Digitisation 2005

Digital television and analogue-digital switchover

Challenges for the industry, politics and regulation
Facts and figures incl. current data
DIGITAL TELEVISION AND ANALOGUE-DIGITAL SWITTOVER

CHALLENGES FOR THE INDUSTRY, POLITICS AND REGULATION

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COMMISSION ON DIGITAL ACCESS

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Digital television and analogue-digital switchover

Challenges for the industry, politics and regulation
1. Digitisation will yield a major change for the television landscape in Germany

The television landscape in Germany experienced a dramatic change with the introduction of the dual broadcasting system in the 1980s. Digitisation has now set off another revolution. Analogue transmission which has been very successful until now will not provide sufficient funding for new programmes or services. Funding resources such as the licence fee or advertising revenues are almost exhausted.

Broadcasters funding their services through advertising revenue and the cable network operators face a special challenge: They currently provide their services free of charge. Room for expansion for them appears possible only by way of new areas of paid contents.

The funding structures of the media and the telecommunications industries have undergone fundamental change. While the dual system was underpinned by public funds, the framework for the industry is now determined by the international finance markets whose outlook is frequently aimed at only the shorter term.

Technological change goes far beyond the substitution of analogue with digital television: Broadband internet services are increasingly gaining in significance for the distribution of media contents and services, while digital storage technologies impact consumer behaviour and potentially threaten the business models adopted by broadcasters dependent on advertising revenue.

Triple play, i.e. the combination of television, broadband internet and telephony, can be implemented both via cable networks and via telephone networks. The cable industry in Germany is still hemmed in by traditional structures including the separation of the various levels of the network. Its share in broadband internet business is still quite small. Deutsche Telekom only gradually begins to exploit its potential for turning into a major player for the distribution and marketing of media contents. Deficits in competition are setting Germany back in progress internationally.

New funding models will turn to be key for the development of digital television, both regarding cable networks and satellite and terrestrial television; they dominate the competitiveness of the current distribution networks for broadcasting services. Overcoming the funding constraints inherent in advertising revenues and licence fees will open the way for high-quality contents even for smaller target groups. This, however, will again raise the issue what contents should be funded through the licence fee.
The decisive criterion will be the supply of individually addressable receivers which allow users including billing via an individual smart card. This has been an option of telephony networks for quite some time. Will it be possible to win over consumers with attractive contents to buy such sets? To date, the majority of set top boxes only allows for the reception of free TV services.

Or will it have to be “the hard way” of basic encryption, forcing consumers to purchase individually addressable set top boxes as commercial television services cease to be available free-to-air? Could such concepts also present a strategy for cable and satellite transmission?

It will have to be one of these ways. To do nothing would be the worst option of all. The precondition for the acceptance and success of this system changeover is securing the neutrality of the billing platforms and preventing any monopolising of customer relationships: It should be up to the consumer to decide from where he wants to get his broadcast contents.

2. Analogue-digital switchover: a major challenge

The full benefits of the digital technology will only come to bear once analogue transmission has been switched off: For the transition period, broadcasters have to meet the costs of both analogue and digital transmission. The larger the number of digital households, the more new services and applications can develop.

There is no standard model for analogue-digital transition; the various routes of transmission are characterised by differing interests.

Without commercial television, digitisation will not succeed. Additional public-sector services will not provide sufficient attraction to entice consumers to purchase digital receivers. The funding parameters for the commercial television sector will become the main motivation for pushing digital development ahead. This fact should be given greater consideration by politics and regulation.

Cable remains the key for overall digitisation. To date, digitisation in Germany has been driven by two factors: subscription (pay) TV and the incentive to save cable fees by switching to DTT and/or to satellite. Both, however, will not ensure overall digitisation. Cable presents a central economic platform for the development of the German television industry. Only the distribution via digital cable will result in the development of additional formats and contents. Agreement between commercial broadcasters and the cable operators will be decisive for the digitisation of cable networks.

The regulatory authorities for commercial broadcasting in Germany will have to take special care to ensure that local and regional services are also transmitted digitally and do not lose viewers who switch over to digital television reception completely.

Germany has the opportunity to become the first country in the world to achieve analogue-digital switchover for terrestrial television by 2006/2007. The commercial broadcasters will cease analogue terrestrial transmission during 2005. It does therefore not make much sense to continue analogue terrestrial transmission of public-sector broadcasting beyond 2006/2007 with costs increasing in inverse proportion to the number of viewers reached.

The role of terrestrial television in the digital age has to be reassessed. Under the 8th Amendment of the Interstate Broadcasting Treaty, terrestrial television is no longer required to provide universal coverage for all households. This function can also be performed by cable or satellite. The question therefore arises whether funds and spectrum should be tied up in the digital transmission of public-sector services in regions in which the commercial broadcasters cannot afford to provide digital terrestrial coverage, a scenario which offers only little incentive for viewers to purchase digital receivers.
The future use of frequency spectrum must open opportunities for new services (“digital dividend”). The end of analogue transmission can provide new perspectives for digital radio and television as well as for new multimedia services in combination with mobile radio networks. A national frequency chain providing full coverage should be made available for mobile services in 2006.

For satellite distribution, the gap between traditional subscription TV and free TV must be closed. The opportunity to pay for individual contents, even anonymously (pay-per-view, smart card) provides funding options for new services. Competition between cable and satellite platforms must be guaranteed.

3. Public interest and regulation
The analogue dual broadcasting system in Germany was set up with considerable public funds from telephone fees and the licence fee revenues. The influence of media politics on the development of the structures was considerable not only regarding public-service broadcasting, but also regarding commercial broadcasting; as far as digital television is concerned, however, developments will be dominated by market forces to a far greater extent. Politics and regulation can promote an adequate framework which is suited to enhance growth and to promote the diversity of services.

Public interest and regulation can no longer centre on specific networks or traditional functions, but must redefine its objectives which should be independent from transmission technologies. The means chosen must be adapted to match digital developments.

The following sectors of public interest are still in the forefront of current deliberations and debate:

- Securing diversity for the consumer,
- Diversity of services available, preventing predominant influences on option, for the future less vis-à-vis individual broadcasters but more with a view to service platforms and the vertical integration of contents and distribution systems,
- Securing opportunities for the development of local and regional contents (also in the light of the concentration inherent in digitisation),
- Universal (overall) access of consumers to the most important media contents,
- Protection of children and minors,
- Consumer protection,
- Protection of copyrights,
- Developing the media industry as a growth sector and providing investment incentives.

Some aspects of regulation dating from the analogue world can be cut back as new rules become necessary for the digital world. The licencing of television services has lost considerably in significance. With transmission spectrum now in ample supply, decisions on the use of scarce capacities are no longer necessary, leaving as matters for future decision concentration issues and the objective terms for licensing.

In the future, access of broadcasters to cable capacities will depend less on licences and the allocation of scarce capacities; the decisive factor will be in which programme package a service is included and what terms apply for its inclusion.

Choice for the consumer must be secured in the light of new potential positions of dominance. It will be vital to ensure continued choice among the different routes of transmission as well as among programme packages, electronic programme guides and set top boxes.
The prime objective of regulation should be the development of structures permitting the free formation of public opinion and securing diversity of opinions. To realise these requirements of the German Constitution, regulation must work towards securing structures which allow for healthy competition. Objectives in this endeavour are the development of different infrastructures, competing service platforms, the separation of network operations from service marketing activities, and navigation and programme guides which provide viewers with maximum choice.

The anonymous use of individual services using a pre-paid card as already specified in the Interstate Broadcasting Treaty will strengthen consumers provided it is now realised in line with the legal requirements.

By comparison to other countries, Germany has an open digital landscape; this structure must be preserved and enhanced. The greatest deficit currently hampering developments in Germany is the lack of competition among infrastructures for broadband internet services.

Regulation in the digital age is different from that ruling the analogue world, and consequently requires different instruments: The emphasis must be on mediation and the balancing of interests. A prime example is the organisation of the analogue-digital transition of terrestrial transmission by the regulatory authorities. It was not organised by rule of law, but via an agreement with the broadcasters and also took into account the interests of the viewers.

The requirements for free access to digital services laid down in Article 53 of the Interstate Broadcasting Treaty can exert only limited effect concerning the control of abuse. This can be considered acceptable as attempts to block off competition for digital television made during the early days of the digital era have since been over-come.

Co-operation of the regulatory bodies, in particular among the federal network agency, the cartel authorities and the regulatory authorities for broadcasting must be intensified.

The digital world is far more complex than the analogue era, but it is far less transparent. It is therefore up to regulation to analyse new developments and to contribute to their being understood. As neutral institutions, the regulatory authorities for commercial broadcasting will provide up-to-date data and information on the development of digital audience reach on a regular basis and will accompany developments with appropriate studies, or commercial broadcasting will provide up-to-date data and information on the development of digital audience reach on a regular basis and will accompany developments with appropriate studies.
Digitisation of the German television market – facts and figures
1. Objective
In July 2005, the Commission on Digital Access (GSDZ) of the Directors’ Conference of the Regulatory Authorities for commercial broadcasting (DLM) conducted a special national survey on the status of digitisation in German television households.

The survey centres on television reception via TV sets and PCs in the home, looking at both *transmission platforms* (cable, satellite, terrestrial) and *transmission technologies* (analogue or digital).

Television reception is shown per household for a maximum of three television sets. For multi-set measurements, the various transmission platforms accessible to a household were taken into account.

With this approach, the survey clearly differs from the collation of data as conducted by Astra (Astra Satellite Monitor) and television consumption measured by AGF/GfK, both of which allocate individual television households under different priorities to one transmission platform only (satellite, cable or terrestrial).

The GSDZ decided not to adopt this allocation standard so as to be able to outline the overall significance of all transmission platforms for both analogue and digital television reception, thereby also showing the state of digitisation for second and third sets in German television households.
2. Access to digital television

As a first major finding, the survey shows that in July 2005, access to digital television services already stood at 25.7 per cent (8.7 million homes) out of 33.9 million German-language television households. “Access” implies that there is one television set in the household allowing reception of television services transmitted via digital cable, permitting digital satellite or digital terrestrial transmission.

19.1 per cent of households are fully digital, i.e., every television set in the home is equipped with a digital receiver. A further 6.6 per cent of households uses a digital receiver for one television set while also operating other sets suited for analogue reception only.

These second and third sets in a household impact the further development of digitisation. Full digitisation will only be reached once digital reception is possible on all television sets in a household.

Fig. 1 Digitisation in television households, July 2005

Base: 33.899 million TV households in Germany
Source: GSDZ – state of digitisation 07/2005
Television reception as a national average is divided over the three platforms cable, satellite and terrestrial as follows: 51.7 per cent of television households have access to cable television via at least one television set, 43.1 per cent of television households can receive satellite TV via at least one TV set, and 9.7 per cent of TV households resort to terrestrial TV reception.

A comparison of the shares of the three transmission platforms for digital reception provides a profoundly different picture: Only 5 per cent of TV households have access to digital cable. This is due to the fact that digital cable reception is predominantly used for pay (subscription) services. As the commercial advertising-funded channels (RTL, ProSieben, Sat.1 ...) are so far not available in digital cable networks, cable TV households without a pay TV subscription generally only use analogue cable.

In contrast, some 16.7 per cent of all TV households already receive digital satellite transmission on at least one TV set as all analogue services can also be received digitally via satellite. In addition, some channels are transmitted exclusively as digital free-to-view services via satellite.

Some 3.3 million TV households receive services terrestrially over at least one set; of these, 1.5 million – or 4.4 per cent of all TV households – already use a DTT receiver.

![Access totals via cable, satellite and terrestrial](image.png)

Fig. 2 Access totals via cable, satellite and terrestrial
Uptake of digital television is therefore highest for terrestrial reception: 45.6 per cent of all television households using at least one terrestrial receiver can receive television via DTT.

The differences in digital reception via satellite and cable respectively become all the more evident comparing analogue and digital reception by transmission platforms. In households with access to digital television, satellite reception clearly dominates with a penetration of 66.8 per cent. Reception via digital cable ranges at 22.6 per cent, only just matching the uptake of DTT which now already ranges at 18 per cent.
3. Access via the TV sets in the home

The survey also looked at the spread of transmission platforms (cable, satellite, terrestrial) and the transmission technologies (analogue or digital) over the various television sets which can be in use in a household.

For every household, TV reception was established for a maximum three sets, these being the sets most frequently used in the respective household. In the figure below, the sets are shown by order of frequency of use, and are classified as “main set” (set used most frequently or strongly), “second set” (set second in order of frequent use) and “third set” (set ranking third in order of frequency of use).

Approx. one third of all television households (11.17 million households) currently own more than one television set. Some 2.56 million households own three or more television sets.

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**Fig. 5  Sets in television households in million**

<table>
<thead>
<tr>
<th>Sets in home</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum one TV set in home</td>
<td>33.899</td>
</tr>
<tr>
<td>Minimum two TV sets in home</td>
<td>11.166</td>
</tr>
<tr>
<td>Minimum three TV sets in home</td>
<td>2.562</td>
</tr>
</tbody>
</table>

Base: 33.899 million TV households in Germany
Source: GSDZ – state of digitisation 07/2005
The analysis of TV reception via the various sets provides the following results:

Reception via the main set was predominantly by cable, reaching 50.7 per cent. However, only 4.8 per cent of the main sets are able to receive digital cable.

As has already been shown in the access analysis, the share of digital satellite reception via the main set is markedly higher: 16.2 per cent of main sets are equipped with a digital receiver.

Today eight per cent of the TV households use the terrestrial reception on their main set. Almost half of them receive DTT. This amounts to 3.8 per cent of all TV households.

In the 11.17 million households in which more than one television set is in use (multi-set homes), the shares of types of reception for the second set (set coming second in order of frequency of use) mirror the findings relating to the main set. Digital reception is lower via second sets overall for all types of reception. Furthermore, in comparison to the main set and the third set, the analogue terrestrial reception is used most on the second TV set. 6.2 per cent of all multi-set homes use analogue terrestrial reception on their second set.

Television households using more than two television sets show a clear distinction for the third set in use: Satellite reception reaches 51.2 per cent, ahead of cable reception. However, compared to the main set, digital reception is lower for all three transmission platforms.

---

**Fig. 6  Reception via the three TV sets used most frequently**

<table>
<thead>
<tr>
<th></th>
<th>Main TV set:</th>
<th>Second TV set:</th>
<th>Third TV set:</th>
</tr>
</thead>
<tbody>
<tr>
<td>cable</td>
<td>46.8%</td>
<td>46.8%</td>
<td>36.5%</td>
</tr>
<tr>
<td>satellite</td>
<td>26.6%</td>
<td>28.6%</td>
<td>36.0%</td>
</tr>
<tr>
<td>terrestrial</td>
<td>4.2%</td>
<td>6.2%</td>
<td>36.5%</td>
</tr>
<tr>
<td></td>
<td>4.8%</td>
<td>2.4%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

- **Total cable uptake:** 50.7% (digital cable: 1.65m homes)
- **Total satellite uptake:** 42.8% (digital satellite: 5.5m homes)
- **Total terrestrial uptake:** 8.0% (DTT: 1.29m homes)
- **Total terrestrial uptake:** 9.2% (DTT: 0.34m homes)
- **Total terrestrial uptake:** 6.2% (DTT: 0.07m homes)

Source: GSDZ – state of digitisation 07/2005
4. DTT reception in the core areas of transmission

The survey also investigated the uptake of DTT in the core areas of transmission of the DTT regions in Berlin/Brandenburg, Northern Germany, Northrhine-Westphalia, Rhine-Main and Bavaria.

The core areas of transmission comprise the areas allowing for DTT reception inside closed buildings without an outdoor aerial or roof antenna. This type of reception is also described as “portable indoor reception”. The DTT core areas of transmission in each of the DTT regions in Germany cover approx. half of the population for the technical reach overall.\(^1\) (see table 2, p. 28)

Measurements were restricted to the core areas of transmission as almost all households in these areas could take up DTT without any major additional expenditure whereas reception in the peripheral regions of DTT transmission suffers partial interference. Outside the core areas of transmission, DTT does therefore not present a technical option for television reception to every television household. The objective therefore was to measure DTT uptake in the areas offering optimum technical transmission.

Findings show that 10.9 per cent of television households in the DTT core areas now watch television via DTT. Use is concentrated on the main set. On average, 9 per cent of main sets in the core transmission areas are tuned to DTT reception while uptake via second sets only reaches 2.8 per cent.

For the DTT core area of transmission of Berlin/Brandenburg a clearly above-average uptake of DTT reception can be noted: 14.5 per cent of all television households in Berlin and Potsdam can receive television services via DTT. Reception via the main set is 11.6 per cent while uptake for the second set reaches 3.9 per cent, both considerably exceeding national average.

It could be safe to assume that the data for Berlin and Potsdam are due to the fact that complete switchover to DTT in Berlin was already completed in mid-2003 while the other DTT regions in Germany only took up DTT transmission during 2004 and 2005 respectively.

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\(^1\) Overall technical reach includes all television households capable of receiving DTT via an outdoor aerial or roof antenna.
### DTT reception in the DTT core areas

<table>
<thead>
<tr>
<th>Region</th>
<th>Access</th>
<th>Main Set</th>
<th>2nd Set</th>
<th>3rd Set</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berlin/Brandenburg</td>
<td>0.0%</td>
<td>3.9%</td>
<td></td>
<td></td>
<td>11.6%</td>
</tr>
<tr>
<td>Bayern</td>
<td>0.2%</td>
<td>3.1%</td>
<td></td>
<td></td>
<td>11.4%</td>
</tr>
<tr>
<td>Rhein-Main</td>
<td>0.2%</td>
<td>2.2%</td>
<td></td>
<td></td>
<td>10.6%</td>
</tr>
<tr>
<td>SH/HH/NS/HB</td>
<td>0.4%</td>
<td>2.1%</td>
<td></td>
<td></td>
<td>9.0%</td>
</tr>
<tr>
<td>Köln/Bonn/Ruhrgebiet</td>
<td>0.8%</td>
<td>3.0%</td>
<td></td>
<td></td>
<td>7.6%</td>
</tr>
<tr>
<td>DTT core area average</td>
<td>0.4%</td>
<td>2.8%</td>
<td></td>
<td></td>
<td>9.0%</td>
</tr>
<tr>
<td>Average DTT reception in Germany</td>
<td>4.4%</td>
<td>3.8%</td>
<td></td>
<td></td>
<td>3.0%</td>
</tr>
</tbody>
</table>

Base: 9.267 million television households in the DTT core areas
Source: GSDZ – state of digitisation 07/2005
5. Television reception via PC

A further issue raised during the survey is TV reception on the PC and/or portable computers.

Currently, some 3.7 per cent of television households own an PC or a portable computer which is fitted with a TV card allowing for reception via cable, satellite or terrestrial.

The survey established that this includes approx. 1.21 million television households.²

Among the platforms for TV reception via PC, cable clearly features stronger than for traditional TV reception. More than 64.6 per cent of the 1.2 million TV households owning a PC (i.e. 780,000 households) use their cable port. Reception via satellite and terrestrial transmission make up the remaining 35.4 per cent.

Digital television reception via the PC is also led by cable, with DTT already ranking in second place. Mobile television reception which is already possible via small DTT receivers such as memory sticks or PCMCIA cards, will further increase uptake of DTT especially among users of portable computers.

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² It has to be noted that a large number of multimedia PCs now available are fitted with one or more (digital) TV reception cards. However, in many instances this option for TV reception is not used by consumers; telephone interviews also revealed that the feature is not widely known. The households assessed are the homes in which the PC or notebook is actually used for TV reception.
**Methodology**

The survey was conducted with computer-assisted telephone interviews (CATI) on the basis of the ADM telephone random sampling system. The interviews were held during the period 4 – 22 July 2005.

The questionnaire was developed by Goldmedia GmbH in consultation with GSDZ. The survey was carried out by TNS Infratest MediaResearch. The overall population basis for the survey was represented by all German-language private households in Germany, with a projection based on the survey resulting in 35.44 million households. Of these, 95.7 per cent or 33.9 million households own a television set. These 33.9 million television households form the basis for the following presentation of results.

The survey is based on a net number of 5,000 interviews. In each case, the interview was conducted with the person in the household stating that they knew best about television consumption and reception in the household.

Of the 5,000 interviews, 2,500 interviews were conducted with proportional allocation. In addition, the number was increased by 500 interviews each in the core areas of the five current areas of DTT transmission in Germany, namely Berlin/Brandenburg, Northern Germany (Schleswig-Holstein, Hamburg, Lower Saxony, Bremen), Northrhine-Westphalia (Cologne/Bonn, Ruhr area), Rhine-Main area, and Bavaria. The increase by 2,500 interviews aimed at providing a detailed statement on the use of DTT.

**Definition of cable and satellite reception**

Television sets connected to a satellite master antenna system (SMATV) which require no separate receiver are counted as cable reception. Satellite reception therefore only comprises television sets with a satellite receiver. The rationale behind this definition is that the survey was devised to analyse reception from the viewpoint of the television households. SAMTV households without a receiver receive the same services as cable television households.

**Establishing transmission platforms and transmission technologies**

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

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3 ADM = Arbeitsgemeinschaft der deutschen Marktforschungsinstitute (association of German market research institutes).
4 Distribution in accordance with the population statistics of the individual German states.
Development of digital television in Germany to date

1. Development of satellite reception
The SES Astra Satellite Monitor lists 7.1 million digital television households for year-end 2004. This is equivalent to 19.6 per cent of the 36.2 million television households in Germany.\(^5\)

Current growth of digital television households predominantly stems from the increase in digital satellite households and, since 2003, to a considerably lesser degree, from new DTT households.

While until the end of 2000, the number of digital television households largely matched that of digital subscribers to the pay TV platform “Premiere”, the majority of digital satellite households now exclusively receive the free-to-view services of the public-sector and the commercial broadcasters.

For 2004, a specifically large increase was noted: Digital satellite households increased by 1.77 million to 4.51 million households, while the number of new satellite subscribers to Premiere rose only by approx. 175,000 households.

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**Fig. 10 Digital television households by platforms vis-a-vis pay TV subscribers**

<table>
<thead>
<tr>
<th>Year</th>
<th>Digital Satellite</th>
<th>Digital Cable</th>
<th>DTT</th>
<th>Pay TV Subscribers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>0.52</td>
<td>0.89</td>
<td>1.43</td>
<td>3.90%</td>
</tr>
<tr>
<td>2000</td>
<td>1.43</td>
<td>1.39</td>
<td>2.4</td>
<td>6.39%</td>
</tr>
<tr>
<td>2001</td>
<td>1.62</td>
<td>2.1</td>
<td>2.74</td>
<td>7.75%</td>
</tr>
<tr>
<td>2002</td>
<td>2.74</td>
<td>2.74</td>
<td>4.51</td>
<td>10.26%</td>
</tr>
<tr>
<td>2003</td>
<td>13.11%</td>
<td>13.11%</td>
<td>19.52%</td>
<td>13.61%</td>
</tr>
<tr>
<td>2004</td>
<td>6.02</td>
<td>3.90%</td>
<td>1.98</td>
<td>19.62%</td>
</tr>
</tbody>
</table>

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Sources: SES Astra, Premiere\(^4\), data provided by the cable operators, Goldmedia calculations

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\(^5\) The SES Astra Satellite Monitor predicts 38 million households in Germany for the end of 2004. Of these, 36.18 million own a television set (36.18 million television households).

\(^6\) Including Premiere subscribers in Austria and Switzerland
This development is matched by the sales figures for satellite receivers: In Germany, more than two million analogue and digital satellite receivers are sold every year, with the figure clearly on the increase. Since 2003, sales of digital set-top boxes have far exceeded sales of analogue sets. In 2004, approx. 1.9 million digital satellite receivers were sold. For 2005, Gfu (Gesellschaft fuer Unterhaltungselektronik) forecasts sales of approx. 2.2 million digital satellite units.

A comparison of this figure to the increased range in satellite reception reveals that only approx. 25 per cent of receivers purchased during 2002 and 2003 were bought for new satellite television access while the remainder serve as replacements of analogue receivers. In 2004, the percentage of new sets bought increased to more than one third of overall sales.

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**Fig. 11  Sale of satellite receivers in Germany, in million units and annual increase in satellite reception**

3 satellite receivers sold in mln. units  1.2 increase in platforms, in mln. homes

<table>
<thead>
<tr>
<th>Year</th>
<th>Digital Satellite Receivers</th>
<th>Analog Satellite Receivers</th>
<th>Increase in Primary Satellite Reception</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>0.47</td>
<td>1.34</td>
<td>0.71</td>
</tr>
<tr>
<td>2003</td>
<td>1.03</td>
<td>1.51</td>
<td>0.65</td>
</tr>
<tr>
<td>2004</td>
<td>1.01</td>
<td>1.90</td>
<td>1.01</td>
</tr>
</tbody>
</table>

Sources: SES Astra, Gfu/GfK
2. Cable penetration

In Germany, cable still features top for television reception. According to data collated by SES Astra Satellite Monitor, some 53.5 per cent of German television households received television via cable at the end of 2004. However, this transmission platform is coming increasingly under pressure since the introduction of DTT has now opened up a second option for German viewers next to satellite to watch television services without having to pay a cable fee.\(^7\)

The Astra data on audience reach show a decline in cable reception by almost four percentage points over the last two years whereas digital satellite reception is clearly on the increase. Published customer data of the cable network operators (homes connected) do at least not reveal any increase for cable.\(^8\)

It is safe to assume that this trend will continue over the next few years. There is a considerable number of cable households which could install a satellite dish on the roof without infringing any proprietary rights of a landlord or decisions of an association of tenants or proprietors. On the other hand, the massive increase in the number of people moving to Germany from Eastern Europe gives satellite reception in Germany a further push upwards.\(^9\)

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\(^7\) It has to be noted that for rented accommodation, the cable fee is usually collected together with the rent, making it impossible to terminate the cable connection individually.

\(^8\) Growth indicated by some cable network operators is usually achieved by acquiring new networks or residential units. Source: Goldmedia (2004): “Media Transmission Infrastructures 2009”

\(^9\) see also Goldmedia (2004): “Media Transmission Infrastructures 2009”
An additional factor impacting the choice for cable or satellite reception might be the growing supply of German-language television channels available only via the Astra digital satellite system, but not via analogue cable or digital cable without extra expenditure.

Digital cable reception is currently almost exclusively geared at pay (subscription) television. According to SES Astra, of the 1.99 million digital cable TV households, an estimated 1.73 million have subscribed to pay TV. They include approx. 1.52 million Premiere subscribers. The other 216,000 television households subscribe to foreign language packages or a German-language pay TV package offered by one of the major cable network operators or Eutelsat (“Kabelkiosk”) which is not coupled with a Premiere subscription. A further 260,000 cable television households use the digital decoder exclusively for free-to-view reception.

Kabel Deutschland (KDG) now ranks second after Premiere as a supplier of pay TV services via cable. KDG has been marketing a range of foreign-language packages and since 2004 also offers a German-language pay TV package called “Kabel Digital Home” offering 31 channels. This pay TV package is now also marketed by several smaller cable network operators.

Ish, the cable network operator in Northrhine-Westphalia which was taken over at the beginning of 2005 by the Hesse network provider Iesy, has also been offering its own German-language digital pay package for a number of years. The product range of Primacom, another cable operator, also includes German-language digital pay television packages which are also available from Eutelsat since late 2004 under the “Kabelvision” brand. Several cable networks such as Tele Columbus or ewt/tss now also supply “Kabelvision” via their networks.

10 Goldmedia estimate
11 Goldmedia estimate
According to consumer electronics analyst, GfU, sales of set-top boxes for digital cable reception during 2004 reached approx. 250,000 units, which roughly corresponds to the growth of cable pay television subscriptions during 2004. For 2005, GfU forecasts sales of approx. 450,000 set-top boxes for digital cable. Growth rates will only become substantially higher by taking in the digital cable television households which are mainly interested in the basic package comprising the free-to-view television channels. To achieve this end, the general commercial channels offered by RTL and ProSiebenSat.1 must be digitally transmitted in cable networks.\(^\text{12}\)

### Table 1: Digital pay TV on offer in Germany

<table>
<thead>
<tr>
<th>Provider</th>
<th>digital pay TV services</th>
<th>Technical reach in households/connected cable TV households</th>
<th>Pay TV subscribers in cable networks, end 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pay TV providers independent from networks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Premiere</td>
<td>Premiere 1–7, Premiere Sport 1–2, 15 thematic channels, near-VoD: Premiere Direkt 1–4, Premiere Erotik 2–3, Blue Movie, video on demand</td>
<td>Technical reach: all TV households in Germany; according to Astra: 36.2 million</td>
<td>3.25 million subscribers 50 per cent each via cable and satellite respectively</td>
</tr>
</tbody>
</table>
| **Eutelsat** | Kabelkiosk  
- Visavis (foreign-language package)  
- Kabelvision (Prima German-language pay TV package)  
no direct marketing to TV households, marketing only via cable network operators | Various cable networks (agreements with level 4 cable network operators including Tele Columbus, Prima, NetCologne, Bosch, broadband cable networks, ewt/tts), approx. 6 million households passed | no official data |

**cable network operators**

<table>
<thead>
<tr>
<th>Provider</th>
<th>digital pay TV services</th>
<th>Technical reach in households/connected cable TV households</th>
<th>Pay TV subscribers in cable networks, end 2004</th>
</tr>
</thead>
</table>
| Kabel Deutschland | Kabel Digital Basic (Premiere Start, Premiere Erotik)\(^\text{1}\)  
Kabel Digital Home (31 additional channels)  
Kabel Digital International (7 language packages totalling 26 channels) | 3.4 million direct customers 10.4 million indirect customers via level 4 network operators | 175,000 subscribers, including  
- 75,000 subscribers for Kabel Digital Basic and Kabel Digital Home  
- 100,000 subscribers for Kabel Digital International (foreign-language packages) |
| UNITY Media  
(Ish und iesy) | Ish Plus TV (various packages)  
near-VoD: Ish Kino  
Ish International | approx. 5.2 million households | 52,600 (German-language pay TV service and foreign-language packages) |
| Primacom | Prima TV (various packages)  
near-VoD: Movies & More, hot x  
Prima TV International | approx. 0.45 million households | 11,570 (German-language pay TV service and foreign-language packages) |
| Kabel-Baden-Wuerttemberg | Various foreign-language packages  
Kabel Digital foreign languages  
Re-marketing of Kabel Digital Home Premiere | approx. 2.3 million households | 31,750 (foreign-language packages) |

\(^\text{1}\) Kabel Deutschland announced in early August 2005 that it will discontinue the “Kabel Digital Basic” range including marketing of “Premiere Start”.  
Source: Company data/Goldmedia research

\(^{\text{12}}\) Some d-Boxes remain in use even after churn of a Premiere subscription. Furthermore, several thousand set-top boxes which were sold with Open-TV or MHP middleware during the first years of digitisation prior to the sale of Kabel Deutschland are still in use. However, as these digital cable units can receive only the digital channels offered by the public-service broadcasters (the rest being encrypted), free-to-view boxes do not play a major role for television consumption. One exception is presented by the upgraded cable islands of Tele Columbus (e.g., in Ludwigshafen or Potsdam) and of Kabel Baden-Wuerttemberg. The network operators in these cable networks offer additional thematic television channels free of charge in the form in which they can be received via Astra Digital. These channels can be watched on any receiver for digital cable.
3. DTT uptake

In many densely-populated areas of Germany, DTT has established itself as an alternative digital platform to digital satellite reception. Currently, seven regions in eight of the German states operate regular DTT services. Start in the other seven German states is planned for the next two years. Technical reach by September 2005 is 37 million persons, equivalent to approx. 17.7 million households.

By the end of 2004, sales of DTT receivers reached 1.7 million units. According to Astra data, approx. 620,000 units were used with the main television set. More than one million DTT receivers therefore serve for watching television via the second or third sets at home.

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13 The figure does not include DTT receivers in multimedia PCs.
Due to the decrease in signal strength, this is only possible in the DTT core areas of transmission. Maximum technical range in the DTT areas includes all households capable of receiving DTT with a fixed outside aerial or roof antenna.

The commercial broadcasters do not transmit their services via DTT in these areas due to the low density of population.

Source: DTT project office, Goldmedia

<table>
<thead>
<tr>
<th>DTT region</th>
<th>start of regular service</th>
<th>services</th>
<th>maximum technical reach and portable indoor reception</th>
<th>DTT receivers sold by end-2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berlin/Brandenburg</td>
<td>01.11.2002 (04.08.2003)</td>
<td>seven bouquets: 27 channels with 29 services + 4 ARD/ZDF MHP services</td>
<td>max. technical reach: 5 incl. portable Indoor: 3</td>
<td>274,000</td>
</tr>
<tr>
<td>Schleswig-Holstein/Hamburg</td>
<td>08.11.2004</td>
<td>Hamburg/Lübeck five bouquets: 19 channels with 24 services, + ZDF Digitext (MHP service) Kiel/Flensburg six bouquets: 22 channels with 27 services plus ZDF Digitext</td>
<td>max. technical reach: 6.1 incl. portable indoor: 3.3</td>
<td>590,000</td>
</tr>
<tr>
<td>Niedersachsen/Bremen</td>
<td>24.05.2004 (08.11.2004)</td>
<td>six bouquets: Bremen 24 channels with 26 services plus ZDF Digitext Hannover/Braunschweig 23 channels with 25 services plus ZDF Digitext</td>
<td>max. technical reach: 6.7 incl. portable indoor: 2.6</td>
<td></td>
</tr>
<tr>
<td>Nordrhein-Westfalen</td>
<td>24.05.2004 (04.04.2005)</td>
<td>Ruhrgebiet/Düsseldorf/Köln-Bonn six bouquets: 19 channels with 21 services plus ZDF Digitext Oberbergischer Kreis three bouquets: 12 channels with 14 services plus ZDF Digitext²</td>
<td>max. technical reach: 7 incl. portable indoor: 3</td>
<td>590,000</td>
</tr>
<tr>
<td>Hessen</td>
<td>04.10.2004 (06.12.2004)</td>
<td>Frankfurt/Wiesbaden/Mainz six bouquets: 23 channels with 25 services plus 2 ARD/ZDF MHP services</td>
<td>max. technical reach: 6.4 incl. portable indoor 3.2</td>
<td>264,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kassel: start date not clear Kassel three bouquets ¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bayern</td>
<td>31.05.2005 (31.08.2005)</td>
<td>six bouquets: München 24 channels with 26 services plus Vodafone DVB-H Nürnberg 24 channels with 26 services plus ZDF Digitext</td>
<td>max. technical reach 6.2 incl. portable indoor 2.9</td>
<td>—</td>
</tr>
<tr>
<td>total</td>
<td>—</td>
<td>—</td>
<td>~37 million inhabitants</td>
<td>1.7 million</td>
</tr>
</tbody>
</table>

¹ “portable indoor” includes the number of inhabitants technically capable of receiving DTT in closed rooms using a mobile rod antenna.
² Due to the decrease in signal strength, this is only possible in the DTT core areas of transmission. Maximum technical range in the DTT areas includes all households capable of receiving DTT with a fixed outside aerial or roof antenna.
³ In these areas, only the public-sector services are transmitted via DTT.

The commercial broadcasters do not transmit their services via DTT in these areas due to the low density of population.

Source: DTT project office, Goldmedia
The range of services available in the various DTT regions in Germany differs. Most of the regions presently offer five to seven packages including up to 27 public-sector or commercial channels and additional services (MHP, in the near future also radio).

For a number of other DTT regions planning uptake between the end of 2005 and 2007, commercial broadcasters indicate that their services will not be available via DTT for cost reasons.

Alongside Astra Digital, DTT is developing into a major force driving digitisation of German television households. In six out of seven federal states showing above-average digitisation, public-sector and commercial television channels are also transmitted via DTT.

### Table 3  Future DTT distribution in Germany (not including RTL and ProSiebenSat.1 services)

<table>
<thead>
<tr>
<th>DTT region</th>
<th>Planned start of regular service</th>
<th>services</th>
<th>maximum technical reach and portable indoor reception million inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sachsen, Sachsen-Anhalt, Thüringen</td>
<td>start Dec. 2005</td>
<td>three bouquets: approx. 12 services</td>
<td>max. technical reach: 2.3 incl. portable indoor: 1.4</td>
</tr>
<tr>
<td>Mecklenburg-Vorpommern</td>
<td>end of 2005 early 2006</td>
<td>two – three bouquets: approx. 8–12 services</td>
<td>max. technical reach: 6 incl. portable indoor: 4</td>
</tr>
<tr>
<td>Baden-Wuerttemberg</td>
<td>start 2006</td>
<td>three – four bouquets: approx. 8–12 services</td>
<td>max. technical reach: 6.4 incl. portable indoor: 2.1</td>
</tr>
<tr>
<td>Rheinland-Pfalz/Saarland</td>
<td>start 2006</td>
<td>four bouquets: approx. 16 services</td>
<td>max. technical reach: 2.5&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>total</td>
<td>—</td>
<td>—</td>
<td>forecast: approx. 17.2 million additional inhabitants</td>
</tr>
</tbody>
</table>

<sup>1</sup> In the eastern part of Rheinland-Pfalz, the DTT signals for Hessen can already be received (see Hesse).

Source: DTT project office, Goldmedia
4. DTT in Europe – a look elsewhere

Comparing the number of German digital TV households to other western European countries, Germany ranks on position two, behind the UK.

With regard to the size of Germany’s population the current rate of penetration for digital television of 19.6 per cent of all households (YE 2004)\(^{14}\) can only be described as average. Countries like Ireland, Norway or France have already achieved a much higher penetration of digital TV within their TV homes.

\(^{16}\) Source: Screen Digest

\(^{14}\) Source: SES Astra
The reasons for the slow growth of digital television reception in Germany are manifold. A major factor is the slow extension of the cable networks which is due, among other things, to the long-drawn-out sales process.\textsuperscript{15} The second major reason is the fact that more than 30 advertising-funded general and thematic channels are available as free-to-view services. This comprehensive free-to-view range hampered the development of (digital) pay television market in Germany in considerable measure. In highly digitised television markets such as the United Kingdom or France, digitisation was above all driven by the development of digital pay TV platforms. Their growth and success, however, was fostered very largely by the much smaller range of free-to-view television channels compared to Germany.

Digitisation enabled pay TV providers to market a large number of additional channels in packages alongside their own pay television channels, thereby enhancing attractiveness of the overall range of services available to television viewers. Establishing various pay television packages (e.g., Family, Sport, Action ...) and a steadily growing number of television channels also led to a significant increase in subscriber figures in the United Kingdom and in France.

\textsuperscript{15} Deutsche Telekom started in 1998 to divest of the regional subsidiaries of Kabel-Deutschland; by late 2001, only three networks (Northrhine-Westphalia, Baden-Württemberg and Hesse) had been sold. Thereafter, only the group of investors which bought the network in Northrhine-Westphalia pushed digitisation of television services via upgrading the networks and bundling new service packages while the other two network operators concentrated on core business (analogue cable reception) and broadband internet services. The remaining six regional cable networks were sold only in spring 2003 to a group of investors (Apax, Goldmann Sachs und Provident Equity Partners). As a result, Kabel Deutschland only took up roll-out of additional digital television services under the “Kabel Digital” label in 2004.
Commission on Digital Access

Who we are

In Germany, broadcasting and broadcasting regulation are organized at state level. The 15 German regulatory authorities who are in charge of the commercial broadcasting sector, cooperate in all national issues relating to the licencing and monitoring as well as the promoting and fostering of commercial broadcasting in Germany. To this end, they established the Directors' Conference (DLM) and the association of regulatory authorities (ALM).

The advance of the new digital technology has brought with it new tasks, e.g., the handling of cable networks or the management and safeguarding of access to digital platforms for both public and commercial broadcasters. To deal with all of these issues, the DLM set up the Digital Access Commission.

The Digital Access Commission has made it its main objective to establish a network for all players and sectors relating to digital access through internal and external communications: It combines and coordinates the technical competence and experience of the regulatory authorities in this field. It acts as a contact for the industry and as a one-stop agency, thus cutting down on red tape and providing a service for all players. It also cooperates with the Federal Cartel Office and the Regulatory Authority for Telecommunications and Post, thereby underlining the federal character of broadcasting and broadcasting regulation in Germany.