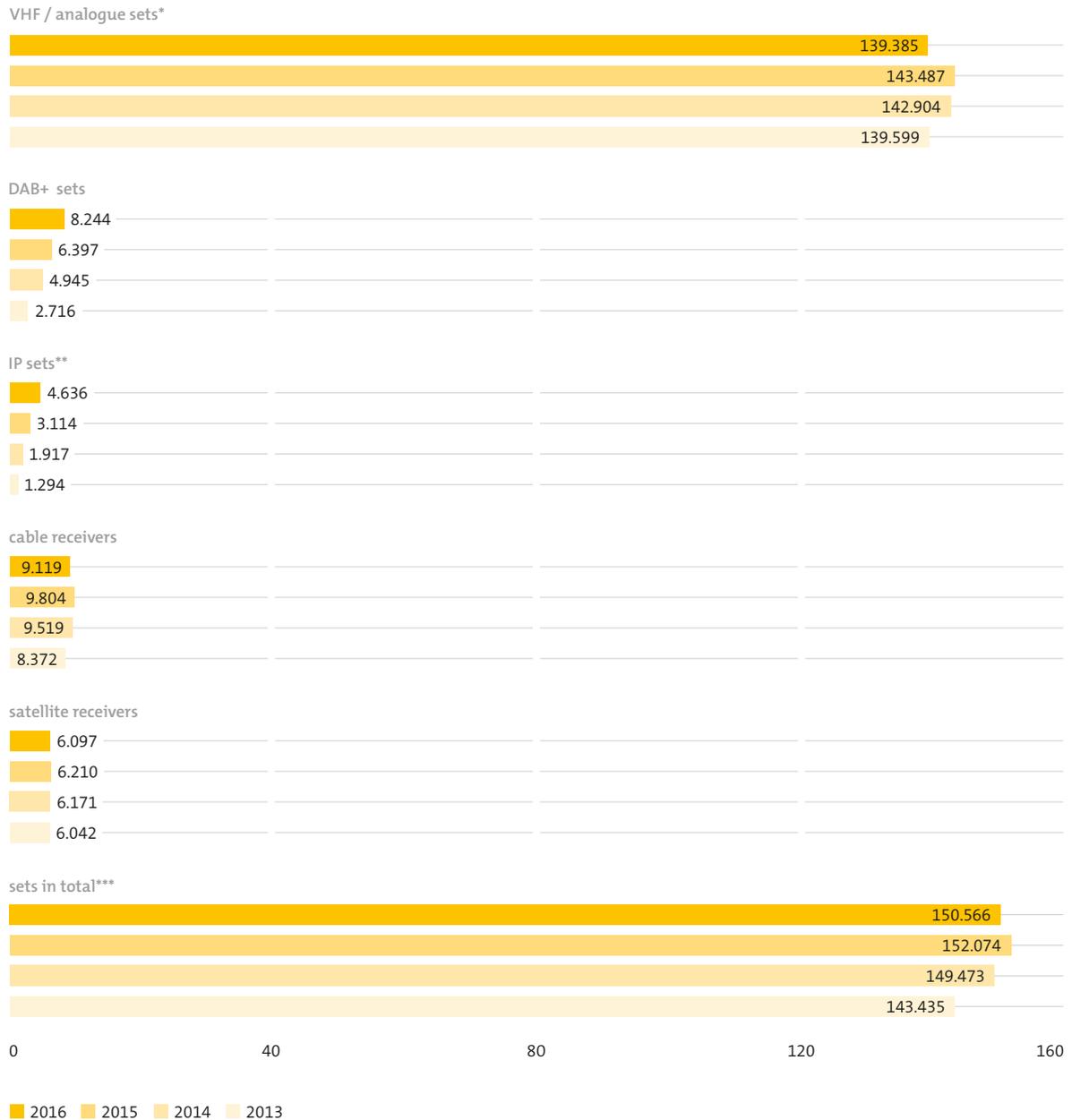
Market penetration of DAB sets up again

Every eighth home in Germany now owns at least one DAB+ receiver. The number of DAB sets went up by 1.85 million or 29 per cent within one year to 8.24 million. A notable 9.53 million persons aged 14 years or older in Germany are using DAB receivers for radio consumption at least on occasion. The speed of growth which had already been noted over the last years thus continues unabated.

The rise of DAB reception is based on a distinct increase of DAB in-car receivers of 1.17 million to 3.08 million; this is of considerable significance

Fig.1

Receiver base (in million)



* for 2016 without MP3 players featuring VHF reception being counted separately

** including fixed IP in-car receivers

*** excluding cable and satellite

Source: TNS Infratest; Basis: 2013: 39.676/2014: 39.866/2015: 40.072/2016: 39.372 million households in Germany

for radio as a media. In relative terms, the growth in the car radio sector at 61 per cent again clearly exceeded that of receivers in the home. The share of DAB car radios in the DAB receiver market went up from 30 per cent to 37 per cent while the rate among car radios rose from 4.9 per cent to 7.5 per cent. Every 13th car radio thus features DAB reception. The positive results are also attributable to the fact that the car industry is now demonstrating its commitment to digital radio more and more, having recognised the benefits DAB+ offers regarding the distribution of safety information and further services. This development has some bearing for the radio industry: the advent of self-driving cars at the latest will generate considerable competition for the attention of car passengers between the media industry and the car industry. Retaining the pole position as regards media consumption in the car cannot be rated highly enough by the radio providers. As the survey conducted by TNS Infratest in the framework of the report on digitisation proves, listening to the radio in the car is the mode of reception which around one third of listeners resort to most frequently.

In comparison to car radio growth, the rate of growth for receivers in the home was much slacker. The increase came to 0.67 million sets or 15 per cent over last year, putting the number of sets available in the home at a total of 5.16 million DAB receivers.

By contrast, so-called IP radios experienced major growth at almost 1 million sets, putting the current figure at 4.09 million WiFi radio sets in German households. This is a rise of 32 per cent. Hybrid sets or sets allowing both DAB and internet reception make for a relatively high rate at 1.66 million sets (41 per cent). The number of IP

WiFi receivers in the home comes to 2.43 million. In addition, 0.54 million sets were fixed in cars as an extra feature and were counted for the first time in this year's survey. The IP radio receiver base thus totals 4.64 million sets to be found in just under every tenth household. This puts the number of digital radio receivers featuring DAB+ or IP reception at a net 11.2 million sets.

The strong interest in DAB+ and IP radio sets appears to have eroded radio reception via cable and satellite. Both these stationary modes of reception suffered a downturn concerning the number of listeners with satellite radio reception going down slightly by 0.1 million or 2 per cent to 6.2 million consumers. Cable radio reception experienced a stronger drop of consumption, namely by 0.68 million to a total 9.12 million listeners (minus 7 per cent) at present. Also, digital cable radio reception in addition rose only slightly by 3 percentage points to 40 per cent.

The primary mode of radio transmission, however, continues to be analogue VHF reception for which some 140 million sets are in use.

The present data showing the spread of DAB and the penetration of radio receivers among the German population overall were raised by TNS Infratest during the annual survey for the report on digitisation conducted on behalf of the ZAK, the Commission on Licensing and Supervision of the German media authorities. The survey was carried out from early May to mid-June 2016 with more than 8,000 persons aged 14 years or older being interviewed. The survey offers a representative picture of the radio receiver base in the market and the frequency of use by German-language persons (69.241 million persons aged 14 years or older) in 39.372 million households.

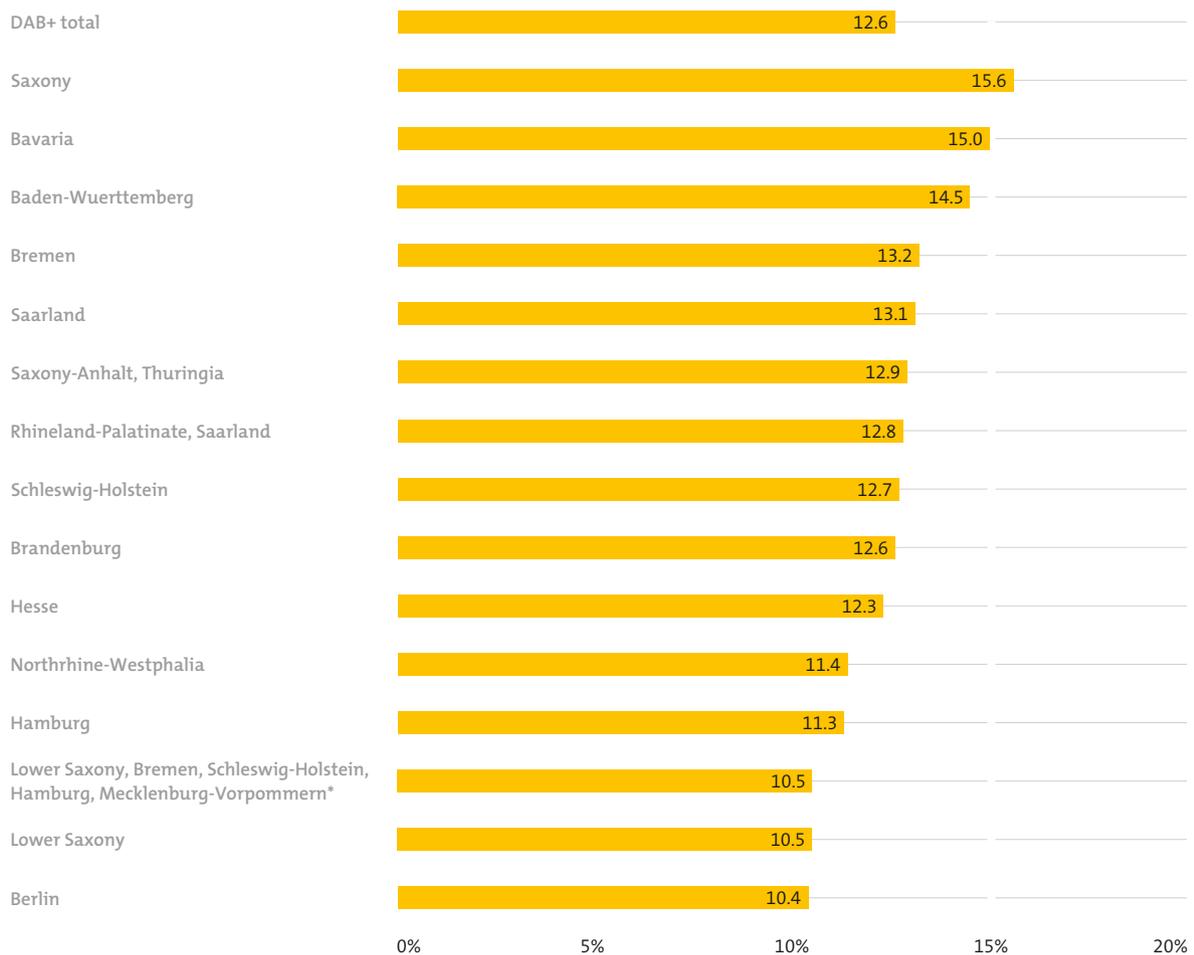
Regional spread of DAB+ strongest in the south

As could be expected, the spread of DAB by regions shows an above-average penetration in southern Germany where listeners are offered the greatest choice of digital channels. Based on the number of households (share of households own-

ing at least one DAB+ receiver), Saxony came top at 15.6 per cent, followed by Bavaria where market penetration has reached 15 per cent by now. The increase of 27 per cent principally confirmed the surge already established in the survey conducted for Bavaria (Funkanalyse Bayern). Baden-

Fig. 2

DAB+ penetration in the German states 2016



* Mecklenburg-Vorpommern can be shown only as a share of the north-German region.
 Source: TNS Infratest; Basis: 2015: 40.072 / 2016: 39.372 million households in Germany

Wuerttemberg by comparison saw only a slight increase compared to last year at 0.5 percentage points to 14.5 per cent.

Digital radio based on the DAB standard is now also gaining considerable ground in other regions in Germany. Market penetration in Rhineland-Palatinate and Hamburg/Schleswig-Holstein has almost doubled.

The city-state of Bremen (13.2 per cent), the Saarland (13.1 per cent) as well as Thuringia/Saxony-Anhalt (12.9 per cent) also achieved above-average rates of growth; the data for these states are individually detailed in the report on digitisation for the first time.

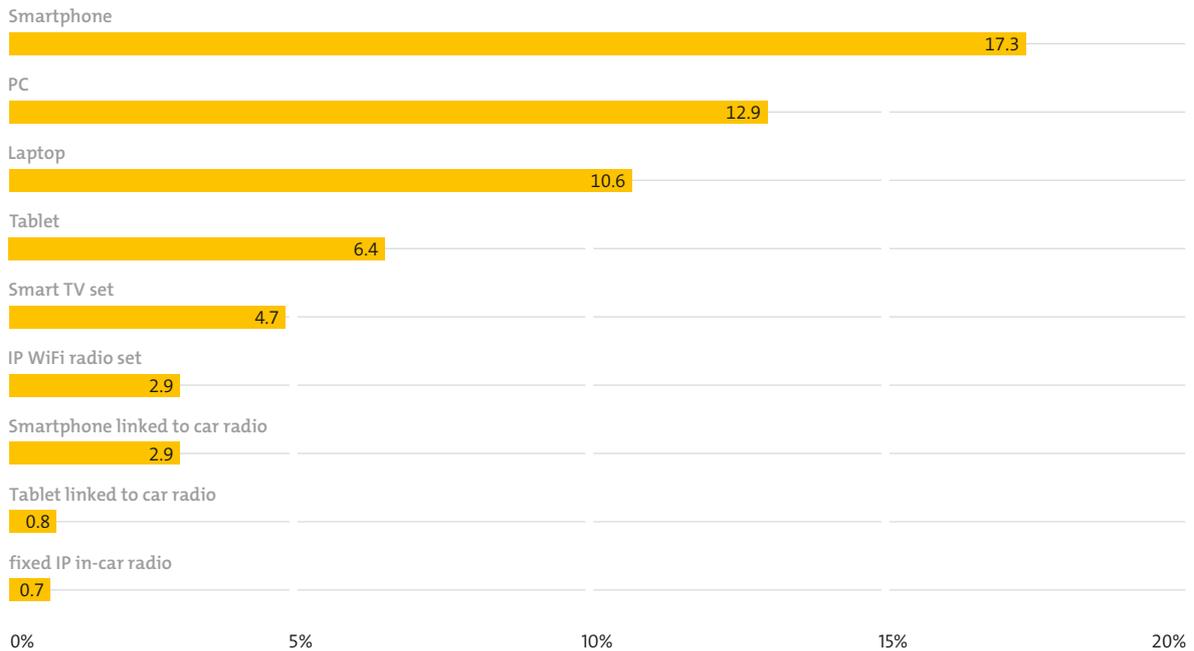
Radio consumption via the internet and DAB+ clearly up

The increase in the number of listeners using a digital receiver came to some 2 million compared to last year; the rise was 3 percentage points, pushing the rate up from 10.6 to 13.8 per cent. The number of consumers aged 14 years or older listening to radio via DAB+ in Germany has thus gone up to 9.53 million.

Radio listening via the internet is the preferred mode for 34.1 per cent (net without overlaps) of the population aged 14 years or older; this is a growth of around 4 percentage points compared to last year. In this context, the smartphone proves

Fig. 3

Internet radio reception* — receivers used, in per cent**



* via sets used at least occasionally

** Net total of all options: 34.1 per cent

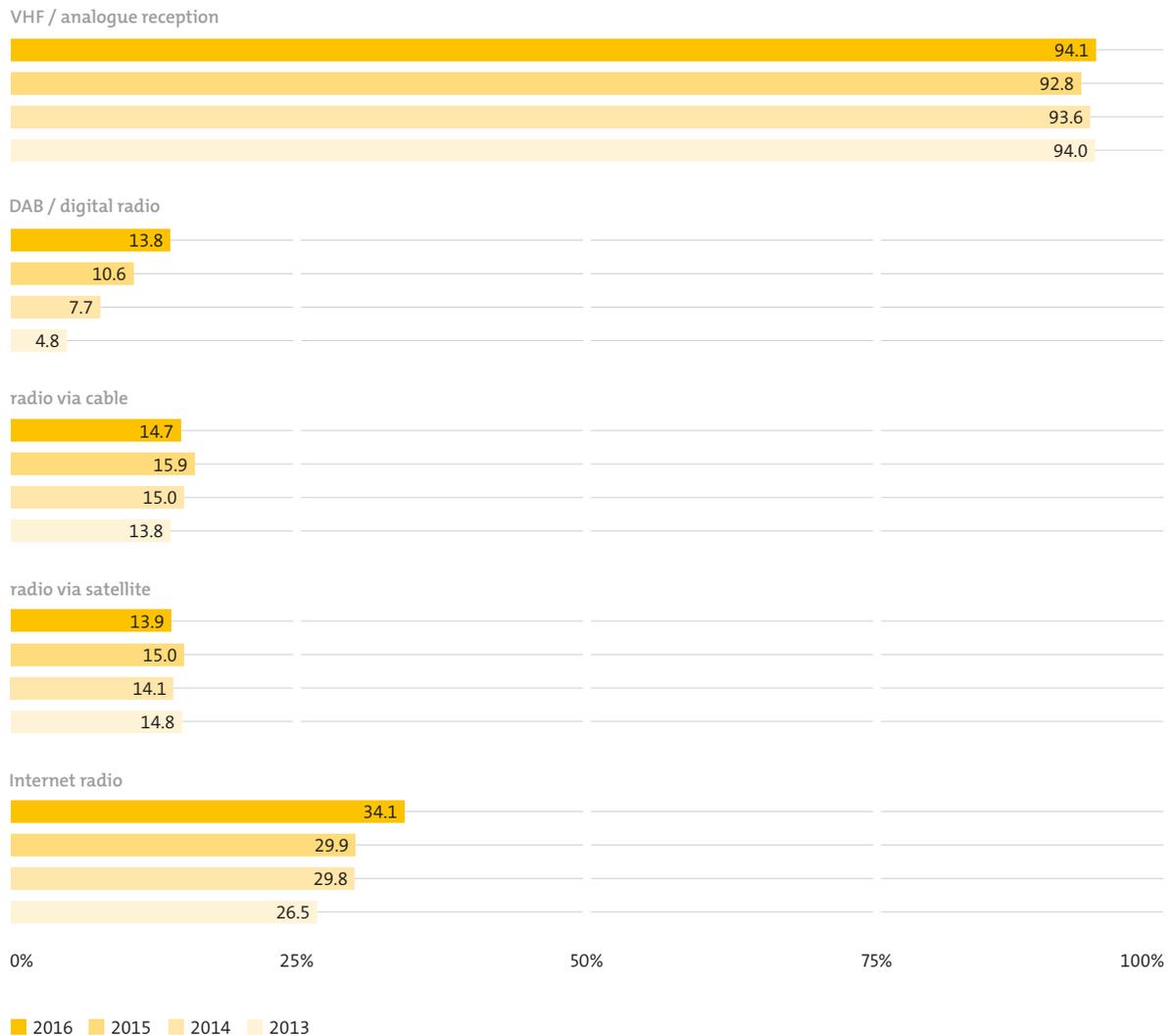
Source: TNS Infratest; Basis: 69.241 million persons aged 14 years or older

more and more relevant for listening to the radio — be it as a receiver for immediate consumption, or be it for combining it with other equipment such as wireless loudspeakers. According to test magazine published by Stiftung Warentest

(a consumer product testing foundation) in 2015 alone some 2 million speakers of this type were sold in Germany. Looked at in gross terms, some 17.3 per cent of the population use the smart-phone at least occasionally for listening to the

Fig. 4

Radio reception in Germany



Source: TNS Infratest; Basis: 2013: 70.214 / 2014: 70.326 / 2015: 70.525 / 2016: 69.241 million persons aged 14 years or older in Germany

radio via the internet while 12.9 per cent use the PC for radio consumption, 10.6 per cent respectively opt for the laptop or the tablet, 4.7 per cent activate their smart TV set and 2.9 per cent switch on an IP WiFi radio receiver. More than 3 per cent of the population connect their smartphone or tablet to the car radio.

For the content providers, the diverse options for consuming radio content via the internet have turned the world-wide web into the most important infrastructure after VHF. With radio consumption via cable and satellite going down, DAB+ will have reached third place in the league of the most important transmission technologies behind VHF and the internet by 2017 at the latest, thus mirroring the ranking which already applies for the frequency of use today.

VHF still indispensable for radio distribution for a long time to come

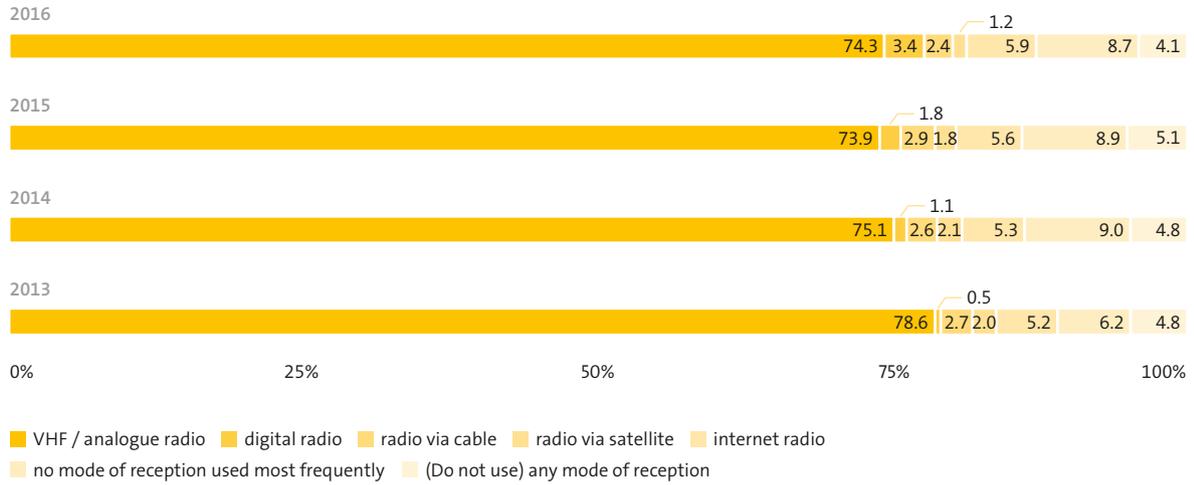
Listening to the radio via VHF continues to be the most frequently used mode of reception by far. 74.3 per cent of the population still prefer radio consumption via VHF. The rate dropped a mere 4 percentage points compared to 2013 when the survey was conducted for the first time. Just under 6 per cent of the population mostly use the internet for listening to the radio; compared to 2013, this is a very modest increase of 0.7 percentage points, up from 5.2 per cent to 5.9 per cent. For the first time, DAB+ comes third among the modes of distribution used most frequently. The increase of 0.5 per cent to 3.4 per cent shows that the level is still relatively low despite the considerable growth in significance which digital radio is experiencing. Cable and satellite, on the other hand, are going down.

Another important observation is the fact that among listeners aged less than 40 years of age, an above-average number of those questioned state that they consume radio mostly via the internet and DAB+. Especially in the age group 14–29, some 12.2 per cent or 7.2 per cent respectively name the world-wide web and DAB+ as the modes of radio reception they resort to most frequently. By contrast, VHF in this age group now presents the most frequently used form of radio reception for “only” 64 per cent. The increased significance of DAB+ for radio reception especially among the younger age groups supports the assumption that terrestrial radio as an easy-to-use and uncomplicated option for reception will continue to have a firm place in the digital world as well. These results should be cause for radio as a genre to develop a joint digitisation strategy at last.

Notwithstanding this scenario, VHF will remain indispensable especially for the commercial radio sector for a long time to come. Since radio offers such attractiveness for advertising purposes as many listeners as possible should be reached. For commercial radio, a premature switchover from analogue to digital transmission would bear considerable risks as listeners would certainly not be willing to replace four or five radio sets in their homes which they currently use within a short period. And even if the rate of growth for digital receivers (30 per cent) which was achieved this year were retained, DAB+ would still need a minimum 10 years to achieve full market penetration. However, speeding up the process of substitution might possibly be helped by public-service broadcasting going fully digital sooner than the commercial sector.

Fig. 5

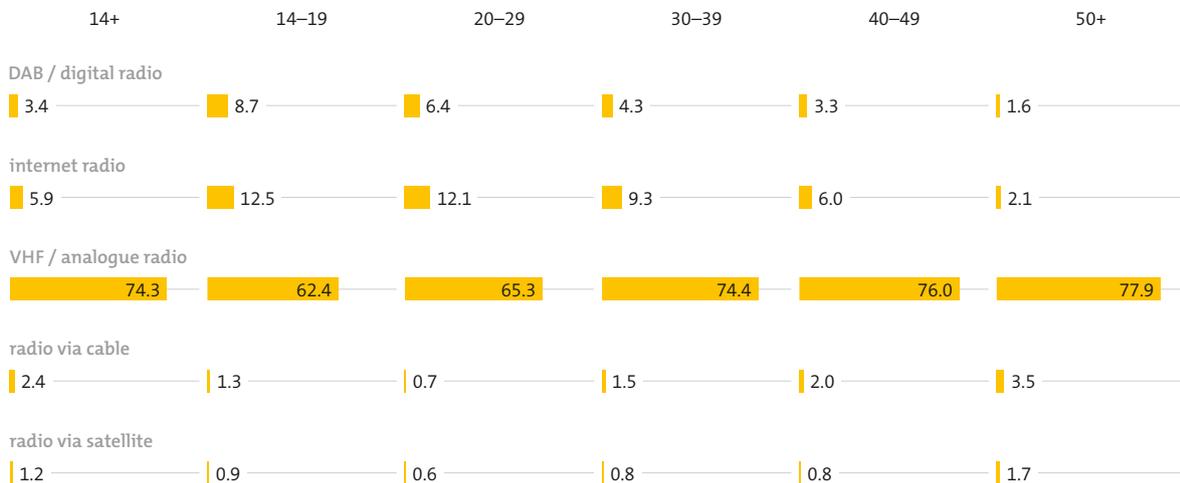
Mode of radio reception used most frequently



Source: TNS Infratest; Basis: 2013: 70.214 / 2014: 70.326 / 2015: 70.525 / 2016: 69.241 million persons aged 14 years or older in Germany

Fig. 6

Mode of radio reception used most frequently, by age



Source: TNS Infratest; Basis: 69.241 million persons aged 14 years or older in Germany

To sum up

Compared to last year, the digitisation of radio in Germany has again taken a great step forward. Both digital radio based on the DAB+ standard and internet radio achieved considerable growth rates as regards radio reception. Every seventh German or 9.53 million persons aged 14 years or older are now consuming digital radio content. And each eighth home owns at least one DAB+ set. The receiver base totals 8.24 million DAB sets; this is an increase of 29 per cent compared to the figures for last year. Well over one third of the population (an increase of 4 percentage points

over last year) are now listening to the radio via the internet at least on occasion. This development is helped by the smartphone which is used at least occasionally for internet radio consumption by more than one sixth of the population already. Above all in the age group below 40 years there is a clear trend towards radio consumption via the world-wide web and/or DAB+. Listening to the radio via VHF remains stable and presents the mode of radio reception resorted to most frequently by well over three quarters of the population while cable and satellite radio suffer clear losses compared to last year.

Methodology

This study was conducted by TNS Infratest MediaResearch on behalf of the German media authorities. As in the preceding years, it employed computer-assisted telephone interviews (CATI). For better accommodating the increased percentage of persons exclusively or mostly available via mobile phones, the survey was conducted via so-called dual-frame telephone interviews, i.e. as a combination of fixed-line telephones and mobile phones (85 versus 15 per cent). The selection was based on the telephone random sampling system for fixed-line phones and mobile phones used by the association of German market research institutes (“Arbeitsgemeinschaft der deutschen Marktforschungsinstitute”, ADM). Both sampling frames were subsequently merged by use of design weighting to provide for a representative picture of the overall population basis. The interviews were conducted during the period 2 May – 21 June 2016.

The overall population basis for the survey was presented by the population in German-language households aged 14 years or older. This corresponds to the definition used by Media-Analyse (ma) (= German households with an EU 28 head of household plus households with a non-EU head of household with completed school education. The present survey for the first time incorporates the results of the 2011 census in the projection of the micro census which provides the parameters for the projection of the survey. The assumptions concerning the population overall thus result in a drop of 1.3 million or 2.0 per cent. The number of households has thus decreased proportionately by 1.7 per cent or 0.7 million. Adapting the data to the latest micro census could impact the range of the various reception infrastructures.

The overall population basis for this year comprises 39.372 million households. Of these, 96.7 per cent own at least one TV set. The results concerning TV reception are based on these 38.076 million TV households.

The 2016 survey is based on a net number of well over 8,200 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 was the case for the last three years already, the person to be interviewed in the course of the 2016 survey was selected at random in order to obtain information on personal media consumption as well. The overall basis relating to persons interviewed was 69.241 million persons aged 14 years or older.

Similar to previous years, the interviews were conducted disproportionately to warrant a sufficiently solid minimum basis for each German state (“Land”). At least 200 interviews were carried out in each state. For separately showing the results of the states with a smaller population, the number of interviews conducted in these states was increased to 500 at the request of the respective media authorities. The disproportionality was subsequently balanced during weighting in order to obtain representative results on a “total” basis for all persons/households respectively.

Definition of cable and satellite reception

As this survey focuses on the perspective of TV reception in households, 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. Satellite reception therefore only comprises television sets using a satellite receiver.

Establishing transmission platforms and transmission technologies

For the first television set in the home, all available transmission platforms were analysed. Where necessary, an aggregated survey was conducted for further sets available in a household as last year. Regarding households receiving both terrestrial and satellite services 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 as for instance shown in Fig.3 (p.24).

In the analysis of the transmission technologies (analogue or digital) cable reception forms an exception: Television households with cable reception using a TV set which is connected to a digital cable receiver can continue watching analogue services. For the benefit of uniform presentation of all modes of transmission, all cable TV sets with a digital receiver are counted as digital units.



Digitisation in international markets: facts and figures

Full digitisation ahead

Laurence Cribier/Ricardo Topham

There are processes which simply cannot be stopped: Just like black-and-white television, 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 2015 continues 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 2015, digitisation of European TV households had increased from 87.5 percent (2014) to 88.3 per cent at present. Expressed in the number of households in Europe, 212 of the 240 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 2014, this represents an increase of close to 4 million households.

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: 8.4 million new HD households push the number of digital homes up by a further 7 per cent to more than 122 million now, corresponding to 51 per cent of all TV households. This includes just under 46 million satellite homes placing satellite at the top spot of the audience reach of HDTV platforms. The share of HDTV households among satellite homes has now reached 62 per cent. A further 29 million households receive their HDTV channels via digital cable, 29 million via DTT and 19 million via IPTV.

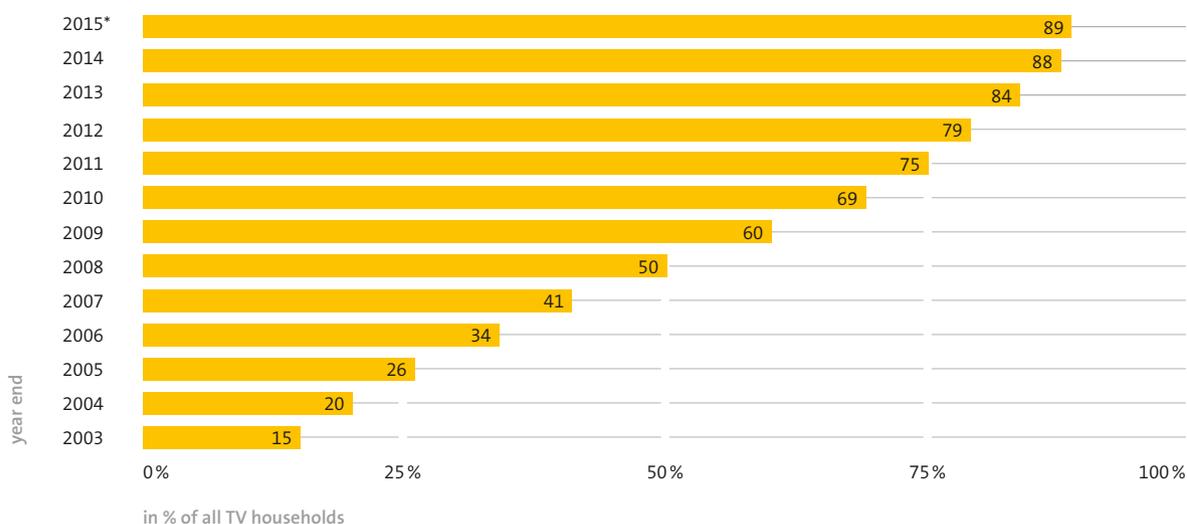
Progress of transmission routes

In the course of this development, the share of digital households related to the various transmission routes did not see any major changes:

The market share of 35 per cent puts satellite at the top of the digital reception league with over 73 million households, followed by DTT at 61 million households (corresponding to a market share of 29 per cent) and digital cable attracting 47 mil-

Fig. 1

The status of digitisation in Europe



* 15 of 35 countries updated by the end of 2015
 Source: SES, Satellite Monitor, year end 2015

lion households, 22 per cent of the total) while IPTV brings up the rear with just under 31 million (14 per cent). Having won 3.6 million households 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 (11.2 million) not only holds pride of place as the most advanced IPTV market in Europe, but also ranks third in the world, topped only by China and the U.S.

The remaining 28 million analogue television households in Europe are supplied via cable or traditional terrestrial transmission. The majority (21 million) of analogue homes receives its television via cable; one third (30 per cent) of the cable homes across Europe still await digitisation. Regarding terrestrial supply, 89 per cent of homes

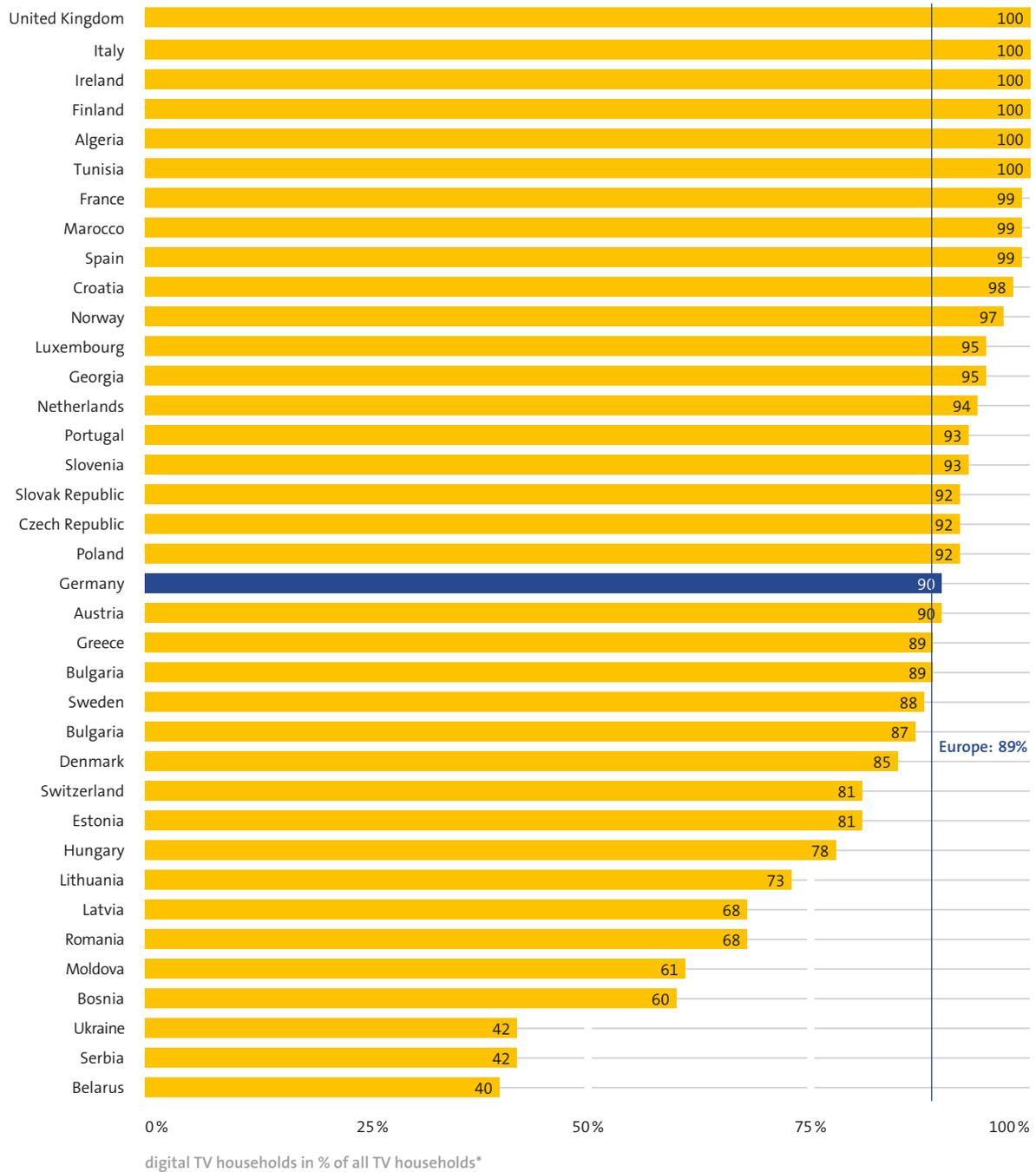
now receive digital television providing an extended range of channels.

Comparison by regions

As could already be noted over the last years, there is still a clear West-East divide. In Western Europe, 96 per cent of TV households have already gone digital whereas in Eastern Europe, digitisation has only reached 70 per cent to date. The regional discrepancy is also evident when comparing the status of cable homes at 82 per cent of digital cable households in Western Europe versus 48 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 (99 per cent), the rate in Eastern Europe is just over half (56 per cent).

Fig. 2

Rates of digisation in Europe



* 15 of 35 countries updated by the end of 2015

Source: SES, Satellite Monitor, year end 2015

In six West European countries digitisation has reached or is nearing completion: Ireland, Finland, Italy, the United Kingdom, Spain and France. A further twelve countries rank above the European digitisation average of 89 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 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 101 of 123 million HD homes are located in Western Europe, corresponding to 59 per cent of all TV households in the respective regions; the remaining 22 million HD homes in Eastern Europe correspond to a regional share of 31 per cent. A similar picture emerges when looking at satellite reception: 36 million satellite HD households in Western Europe (66 per cent of satellite homes overall) compare with 9 million satellite HD households (or 51 per cent) in Eastern Europe.

Status of digitisation in Germany¹

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 slight increase from 87 to 90 per cent putting Germany on par with the European average.

¹ 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 2016); this 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.

All transmission routes are fully digitised except cable, still supplying 4 million or almost a quarter (23 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 37 per cent of digital television households, DTT is available in 6 per cent and IPTV is used by 5 per cent of German homes while satellite reception in Germany at 52 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 2014 and the end of 2015, more than 2.4 million television households in Germany upgraded their equipment to allow for HDTV reception, thereby reaching the 20 million mark for HD homes.

This corresponds to a HD share of 52 per cent of all German television households, which is clearly below the average in Western Europe (59 per cent). Satellite continues to dominate HDTV reception at 11 million HD homes corresponding to a market share of 55 per cent. Cable follows in second place with close to 8 million and an HD market share of 39 per cent. IPTV has moved up to just over 1 million and takes 6 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 61 per cent of satellite homes receive content in HD quality, the rate in Italy is 68 per cent and in the UK is 81 per cent, Germany is 61 per cent.

Conclusion and outlook

There is no way of stopping full digitisation of the television markets in Europe. In 2015, 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 guides, HDTV will continue to act as

the main driver for digitisation over the coming years. In the more advanced markets meanwhile 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.

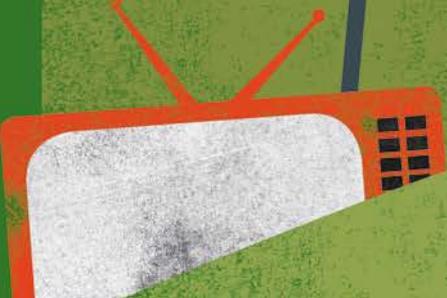


KONTROLLE

ENTWICKLUNG



ZULASSUNG



The remit of the media authorities regulating platforms

Platform regulation as laid down in German broadcasting law aims at securing equal access to networks and platforms and at ensuring that the broadcasting offers can be found by viewers. The infrastructures of the networks and the user surfaces are to be found in a central position between the broadcasters and the viewers, and can potentially impact access to the audience for the broadcasters and thus ultimately affect the free formation of opinion. This scenario necessitates an independent institution regulating this sector.

Ensuring findability on user surfaces

User surfaces, electronic programme guides (EPG in short), navigators or listings show the content available, allowing direct access to a content for a viewer. The media authorities ensure equal opportunities and non-discrimination for all broadcasting content to be found via these surfaces. This comprises, among other things, that differing providers offering the same category of content are listed in a comparable fashion. The criteria adopted by the platform providers for sorting content are published on the website of the media

authorities to help making this transparent. The empirical survey conducted in the framework of the report on digitisation proves that pre-set listings still have considerable importance. At the same time, the relevance of app portals provided on smart TV sets is enjoying a noticeable increase.

Regulation at present applies only to the user surfaces provided by platform operators. For this reason, the media authorities advocate an extension of regulation to cover all user surfaces including, among others, smart TV sets, home screens or settop boxes which present an overview of all broadcast services available and allow individual services to be accessed directly.

Ensuring equal access to platforms

With the scarcity of transmission capacities having come to its end, the must-carry provisions have somewhat shifted out of the focus. In turn, the economic terms applying to content distribution are gaining considerable relevance as the significance of HDTV increases and the platform operators now market HD content. The structure

of the payment schemes must pass the criterion of plurality of opinions. The media authorities verify whether comparable offers are distributed at comparable terms on the basis of the contractual agreements reached between broadcasters and platform operators.

Alongside the traditional routes of transmission, OTT platforms are becoming more and more important, permitting audiences to access broadcast offers and comparable video content; this is shown in the facts and figures section of the report on digitisation. In this context the media authorities also pay attention to the developments in politics and media legislation as regards net neutrality. Here, too, plurality commands that individual offers are not granted preferential treatment.

Transparency and cooperation

For the media authorities, transparency in the broadcasting sector constitutes a key objective. To this end, they regularly go public organising events and issue publications including this report on digitisation, offer information and conduct debates on topical issues. Platform regulation is handled in the Commission on Licensing and Supervision (ZAK) of the media authorities. Alongside this cooperation of the media authorities among themselves, they also exchange views and positions with the Federal Network Agency and the Federal Cartel Office. Regarding the introduction of DTT2 HD, for instance, the issue of cooperation among market players was discussed with the Federal Cartel Office while the necessary capacity requirements were developed jointly with

the Federal Network Agency and the German states. This well-established cooperation should now be underpinned by a stronger legal provision, thus attributing the appropriate relevance to securing pluralism in the process.

Accompanying the process of transformation — the media authorities as moderators

The media authorities are accompanying the processes of transformation set in motion for broadcast transmission in the course of progress of technology. As an example, the media authorities are involved in the switchover to the new terrestrial television standard DTT2 HD and cooperate with the major television groups and the association of commercial broadcasters (VPRT). They moderate a Round Table and thus make sure that processes are approached jointly, especially as regards informing the general public and the experts.

In the context of the impending switch-off of analogue cable transmission the media authorities have already held several debates with the industry seeking to bring the differing positions of content providers, network operators and the housing industry in line. The Round Table on the switchover of cable from analogue to digital transmission now provides a platform for all players involved to determine the concrete conditions for the switchover. As the data in this report on digitisation show, the switchover appears feasible over the next two years; at the same time, the data also outline the aspects that need to be taken into consideration for a consumer-friendly switchover.

The authors



Laurence Cribier
is a Senior Market & Business Analyst at SES S.A.,
Luxembourg Headquarters

From 1998–2000 she studied International Business at Caen University (France) and Coventry Business school (UK) where she completed her studies with an MBA. From 2001 until mid-2006 Laurence Cribier worked as Sales Support at Copeland Germany in Frankfurt am Main.

Laurence joined SES S.A. in Betzdorf (Luxembourg) mid-2006 as Sales Planning Analyst. In 2012, she moved to the Marketing department and took over the position of Senior Market Research Coordinator, supporting the Market Research projects globally and leading the Satellite Monitor, a survey conducted among private homes to find out about the development of TV reception in more than 35 countries.



Thomas Fuchs
is the director of the Hamburg/Schleswig-Holstein media regulator, ma-hsh, and is coordinator of the expert committee on communication networks, technology and convergence of the German media authorities

Thomas Fuchs is the director of the Hamburg/Schleswig-Holstein media regulator, ma-hsh, and has been coordinator of the expert committee on communication networks, technology and convergence of the German media authorities since 01 January 2014. He studied law and thereafter held various positions in the civil service of the Free and Hanseatic City of Hamburg including the Ministry of Science where he was in charge of the foundation of Hamburg Media School. Before joining the ma-hsh as director in 2008, Thomas Fuchs was head of the theatre, music and libraries department in the Ministry of Culture.



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 before taking 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.



Ricardo Topham

is a Senior Business and Market Analyst of the SES S. A., Luxembourg headquarters, and is a key contributor to the Satellite Monitors project

Ricardo Topham completed his telecommunication engineering studies in 2002, followed by an M.Sc. in telecommunication technologies in the University of Las Palmas de Gran Canaria and an M.Sc. in space management in the International Space University.

During the summer of 2012 he was a visiting researcher in NASA Goddard Space Flight Center. He then worked as a strategic planning and market analysis consultant for Euroconsult from 2012 to 2015.

Ricardo joined SES S. A. in Betzdorf (Luxembourg) in 2015 as a Senior Business and Market Analyst within the Marketing department, to support the Market Research projects globally. Since then he has become a key contributor to the Satellite Monitors project, a survey conducted among private homes to find out about the development of TV reception in more than 35 countries.

Glossary

analogising

The process of analogising involves a digital signal transmitted via satellite or terrestrially being converted into an analogue television signal for feeding into a cable network, enabling cable customers to continue using an existing analogue TV receiver. The conversion from digital to analogue signal, however, always results in reduced image quality.

app (application)

Apps are applications that can be activated on the screen by triggering the respective field, sign or icon.

basic encryption

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

broadband

The term broadband is linked to technical aspects, while the bitrate providing the starting point for broadband is determined under political considerations on the national and European levels. Initially, all bitrates above 256 kbit/s were considered broadband; this rate has long since been increased to 2 Mbit/s (download rate) with further redefinitions of the rate to be expected soon. The higher the rate for broadband available, the more data can be transmitted per second.

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.

DSL (Digital Subscriber Line)

telephone line used for high bitrate 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 50 Mbit/s) in the downlink.

DVB-C (Digital Video Broadcasting — cable)

European standard for digital cable television. DVB sums up the transmission of digital television signals distributed via satellite (DVC-S), via cable (CVB-C) or terrestrially (DVB-T or DTT). Better quality and the possibility to transmit additional services are complemented by a more efficient use of the capacities available.

DVB-T (Digital Video Broadcasting — terrestrial)

or DTT (digital terrestrial television) is the European standard for digital terrestrial television which can be received using a settop box or a TV set (which might also be a technically suitable PC) featuring an integrated DVB receiver (tuner).

DVB-T2 HD (also DTT2 HD)

is the standard succeeding DVB-T in Germany scheduled to commence regular service in March 2017. It combines the new digital terrestrial transmission standard DVB-T2 and the new HEVC compression technique, permitting the transmission of a large number of HD services.

EPG (Electronic Programme Guide)

electronic programme guide: The application which is available, inter alia, on TV sets or settop boxes, provides for an easy search and selection of digital TV offers in the form of an “electronic TV programme magazine” and in many versions also offers other functions such as programme recording or accessing recorded broadcasts, media libraries or similar features.

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: 1920×1080 pixels).

IPTV (Internet Protocol Television)

television delivery using the internet protocol. The term does not, however, specify the network used for transmission. In general terms, IPTV is often equated with web TV which means the transmission of digital television services via the open internet. For clarification, additional details are required, e.g. IPTV via DSL.

live stream

video transmission streamed in real-time (live) in the internet. Unlike video-on-demand (VoD), live-streaming is a linear stream distributed via the open internet. Examples include sports events which cannot be shown on a traditional channel due to parallel transmission but are made available in the internet as they take place.

multi-channel network (MCN)

providers active in video portals where they operate several services by arranging contracts with existing channels or producing their own offers. The networks usually lend support to cable operators to which they are connected for video production, marketing and audience build-up. In return, they receive a share in the advertising revenue of the

channel. MCNs can, for instance, take out contracts with YouTube for using their platform.

must-carry provisions

legal requirement for the distribution of specific broadcast content applying for platform providers and cable network operators. Article 52b of the Interstate Broadcasting Treaty regulates the digital distribution of content specified for must-carry services while analogue distribution is regulated in the state media laws; they differ from state to state.

OTT

The term over-the-top content (OTT) covers the transmission of video and audio content via internet access points without an internet service provider being involved in the control or distribution of the content in question. Consumers can access OTT content by using receivers connected to the internet, such as personal computers, laptops, tablets, settop boxes or games consoles. Transmission necessitates sufficiently large bandwidths.

pay TV

television services which — unlike free TV — are partly or fully encrypted for transmission. For unscrambling the services or packages, viewers must take out a subscription at cost with the respective pay TV provider.

recommendation engines

automated or editorially serviced systems recommending content to consumers of VoD offers based on their previous consumption of audiovisual content.

replay

function of the user surface of a platform operator allowing renewed play or reproduction of a programme or a video from the start.

settop box (STB)

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

smart TV

marketing term describing “intelligent” TV sets which alongside the standard terminal for satellite, cable or terrestrial reception are also fitted with a terminal permitting connection to the internet for TV reception and access to the internet. As a rule, access is possible to selected portals (e.g. media libraries) or programme-related information. The internet can be accessed via a wired connection (ethernet) or via WLAN (wireless local area network, also referred to as WiFi), i.e. a radio-supported local data network.

Ultra HD (UHD) or 4K

Ultra HD, also referred to as 4K, is an international standard advancing HDTV. Ultra HD offers a resolution four times that of HDTV: 2840 × 2160 pixels, providing twice as many pixels as the full HD format in height and width. The benefit of the increased pixel rate is specially noticeable for viewers using a television screen sized 55 inches (140 cm) or more in its diagonal length.

user-generated content (platform)

offers which are not supplied by the providers of a web service or professional content providers, but by users. Such offers can be bundled on UCG platforms.

VHF (Very High Frequency)

range of radio frequency electromagnetic waves from 30 to 300 MHz. In Germany, local and regional radio channels are transmitted in stereo quality in the 87.5 MHz to 108.0 MHz frequency range. A good reception is possible only if transmitter and receiver are within sight of each other.

VOD (video on demand)

non-linear moving image content available in the internet for on-demand consumption via a smart TV set or other internet-ready end-devices. VOD providers operate varying business models for supplying content against payment. Subscription video-on-demand (S-VOD) involves a flatrate as a monthly fee payable by a customer for films and series while transactional video-on-demand (T-VOD) makes content available for individual viewing once a fixed sum has been paid. Ad-supported video-on-demand (A-VOD) is advertising-funded and offers content to users free of charge.

WiFi/IP radio receiver

stand-alone internet radio receiver accessing audio content transmitted via the internet; as a rule, reception is effected via a wireless local area network. The sets allow for access to internet-based radio offers worldwide. The audio content is usually streamed for transmission.

The digitisation of broadcast transmission routes in Germany is almost completed: Digital cable reception has passed the 80 per cent mark this year; penetration though differs from region to region.

The research conducted for this year's report on digitisation which has been commissioned by the media authorities shows that, among other things, linear television still holds the lion share of moving image consumption by the TV audience as a whole. However, as far as younger viewers are concerned, the picture differs: They go for video on demand almost as much as for traditional TV. Radio meanwhile made major progress over last year in Germany as regards digitisation: Johannes Kors outlines the results of the survey conducted by TNS Infratest which show that digital radio and internet radio managed to score marked rates of growth.

However, the calm seas for the traditional broadcast platforms are ruffled by new actors. Thomas Fuchs and Dr. Kristian Kunow analyse developments in their article "Disruption in the platform market?" Technological innovations are making themselves felt on the market, generating new business models. The regulators must adopt a flexible approach to come up with the right responses to these developments.

As Laurence Cribier and Ricardo Topham explain, the digitisation of the television markets in Europe is well on route to completion. The more advanced markets are already anticipating the next stage of evolution: Ultra HD or 4K with quadruple resolution of HDTV will make sure that even in the future, television will be anything but boring.



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