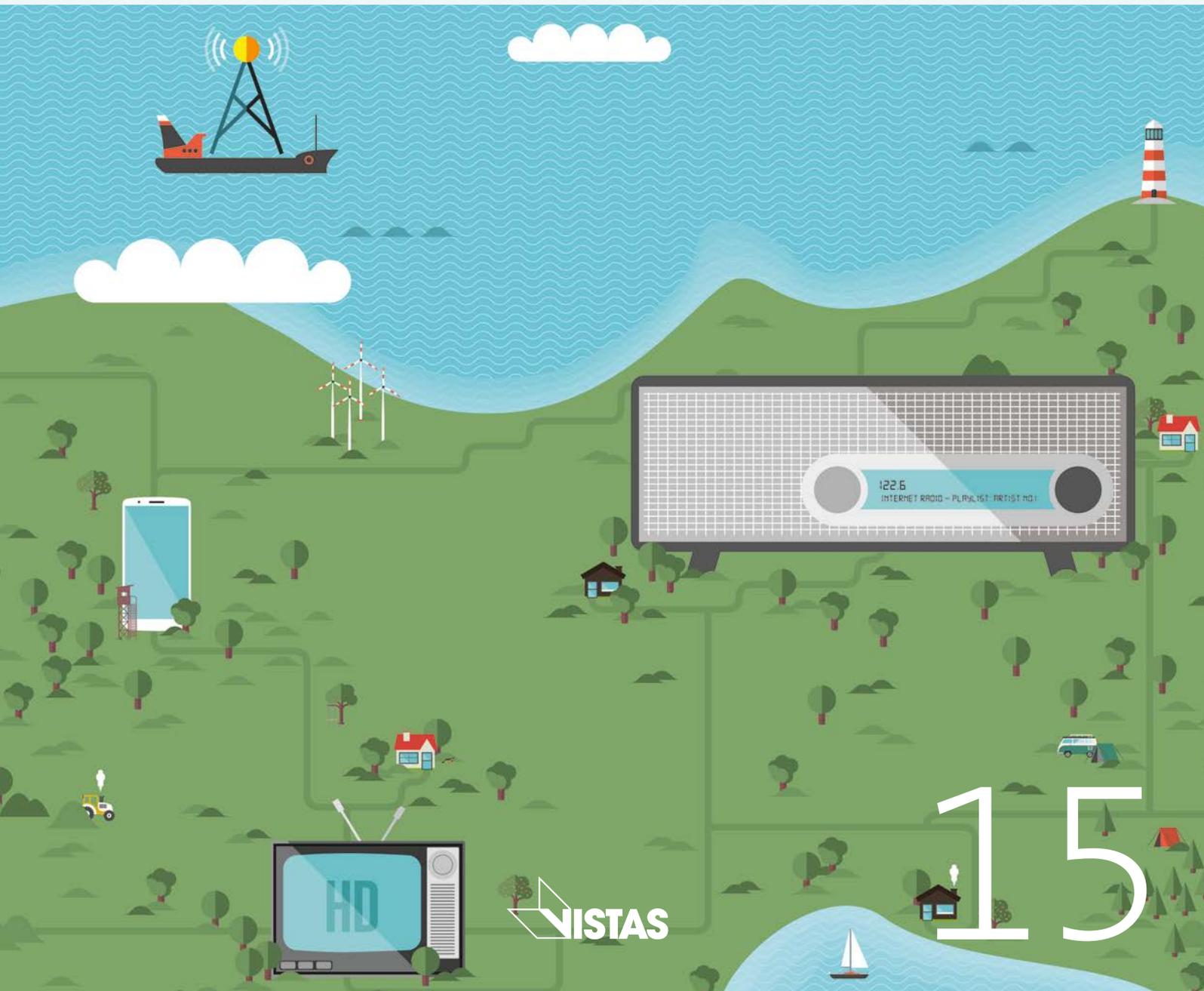


Digitisation

Digital lands, analogue islands – measuring the world of the media



Digitisation 2015

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Preface



Dr. Jürgen Brautmeier

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



Thomas Fuchs

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

If you do not see the digital wood for all the end devices any longer, it may help to take a step back and take in the entire landscape. This is what the media authorities have done in the present report on digitisation, painting a picture of the German media landscape both concerning its structure and its content.

The results presented in the 2015 report on digitisation underline that broadcasting as a media which informs and entertains continues to enjoy major relevance in the lives of consumers and is present everywhere; at the same time, the individual generations are moving more and more in the direction of different digital worlds. That younger age groups differ from the older generation is a long-established fact, but as regards the use of the media available, clear differences as well as commonalities emerge. The television set is still the most important device for consuming moving images, but the young generation already considers the smartphone to be the most important end device in their lives.

Technical developments which are accompanied by new business models present new challenges with a view to securing plurality. The first article

of the report on digitisation therefore looks at the consequences of the growing shift from the transport model to the marketing model. The broadcasting groups are interested in developing alternatives to their advertising-funded business model while the network operators act as a platform provider marketing content. But do all providers benefit to the same degree?

Alternatives to the linear transmission of broadcasting have gained increasing coverage in the media in recent months. This is linked not least to the entry of Netflix, the US provider of video-on-demand content into the German market. The marketing scenario Netflix found in Germany and the business models devised by the competition to position themselves against Netflix are described by Aylin Ünal in her article dealing with video platforms.

In the radio sector, considerable momentum can also be observed; it merits two articles. The Radioplayer is seeking to become a new platform for the German radio landscape and was modelled on the British example, as Steffen Meyer-Tippach explains. In this context, increased radio consumption via the internet is a relevant factor as regards

advertising revenue. Bridges to get radio into the digital world should also be built by extending the DAB+ standard, as Dr. Gerd Bauer and Martin Deitenbeck describe. Again, some European countries act as models for the successful switchover from analogue VHF to digital radio.

The status of digitisation of the various broadcasting infrastructures is again detailed in an extensive chapter providing facts and figures. The data collected on the receiver situation in German households offer a look at the finish of digitisation which will result in a completely digitised world of television. In the light of the (analogue) switch-off of cable which is drawing nearer, analogue cable households are specifically taken into focus. The survey conducted on radio consumption provides a comprehensive overview of the receiver situation in the homes and radio consumption

of the listeners. The data show the difference in progress which the digitisation of radio has achieved in the various age groups.

The internet as well as the spread of digital end devices overcomes every border; an international comparison is therefore also included. Dr. Sascha Hölig and Prof. Dr. Uwe Hasebrink take a look at trans-national trends evident in the use of end devices. Their findings show that consumers vary their use of end devices depending on the local situation — from small mobile snacks on the smartphone to the full menu of a film watched on the large screen in the sitting room.

The varied media landscape will definitely enlarge the number of destinations on the map. In view of this fact, the media authorities act as competent guides along the journey offering the relevant overview.

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Still paying or already cashing in?

The HD marketing model and the challenges for securing plurality

Thomas Fuchs

Elegance was not exactly the quality of the German national football team's game — it used to be better known for its discipline and willpower to achieve success. With all due respect: To watch Lothar Matthäus driving the ball through midfield or Guido Buchwald slide-tackling his opponent to nip the ball off his foot a cathode ray television set of standard size permitting analogue reception was perfectly adequate. This has not, however, been state of the art for quite some time, and at the latest since Germany disenchanting the Brazilian magic in last year's World Cup semi-final, German football has also been looked at with different eyes. The huge flat screens fitted to the sitting room walls offering HD picture quality bring home to viewers in perfect detail how Toni Kroos strokes the ball around his opponent with the bottom of his boot and how Mario Götze hits the ball perfectly with the tip of his shoe. Only viewers watching DTT miss out on the intoxicating quality of high-resolution television, but this will change — just in time for the European Football Championships next June: The kick-offs in France will be available in Germany in HD quality also via terrestrial television.

The new DTT-2 HD standard will bring terrestrial television again in line with satellite, cable and IPTV as regards the transmission standard. This will not remain the only alteration: Change can also be foreseen for the business model which will align to that operated by the commercial broadcasters for their HD offers distributed via the other infrastructures. And as Media Broadcast is evolving from a mere network operator into a platform operator in the future, terrestrial transmission will also see a switch from the current transport model to a marketing model.

DTT: from switch-off to switchover

Receiving the television signals via an antenna or via DTT incurs very little expense for viewers wanting to watch TV. The transmission costs are shouldered exclusively by the broadcasters who were allocated terrestrial capacities according to media legislation and have to secure the transmission of their signals by the network operator who is subject to telecommunications law. The calculation of cost and benefit conducted by the television broadcasters recently worked out more and more to the disadvantage concerning the

terrestrial transmission of their services as this infrastructure incurs particularly high costs per household reached when checked against the other modes of transmission.

The announcement of the RTL Group that it would withdraw from terrestrial transmission appeared to seal the fate of terrestrial television. Apart from the relatively high transmission costs, the lacking legal certainty concerning the continued use of terrestrial frequencies for broadcasting also played some part in the decision.

And although the Digital Dividend II which was pushed through by the Federal Government in the interest of expanding broadband via mobile technology did bring some certainty for broadcasters as to how long the frequencies could continue to be used, it became clear at the same time that less capacity will be available for terrestrial TV transmission in the future. In order to secure TV reception via the antenna in the long term, clearing the frequencies will have to be accompanied by a simultaneous switchover to a more efficient transmission technology. This step will be successful only if all partners involved act in concert; this includes public-service and commercial broadcasters, the broadcasting groups and smaller independent content providers.

The media authorities therefore initiated a “Round Table” in early 2014 which brought together ARD, ZDF, ProSiebenSat.1, the trade association VPRT — also in its role as representative of the small commercial broadcasters — as well as RTL. That the commercial side participated so willingly certainly had to do with the agenda.

Apart from topics relating to technical questions, the agenda also included the issue of the amendment of the media regulation governing the designation of transmission capacities for commercial broadcasters for which a shift from the current

designation by one state media authority to a designation of a national platform is under debate. As a consequence the decision which television channels will be terrestrially transmitted would thus largely be the responsibility of a platform operator. And it is this change which thus also provided the basis for a switch towards a marketing model which is already standard practice for the other routes of transmission.

The Conference of Prime Ministers, taking up the according recommendation of the media authorities as a consequence assigned the capacities available for the commercial sector uniformly to the Commission on Licensing and Supervision (ZAK) which invited tenders for platform operation. The contender selected by the ZAK, Media Broadcast, will start operation in June 2016; during the introductory period a package including HD channels provided by ProSiebenSat.1, RTL, ARD and ZDF as well as some independent broadcasters will go on air. The definitive switchover is planned for the first quarter of 2017 in the urban areas.

HD marketing model raised issues

The media authorities have thus paved the way for a platform operation for terrestrial TV transmission being developed. However, the potential consequences raise some concern, in particular regarding two questions of principle:

- 1) Should the media authorities allow for a development which will result in viewers opting for the consumer-friendly terrestrial TV reception which is free of charge so far having to pay for their TV consumption in the future — at least for watching commercial channels?
- 2) What would be the chances for smaller and new content providers having to compete in a beauty contest for a marketing model which ulti-

mately links the costs to the economic value of the contents to be transmitted?

As regards the second question, the media authorities found a clear answer in the Broadcasting Treaty: The terms of transmission have to satisfy the requirements of equal opportunity and non-discrimination stipulated in the law also for the marketing model. This applies to regional and local TV broadcasters and their offers as well. Regarding the first question, the media authorities — lacking alternatives — ultimately decided to allow the development to go ahead. It would not really have been much help for consumers had this transmission infrastructure disappeared altogether, and this might very well have been the case otherwise.

Virtuous or vicious circle: equal opportunities in the marketing model

The economics of the transmission of broadcast content today are no longer as simple as was the case in the era of the transport model. In those days it was sufficient for the regulator to take a look at the price lists of the network operator or platform operator, taking into account the technical reach, in order to establish whether equal opportunity and non-discrimination were adhered to.

The agreements taken out between content providers and platform operators in the current convergent world of the media are much more complex and relate to far more than broadcasting content only. The agreements concerning distribution can, however, be compared and assessed with a view to broadcasting legislation as the joint currency applied across all services and platform is the CPS (coins per subscriber) system.

Under this system, viewers pay a monthly fee for HD channels being decoded; the resulting income

is split between the broadcasters and the platform operator. The higher the number of viewers interested in watching commercial channels in HD quality and paying accordingly, the higher the earnings for the broadcasters or, put another way, the larger the cake to be shared out. The content provider thus receives a pre-determined share from the platform operator per subscriber to the HD package or per paying consumer. The share is calculated according to the audience reach of the respective channel supplied by AGF. In other words, channels with a high audience reach will receive a large share while channels with a lower audience reach receive less. This works out quickly for providers of channels with a high audience reach while for channels with a lower audience reach and their providers there will be hardly any change as they continue to pay a fixed amount for the distribution of their content as before under the transport model.

At first glance, few objections can be raised against this CPS system from a media legislation viewpoint; after all it permits broadcasters to generate additional income. However, the system does most certainly not foster plurality of content providers and offers in the broadcasting market. While some providers happily cash in on the terrestrial transmission of their HD content, others continue to pay heavily for content distribution.

But the marketing model was not invented by the network operators or platform operators; rather it was the major commercial free-TV providers who developed a new business model upon the introduction of HD allowing them to become less dependent on advertising revenues. While until now the expense for the transmission of moving images had to be covered exclusively by the broadcasters, the two commercial broadcasting groups, RTL and ProSiebenSat.1, are now generat-

ing income thanks to having their HD content marketed by platform operators.

For the major television groups whose rather popular channels already drive up the advertising revenue which is geared to audience reach, another virtuous circle has been established: Not only is audience reach pushing up advertising revenue, permitting additional investment in content attracting audiences, but the same self-strengthening effect now also results from the channels being marketed by the platform operator. Growing revenue, however, not only enables the broadcasters to produce or acquire further attractive content, but also permits them to establish new thematic channels. The competition for the attention of viewers by smaller or new providers which are independent from the major groups, is not helped by these mechanisms. What works as a virtuous circle for the big players rapidly turns into a vicious circle for the small companies under changed parameters.

Challenges for regulation

The cake which is available for sharing out among the commercial providers under the marketing model for HD distribution is already rather large, and it will get bigger still. According to the survey conducted by TNS Infratest for the 2015 report on digitisation, well over half of German TV households already watch HD content. One fifth of TV homes has taken out subscriptions for the commercial HD services; this corresponds to around 7.3 million households in Germany. Regulation that can keep the situation in check is therefore all the more relevant for securing plurality now and in the future.

The media authorities are ready to face the challenge of enforcing the requirements of equal opportunity and non-discrimination which are em-

bedded in the Broadcasting Treaty, also in relation to the economic terms applying for the HD marketing model. In the process of designating the terrestrial capacities to Media Broadcast, the platform operator, the ZAK carefully analysed the contracts agreed by Media Broadcast with the content providers which were presented, requiring the platform operator to amend some provisions.

At present the ZAK is also looking into the economic terms applying for HD distribution via the platforms for satellite, cable and IPTV; concerning cable distribution, some amendments have already been imposed on a cable platform operator.

The examination of the contractual agreements taken out between broadcasters and platform operators under the HD marketing model have yielded the following principles:

- For sharing out the revenues to a content provider, all (paying) subscribers or HD subscribers capable of receiving the channel in question must be taken as a basis.
- The amount of CPS revenue paid to the content provider must be calculated on the basis of plausible criteria, e.g. audience reach.

An illegal inequality will as a rule be given in the following scenarios:

- Providers of HD channels are prevented from joining the CPS system or marketing model without justifiable reasons.
- So-called entry fees are charged across the board which are not geared to the expenditure incurred for technical transmission, thus preventing providers of HD content to participate in the CPS system in an economically useful fashion.

To sum up: The size of the pieces of the cake for the HD content providers must be linked to their audience reach. If the cake gets bigger, all provid-

ers have to be included in sharing out the growth in line with their audience reach. If a new HD content provider joins, the cake pieces for the providers already incurred will shrink in relation of their audience share according to the new piece to be cut from the cake.

A challenge also for the legislator

The marketing model presents a challenge not only for the regulators, but also for the legislator. The provisions of the Interstate Broadcasting Treaty were developed with the transport model in view. What is required in this context is clarification by the legislator according to which the assessments of the ZAK concerning equal conditions in the marketing model will apply; to this end the current provision must be rendered more precisely. Furthermore, a principal uncertainty can be noted in the market as regards the extent of the regulatory scope of the media authorities concerning the inspection, analysis and, where required, objection to the agreements in question. In this respect, a clarification of the competences is also needed.

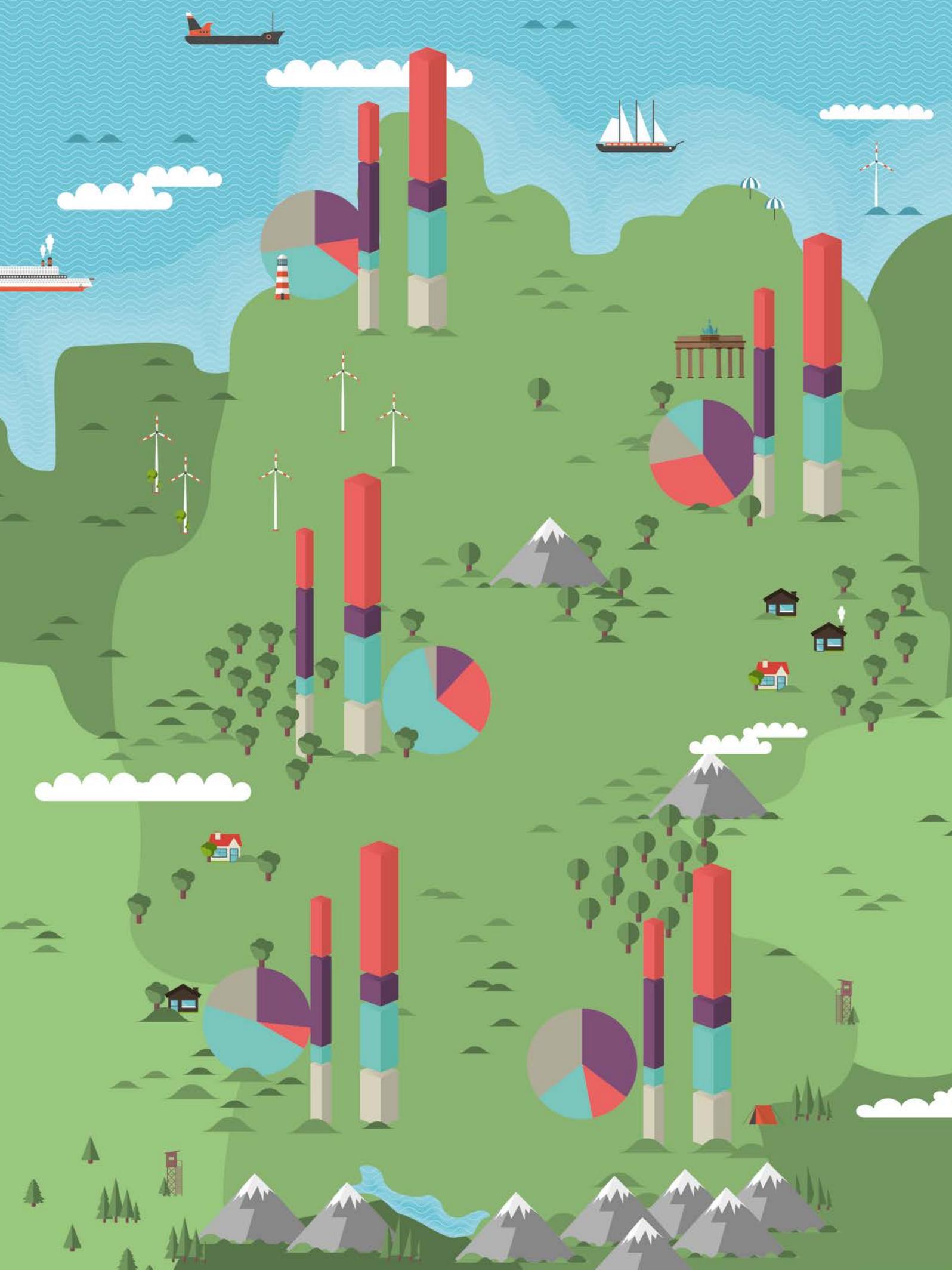
To avoid any misunderstanding: The media authorities do not want to, nor should they execute any regulation of fees in the meaning of telecommunications law by stipulating the size of the fees or similar. Nor are the media authorities interested in preventing or restricting a new business model being developed by the television broadcasters. However, what is required is the regulators being competent to take measures ensuring equal opportunities and non-discrimination under broadcasting law.

There is a lot at stake

In line with the picture quality for television transmission, the quality of German football has improved dramatically in recent years, and not only that: Here, too, commercialisation has become the name of the game. When Lothar Matthäus went from the Lower Rhine region to the Isar, FC Bayern was rumoured to have paid a transfer fee of 2.4 million marks—a truly modest amount when compared to the 37 million Euros which Bayern is alleged to have paid to secure the services of Mario Götze. The difference cannot be due to general price increases alone; no wonder, then, that there are calls for financial fairplay and salary caps for the clubs every now and then.

A similar situation applies for television. Television services are not just any odd product—broadcasting is of specific relevance for the formation of opinion in the democratic competition. Competition, however, thrives on a multitude of players having equal opportunities—clubs on the one hand, programme providers on the other. A lack of equal opportunities in football will eventually get viewers bored in front of the TV set. Unequal opportunities among broadcasters, however, cause far greater risks for the game. Positively securing plurality can therefore also mean that smaller programme providers are supported by virtuous circles being slowed down and vicious circles being disrupted.

In the German first division, the champion seems to be clear at the start of the season already; the European Championships next year promise to be more exciting. We will see, in HD, also via antenna.



Digitisation of the German broadcasting market: facts and figures

Current status of digitisation in German (TV) households

June 2015

Dr. Kristian Kunow

If this were a soundtrack, you could probably hear one of the most popular keyboard riffs of the “analogue” 1980s: “...it’s the final countdown”. Only one year ago, complete digitisation of television reception in Germany seemed — if not light years away, then still a long way to go. Now it appears to have come almost within reach: As the latest facts and figures on the digitisation of German TV households prove, cable is literally getting into the starting blocks to make the way towards switch-off of analogue signal distribution. The good old telly might see its last days in the sitting room where HD, live streaming, video-on-demand and second screens are taking over. However, no matter the form of consumption or age of the users: for moving images, they opt for the TV set, be it a cathode ray tube or a flat screen.

Ten years ago, the German state media authorities published the first report on the digitisation of TV reception, and they are now presenting the eleventh report in succession covering the digitisation of broadcasting on the basis of the data researched by TNS Infratest. Whereas this process may not yet be completed, the outlook given now takes a wider field into its view which goes beyond the modes of reception and over the last

few years has also taken into focus the next stage of digitisation of television, namely the use of digital reception infrastructures, end devices and services connected to television and video. For an educated approach, the digitisation report for the third year in succession not only reviews facts and figures relating to households, but also covers personal media consumption.

Digitisation going for the finish; rate of digitisation higher than of late

In 2015 the rate of digitisation was up by 4.7 percentage points, a clear increase on the two preceding years where it had been merely around 3 percentage points. As a result, 88.5 per cent of German TV households now receive digital television signals; the rate of analogue-only reception went down accordingly from 16.2 per cent in 2014 to 11.5 per cent at present. A downturn was also noted for households receiving both analogue and digital signals; last year it was still 5.6 per cent but has now sunk to a mere 3.8 per cent of TV households (see Fig.1). Judging by the latest data, around 4.5 million households still receive television only via analogue cable; the rate is down by 1.7 million on last year. Complete digitisation

in German TV households has reached 32.9 million or 84.7 per cent by now.

While still receiving analogue cable television on at least one TV set, a further 1.5 million TV households, however, have switched other receivers to digital TV reception. Last year, the number of these partially digital households still came to 2.2 million.

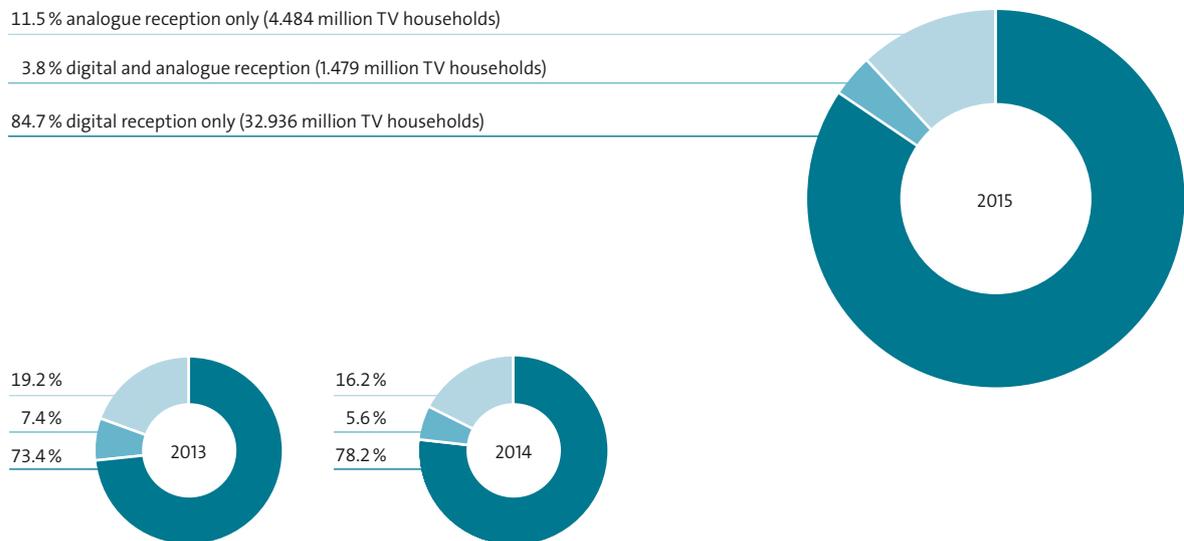
Cable nearing 80 per cent digitisation — analogue switch-off in 2018?

As a result, the task now is paving the way toward the (exclusively) digital world of television for some 6 million homes over the coming years. The cable networks have been completely digital for a long time, and the current situation regarding cable TV seems almost like an anachronism. The

digital signals supplied by the TV providers are re-converted into analogue signals for supplying them in the cable networks alongside the digital “original signals” — and this despite the fact that the analogue transmission of a TV channel takes up a multiple of the capacity required for digital signal supply; this also applies in relation to digital HD channels. The number of cable households still resorting to “re-analogue” programme packages offered by cable network operators for their sole TV consumption comes to some 27.5 per cent even though the picture quality and in particular the choice of content available is clearly poorer than is the case for digital cable. At currently 72.5 per cent, the number of cable households receiving digital content in either SD or HD quality experienced a clear increase last year by just under 15.3 per cent or 9.6 percentage points

Fig. 1

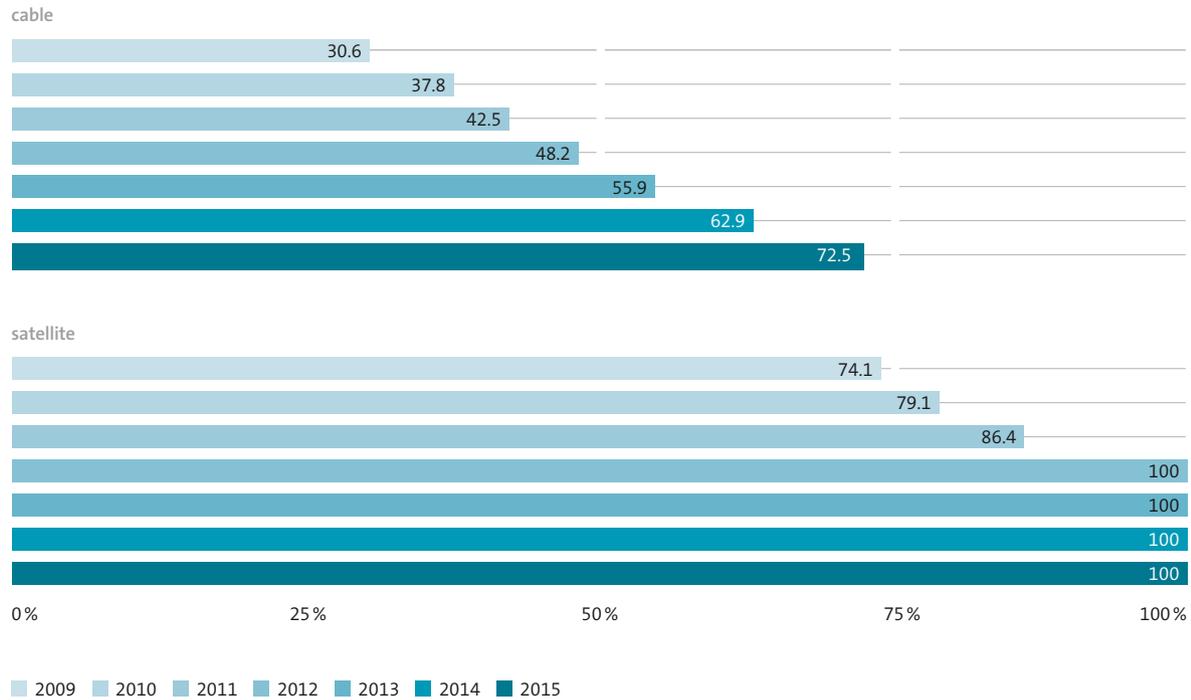
State of digitisation of TV households mid-2015



Source: TNS Infratest; Basis 2015: 38.899 million TV households in Germany (Basis 2014: 38.557 and 2013: 38.157)

Fig. 2

Digitisation by transmission platforms



Basis: 19.765/19.273/18.928/18.201/17.656/17.860/17.933 million cable TV households // 15.733/16.048/16.843/17.320/17.624/17.779/18.079 million satellite households in Germany

(Fig. 2). The rate of cable digitisation last year was 62.9 per cent, resulting in a clearly higher increase this year than during the last few years.

The experiences gained in the context of the switch-off of analogue satellite transmission would imply that a digitisation rate of 80 per cent appears to be a reference value for starting concrete preparations for analogue switch-off. This rate has not yet been reached for cable, but the current rate of growth appears to indicate that it might be reached as early as the end of this year. It is therefore not surprising that the association

of German cable operators (ANGA) recently named 2018 as the year for a potential switch-off of analogue cable transmission. Even though it appears ambitious, this target seems by no means unrealistic. What is required now is close cooperation of the cable network operators, housing associations and the broadcasters for daring the step into the digital present together with the remaining analogue cable households. As was already the case for the analogue-digital switchover of the other transmission infrastructures, the German media authorities will again moderate this process.

Cable digitisation comparatively equal all over Germany

A comparison of the rate of digitisation of the cable networks in the various German states or in individual regions of Germany provides a picture which differs considerably from the situation last year when the data showed clear differences between the individual regions: Bavaria which brought up the rear last year lagged behind Baden-Wuerttemberg which was in the lead by almost 15 percentage points. According to the latest figures, Bavaria has almost completely caught up, and the two German states have reached nearly the same rate of digitisation of the cable networks at 72.6 per cent and 71.3 per cent respectively. And the pattern overall now also reveals a far more uniform situation: All German states or regions have now exceeded 70 per cent of digitisation of cable networks with the present leader, the region in the middle of Germany (Saxony, Saxony-Anhalt and Thuringia) being only a good 4 percentage points ahead of Northrhine-Westphalia which is bottom of the league. This new overall situation implies that a uniform national date for switch-off which would in particular help the required communication regarding switch-off, appears feasible in a consumer-friendly fashion.

HDTV set in half of analogue TV households

Under the terms of a cartel proceeding involving the major television groups, basic encryption of the commercial channels in digital SD technology was stopped in spring 2013. Following the implementation by Kabel Deutschland and Unity Media, the two major cable operators in Germany, the smaller and medium-size operators followed suit. As a consequence, cable homes have for the last two years required only a DVB-C tuner (either as a settop box or a tuner integrated in the TV set)

for receiving the free commercial channels in digital technology.

According to the data provided by market research institute, GfK, some 70 per cent of all TV sets sold in 2010 were already fitted with an integrated DVB-C tuner (so-called "IDTV"). Since 2012, IDTV sets have made up more than 90 per cent of all TV sets sold. The latest research conducted by TNS Infratest for the present report on digitisation reveals that more than 40 per cent of the households receiving analogue signals stated that they already own an HD-ready receiver. When questioned about the time of purchase, 62.5 per cent of the households surveyed stated that they had acquired the set after the year 2009. While this does not allow for deriving a precise figure, the results of the survey still appear to indicate that many analogue cable households already own the technical equipment required for digital TV reception today. Whereas previously a smartcard which incurred additional costs would have been necessary to decode the digital channels, all it takes today is a channel scan for these households to watch television in digital quality in the future.

Age and contract partners for analogue cable homes to be taken into consideration

In around 68 per cent of the analogue-only cable homes the main breadwinner is aged 50 years or older, and in just under 30 per cent of these households, the main income earner has already exceeded 70 years of age. The share of these age groups thus tops that of TV households supplied via satellite, DTT and IPTV. The large share of these age groups must be taken into consideration when specifically informing the analogue TV households that higher-quality TV images and a greater range of services are available without any additional monthly fee becoming due.

In many instances it is the landlord rather than the cable network operator who has to provide this information. Some 60 per cent of analogue cable households stated that the monthly cable fee is part of the ancillary costs payable with the rent. Cable operators therefore do not have any direct contact with these cable customers but rather take out agreements with the landlords or the housing industry.

Limited purchasing power in many analogue cable homes

Around 50 per cent of the analogue-only cable TV households do not yet own a modern TV set or a DVB-C tuner for digital TV reception. Buying an IDTV receiver or a settop box and the cost incurred thus present the real hurdles en route to the world of digital television.

Compared to households receiving digital cable TV, there are marked differences concerning the net income of analogue cable households. Well over 62 per cent of the analogue-only cable TV households have a net income of less than 2,000 Euros per month at their disposal. In the case of digital cable households, the comparable rate is only 43 per cent. Comparing satellite, IPTV and DTT as transmission infrastructures, it becomes very clear that the remaining analogue-cable households include a particularly large share of homes with relatively limited purchasing power. Some 22.5 per cent of analogue cable homes even state that their monthly net income is less than 1,000 Euros. In this group only very few homes already own an HDTV set. This means that the switch-off of analogue cable transmission would above all require analogue households with little purchasing power more than others to invest in a new receiver.

Little wish for change in analogue cable homes

When questioned, some 70 per cent of analogue cable households stated that they do not plan to switch to digital TV reception. The rate of homes intending to switch in the next six months is a mere 2.5 per cent while another 7.2 per cent plan to take this step over the coming year. At 15.7 per cent, the basic readiness for a switchover is particularly low in analogue cable households with a direct customer relationship with a cable network operator while analogue cable homes settling the cable fee via the ancillary rent expenses state a somewhat higher will for change at 24.7 per cent.

The data collected on the remaining analogue cable households overall show that getting to the 80 per cent digitisation target will not just happen by itself. The cable network operators, but also the housing industry in its mediating position will have to invest in persuading customers to switch over. A key factor in this respect will be informing customers about the benefits of digital cable TV reception. The cost incurred in the switchover will probably also present a key aspect for many households. Solutions have to be developed for this scenario as well, for instance by offering subsidies on end receivers, to include all households in the switch to digital cable TV reception.

Range of individual infrastructures largely unchanged, IPTV stagnant

Analogue cable households do not automatically have to opt for a digital cable connection in order to receive digital or even high-resolution TV images in the future. It might be sufficient to fit a satellite dish on the roof, or to opt for IPTV via DSL alongside private e-mail; from June 2016 when the switchover to DTT2 HD commences, high-resolution television will be available in many regions with reception being possible simply using

a room antenna. And although television viewers in many locations can choose between three or even four competing infrastructures for TV consumption and some will certainly change their mode of reception, the audience reaches of the individual modes of reception have remained comparatively constant since 2012.

For this year again, satellite at 46.5 per cent and cable at 46.1 per cent of German TV households are head-to-head. In absolute figures, just under 18.1 million German TV households receive digital television via satellite while some 17.9 million households resort to cable reception (Fig. 3). Satellite reception has thus topped the 18 million mark for the first time; cable scores almost the same absolute number of households in Germany than as year.

Terrestrial reception is lagging far behind satellite and cable TV. For the first time since 2006, i.e. before the introduction of the current DTT standard, terrestrial television has dropped to single digits again at 9.7 per cent. The loss at 0.3 percentage points compared to 2014, however, can be classed as minimal. At total 3.8 million households in Germany receive terrestrial television this year; this is some 100,000 households less than last year. The comparison to 2014 shows that the number of German households receiving only terrestrial television remained unchanged at 2 million. As regards the first set in the household, the rate of 2.8 million homes watching DTT has even gone slightly up on 2014.

Audience reach of terrestrial television continues to thrive in the so-called “core DTT regions” offering both public-service channels and commercial television through the air. In these regions DTT currently scores 17.5 per cent of TV households and could even gain slightly compared to 2014.

IPTV which has by now established its place as the fourth mode of transmission had last year already lost the momentum of the earlier years, and this trend also continued for 2015. IP-based TV transmission came to 4.8 per cent of German TV households which is more or less unchanged compared to the previous year. In Germany, just under 1.9 million households receive television signals via DSL with IPTV—unlike web TV—not being transmitted across the open internet but within a separate section of the network featuring quality safeguards.

HD in half of TV homes, IPTV ranking first for HD

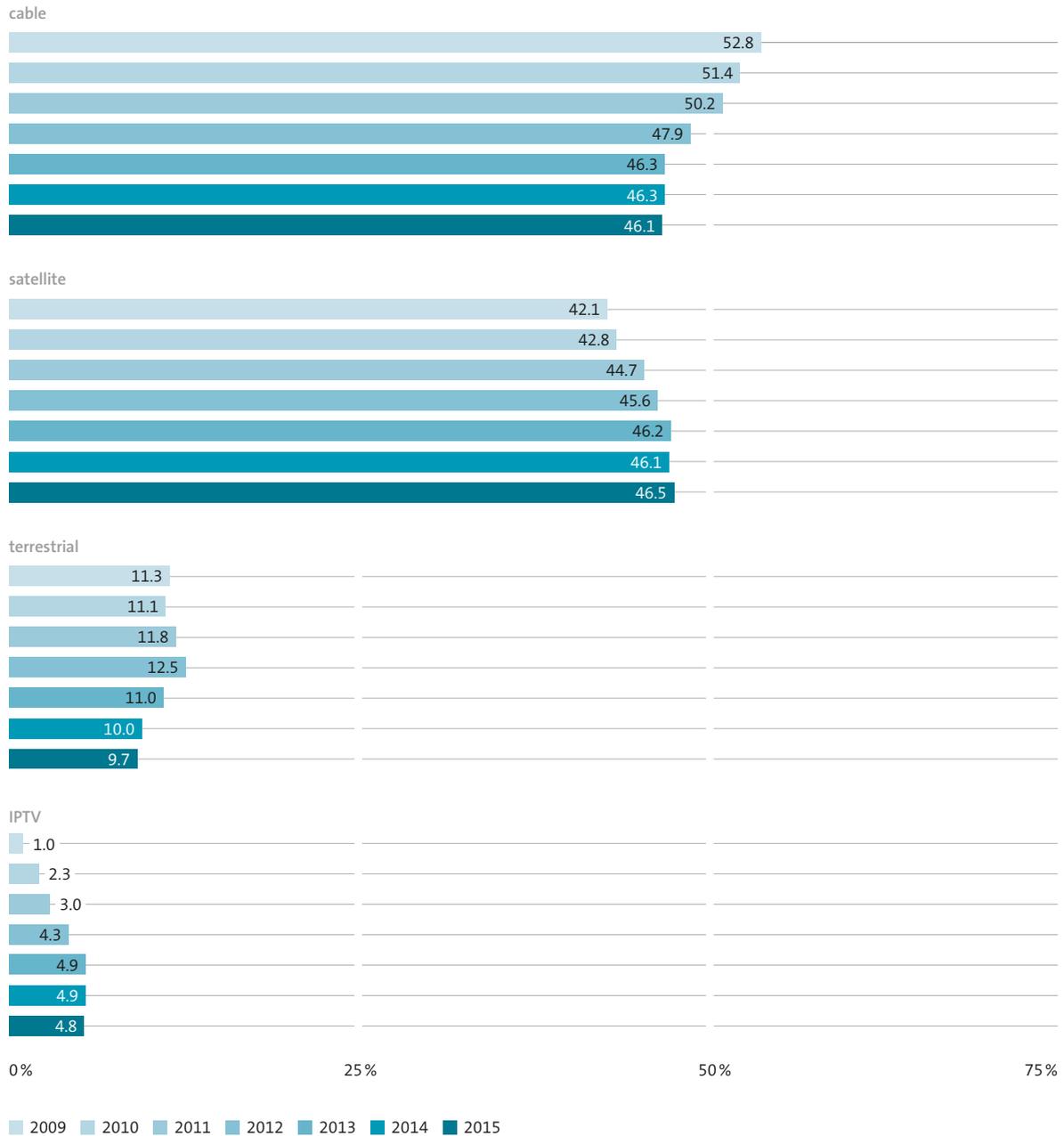
The distribution routes for HD television in Germany supply 18.7 million households at present; this corresponds to 48.1 per cent of TV homes in Germany.

Unlike SD, most HD content provided by the commercial broadcasters is transmitted in encrypted form and can be watched or decoded by viewers only against payment of a monthly fee. The rate of TV households watching both public-service HD offers and commercial HD channels is correspondingly lower at 18.8 per cent of the TV households questioned in the survey. In absolute figures this corresponds to 7.3 million households.

IPTV households feature a striking affinity to HD content: Some 92 per cent state that they own an HDTV receiver. However, 80.1 per cent of satellite households and 75.6 per cent of cable households have meanwhile also acquired an HDTV set. At present, 70 per cent of HDTV households receive high-definition television via DSL; this is 25 per cent up on last year. HD reception clearly leads satellite (55.5 per cent) and cable (42.5 per cent). HD satellite reception increased by 1.3 per cent while HD consumption via cable went up by

Fig. 3

Shares of the transmission platforms



Sum > 100% due to multiple reception

Basis: 37.412/37.464/37.668/37.977/38.157/38.557/38.899 million TV households in Germany

17.4 per cent. For commercial channels provided in HD quality, IPTV is also in the lead at 34.2 per cent of households provided via a DSL connection while satellite HD reception came to 18.4 per cent and cable HD narrowly missed the 19 per cent mark.

HDTV soon also via terrestrial transmission

Terrestrial transmission was the first mode of signal distribution to be fully digitised. At the time, IPTV was still in its infancy, and the technical compression standard which was chosen does not allow for the transmission of high-resolution television images unless the comparatively low number of channels transmitted is dramatically reduced. As of June 2016, just in time for the European football championships, HD television will be available in Germany via terrestrial transmission. This will become possible thanks to an introduction period for the new DTT2 HD standard which will replace the current DTT standard as of 2017; the new standard will enable not only the provision of channels in HD, but also offer a far greater range of services. What is noticeable is the fact that the rate of terrestrial TV households owning an HDTV set has already reached 75 per cent and thus matches the cable household rate. However, HD reception with an antenna will in most cases necessitate a new reception device capable of processing the new technical standard.

Consumption of TV streams with mobile end devices up, use outside the home static

A development which was initiated with the laptop has become reality with the smartphone: Digital media offers can now be consumed independently from a specific location and also on the move. Linear live streaming provides television at any time on the laptop, tablet or smartphone. A total 17.6 per cent of consumers aged 14 years

or older in the survey stated that they consume linear television with the aid of a mobile end device. This is equivalent to 12.4 million persons, an increase by well over 23 per cent compared to last year. A major proportion of viewers resorting to live streaming via a mobile end device does this exclusively at home, while the rate of users consuming TV live streaming outside their home, e.g. via the mobile telephony network or WiFi hotspots comes to just under 20 per cent. The total number of consumers watching television via live streaming outside their homes in Germany reached 2.4 million for 2015; this is slightly down on last year.

The reason why TV streaming via mobile end devices is popular in the kitchen or the bedroom but is rarely resorted to on the train or in a coffee shop could be the high data rates which result in considerable costs for mobile telephony or the available data volume being used up very rapidly. Another reason might be the scenario for live streaming: When rapid information is sought on the train or while waiting for someone in a coffee shop, linear services appear the less appropriate offer for most users. In such a situation, a short video available on demand will probably be the preferred choice. Of the 14.7 million persons consuming professional video content (which does not include so-called “user-generated content”) via a mobile end device, 27 per cent already state that they opt for such offers also outside their own home; this is equivalent to slightly under 4 million persons in Germany aged 14 years or older.

Mobile or nomadic television consumption is also possible resorting to terrestrial transmission, but only a very small proportion of the mobile end devices features a DTT receiver fitted ex works. Many sets are extended by consumers with an external receiver permitting terrestrial reception.

A total 9.8 per cent of persons aged 14 or older stated that they have a mobile end device enabling them to watch television via DTT. This corresponds to a total 6.9 million mobile DTT users, a downturn by 800,000 consumers compared to last year. Some 39 per cent of consumers watching television via DTT by means of a mobile end device state that they resort to this form of reception also when on the move or in the car. Use of terrestrial television on the move came to 2.7 million persons aged 14 years or older in Germany and thus exceeded outdoor consumption of live streaming via the internet.

Programme listings most important EPG function, hardly any personal adjusting

The electronic programme guide (EPG) presents a feature which was brought about by television going digital. The EPG is a kind of electronic programme listing which permits viewers to search for specific channels or individual programmes or to switch directly from the channel list or the information relating to a programme to the programme on air or to programme a content to be recorded.

More than one third (34.2 per cent) of viewers in digital TV households use the EPG at least rarely. Even though this is a lower share than last year (35.5 per cent), the number of EPG users went up in absolute figures by 300,000 persons as the number of digital TV households experienced a marked increase. A total 21.3 million television viewers in Germany make use of an EPG integrated in the television set or the settop box.

The EPG is resorted to most frequently by far for providing a general overview of channels and programmes: Around 94 per cent of viewers employ the EPG for deciding which channel or programme to watch; merely 42 per cent use the

EPG for a dedicated search of a programme or channel. At 16 per cent the share of EPG users taking up recommendations or tips of a service provider is even lower. Despite the overwhelming importance of the channel listing and programme information and the confusing number of television channels, slightly less than 37 per cent of TV viewers with an EPG at their disposal re-arrange the channel listings according to their individual preferences. This corresponds to 9.4 million television viewers in Germany making their programme choices by means of the default settings pre-installed by the manufacturer. An even larger proportion, namely more than 61 per cent (15.6 million viewers) do not make use of the function of establishing their personal list of favourite channels.

The data collected thus underline the unchanged relevance of the default settings for the channel listings for viewers selecting a programme and — vice-versa — the relevance of a specific position a channel is given in such a listing for the respective provider.

More and more smart TV sets in homes; size of screen and quality of picture guiding purchase

Alongside the number of digital television households, the number of TV households with a broadband connection is also going up. According to the statements of those questioned during the survey, 73.3 per cent of TV households in Germany have a broadband internet connection; this is 3.4 per cent up on 2014. Broadband internet is the key requirement permitting access not only to classically transmitted television content, but also content which is available only via the internet. Another requirement is the “smart” television set. Last year, smart TV sets hit the headlines not only with positive news; repeatedly, the media and

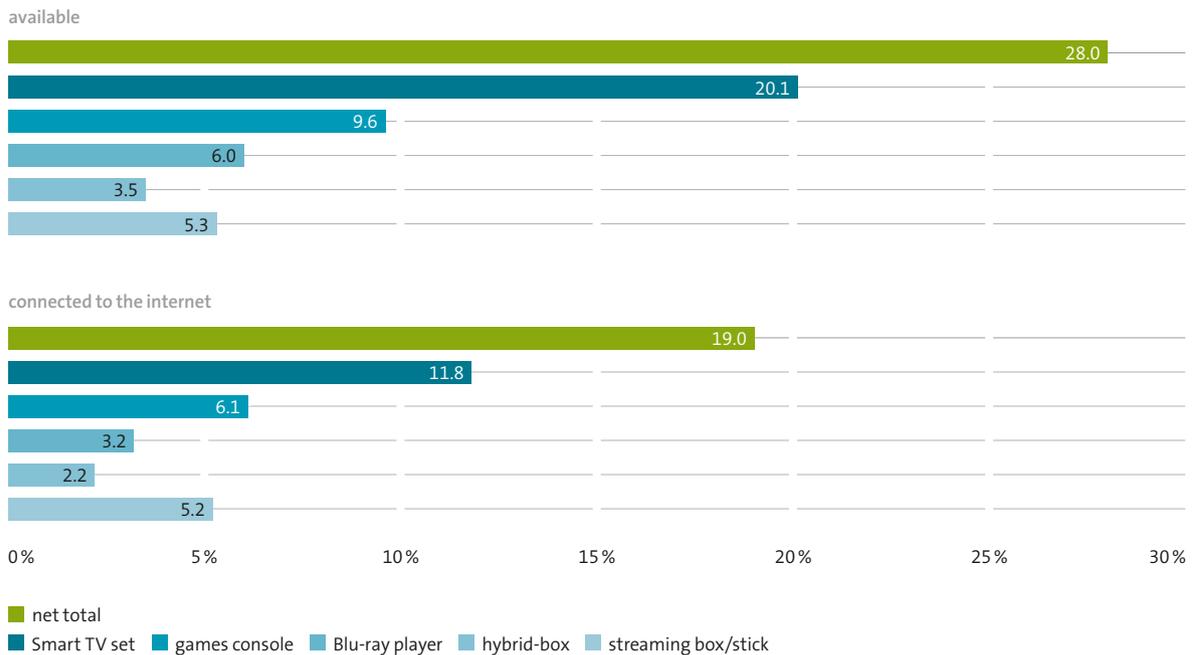
experts raised questions relating to data protection and ample data collection via smart TV sets and HbbTV applications. Notwithstanding this situation, more and more smart TV sets and internet-ready peripheral devices such as settop boxes or Blu-Ray players find their way into the sitting room. At 20.1 per cent, more than one fifth of German television households for the first time declared that they own a TV set which can be directly connected to the internet. Compared to last year, this is an increase by 4.1 percentage points. Adding to this the internet-ready peripheral devices which are permanently connected to the television set, the share of television homes in Germany owning a connectable television set

comes to 28 per cent; compared to last year this is an increase of 5.1 percentage points (Fig.4). A remarkable development in this respect is the fact that households owning streaming boxes or sticks doubled within one year. Alongside peripheral devices, a PC, laptop or tablet which is connected to the TV set, also allows for the experience of “convergence in the sitting room”. Taking this option also into consideration, the proportion of German television households having a connectable TV set at their disposal comes to 39.6 per cent.

What continues to be interesting in this context is not merely the question how many households

Fig. 4

Connected TV – connected to the internet



Source: TNS Infratest; Basis: 38.899 TV households in Germany

know that they have a smart TV or connectable TV at their disposal, but rather how many of them have actually connected their set(s) to the internet. At least 19 per cent of the television households (7.4 million homes) state that their TV set is connected to the internet directly or indirectly (by means of peripheral equipment). Assessing smart TV sets only, the share of TV households using at least one smart TV set connected to the internet is 11.8 per cent or 4.6 million households. The rate of connectable sets which are actually connected to the internet comes to just under 68 per cent while the rate for smart TV sets is 58.7 per cent. Compared to the figures for last year, the rate of sets connected has risen only slightly by 2.3 percentage points (including peripheral sets) while the rate of smart TV sets connected appears to be stagnating.

The connection data established do probably not live up to the expectations which the TV sector continues to place in smart TV as a driver for digital television. It has to be noted, however, that internet-readiness which has become standard for TV sets in almost every price range by now,

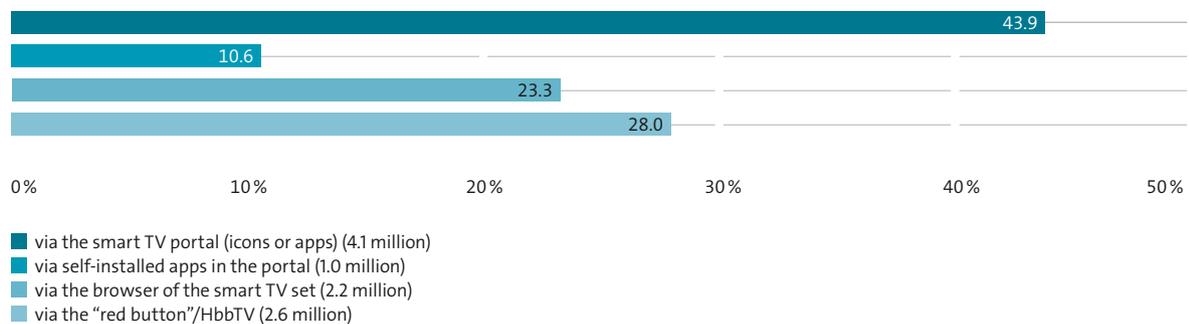
still does not feature greatly as a criterion when buying a new device. Questioned about the reasons guiding a purchase, some 89.7 per cent of smart TV households named the quality of the picture as very important or rather important; this is followed by the size of the screen (84.5 per cent) and the purchase value (82.9 per cent). Being able to use television and video content accessed directly via the internet on their receivers played a very important or more important role for just 44 per cent of owners of a smart TV set in their purchase decision; general internet-readiness was a reason for 41.7 per cent only.

Manufacturer portals first choice

A smart TV set which is connected to the internet offers two routes leading users towards the television and video content available in the internet: the app portal of the manufacturer, or the red button on the remote control which activates the HbbTV applications of the respective channel. The internet browser of the TV set provides an additional mode of access. Of viewers aged 14 years or older who use a smart TV set connected to

Fig. 5

Consumption of internet content directly via the smart TV set



Source: TNS Infratest; Basis: 9.396 million persons having access to a smart TV set connected to the internet

the internet, 43.9 per cent chose the portal provided by the manufacturer and the apps available there; this is the majority. A mere 10.6 per cent install their own new apps from the app store. At least some 28 per cent of smart TV users chose the route via the red button or the HbbTV applications of the channels to access content provided via the internet (Fig.5). HbbTV has thus gained slightly (by 4.1 percentage points) while the route via the app portal is named less frequently than in 2014 (minus 3.5 per cent). The internet browser of the TV set is currently used by 23.3 per cent of smart TV owners.

Smart TV users particularly keen on VoD

Professional video content on demand (VoD) is now consumed by 27.1 per cent of persons aged 14 years or older in Germany at least once per month. At 61.8 per cent, the share of viewers consuming video-on-demand monthly is particularly high among viewers having access to a smart TV set which is connected to the internet. Of this group, 44.4 per cent stated that they access video-on-demand content directly via their smart TV set at least once a month; this is an increase of 55.8 per cent compared to last year.

Video portals and libraries level, Amazon strong

The survey of the regular consumption of professional video content provided on demand resulted in 22.5 per cent of persons aged 14 or older in Germany stating that they access video portals such as YouTube or MyVideo; this is followed closely by the media libraries of the television broadcasters (21.7 per cent). In this field, the libraries of the public-service broadcasters lead those of the commercial stations (18.6 per cent versus 13.6 per cent). The Amazon VoD service Prime Instant Video is used by 7.8 per cent of

persons aged 14 years or older in Germany already. These data indicate that the “online book store” has a clear lead over competitors including Apple iTunes (4.3 per cent), Maxdome (3.8 per cent) and Netflix (2.7 per cent).

First heads second screen again, but very narrowly

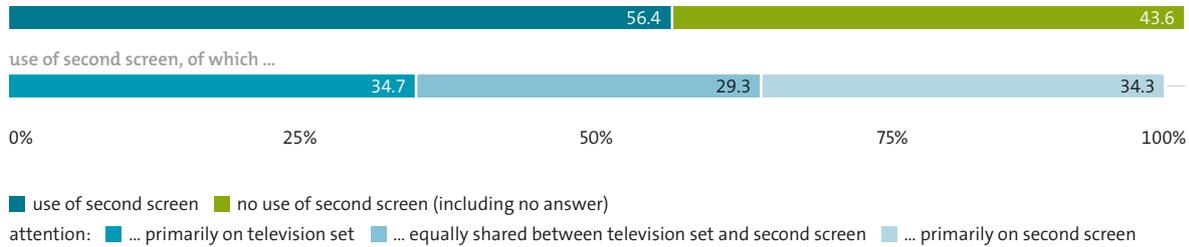
The share of smart TV users using social networking sites (17.7 per cent) or online gaming offers (16.8 per cent) directly via their television set remains comparatively low. In this context a “division of labour” can be assumed to prevail between the first screen and the second screen, i.e. the TV set and the smartphone, tablet or laptop used in parallel.

Clearly more than half of television viewers (56.4 per cent) who have such an end device at their disposal stated that they use it at least rarely together with the TV set. The smartphone is top of the league in this regard at 30.3 per cent; it is followed by the laptop (19.1 per cent) and the tablet (12.5 per cent). According to the survey, the second screen is mostly used for email communication, accessing social networking sites, news and shopping. Information relating to a programme which is watched plays a minor role only. A mere 11.7 per cent of second-screen users stated that they access information relating to a programme they watch via the second screen at least on occasion.

The question which screen enjoys greater attention when the TV set and a second device are used simultaneously resulted in 34.7 per cent naming the TV set. For 29.3 per cent of those questioned both screens receive the same attention while for 34.3 per cent of TV viewers the second screen has become the actual first screen as regards the focus of their attention. This means

Fig. 6

Use of second screen/attention spread



Source: TNS Infratest; Basis: 55.535 million persons aged 14 or older in TV households with access to at least a further set

that the second screen has moved up very closely to the first screen; last year, the scenario was the opposite (Fig. 6).

Personal relevance of the smartphone up, but TV set retaining top rank as most important video device

The smartphone more than any other device has developed into the one device which has become indispensable for many users in Germany in the eight years since the first iPhone came onto the market. The smartphone as a tendency is gaining ever more significance, also in relation to other end devices. While last year, 19.9 per cent of those aged 14 years or older named the smartphone as the most important digital end device, the rate for 2015 has risen to 23.7 per cent. However, the television set still enjoys the greatest popularity for users: 39.8 per cent name it as the most important end device. Stationary PCs (14.3 per cent) and laptops (12.6 per cent) are already clearly trailing the smartphone. The tablet could gain slightly in relevance, but the single-digit rate of 3.7 per cent is still comparatively low.

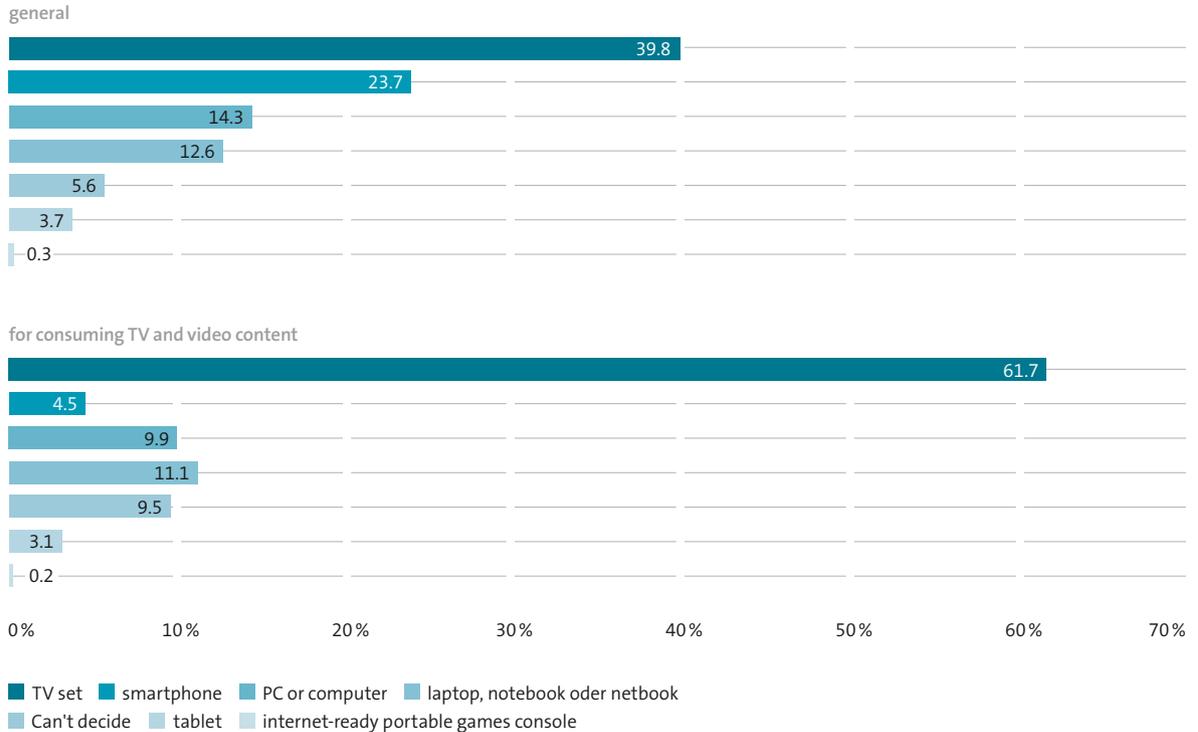
The responses given to the question concerning the most important device for consuming tele-

vision and video content reveal that the television set and the smartphone do not compete directly for the attention of their users. The TV set enjoys an unchallenged lead: Even though it suffered minor losses, it is still rated the most important device for consuming moving image content by 61.7 per cent of persons aged 14 or older in Germany. The laptop (11.1 per cent) and the stationary PC (9.9 per cent) lag far behind, and even though they could make good some ground, the smartphone at 4.5 per cent and the tablet with a mere 3.1 per cent trail the field (Fig. 7).

A look at the younger age groups regarding the importance of the various end devices, however, reveals a totally different picture. Some 48.9 per cent of the age group 14–29 years already rate the smartphone their most important end device while the TV set can secure a very small share only in this age group at 10.4 per cent. Asked for the most important device for the consumption of moving images, however, a totally different scenario emerges as 40.6 per cent of this age group opt for the TV set. For the consumption of television and video content, therefore the TV set also holds first place in the age group 14–29 years.

Fig. 7

Most important available end device



Source: TNS Infratest; Basis: 70.525 million persons aged 14 years or older in Germany

The television set has particular relevance for persons living in a household with analogue television reception only, but its importance is unscathed also in digital households. However, modern smart TV sets have roughly as much in common with the good old telly as do the smartphone and the old-fashioned fixed-line telephone

with a dial plate. The process of digitisation will not be completed with the switch-off of analogue TV transmission in the cable networks. The media authorities will therefore continue to closely follow and moderate the process of the next stage of digitisation being completed and developments beyond.

Current status and progress of the digitisation of radio in Germany

June 2015

Johannes Kors

Digital radio transmitted in the DAB standard continues to gain acceptance in Germany and has now secured an audience of 7.44 million aged 14 or older listening to radio by means of a DAB receiver. Digital audio broadcasting (DAB) has thus extended its audience by well over 2 million persons — or 38 per cent — compared to last year. Every tenth German now receives radio channels transmitted in the DAB standard. The rate of growth may have slowed down; however, since 2013 DAB reception in the population has more than doubled. The progress of DAB is benefited, among other things, by more and more parts of the population being able to potentially receive DAB since the national DAB multiplex went on air. In mid-2015, digital radio transmission covers in excess of 90 per cent of the population, offering listeners a wide range of services in this mode of transmission. This development has boosted confidence both in the consumer electronics industry and the automobile industry as well as among consumers who are now more willing to invest in a DAB receiver. Some 4 million households now own at least one DAB set; this is well over a million more than in mid-2014.

The present data on DAB transmission and the supply of radio sets in the German population overall were collected by TNS Infratest in the

framework of the annual survey of digital reception; it was conducted on behalf of the Commission on Licensing and Supervision (ZAK). The survey involved more than 6,000 persons aged 14 years or older who were interviewed during the period 04 May — 15 June 2015. The survey provides a representative picture of receiver penetration and the frequency of consumption of digital radio in the German-language part of the population (70.5 million persons aged 14 years or older) living in 40.072 million households.

Number of DAB sets up by 29 per cent — every tenth household owns a set

In every tenth household at least one DAB receiver can now be found; on average, 1.6 sets are used in a German home. This presents an increase by 1.45 million radio receivers since last year, pushing the supply of radio sets up by 29 per cent to a total of 6.4 million. Trade figures confirm this strong upwards trend: According to the latest survey carried out by GFU Consumer & Home Electronics GmbH, consumers are very keen on purchasing a DAB-ready receiver. More than twenty per cent of those questioned are currently thinking about buying a DAB radio receiver. For the broadcasters, the increase in DAB reception resulting from a marked upturn of DAB in-car sets

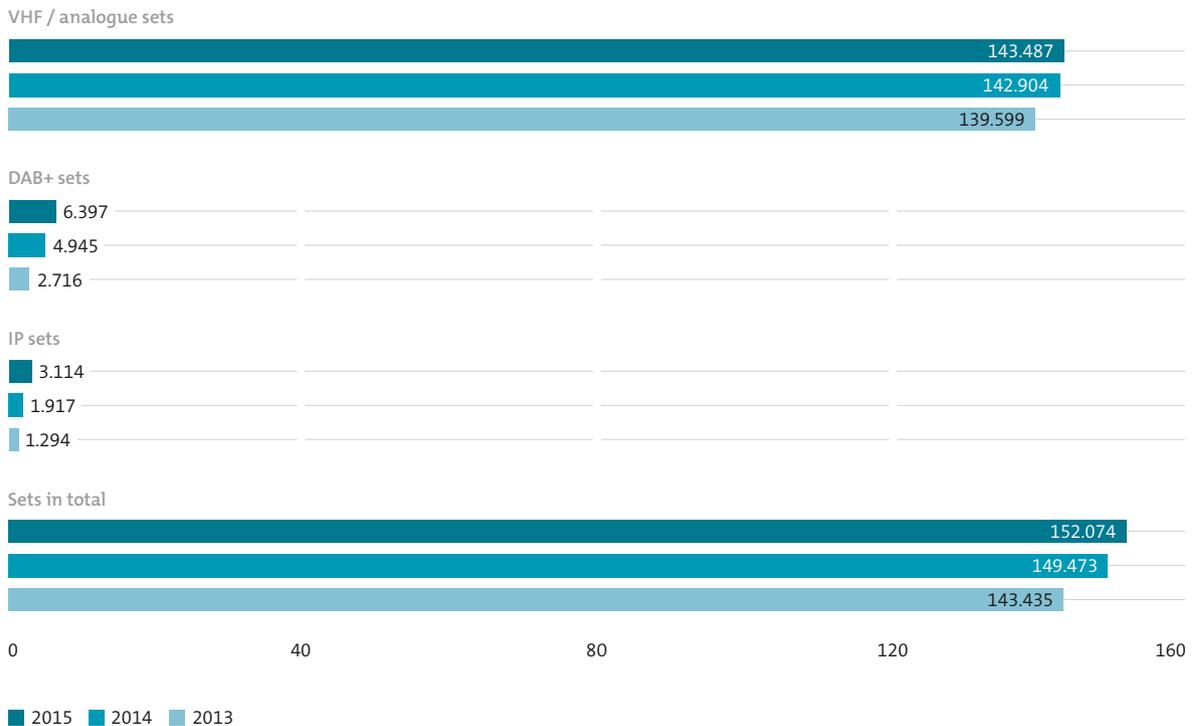
is also of great interest. The number of DAB car radios has risen by 0.6 million to a total of 1.9 million at present. In relative terms, the increase of DAB car radios is considerably higher at 49 per cent than the growth of DAB sets in the home which came to 23 per cent. Every 20th car radio is now receiving digital signals. The share of car radios in the DAB receiver base in the market has thus gone up from 26 to 30 per cent. Compared to this, VHF car receivers only make up 26 per cent (or 36.85 million sets) of VHF receivers in the market which totals 143.5 million sets. For the radio industry, this is a significant development as radio consumption can also be specifically impacted by a different media system in a car.

IP radios also experienced a dramatic growth rate of 1.2 million sets to presently 3.1 million receivers. The number of hybrid receivers or sets permitting both DAB and internet reception was boosted very noticeably from 0.3 million to 0.9 million. The upturn of IP and DAB radio sets in particular is accompanied by a downturn of the rate of analogue sets, proving that the digitisation of radio is now also gradually gaining ground.

Despite this development, however, VHF continues to hold top rank among the modes of radio reception in German households: Analogue radio dominates with 143.5 million sets, but the increase in the receiver base has slowed down compared

Fig. 1

Receiver base (in million)



Basis: 39.676/39.866/40.072 million households in Germany

to digital receiver sales with merely 0.6 million VHF sets being purchased as new receivers.

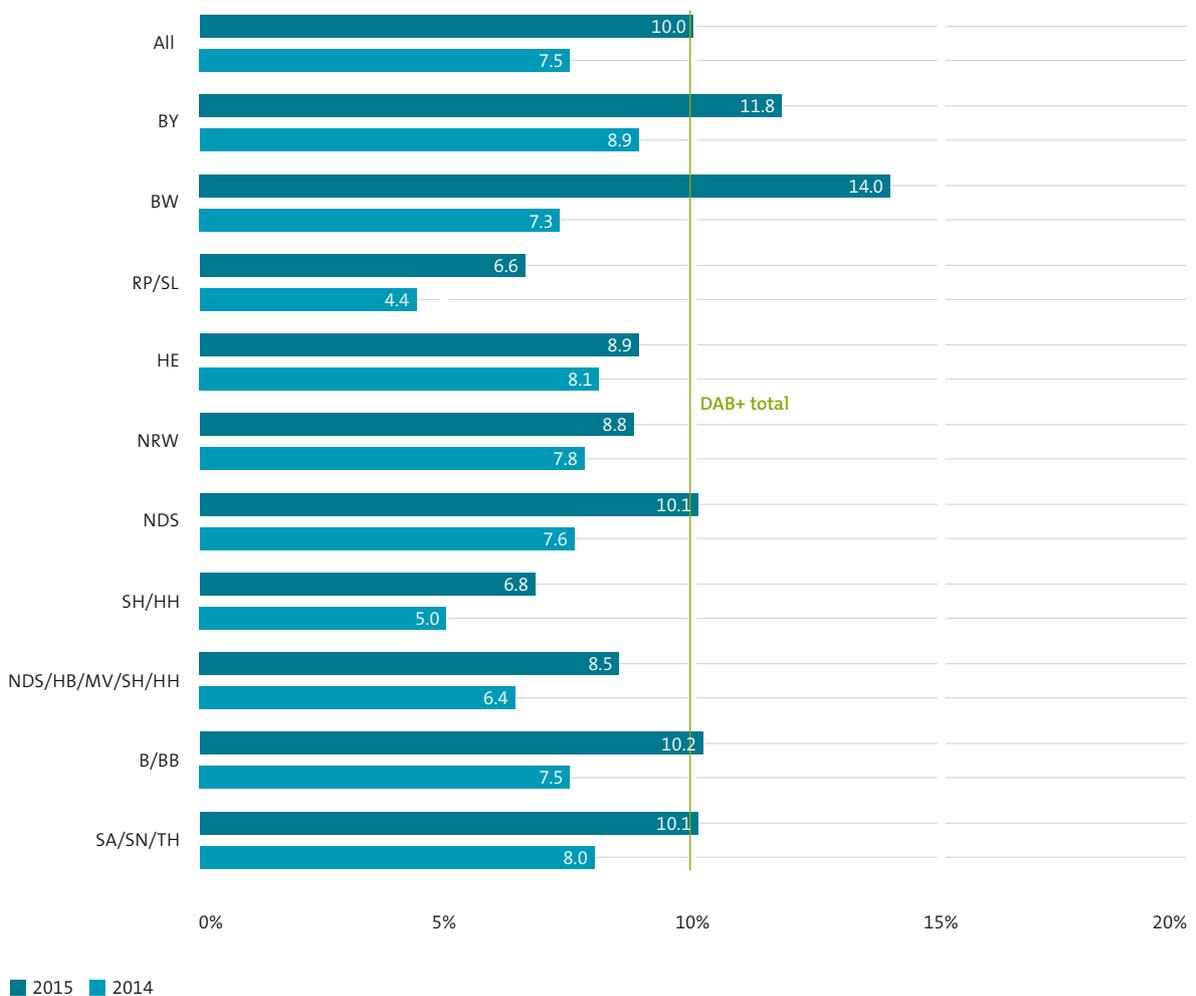
DAB most popular in the south

As was to be expected, the regional distribution of DAB transmission shows an above-average concentration in the southern states of Germany

where listeners can receive the largest number of services via DAB. In Baden-Wuerttemberg, market penetration of DAB doubled compared to last year, reaching a remarkable 14 per of households. In Bavaria, 11.8 per cent of homes go for digital radio while Berlin/Brandenburg, Saxony/Thuringia and Lower Saxony feature spread rates corre-

Fig. 2

DAB+ penetration in the German states



Basis: 39.866/40.072 million households in Germany

sponding to the national average. For some states the figures were combined as the sample of persons interviewed was too small.

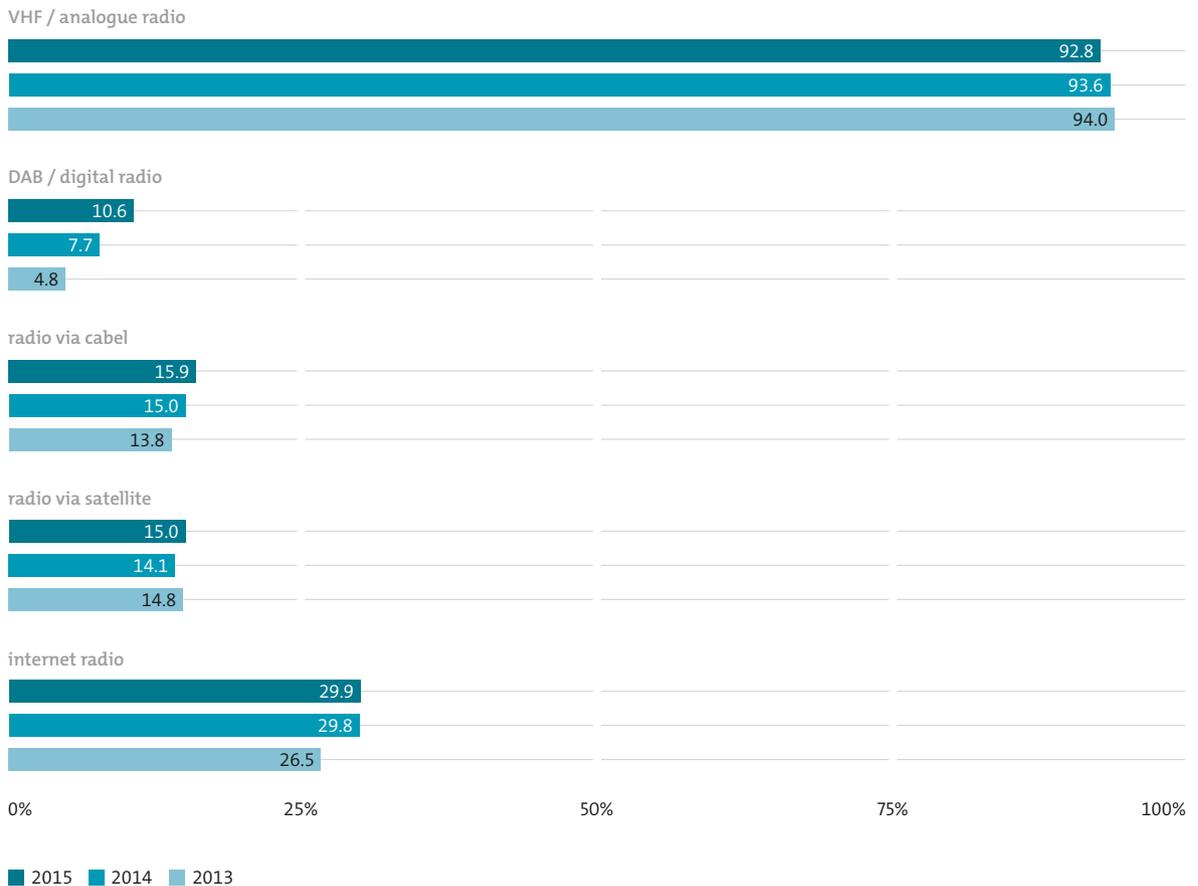
Digital reception gets more important

VHF still has a considerable lead over all other modes of transmission at more than 90 per cent for the population in Germany. However, even though the share decreased by around just 1 per

cent, the rate is experiencing a downturn while access via DAB has increased by around 3 percentage points from 7.7 per cent to 10.6 per cent, thus scoring another increase in relevance as regards radio reception. Reception via cable (15.9 per cent) and satellite (15 per cent) also features prominently although neither cable nor satellite allow for mobile radio reception, offering the greatest perspective for radio digitisation via DAB and the internet. It is noticeable, however, that listening

Fig. 3

Radio reception in Germany



Basis: 70.214 million (2013), 70.326 million (2014), 70.525 million (2015) persons aged 14 or older in Germany having access to some type of radio reception and using one or more modes of radio reception at least occasionally.

to the radio via the internet has remained stagnant in relation to the population overall. Radio listening via the internet comes to 30 per cent (net without overlaps) of consumption by listeners aged 14 years or older. In gross terms, reception varies between IP receivers (7 per cent) and the computer/laptop as multimedia end devices (20 per cent), the smartphone (13 per cent) and the tablet (5 per cent). Internet radio consumption by listeners aged 40 or younger has already reached 46 per cent in net figures. Contrary to expectations, DAB reception features most prominently among younger listeners as “early adopters”: 14–29 year olds score 16 per cent of DAB reception which is far above average.

Listening to the radio via VHF continues to be the most common mode of reception by far with 73.9 per cent of the population going for VHF to listen to the radio. Compared to 2013, however, the rate has gone down by almost 5 percentage points whereas DAB and internet radio consumption have gained listeners even though the rate for DAB remains comparatively low. The increased relevance of DAB for radio reception can be seen

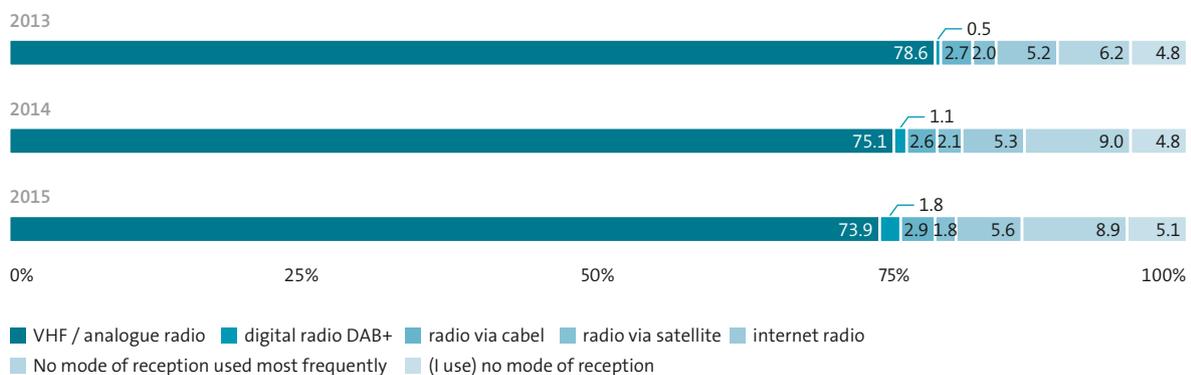
particularly well in the DAB households where digital radio is the most frequently used mode of reception for 17.3 per cent—an increase of 7 per cent compared to 2013. On the other hand, the internet as the most frequent mode of reception lost 2 percentage points in these households. This can be taken as an indicator of the fact that terrestrial radio continues to retain its relevance as a simple and easy to manage mode of reception even in the digital world. It is remarkable in this context that an above-average number of listeners below 40 years stated in the interview that the internet and DAB present the modes of reception for radio consumption they resort to most frequently. By contrast, VHF has a considerably lower relevance in this age group as the most commonly used mode for listening to the radio than in the average rate of all persons questioned.

VHF remains indispensable for radio reception for a long while yet

For the first time, there is a clear downward trend concerning the relevance of VHF; however, VHF will remain indispensable for radio providers for

Fig. 4

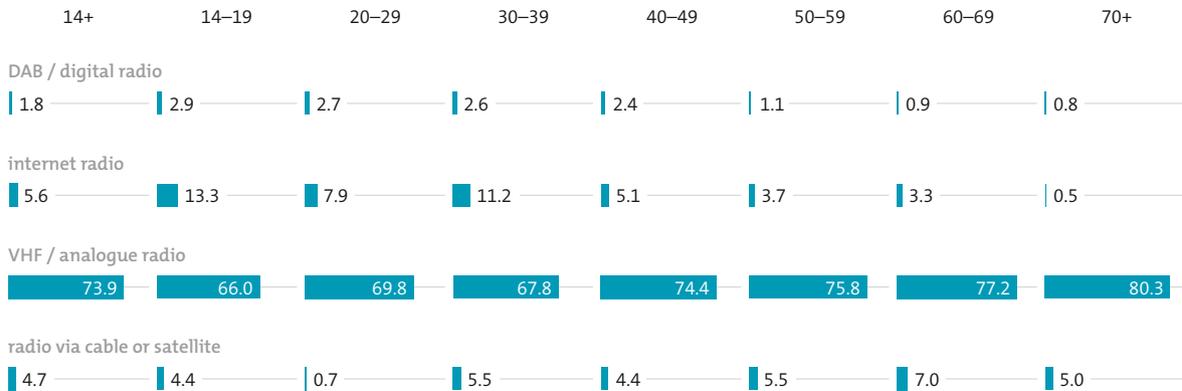
Most frequently used mode of radio reception



Basis: 70.214/70.326/70.525 million persons aged 14 or older in Germany

Fig. 5

Most frequently used mode of radio reception by age (in percent)



Basis: 70.525 million persons aged 14 or older in Germany

a long while yet. This relates to both universal access to users and as regards its attraction for the advertising industry which is interested in reaching as large an audience as possible. For sustaining the economic viability of commercial radio in Germany, VHF will remain the key mode of transmission for the foreseeable future for the simple reason that DAB and the internet will still take some time to reach a sound market penetration. Even though the growth rates scored by DAB over the last two years were considerable, the growth rate of DAB on the basis of increasing absolute rates slackens, however. Even retaining the growth rate established for this year of around 30 per cent, DAB would still take around 12 years to reach complete market penetration, i.e. substituting the existing VHF receiver base. For the commercial radio sector in Germany, naming a switch-off date for VHF is therefore currently not on the agenda. All the same, a clear commitment to digital radio would be very important to boost the substitution process as it is clear now that there is no way back from the digitisation of radio.

Conclusion

As the data gathered show, radio going digital in Germany has experienced another strong uptake compared to last year. Digital radio based on the DAB standard features the highest growth of receiver penetration with 4 million households — one million more compared to last year — owning at least one DAB+ receiver. The number of sets used in German homes has now reached 6.4 million receivers; this is an increase of 1.5 million sets since 2014. Every tenth German or 7.44 million persons aged 14 years or older now use a digital radio set. Listening to the radio via VHF has gone back slightly even though VHF radio is still the most common mode of radio listening by far for three quarters of the population. It is noticeable that listening to the radio via the internet has been stagnating compared to last year at a total 30 per cent of the population. For the clear majority of Germans, traditional listening to the radio via terrestrial reception still presents the favourite mode of consumption. Among listeners aged 40 or younger, however, a clear trend towards listening to the radio via the world-wide web can be noted.

Methodology

The survey was conducted on behalf of the media authorities by TNS Infratest MediaResearch. As in the previous years, it employed computer-assisted telephone interviews (CATI). For better providing for the increased percentage of persons exclusively or mostly available via mobile phones the survey was conducted in the form of so-called dual frame telephone interviews, i.e. as a combination of fixed-line telephones and mobile phones (83 versus 17 per cent). The selection was based on the telephone random sampling system for fixed-line and mobile phones used by the “Arbeitsgemeinschaft der deutschen Marktforschungsinstitute” (association of German market research institutes, ADM). Both sampling frames were thereafter merged by use of design weighting to provide a representative picture of the overall population basis. The interviews were conducted during the period 04 May – 15 July 2015.

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

In 2015, the overall population basis was 40.072 million households. Of these, 97.1 per cent own at least one TV set. These 38.899 million TV households present the basis for the findings on TV reception.

The 2015 survey is based on a net number of some 6,000 interviews. Until 2012, the person in a household with whom the interview was conducted, was the person stating that they knew best about TV consumption. As in the last two years, the person to be interviewed for the 2015 survey was selected at random in order to also obtain information on personal media consumption in addition to household characteristics. The overall basis relating to persons interviewed was 70.525 million persons aged 14 years or older.

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

Definition of cable and satellite reception

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, for further TV sets available in a household an aggregated survey was conducted. Regarding households receiving both terrestrial and satellite channels using the first, second or further sets, both transmission categories were included in the data for transmission modes available in TV households. In some constellations, this can result in a sum total exceeding 100 per cent (e.g. Fig. 3, p. 22).

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

Digitisation in international markets: facts and figures

The spread of digital end devices — the international picture

Excerpt from the Reuters Institute Digital News Survey 2015

Dr. Sascha Hölig/Prof. Dr. Uwe Hasebrink

Consuming content online and communicating via the internet have become standard for major parts of the population by now, both in the professional sector and in private life, at the desk, the sofa or on the move. New internet-ready devices allow users to access media offers of all types, be it TV or video content, audio streams, news features and data bases at any time and in any place. Providers of content as well as the institutions analysing the effects of these developments on public communication are faced with the question how consumers make use of these options, which devices they deploy for consuming which content and how this impacts their habits of informing themselves over time as well as in the international comparison.

The Reuters Institute Digital News Survey which is coordinated by the Reuters Institute for the Study of Journalism in Oxford has been researching these issues since 2012 in the form of a study comparing countries on the basis of an annual online survey. The results for 2015 provide a representative picture for the population aged 18 years or older having access to the internet in

twelve countries including Germany, Australia, Denmark, Finland, France, the United Kingdom, Ireland, Italy, Japan, Spain, the United States and the urban regions of Brazil. The study featured 2,000 persons in each of these countries except for Ireland and Finland where the panel consisted of 1,500 persons. The basis comprises responses of 23,557 persons questioned. The German section of the study is coordinated by the Hans Bredow Institute as the responsible partner; it is supported by the German media authorities and ZDF, the second national public-service broadcasting corporation.

Use of mobile end devices on the up everywhere

According to the analysis, all countries investigated show a clear increase in the penetration of digital end devices for 2015 over the preceding year, even though a closer look also reveals some decline regarding the use of individual types of end devices in specific countries.

The device most commonly offering internet access across the population overall is the *laptop* or

PC. An average four out of five people using the internet stated for 2015 that they go online using a laptop or desktop PC. The highest rates were established for Ireland and Finland at both 90 per cent with Japan and Australia close followers at 86 per cent and 85 per cent respectively (see Fig.1). In Italy and France the shares of the population using laptops or the PC to go online are comparatively lower at 72 per cent and 70 per cent respectively. Germany holds a middle position among the countries investigated at 80 per cent. In most countries, the share of the laptop or PC as the gate to the internet went down by one or two percentage points compared to the previous year; in Italy, the decline exceeded 7 per cent while in the US it was more than 4 percentage points (see Fig.2). By contrast, Denmark (+1.5 percentage points), the urban regions of Brazil (+6.9 percentage points) and Germany (+9.3 percentage points) featured upwards trends. Laptops and PCs as a rule tend to enjoy more use among older than among younger people. The clear gain in Germany, however, is attributable not only to older users taking up these devices for the first time and becoming familiar with the internet using mostly a laptop or PC; younger consumers also complement their online consumption via the smartphone by additionally resorting to devices featuring a larger screen and more operational features (see section “use of digital end devices in Germany by age group”).

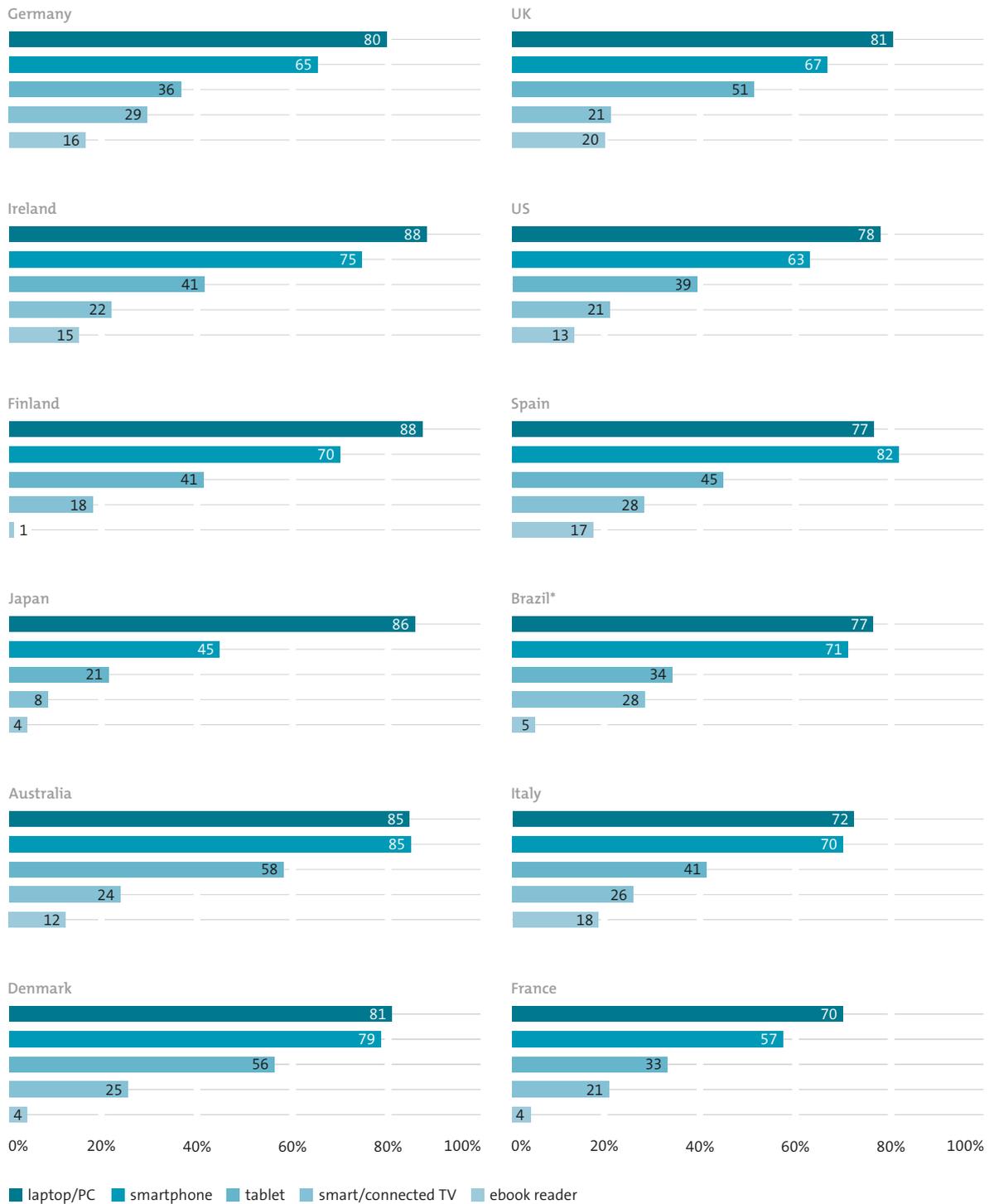
Concerning the widest penetration, the computer is followed by the *smartphone* with just under 70 per cent of consumers active online resorting to a smartphone. It is most popular in Australia and Spain where for 2015, 85 per cent and 82 per cent of the panel respectively state that they go online using a smartphone; the device is thus more widespread in these countries than laptops

or PCs. Last year, this was not the case in any of the countries investigated. The use of smartphones overall rose by more than 10 percentage points, going up from 58 per cent in 2014 to 69 per cent of the population in 2015. The US (+13.4 percentage points), urban Brazil (+13 percentage points), Italy (+11 percentage points) and Finland (+11 percentage points) feature the sharpest increases. In Germany, the upwards trend is not quite as pronounced but still comes to a clear 5 percentage points, making Germany the only of the 12 countries investigated where access to the world-wide web via a laptop and PC topped access using the smartphone. Mobile internet access by means of a smartphone while gaining clearly in relevance overall does not, however, signal that the laptop or PC are being edged out. While the smartphone is used for quick communication and surfing the web while on the move, it cannot replace a laptop or PC which offers a larger display, keyboard and mouse. The devices are employed for different functionalities and in complementary use.

The *tablet* ranks in third place among the end devices most widely used. In the twelve countries surveyed, an average 42 per cent of the population have already used a tablet in 2015. Penetration varies between 56 per cent of people going online using a tablet in Denmark at the top-end of the scale, and 33 per cent in France and 21 per cent in Japan at the other end. Germany scores 36 per cent, an increase of 6 percentage points compared to 2014. With the exception of urban Brazil (minus 6 percentage points), penetration of tablets has risen by between three (Japan) and eleven (Italy) percentage points according to the study. The downward trend by share in urban Brazil is presumably caused by the increase in the reach of the internet which went up from 46 per cent to

Fig.1

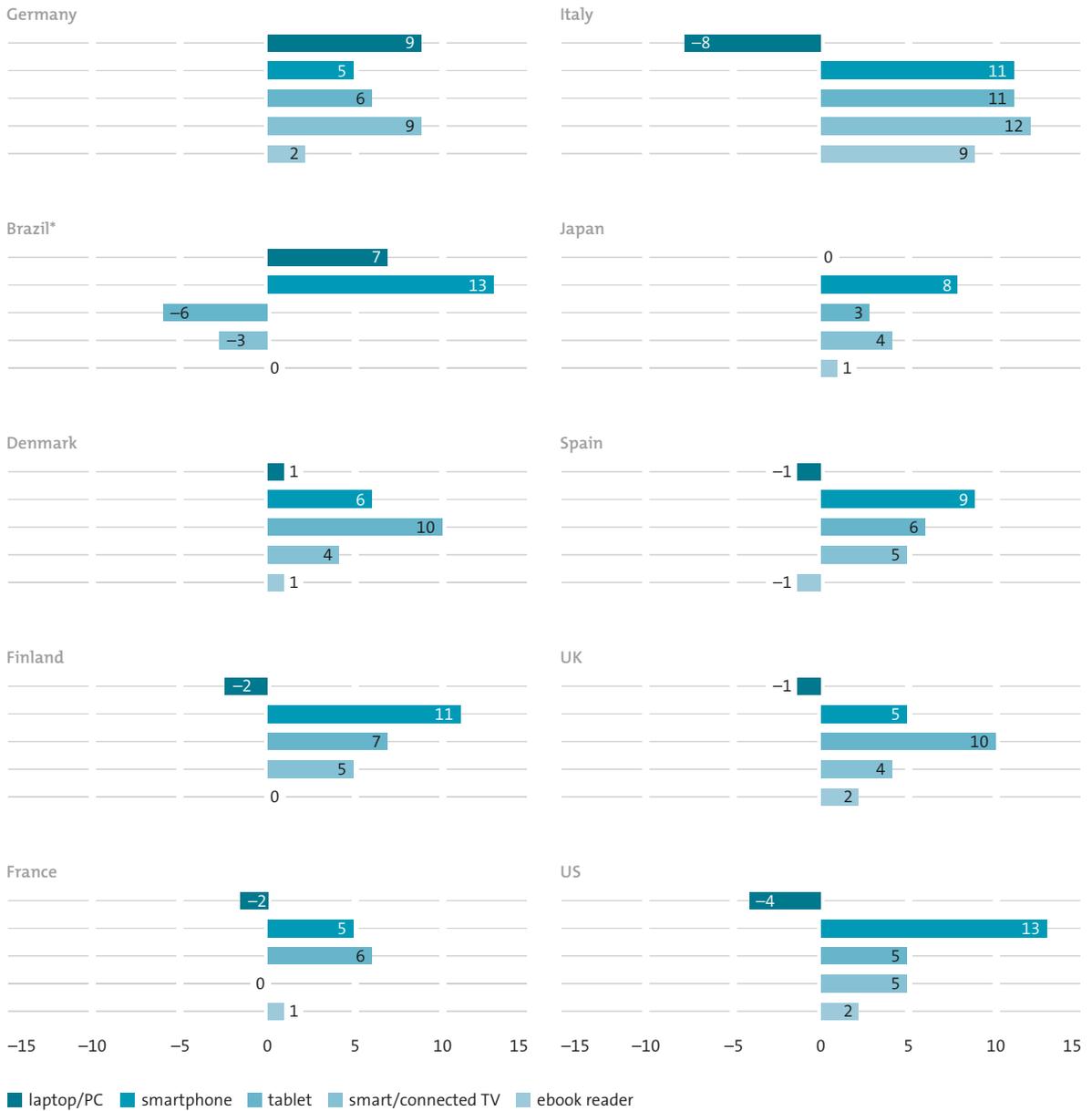
Digital end devices used in 2015 (percentage of the population with access to the internet)



Source: Reuters Institute Digital News Survey 2015/Hans-Bredow-Institut
 Question Q8a: Which, if any, of the following devices do you ever use (for any purpose)? Please select all that apply.
 Online user base: Ireland = 1,501; Finland = 1,509; Japan = 2,017; Australia = 2,042; Denmark = 2,019; UK = 2,149; Germany = 1,969; US = 2,295; Spain = 2,026; Brazil = 2,033 (* urban regions); Italy = 2,006; France = 1,991.

Fig. 2

Digital end devices in use – change 2014/2015 (in percentage points)



Source: Reuters Institute Digital News Survey 2015/Hans-Bredow-Institut
 Question Q8a: Which, if any, of the following devices do you ever use (for any purpose)? Please select all that apply.
 Online user base 2015: Germany = 1,969; Brazil = 2,033 (* urban regions); Denmark = 2,019; Finland = 1,509; France = 1,991; Italy = 2,006;
 Japan = 2,017; Spain = 2,026; UK = 2,149; US = 2,295
 Online uswwwer base 2014: Germany = 2,063; Brazil = 1,015 (* urban regions); Denmark = 2,036; Finland = 1,520; France = 1,946; Italy = 2,010;
 Japan = 1,973; Spain = 2,017; UK = 2,082; US = 2,175

54 per cent over the last year. This upturn was accompanied by a strong jump in the penetration of smartphones while tablets feature less as first device for internet novices.

The growth of internet use in urban Brazil also results in slight reductions of the relative shares of the population resorting to a *smart or connected TV* (minus 3 percentage points). Notwithstanding this development, however, the urban regions of Brazil in 2015 again rank among the top countries concerning penetration of smart TV or connected TV; this was already the case last year. Germany is in pole position with 29 per cent, followed by Brazil and Spain where 28 per cent of the population with access to the internet state that they have already watched TV via the internet. The lower end of the league is made up by Finland (18 per cent) and Japan (8 per cent). Most countries covered by the survey experienced progress concerning the consumption of TV via the internet in the year-on-year comparison. Disregarding the decline in percentage in Brazil and a stagnant situation in France, the upturn ranks from 4 per cent (Denmark, Japan, UK) to 12 per cent (Italy). In Germany, smart or connected TV spread by 9 percentage points (from 20 per cent in 2014 to 29 per cent of people using the internet this year). On average, internet TV consumption in the countries studied went up from 17 per cent in 2014 to 23 per cent in the current year.

A positive trend can also be noted for the penetration of *ebook readers* although it is relatively moderate. Average use across the twelve countries reaches 11 per cent of the population. In the UK, every fifth person going online already makes use of an ebook reader while only one per cent of

Fins having access to the internet use such a device. According to the year-on-year analysis, the rate has hardly increased. The shares of the population having come into contact with ebooks in Japan, France, Denmark, Brazil and Spain are similarly constant while modest increases of two percentage points could be established for the US, the UK and Germany. Italy, on the other hand, shows a clear upwards trend; slightly more than 18 per cent of Italians going online have already used an ebook reader. This corresponds to a rise of 9 percentage points over 2014, making Italy the runner-up behind the UK (20 per cent) and narrowly beating Spain (17 per cent) and Germany (16 per cent) as concerns the penetration of devices for electronic book consumption in the countries investigated.

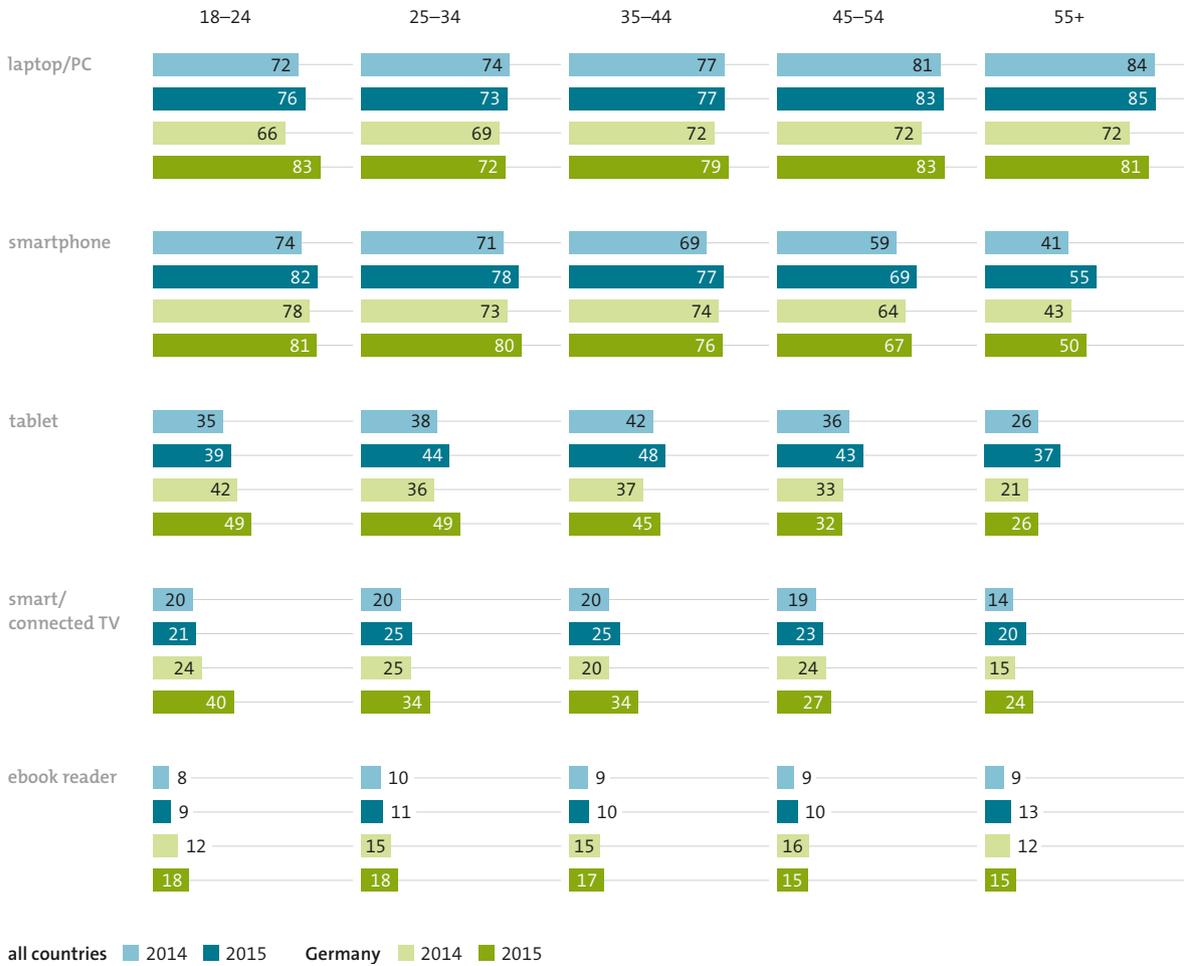
Use of digital end devices in Germany by age groups

A development which is very notable for the year 2015 is the increase in the spread of the devices mentioned in four of the five age groups investigated. Age group 45–54 forms an exception; the per-head penetration of tables (–0.3 percentage points) and ebook readers (–0.5 percentage points) features an only marginable trend over the previous year. By contrast, all other age groups show a positive development (see Fig. 3).

While in 2014 the smartphone enjoyed special attraction, considerably more young users go for laptops and PCs this year. 83 per cent of the German online users of this age group state that they have already used such a device, pushing the share of young laptop or PC users above the average in the country comparison and level with

Fig. 3

Devices used by age group, annual comparison (average percentage rates for all countries and Germany)



Source: Reuters Institute Digital News Survey 2015/Hans-Bredow-Institut
 Question Q8a: Which, if any, of the following devices do you ever use (for any purpose)? Please select all that apply.
 Online user base 2015: Germany = 1,969; Braszil = 2,033 (* urban regions); Denmark = 2,019; Finland = 1,509; France = 1,991; Italy = 2,006;
 Japan = 2,017; Spain = 2,026; UK = 2,149; US = 2,295
 Online user base 2014: Germany = 2,063; Braszil = 1,015 (* urban regions); Denmark = 2,036; Finland = 1,520; France = 1,946; Italy = 2,010;
 Japan = 1,973; Spain = 2,017; UK = 2,082; US = 2,175

users aged 45 years or older. The spread of these end devices has increased with the age of the users in recent years; this trend could not be confirmed for 2015. “Traditional computers” are least popular among 25- to 34-year olds both in Germany and as regards the comparison of all countries surveyed.

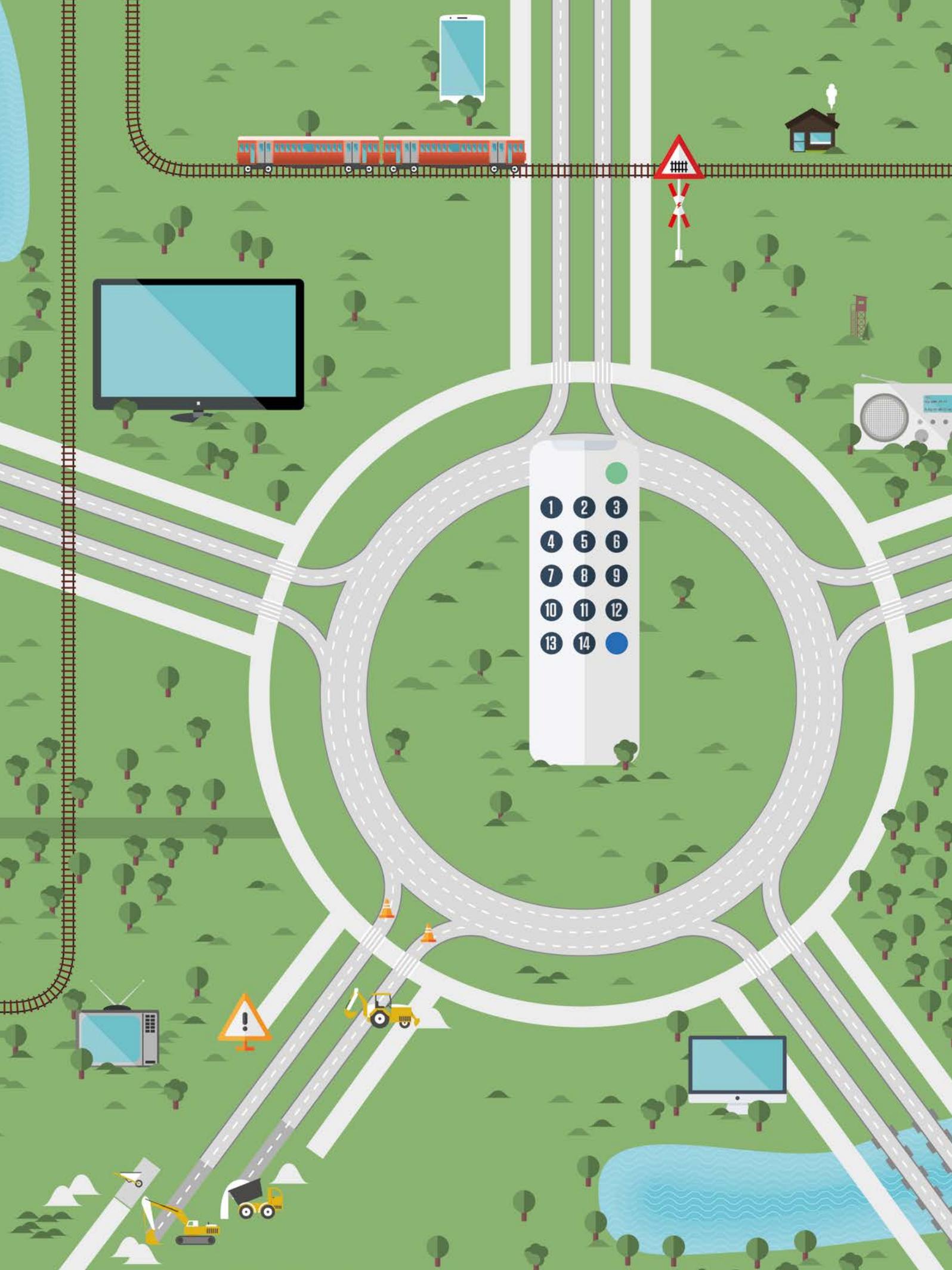
At least as far as Germany is concerned, this age group seems particularly keen on smaller mobile end devices, and — together with age group 18 to 24 — makes up the largest user group for smartphones (80 per cent and 81 per cent respectively), tablets (49 per cent in either group) and ebook readers (both 18 per cent). The only difference to the youngest age group concerned the slightly lower use of larger devices such as laptops or PCs and/or smart TV or connected TV. The youngest age group (18–24 years) holds top place among users of the devices investigated; if not the sole winner, it shares first place with the age group of the 25- to 34 year olds. Germans aged 55 years or older who go online in 2015 made a jump forwards concerning all devices and rank above the average for the 12 countries studied as regards internet TV consumption and the use of ebook readers. Disregarding laptops and PCs, however, the course shows the typical slow downturn with age going up even though the trend has slackened compared to the last years. Among German internet users aged 55 years or older, at least every second is using a smartphone while every fourth member of the age group makes use of a tablet or internet TV. Age differences concerning the penetration of ebook readers are limited; between 15 and 18 percent of German internet users of all age groups in 2015 used such a device, putting German internet users in this category clearly above the average of the countries investigated.

Conclusion

Penetration of digital end devices experienced a clear increase in 2015 both in Germany and across all other countries studied in the study. The rise of smartphone use in all countries not only reflects the considerable interest in small-size devices and mobile internet use, but also enables parts of the population to access the internet who do not have a laptop or PC in the office or at home. While the standard computer still presents the device most widely spread in most countries surveyed, its lead over the smartphone is not very large. In Australia and Spain, pro-rata access to the internet features more smartphones than computers. For the average of countries studied — with Germany forming an exception in this respect — user rates of pocket-size end devices among the younger age groups is also higher than for laptops and PCs. However, there are no signs indicating that larger digital end devices will be displaced by the mobile all-rounder — rather, several end devices are used in combination. As the country comparison reveals, three quarters of the panel state that they use more than one digital device; for Germany the rate is 71 per cent. The most common combination — 55 per cent in Germany and 57 per cent on average — is made up of the smartphone and laptop or PC (see Reuters Institute Digital News Report 2015). In Germany in particular, devices featuring a large screen could gain considerable ground. The increase in the use of smart TV and connected TV is also quite noticeable. Nearly every third person surfing the web in Germany in 2015 already watched television in the internet. This presents an increase of 9 percentage points compared to 2014, putting Germany in first place in the comparison of the country survey.

The data of the Digital News Survey 2015 appear to indicate that use of end devices in Germany as in the other countries studied becomes more specialised in line with the respective functions offered. Typical media use consists of mobile ac-

cess to the internet using the smartphone for quick bites of communication on the move, and a more relaxed use featuring the benefits of the large screen otherwise.



The remit of the media authorities

Regulating platforms and securing digital access

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

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

Platform regulation

The old and clear separation between the provision of content and the distribution of media is giving way to vertical integration: Network operators are no longer mere transporters of content,

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

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

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

Digital access

Access to media is a core element of any media order. Securing access takes various forms: For one thing, access to networks and technical plat-

forms must be ensured for content and service providers. For another, concentration of the power of opinion must be prevented; this has been the case for a long time. Access is much more important for the formation of public opinion especially for new and innovative enterprises than in the economy in general. The negotiating clout which the major television groups hold in the digital world must also be taken into account. And lastly, access to a varied range of media content must be safeguarded for citizens and consumers. They have to be protected in their sovereign choice and navigation through content, irrespective of the expanding technical options impacting their behaviour as users of media. In the light of more and more technical possibilities of influencing the behaviour of the user, the protection of his sovereignty in selecting and navigating media is at stake.

Analogue-digital switchover

The transition from analogue to digital transmission holds great opportunities both for the media industry and for consumers. Organising it to the benefit of all involved presents a great challenge for media regulation. As concerns terrestrial TV transmission, the media authorities successfully moderated an extension of the range of content which took regard of the interests of consumers, and they also closely followed the switchover process of satellite transmission technology. In a similar vein, they will guide the pending transition of cable distribution to completely digital transmission. Furthermore, the media authorities are currently also gearing up for the next stage of digital transmission, namely the switchover of DTT to the new DVB-T2 standard including HEVC which is currently under preparation.

Tools of regulation and convergence of the media

Moderating and balancing the different interests constitutes a major element of platform regulation, taking its place between content providers and platform operators, consumers and media providers.

When it comes to the digital world, managing scarce resources is no longer the key concern. The issues which must be dealt with are specifications for digital receivers, provisions for channel listings and electronic navigation, rules for the packaging of content, and fine-tuning the framework applying to individual providers.

Digitisation has led to increased overlaps between media and telecommunications law: As a consequence, cooperation of the media authorities with the Federal Network Agency and the Federal Cartel Office is a key element.

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

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

The authors



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.



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Following his studies of psychology and German philology he worked at the University of Hamburg for three years. He has been working for the Hans Bredow Institute since 1986 and joined the Institute's directorate in 1998. In 2001, he was offered a chair for "empirical communications science" jointly by the University of Hamburg and the Hans Bredow Institute. His research focuses on media consumption and media content as well as on media politics: patterns of individual use and media repertoires, the convergence of the media from the perspective of the consumer, the effects of online media on the traditional media, media use of children and adolescents, forms of audience participation and the safeguarding of consumer interests vis-à-vis the media as well as European media and European audiences.



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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.

Glossary

App (application)

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

basic encryption

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

broadband

In the digital world, 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 bit rate transmission. ADSL: asymmetrical digital subscriber line. Data rates in the downlink are up to 6 Mbit/s; ADSL2+ up to 20 Mbit/s. VDSL: very high bitrate digital subscriber line (up to 40 Mbit/s) in the downlink.

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

DVB-C (Digital Video Broadcasting — cable)

The European standard for digital cable television. DVB sums up the transmission of digital television signals distributed via satellite (*DVC-S*), via cable (*DVB-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)

also 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)

combines a new digital terrestrial transmission standard for television and the new HEVC compression standard; it presents a technical advancement of DTT while the letters “HD” signal the transmission of high-definition TV content employing HEVC.

EPG (Electronic Programme Guide)

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

flat rate

flat charge due for the use of services or devices incurring a monthly payment of a fixed fee which is independent of the scope and duration of use. In terms of media technology, the phone and internet access present typical examples of flat-rate payments. The licence fee on principle also presents a flat rate, but unlike in the other examples, it is legally defined.

HbbTV (Hybrid broadcast broadband TV)

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

HDTV (High Definition Television)

High-definition television using a 16:9 aspect ratio and a minimum rate of $1280 \times 720 = 921.600$ pixels (full HD: 1920×1080 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 due to parallel transmission cannot be shown on a traditional channel but are made available in the internet as they take place.

multiplex

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

re-analogising

(or reanalogising) is the conversion of a digital signal received via satellite or DTT into an analogue television service which is transmitted in a cable network, enabling cable customers to continue using available analogue TV receivers, and avoiding the cost incurred in acquiring a digital TV set. The digital-analogue conversion, however, always involves a loss of image quality. Furthermore, digital television offers different image resolutions while for analogue television, the image resolution corresponds to standard digital image resolution (SDTV).

Settop box (STB)

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

Smart TV

Marketing term describing “intelligent” TV sets which alongside the standard aerial terminal is also fitted with a terminal permitting connection to the internet for TV reception and access to the internet. For accessing the internet, only the remote control is required. As a rule, access is possible to selected portals (e.g. media libraries) or programme-related information. The internet 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.

SMATV

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

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 device. VoD providers use different 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. EST (electronic sell through) allows for different ways of renting or purchasing videos: the download-to-own mode permits a file to be downloaded for long-term storage while download-to-burn enables a customer to transfer a film to another data carrier; download-to-rent offers users the option of downloading a film or episode for a limited period for hire. The ad-supported video-on-demand (A-VoD) regime is advertising-funded and offers content to users free of charge.

The media authorities are taking stock of the media landscape again which features digital peaks and analogue valleys. In their 11th report on digitisation, the facts and figures regarding TV and radio reception in 2015 are complemented by topical issues debated in the world of the media.

The digitisation in German TV households is set for its finish; this is documented by the current surveys. Merely a small proportion of the population currently still consumes television via analogue cable only; this makes a final switch-off of this mode of transmission feasible in the near future. The other transmission infrastructures – digital cable, satellite, DTT and IPTV – have meanwhile largely kept their respective audience reaches. As an international comparison shows, spread of digital end devices in Germany in 2015 experienced a marked upturn; the same development could be noted for all other countries studied in the survey.

The digitisation of radio is experiencing considerable momentum, as Johannes Kors explains; this is due to a clear increase in digital receiver penetration. Dr. Gerd Bauer and Martin Deitenbeck analyse the bridges being built to ease the way towards the digital radio era and how DAB+ fits in the landscape of digital radio. Radioplayer Deutschland aims at turning into the new platform for digital radio, writes Steffen Meyer-Tippach.

In the meantime, the video-on-demand market on the neighbouring digital peak is undergoing a considerable shake-up. Aylin Ünal therefore investigates the jungle of on-demand providers and discovers a happy co-existence of linear television and non-linear content. And Thomas Fuchs in his article on the HD marketing model explains that the broadcasting groups and the network operators are already busy adapting their business models as regards linear TV transmission, and identifies the challenges this might bring for securing plurality.



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