Regulierungsbehörde für
Telekommunikation und Post

Reg TP

Reg TP

Mid-Year Report 2000

Regulatory Authority for
Telecommunications and Posts
(RegTP)

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Consumer Advice

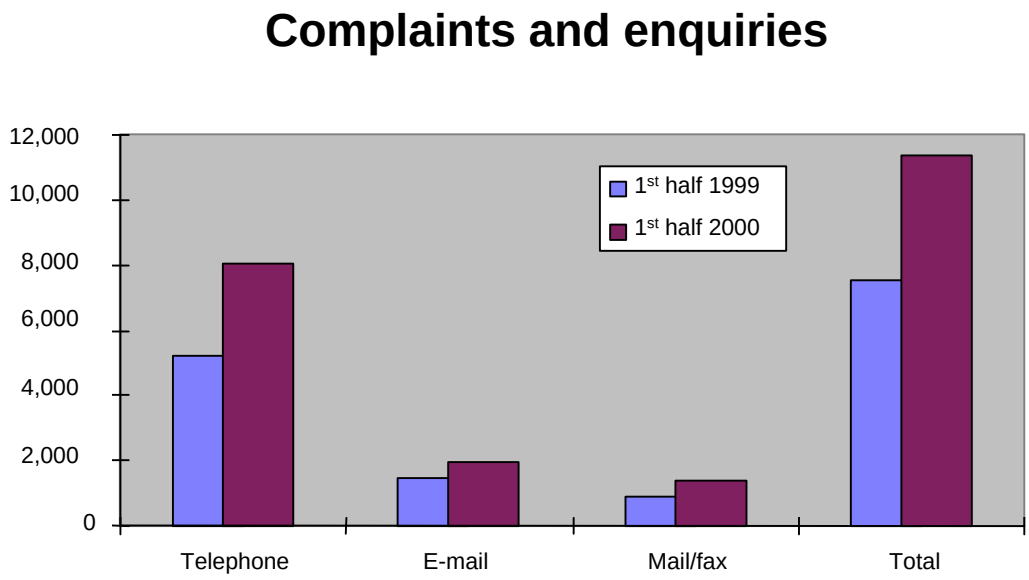
Telecoms

The RegTP has pursued its policy to provide an information and enquiry point to telecoms and postal service users. **In the six months to 30 June 2000** its Consumer Advice service received complaints and enquiries from **well over 11,000 consumers**, 4,000 more than in the same period last year.

The breakdown of the **top issues** raised is as follows:

	1999	1st half 2000
Problems with bills	18.0%	19.3%
Number allocation	13.4%	15.5%
Contractual matters	11.8%	11.1%
Information requests (providers' addresses, etc)	11.6%	11.0%
Charges	8.7%	7.5%
Itemised billing	9.5%	4.6%
Miscellaneous enquiries	4.7%	3.8%

Complaints made up 38 percent of all the letters, faxes, e-mails, and telephone calls received, but almost 90 percent of the letters and faxes.



Most of the complaints mailed were about problems with bills, many calling on the RegTP to act as an impartial intermediary to find a solution out of court. There were also a large number of enquiries about how numbers are allocated, and

about the possibility of keeping numbers when changing operator, address, or from an analogue to a digital line.

Many consumers mistake the RegTP for a watchdog for the individual service providers, to whom they can voice complaints about breaches of contract (products, deadlines, prices, etc) and poor customer service (availability, complaints handling, hotline service competence, etc).

Conciliation

Under Section 35 of the Telecommunications Customer Protection Ordinance (TKV) a customer claiming that his rights have been infringed may call on the RegTP to conciliate in a dispute between himself and his voice telephony or public telecoms network access provider. **In the first half of 2000**, the RegTP received **around 200 requests to assist in reaching a solution out of court**, about twice as many as in the previous six months. The RegTP sees this as an indicator of the take-up and use by customers of this route to settle cases out of court. And it is the customers in particular who increasingly see this as beneficial to protecting their rights. Some 40 percent of disputes were successfully resolved with the RegTP acting as intermediary. The service providers themselves have, however, been slower in taking up the chance to actively shape the resolution of problems.

The main causes of the disputes were
– lack of transparency in telephone bills,
– complaints about the quality of telecoms and customer services, and
– suspected double charging.

Favourable status list

Under Section 14 of the TKV all voice telephony providers must, on request, provide customers with a free, standard itemised bill. The RegTP keeps a list of providers voluntarily certifying that they meet this requirement, which is available on the RegTP's web site. Providers are keen to join the list, which improves customer protection by increasing transparency in choosing providers and dealing with itemised bills.

Universal services

In accordance with Sections 18 and 19 of the Telecommunications Act (TKG), the RegTP will only oblige a company to provide universal service if supply in the relevant product market is inadequate, and remedial action is needed. That has not happened so far. All the same, Deutsche Telekom AG (DTAG) – even though it no longer holds the voice telephony monopoly – is required under Section 97(1)

of the TKG to notify the RegTP one year before it plans to make any changes in the scope or conditions of its universal services.

The RegTP's activities have matched the aim of the EU's regulations: to leave the supply of universal services to market forces, and to take regulatory action when – and only when – supply is inadequate.

The RegTP has, for example, assisted individual customers in asserting their rights for network access (telephone lines) or entry in public directories.

The RegTP has also been active on the issue of public telephones, provision across the country being classed as a universal service. Owing to the boom in the mobile market – **with customer numbers growing at a current rate of over 2 million and already totalling more than 35 million** – and fully satisfied demand for fixed telephone lines, there has been a recent turnaround in call patterns, with a clear drop in the demand for public telephones.

DTAG confirmed its commitment to meet the universal service requirement. However, in order to guarantee nationwide access while also achieving cost efficiency in both urban and rural areas, it drew up a concept for a one-year pilot scheme introducing a less sophisticated, "basic" telephone. At the same time, DTAG pledged not to reduce the number of public telephones without the local community's agreement while the scheme was running.

The RegTP's Advisory Council at its 10th meeting on 8 February 1999 noted with approval DTAG's criteria for ensuring nationwide provision of public telephones. The criteria took effect on their publication in Official Gazette 6/1999, Communication 127/1999. Following a change in DTAG's timetable, the period of applicability was extended to October 2000 (Communication 195/2000 in Official Gazette 6/2000 of 22 March 2000), after which the RegTP will review the criteria in light of the outcome of the project. DTAG confirmed its pledge for the entire duration of the scheme.

Postal Sector

Universal services

The services designated as universal services in the Postal Act (PostG) and Postal Universal Service Ordinance (PUDLV) are in appropriate and adequate supply in the market. The minimum quality standards as required under the PUDLV are all met; this is particularly true in respect of fixed facilities and letter delivery times. No intervention by the RegTP has been necessary to date; nor, most importantly, has any company had to be charged with providing universal service (see p49 for further details).

Customer protection

In the first six months of 2000, the RegTP recorded a total of **163 written proposals** from postal service customers. Added to this were the numerous telephone enquiries, which can usually be dealt with on the spot, with **nearly 500 e-mail and telephone** queries being received by the Consumer Advice service.

The main issues raised included
- delivery problems, delivery times, loss of letters;
- fixed facilities being closed, or branches transformed into agencies;
- services provided by different Deutsche Bundespost successor companies (eg telephone directories, postal banking); and
- dissatisfaction with other Deutsche Post AG (DPAG) services (eg redirecting post).

Around half of the letters – those on universal service quality standards – qualified as customer proposals within the meaning of the PUDLV. The RegTP has a policy of replying to these proposals in writing, consulting with the service provider as and when necessary. Experience has shown that this route is a faster and less complex way of helping customers than any official, legal alternative.

The other half of the letters concerned consumer protection issues, and in most cases the legal relationship between postal service providers and customers (⇨ the scope of the Postal Services Ordinance as provided for by the PostG). Here the RegTP tries – wherever possible – to assist both sides in reaching an amicable solution.

Telecoms and Postal Service Jobs

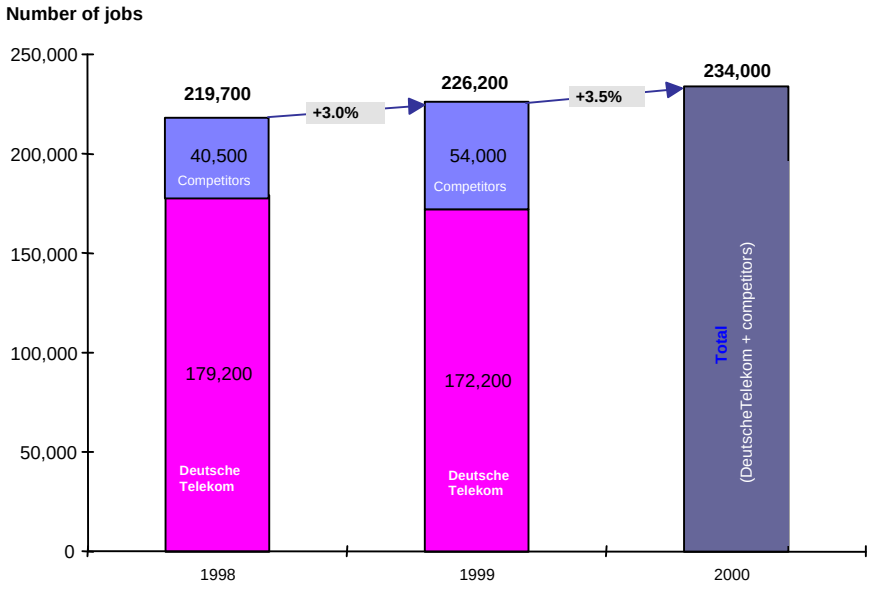
Telecoms

At the end of 1999, there were **226,000** people working in the German telecoms market, up by **6,000**, or 2.73 percent, from 1998. The 13,000+ jobs created by Deutsche Telekom's competitors (providing licensable, licence-exempt, and cable television (CATV) services) more than compensated for the loss of nearly 7,000 jobs at Deutsche Telekom.

This positive trend is due to the lower rate of **job cuts at Deutsche Telekom - 3.9 percent in 1999, compared with 6.2 percent in 1998 –** coupled with a constant demand for staff at its competitors.

The RegTP expects jobs to rise in 2000 by 3.5 percent to 234,000.

Growth in jobs



In 1999 mobile operators (Class 1 licence holders) had 21,200 staff on their payrolls, and fixed line operators (Class 3 and 4 licence holders, excluding Deutsche Telekom) 25,000. By the end of 2000, the growth rate in the mobile segment is expected to overtake that in the fixed sector, where growth is visible, but slowing: forecast is 41 percent, or 8,600, extra jobs with the mobile operators, against 24 percent, or 6,000, in the fixed segment.

Postal Services

DPAG's 1999 Annual Report shows further downsizing. In 1999 staff numbers fell by around 5 percent, or 12,000, to 244,000 (against 315,000 in 1995). But the cuts cannot be accounted for by lower revenues or sales in its letter post business: DPAG repeated its performance of previous years by recording an increase in both sets of figures.

The other letter post licence holders currently employ almost 27,000 staff, with 2,272 working full-time and 4,160 part-time. These jobs would not exist without the licence holders: their staff – not in urban, but in structurally weak areas – would presumably be unemployed.

Licence holders' staff (excluding DPAG)
(1 November 1999)

Full-time	Part-time	In insignificant employment
2,272	4,160	**19,190**
Staff liable to social insurance contributions ⇨		3,138

These figures include staff employed by holders of an old-type licence granted as an exemption from the statutory monopoly before the PostG took effect, and valid at the most until 2007. The licences do not set any working condition standards, and in this respect are not subject to the PostG.

The breakdown of staff numbers by licence type is as follows:

Breakdown of staff by licence type			**In insignificant employment**	
Holders of	**Full-time**	**Part-time**	**Total**	**Liable to social insurance**
Old-type licence	208	674	8,443	1,499
Licence granted under the PostG	2,064	3,486	10,747	1,639

Three quarters of the staff working in insignificant employment for holders of a licence granted under the PostG are at three large companies with more than 1,000 employees:

Staff at holders of a licence granted under the PostG			**In insignificant employment**	
	Full-time	**Part-time**	**Total**	**Liable to social insurance**
Large companies (> 1,000 on payroll)	451	2,462	7,887	---
Small and medium enterprises (SMEs)	1,613	1,024	2,860	1,636

These three companies already operated before they were granted a licence, as distributors of, for example, advertising material, unaddressed mail, newspapers, and magazines. The extra work involved in their licensed activity amounts to two weekly hours per employee.

Breakdown of jobs by federal state

	Density[1)]	Full-time	Part-time	In insig-nificant employ-ment	Liable to social insurance
Baden-Württemberg	107	81	195	820	188
Bavaria	30	228	39	89	50
Berlin	77	210	40	12	8
Brandenburg	**918**	88	499	1,707	54
Bremen	**406**	46	142	85	71
Hamburg	64	83	7	19	16
Hesse	26	36	96	25	0
Mecklenburg-Western Pomerania	**1,070**	80	6	2,055	1,674
Lower Saxony	178	318	262	794	431
North-Rhine/Westphalia	**435**	682	2,235	4,908	312
Rhineland-Palatinate	92	15	40	311	0
Saarland	42	23	20	3	2
Saxony	**1,676**	147	481	6,915	127
Saxony-Anhalt	**851**	97	48	2,239	93
Schleswig-Holstein	86	95	43	95	42
Thuringia	65	43	7	113	67
Average/Total	**325**	2,272	4,160	20,190	3,135

[1)] **Density** = number of jobs per one million inhabitants (job density)

This shows, for example, the remarkably high density of jobs with licence holders in Brandenburg, Bremen, Mecklenburg-Western Pomerania, Saxony, Saxony-Anhalt, and North-Rhine/Westphalia.

Telecoms Market Watch

Growth in the services market

In its 1998/1999 report on activities published in December 1999, the RegTP estimated moderate revenue growth of one percent for the telecoms services market as a whole. Since then, the market has been reanalysed, and the figures have now been revised.

Revenues in the telecoms services market in Germany rose in 1999 by 10 percent, from around DM 86 billion to some DM 95 billion.

Market volumes

Revenues (DM billion)[1]	*1998*	*1999*
Total market	**86.4**	**95.5**
Fixed line services	45.8	41.9
Mobile telephony	18.6	24.9
Leased lines	2.1	2.1
Carrier services	3.5	7.1
CATV	4.5	4.6
Other services	11.9	14.9

The key driver is mobile communications: growth in 1999 mobile telephony revenues – the result of a 70 percent leap in customer numbers – more than offset the fall in fixed line telephony, itself the result of price cuts.

Carrier service revenues more than doubled on account of a large number of interconnects between fixed networks, and fixed and mobile networks. There was also noticeable growth in revenues from "other services"[2], the primary driver being the boom in Internet and other data services.

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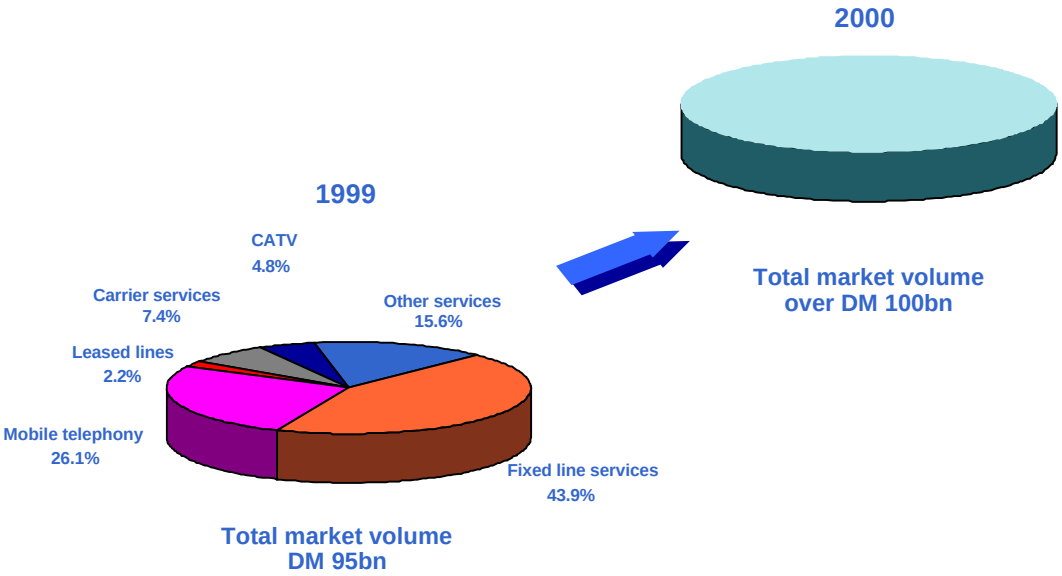
1 Excluding invoicing for other companies, internal revenue, and revenue from international interconnect services (included under carrier services in the RegTP's 1998/1999 report on activities).

2 For example, data services, Internet access, carriers' revenues from equipment, telephone directories, other radiocommunication services (eg broadcast transmitters, satellite services).

Growth in the services market 1999-2000



In light of the sharp increase in mobile and Internet customer numbers, the RegTP expects further growth this year. The revenue forecasts will, however, have to take account of the continued price cuts in mobile and other services. Revenue well in excess of DM 100 billion is likely.

The continued rise in the number of licence holders is an indicator of the competitiveness of the telecoms market. **By the end of June 2000, 305 companies had been granted a network or voice telephony licence.**

The increasing number of players and the use of new technologies in fixed networks (optical fibre, wireless local loop (WLL) radio relay, digital subscriber line (DSL)) and in mobile networks (general packet radio service (GPRS), high speed circuit switched data (HSCSD)) will again result in extensive investment activity. The German telecoms market, as the largest in Europe, is also an attractive target for foreign investment. More than 15 companies are in the process of rolling out fibre optic networks – including some metropolitan area networks (MANs) – in Germany, as part of their pan-European infrastructures.

Both national and regional operators are setting up collocation rooms[3] for unbundled access to the local loop, to provide customers with integrated services digital network (ISDN) or DSL lines. 18 WLL licence holders are investing in radio-relay infrastructure to connect customers on network peripheries.

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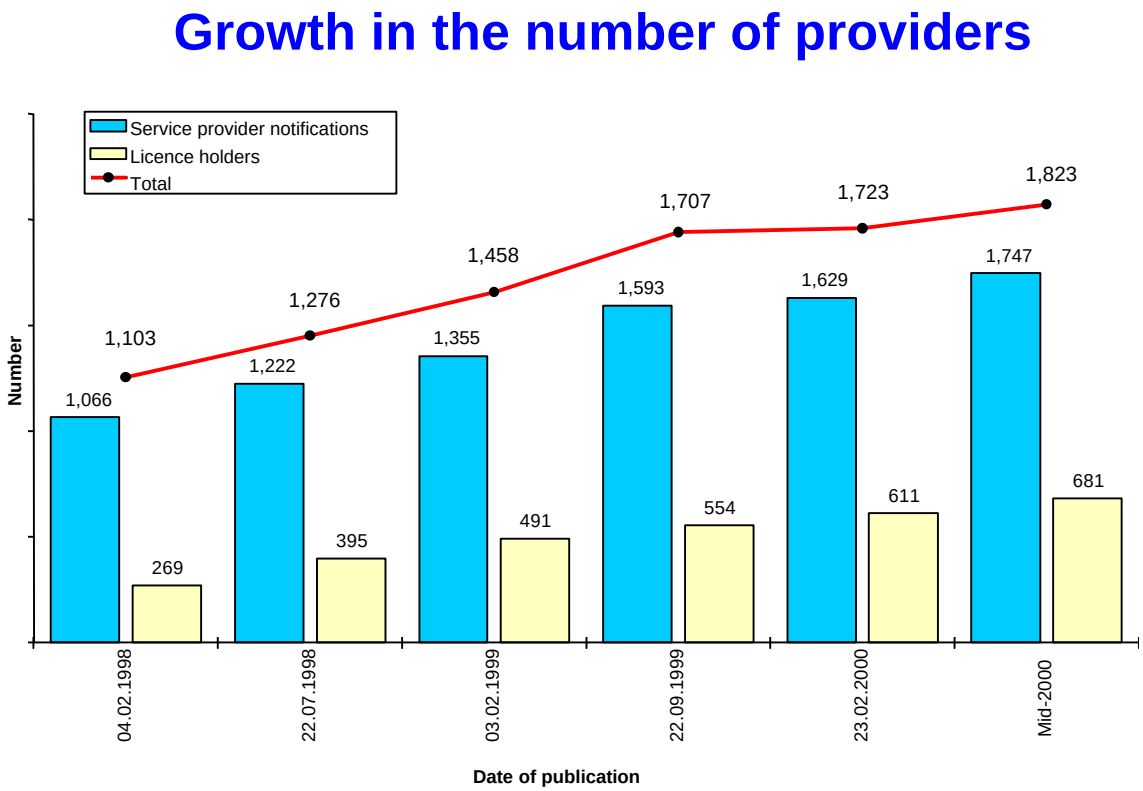
[3] Centres and facilities at or near DTAG's network nodes, at which traffic is handed over to DTAG's competitors.

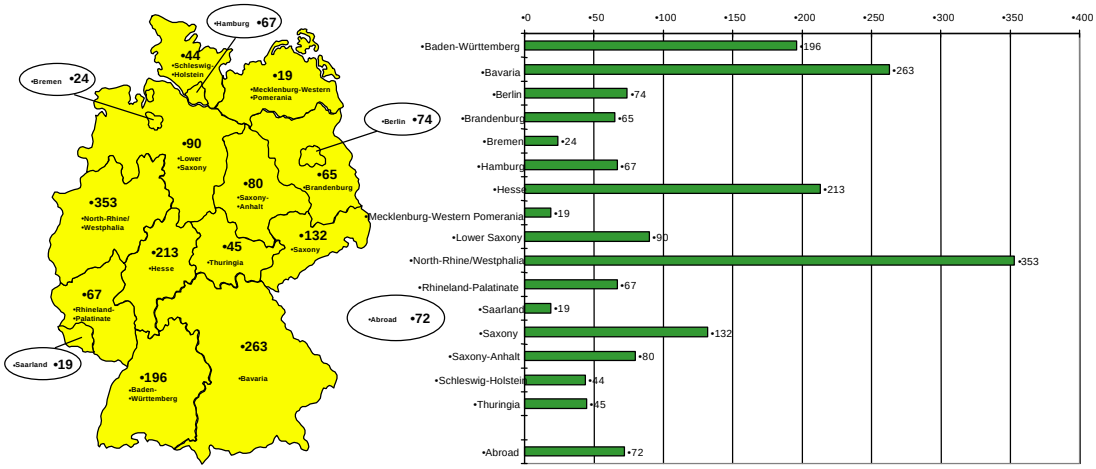
Service providers

The intensity of competition in the German telecoms market is reflected in the consistently high number of providers, mergers in the industry notwithstanding. Currently registered are more than 1,800.



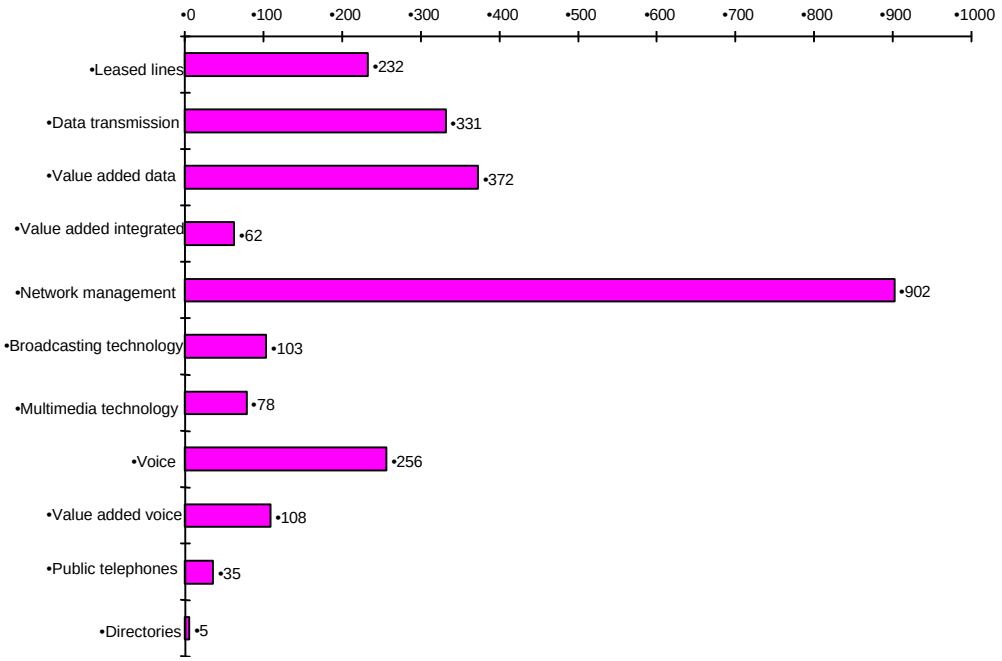
Under Section 4 of the TKG, everyone providing service must notify the RegTP accordingly. Most of the new providers are active in the business of voice telephony or the Internet (access provision). Lists of providers and licence holders are available on the RegTP's web site at www.regtp.de ("Telecoms Regulation" ⇨ "Telecoms Service Providers" or "Licences under the Telecommunications Act").

Regional distribution of providers

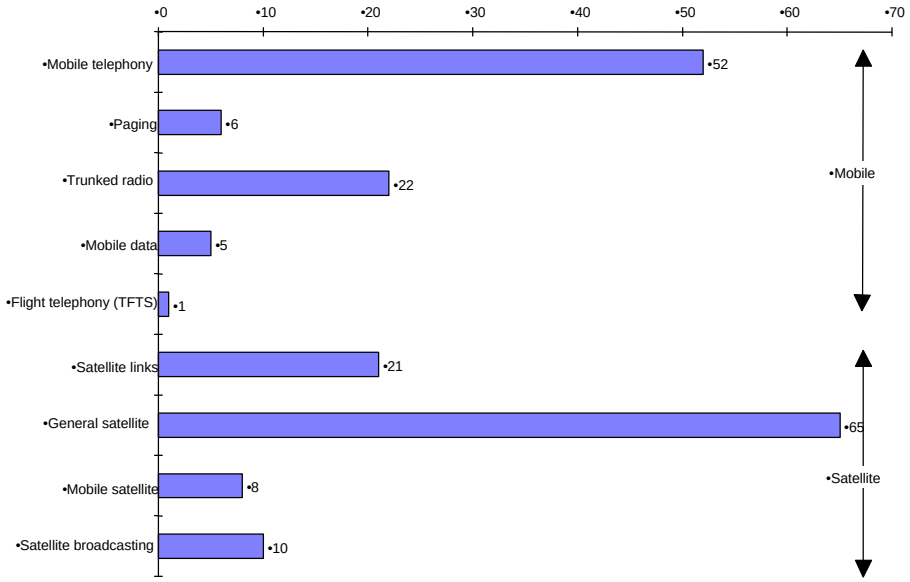


Network management services – the majority being Internet access services offered by Internet service providers (ISPs) – by far outweigh the other services.

Fixed line services



Mobile and satellite services



Growth in fixed line services (fixed networks, voice telephony)

Some 150 companies now offer voice telephony services. Of these, more than 90 have their own networks, and over 50 operate as resellers. To date, DTAG has signed interconnect agreements with 117 of its competitors, making likely a further increase in the number of service providers.

At the beginning of July 2000 there were already 82 local loop access agreements in place between DTAG and its competitors. Around 55 of these competitors can now connect customers direct to their own access networks.

50,000 customers in around 47 percent of the 188 German towns can now choose between DTAG and one – or in some towns more than one – of the alternative operators. Customer choice is available in some 64 percent of Germany's 83 large towns and cities.

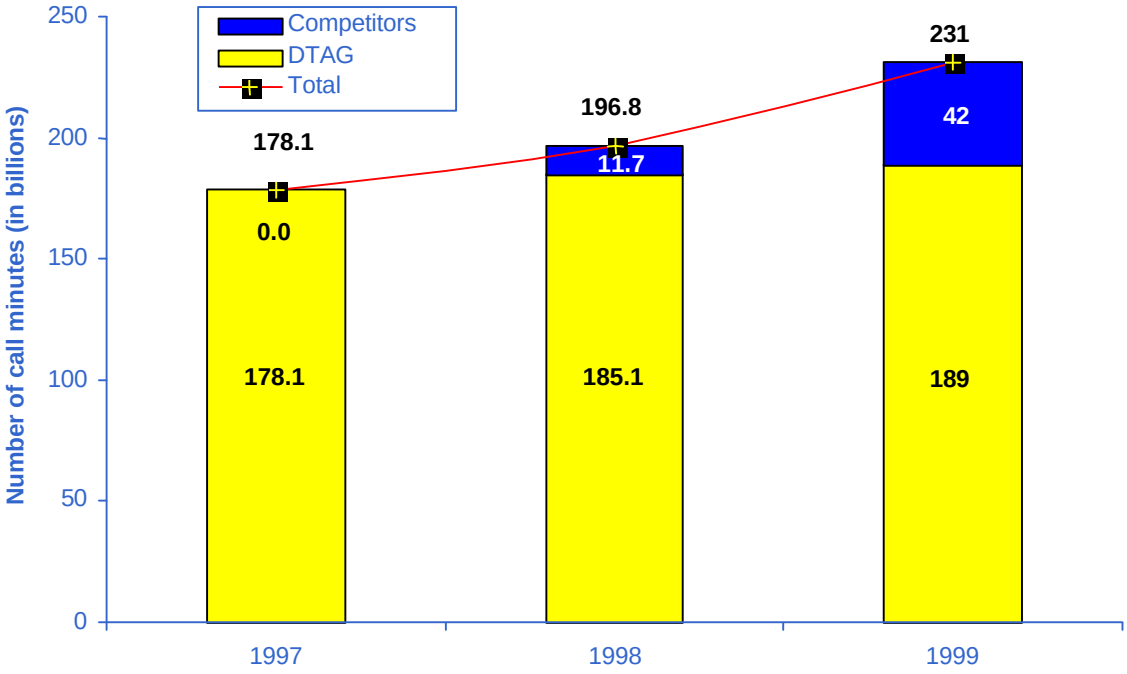
All in all, this means that more than a quarter of Germany's population can connect direct to an alternative access network operator.

Traffic volumes

The total number of call minutes in 1999 was 231 billion, up 17 percent from 1998. This leap exceeds the RegTP's forecast in its 1998/1999 report on activities, and the increase of 10 percent from 1997 to 1998. The accelerated growth rate is mainly due to the boom in Internet calls and calls to mobiles.

With 42 billion call minutes DTAG's competitors were able both to triple their traffic volumes in the second year of competition, and to boost their share of total minutes to 18 percent.

Call minutes (1997-1999)



The growth rate in 2000 is set to outdo the 17 percent recorded in 1999. The main driver is Internet traffic, which has more than doubled within the year. **Thus traffic volumes are likely to have risen by 50 percent between 1997 and 2000.**

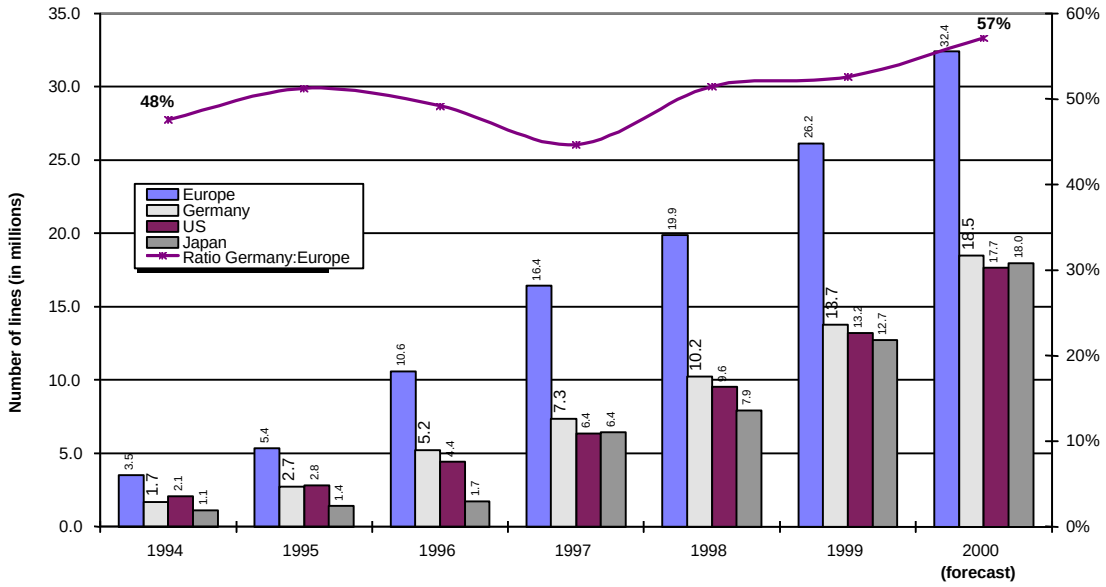
At the end of June 2000 the **average daily volume of calls stood at some 750 million minutes**, more than 15 percent being Internet calls. **In terms of the total number of minutes generated every day in Germany, the new entrants' market share was over 20 percent, or around 160 million minutes per day. When the volumes of domestic long-distance, international, and fixed to mobile calls are considered, the new entrants at present command a 40 percent share of the market.**

Revenues for 2000 are expected to remain stable at the 1999 level of some DM 40 billion. The fall in prices since the beginning of the year will be mostly offset by a continued rise in both lines and calls.

Growth in customer numbers

The number of telephone lines in Germany is expected to easily reach the 50 million mark by the end of the year, the 2 million or so new lines being digital (ISDN). By the end of 2000 ISDN lines are likely to account for 37 percent, or 18.5 million, of all lines. This makes Germany the world leader, ahead of the US, Japan and the rest of Europe. Over half of Europe's ISDN lines are in Germany alone.

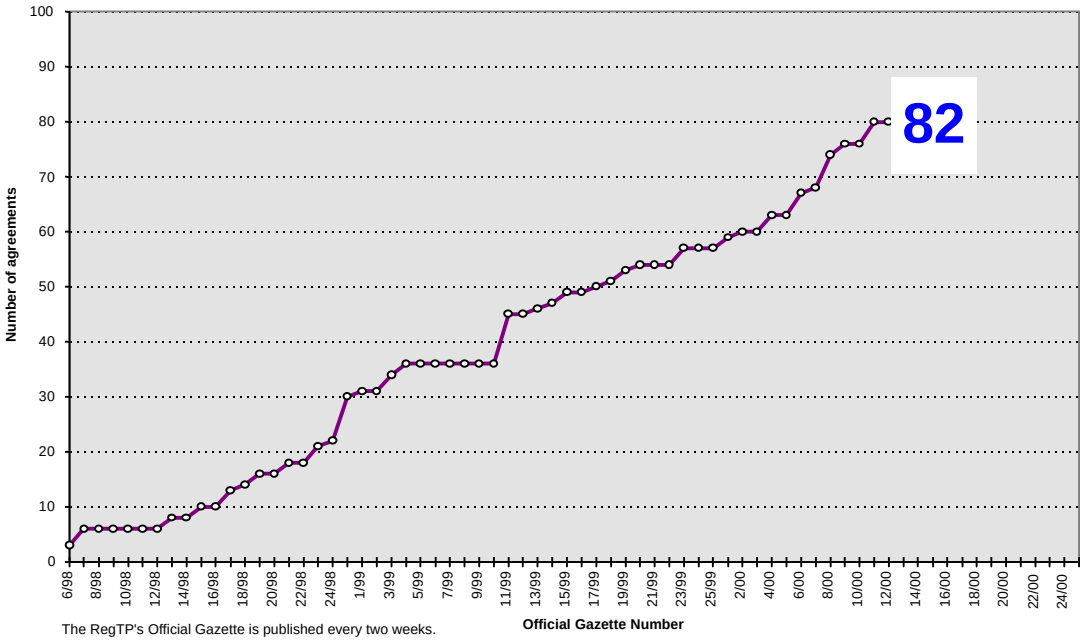
Growth in ISDN lines in various countries



This clearly shows that, compared with other countries, use of Germany's infrastructure capacity is particularly efficient. Each primary rate copper-based ISDN line provides two data transmission channels capable of transmitting at a rate of 64 kbit/s, allowing a customer to surf the Internet on one and speak on the other at the same time. This has a two-fold effect: advantages for the customer, and economic use of lines. Primary rate ISDN lines provide even more capacity and efficiency. On average, one pair of copper wires is used in Germany for 1.2 channels (64 kbit/s), and the trend is upwards. One notable efficiency driver is competition in the local networks.

New carriers primarily aim to attract medium to large business customers with all-inclusive access packages. This has led to an increase in their use of DTAG's local loop lines, which they can rent for a minimum monthly charge of DM 25.40. The following graph shows the growth in the number of local loop access agreements concluded between DTAG and its competitors:

Local loop access agreements



A large number of copper pairs are now used for basic rate ISDN[4], primary rate ISDN[5], and, more recently, broadband DSL[6] lines. DSL, or digital subscriber line, uses a special transmission technique to give customers high bit rate access using a standard telephone line.

Thanks to the Internet and its range of multimedia options, and to modern computers' higher storage and processing capacities, the trend is towards faster network access. Industry analysts see Germany as one of Europe's most attractive markets for broadband local access. Experts forecast that the number of DSL lines will exceed 10 million by 2008 (*Deutsche Bank Research*). SMEs alone are likely to account for more than 2 million DSL lines by 2004 (*Andersen Consulting*). The total number of DSL lines in Europe is set to climb from 60,000 to 5.5 million, with revenues in the order of $ 1.3 billion (*Datamonitor*).

Germany is indeed an excellent springboard for DSL, the RegTP having paved the way for new entrants early on by requiring DTAG to provide access to its local loop at fixed prices.

DSL lines – capable of transmitting data 15 times faster than an ISDN line – can now be had in Germany for less than DM 100.00 a month, and are already available to customers in 60 towns and regions.

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4 2 64 kbit/s speech channels per copper pair.

5 15 64 kbit/s speech channels per copper pair with two-wire transmission, and 30 64 kbit/s speech channels per copper pair with four-wire transmission.

6 12 64 kbit/s speech channels per copper pair with symmetric DSL (SDSL) technology.

DTAG is not the only company providing broadband DSL access (symmetric DSL (SDSL), asymmetric DSL (ADSL)): half a dozen of its competitors offer DSL services in a total of 30 towns, some operating on a regional basis only. Another dozen companies plan to launch DSL before the year's end.

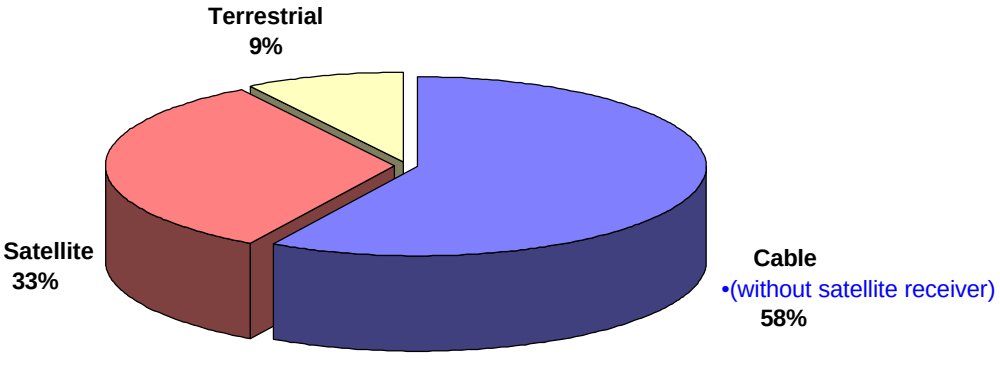
Some services are targeted primarily at business customers. These use SDSL technology, and are designed to offer up to 2.3 Mbit/s of capacity both downstream and upstream, enabling users to download and send data at the same high speeds.

Together with the wide spread of ISDN lines, DSL will help boost network efficiency, to the benefit of the economy as a whole.

Satellites, CATV, terrestrial broadcasting networks, and powerlines can all be used for customer access links alongside copper pairs, optical fibres and fixed links. And third generation (3G) mobile will open the door to new, broadband access options.

The digitisation of sound and TV broadcasting channels (digital audio broadcasting (DAB) and digital video broadcasting (DVB)) will provide new potential for customer access. **The German broadcasting market is the biggest in Europe: Germany has 33.6 million TV households, the European total being some 168 million. German CATV networks, connecting around 20 million households, are some of the largest in Europe.** More than half of Germany's TV households are served by cable, and around 30 percent by satellite.

Connection of TV households in Germany



Source: SES/ASTRA, RegTP estimates

Satellite Internet access has been offered in Germany by a handful of companies since mid-1999. Up until the beginning of the year, data was sent downlink (from Internet to customer) via satellite, but uplink (from customer to Internet) using the

customer's normal telephone line. Now data can be transmitted in both directions via a EUTELSAT satellite, at speeds of up to 4 Mbit/s. For this, customers need a transmit/receive terminal and a plug-in PC card. This access option is targeted chiefly at business customers.

Commercial Internet access via CATV networks was available as early as 1999. Half a dozen (large and small) CATV companies have broadened their scope of activity from broadcast signal distribution to Internet access. Joining them are a number of city carriers branching out from voice telephony, one of whom already boasts over 30,000 Internet customers connected through its CATV division.

Pilot schemes currently running in Berlin, Cologne and Leipzig are indicative of the serious interest shown in installing return channel capability in broadband networks, to accommodate new, supplementary telecoms services. The schemes give customers unlimited calls to the Internet 24 hours a day, 7 days a week, for flat rates starting at DM 50.00. DTAG also aims to use its broadband cable network for multimedia services; it plans to provide – by late summer – return channel capability for all of the 680,000 Berlin households connected to its CATV network. Those companies buying CATV networks from DTAG also have similar ambitions.

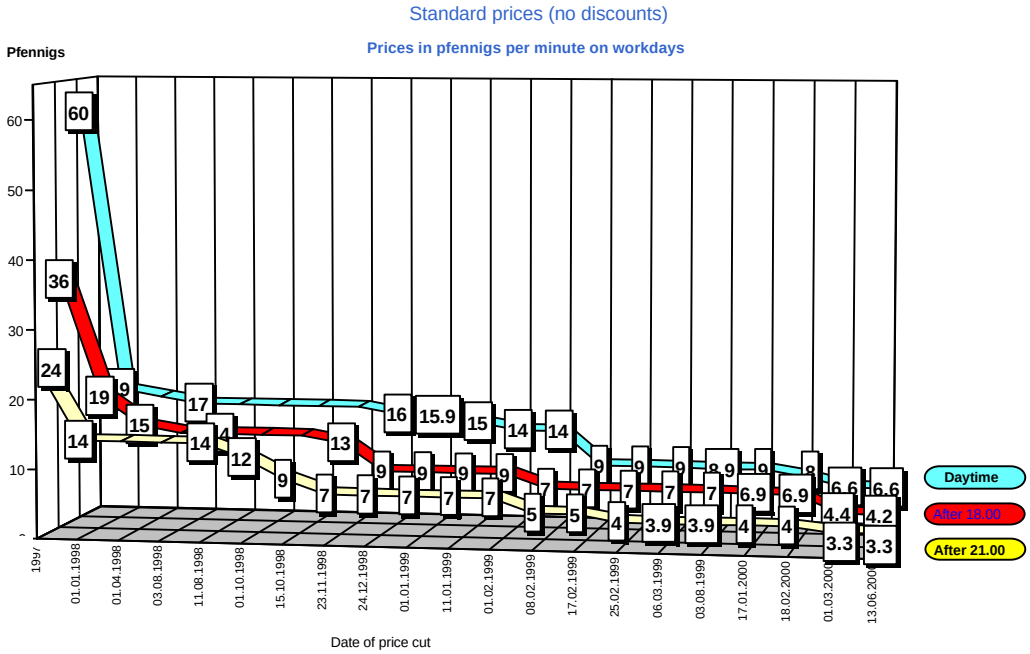
Trends in prices

The last few months have witnessed a further drop in the prices customers pay for domestic long-distance, Internet, international, and fixed to mobile calls.

Since the market was fully deregulated on 1 January 1998, Germany has seen the price of long-distance calls plummet as a result of competition.

Now, depending on the time of day, customers pay anything up to 89 percent less for a domestic long-distance call on a weekday. Call by call prices fell between 1 January and 30 June 2000 by up to 40 percent.

Minimum call by call prices for domestic long-distance fixed line calls



Even lower prices are available to customers opting for registered call by call, preselection, or direct access packages.

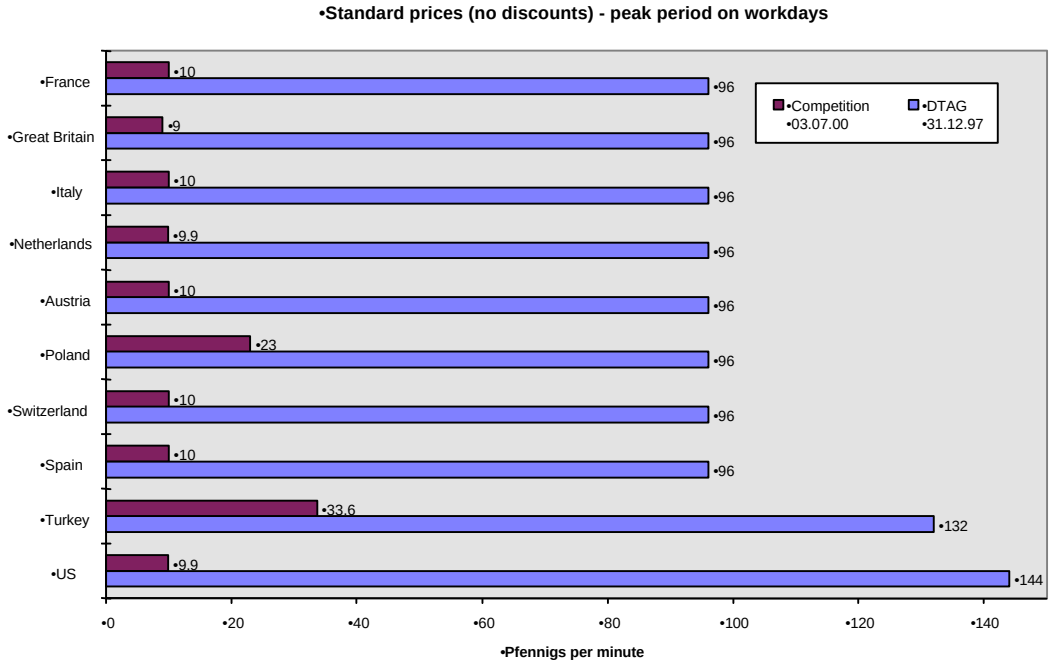
Competition for international calls has also brought the consumer huge savings. Prices have fallen steadily.

Since market liberalisation in January 1998, prices on eight of the ten major international routes at peak periods during the day have fallen by between 89 and 93 percent.

Prices for calls to Poland and Turkey have been cut by almost three quarters.

The following chart, which includes both call by call and preselection services, illustrates the trend.

Prices for international calls to 10 major destinations



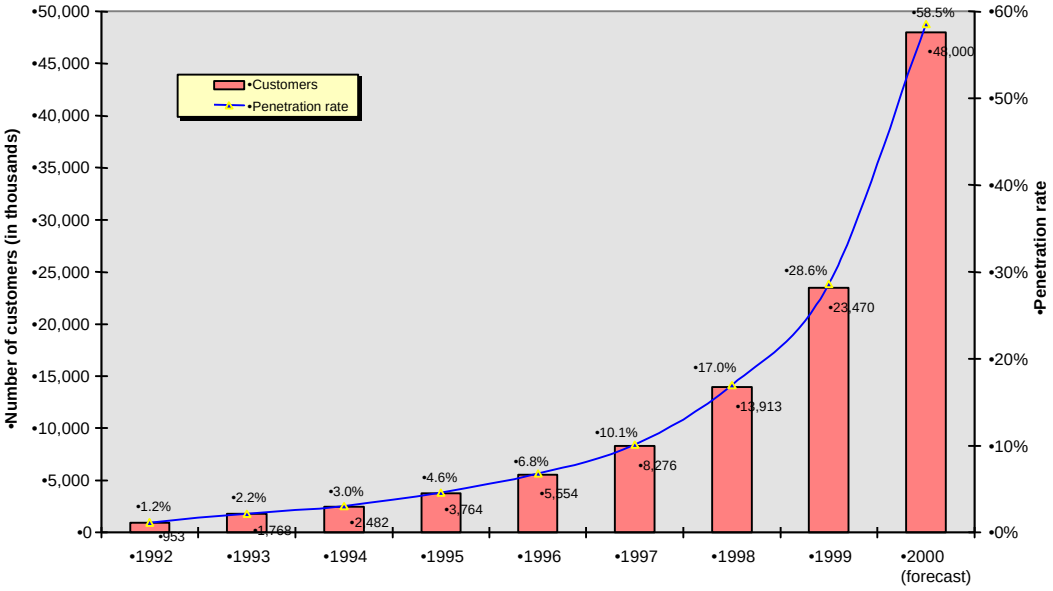
Growth in the Mobile Market

Customer numbers and penetration rates

1999 saw an explosive growth in mobile customer numbers in Germany: by the end of the year the four mobile network operators – Deutsche Telekom MobilNet GmbH (D1 network and C network), Mannesmann Mobilfunk GmbH (D2 network), E-Plus Mobilfunk GmbH (E1 network), and Viag Interkom GmbH & Co. (E2 network) – between them boasted 23.47 million customers. The penetration rate leapt within twelve months from 11.6 percent to 28.6 percent: for every 100 people living in Germany there are around 29 mobile phones.

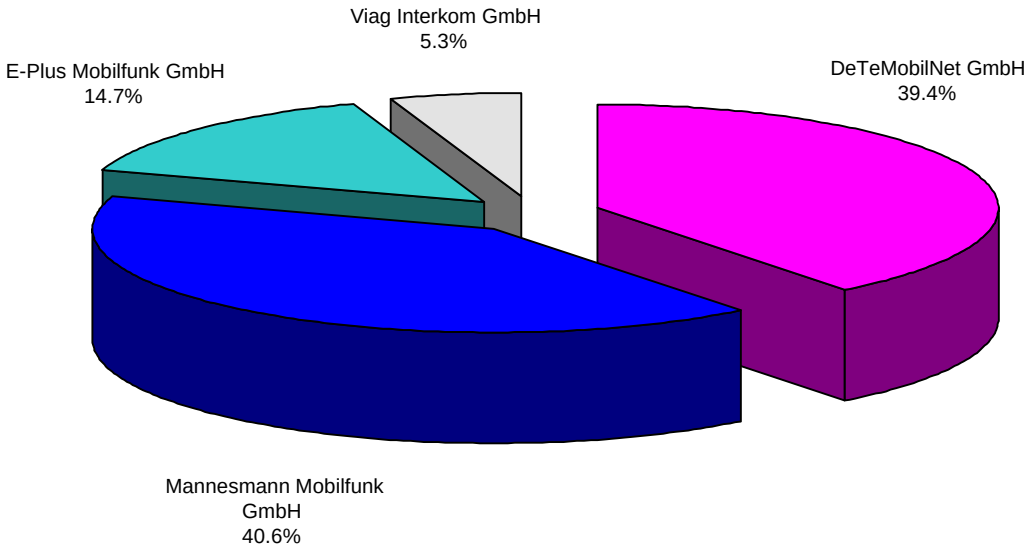
Growth in customer numbers in the first six months of 2000 has exceeded all expectations, making it necessary to revise the figures forecast in 1999. The number of mobile users is now thought likely to reach some 48 million by the end of 2000, against the original estimate of 35 million; this would bring the penetration rate up to almost 60 percent.

Customers and penetration rates



At the end of June 2000 the total number of customers in Germany's mobile networks stood at 34.1 million; this translates into a penetration rate of 41.6 percent. How these customers are distributed among the operators is shown in the following chart (excluded are the 100,000 or so C network customers, as the service will be discontinued at the end of the year):

Market shares of the mobile network operators



Trends in services and prices

The enormous growth rates seen since the beginning of the second quarter of 2000 are chiefly the result of the breakthrough in the residential market. Attractive pre-pay packages – offering a handset plus free calltime for an all-inclusive price of less than DM 100.00 – are helping to connect many families and particularly young people to the networks. This type of payment option – with no monthly service charges and no contract to sign – offers low-cost reachability.

Pre-pay customers at present make up some 80 percent of newcomers to the mobile networks, compared to around 20 percent at the beginning of the year. In all, 40 percent of mobile customers have opted for pre-pay schemes.

Another sure reason for the boom in customer numbers was the cut in charges in the first two quarters of 2000, in particular under the *City* call plan. Mobile customers opting for *City* pay just 15 pfennigs a minute for calls to fixed line numbers in either the same local call area as they are located, or a preselected call area. This means a saving of over 50 percent compared with the third quarter of 1999.

According to the Federal Statistical Office, mobile calls cost 13.1 percent less in June 2000 than a year earlier. The price index for mobile telephone services has fallen from 100 in 1995 to 41.9 in June 2000.

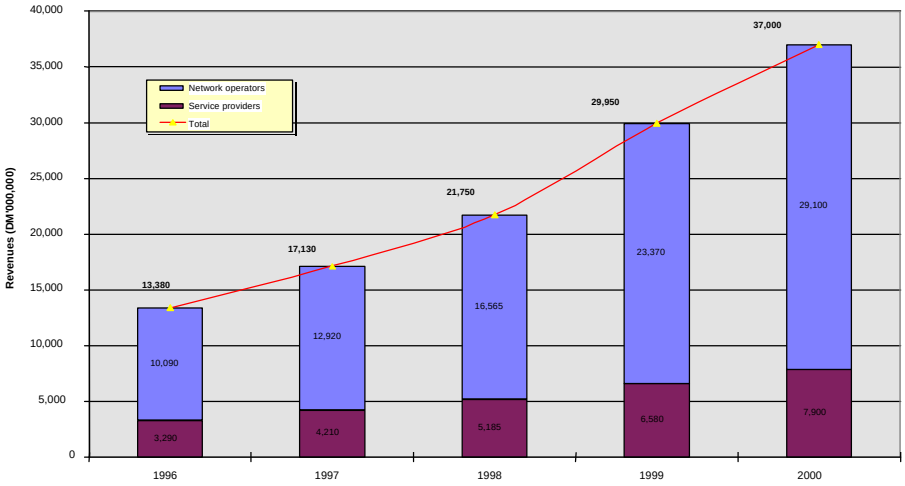
Another boom area is the short message service (SMS), which has caught on in particular among younger user groups. The number of messages sent via the digital mobile networks is set to increase by some 168 percent: from about 5.6 billion in 1999 to nearly 15 billion this year.

The launch of wireless application protocol (WAP) – giving customers with WAP enabled handsets access to selected web pages – has now also enhanced the range of mobile services. At the end of June the number of mobile Internet users had already reached some 400,000. Market research institutes forecast a rise to 3.5 million by the end of the year.

Revenues

1999 saw a growth in earnings for mobile operators and service providers: **total revenues rose by around 38 percent to some DM 30 billion**. This excludes any earnings from fixed line telephony and Internet services. The revenues in the graph include operators' income from call termination services.

Growth in revenues



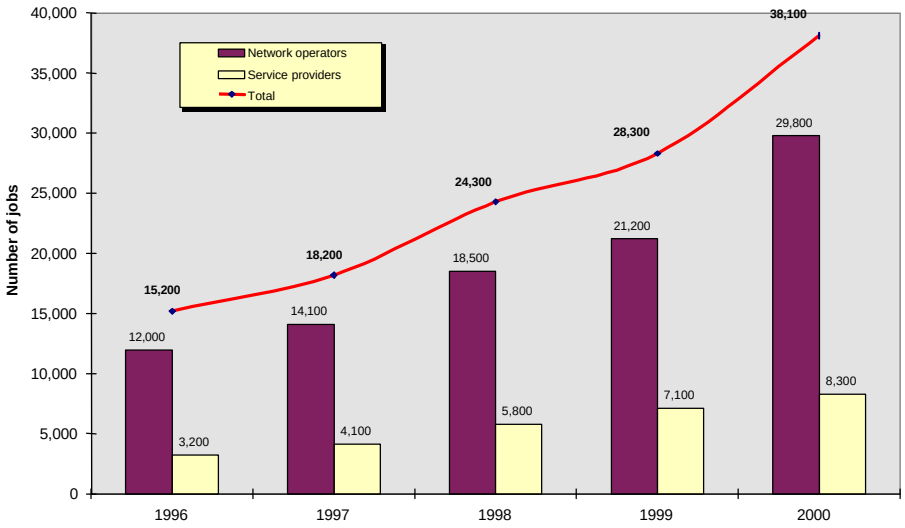
Some 22 percent of total revenues was generated by independent service providers; E-Plus Service GmbH's earnings count towards operator revenues.

Further growth is expected this year: assuming similar price cuts and accounting for the fall in annual per-customer revenues, an increase of around 23 percent is entirely realistic.

Jobs

The growth in customer numbers has been mirrored by the rise in the number of jobs in the mobile sector. At the end of 1999 the mobile operators had 21,200 staff on roll, compared with 18,500 a year earlier, while the service providers brought staff levels up from 5,800 to 7,100. In all, jobs with the operators and service providers totalled 28,300. **By the end of this year, the figure may well have reached the 38,000 mark.**

Growth in jobs in mobile telephony



Investment

The boom in customer numbers prompted the operators to invest massively in their networks. The total number of base stations at the end of 1999 stood at 43,350, compared with 26,000 the year before – up 67 percent. With more base stations operators can decrease the size of their radio cells and so accommodate more customers. The investment figures reflect radio infrastructure build-out, and the costs of hardware and software for new data services such as GPRS and HSCSD.

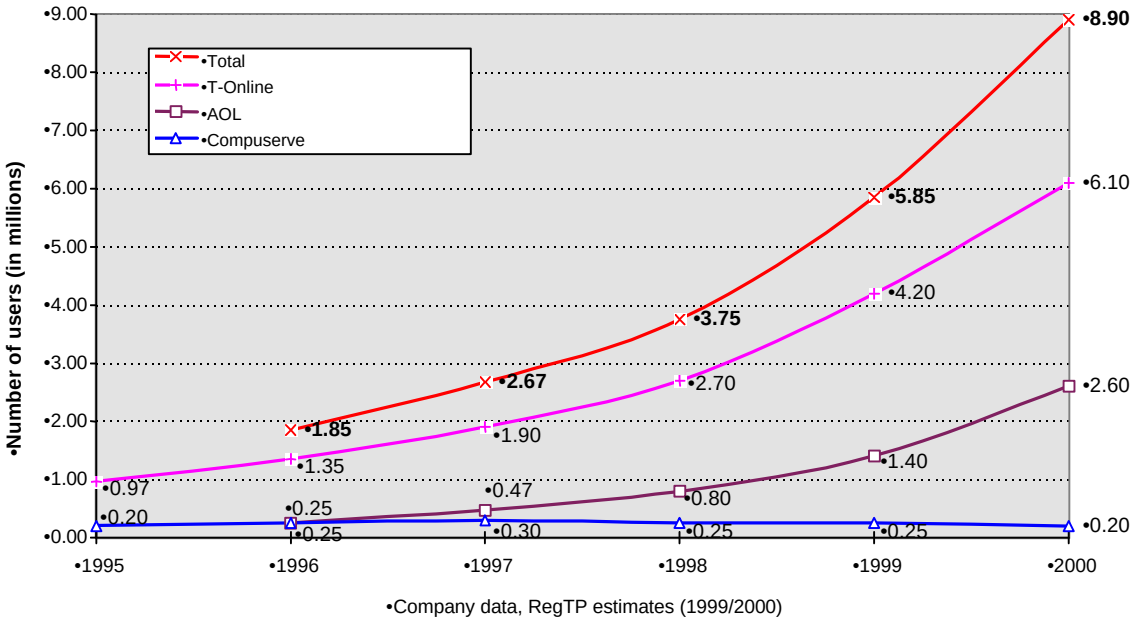
Investment in mobile networks amounted in 1999 to nearly DM 5 billion, up DM 1.7 billion from the previous year. **According to the operators, investment is likely to pass the DM 5 billion mark to reach some DM 5.6 billion, not even counting 3G infrastructure investments.**

Growth in the Internet and Online Services Market

Online user numbers

Between them, the three largest online providers (T-Online, AOL, and Compuserve) had over 5.8 million customers at the end of 1999. This figure is set to rise to 8.9 million by the end of 2000.

Growth in online user numbers in Germany

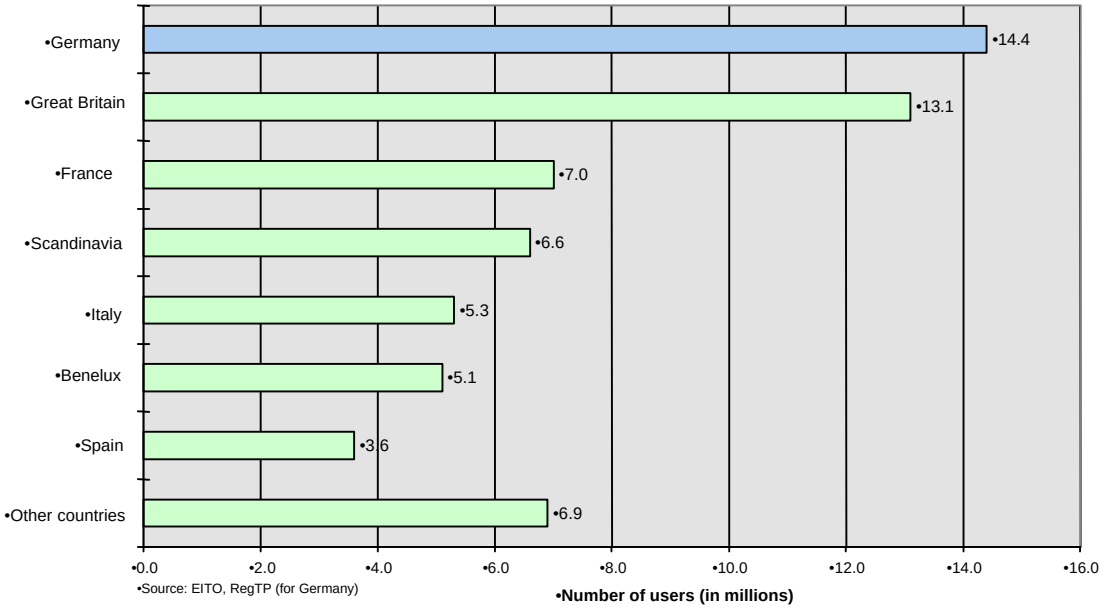


Internet users

The number of Internet users is estimated to have risen to some 14.4 million at the end of 1999. In light of the growth experienced so far, over 25 million users can be predicted by the end of 2000. This represents an increase of more than 70 percent in just one year, similar to growth in the mobile market.

The number of "users", however, is not the same as the number of Internet link-ups. **Some 7 to 8 million households in Germany, or around 20 million users, are said to be connected to the Internet.** Added to this are businesses. Numerically, Germany tops the list of European countries, but there is still considerable room for growth in terms of per capita use.

Internet users in Europe at the end of 1999

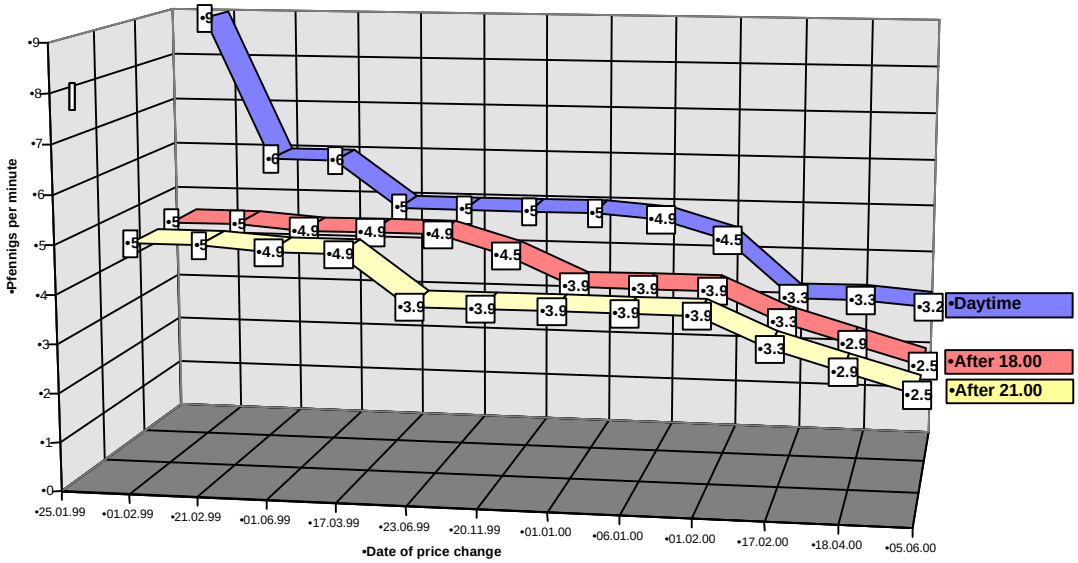


Decisive to growth in user numbers is not least the increasing range of services available to customers on a call by call basis, ie without their having to sign up with a specific provider. This option – with no registration, no monthly subscription, and all-inclusive per-minute prices – is particularly attractive to newcomers to the Internet.

Internet prices

This year has seen a dramatic fall in prices: the cost of Internet calls has dropped by 35 percent from 5 to 3.2 pfennings per minute for daytime access, and from 3.9 to 2.5 pfennings for evening access. Prices have also been cut for users registering with a provider and accessing the Internet on a call by call basis: one minute now costs 1.9 pfennings during the day, and 2.3 pfennings after 18.00.

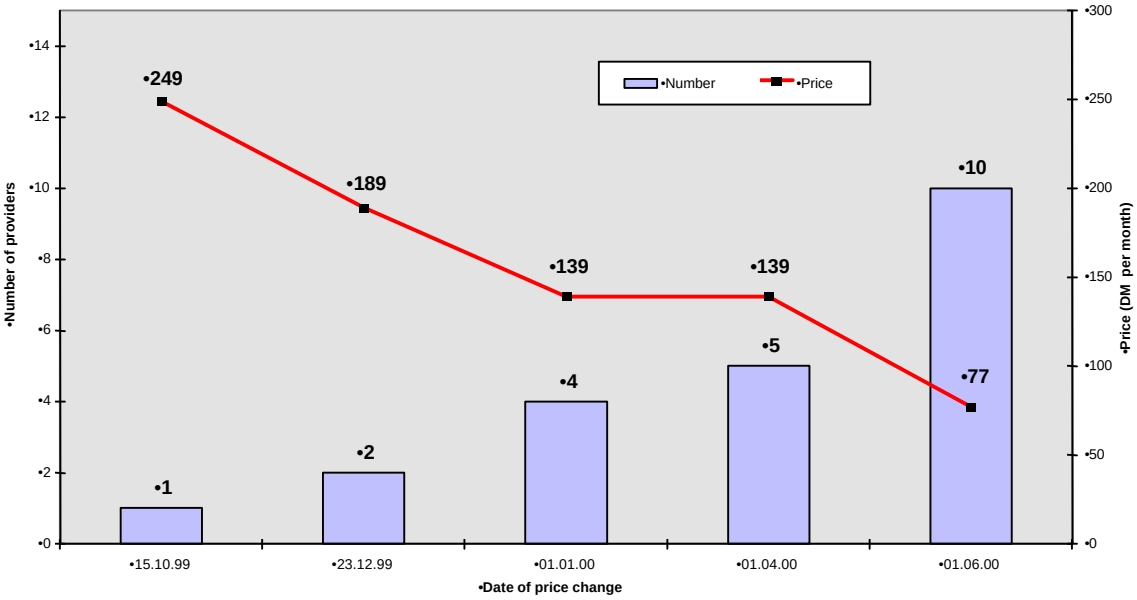
Minimum prices for Internet access on a call by call basis



A new low-cost option is direct Internet access at flat rates, giving customers unlimited Internet calls at any time of day for an all-inclusive flat rate.

Growth in competition among ISPs offering flat rate packages has also led to a noticeable drop in prices since the beginning of the year: **monthly rates have fallen by around 45 percent from DM 139.00 to DM 77.00.** A number of regional fixed line operators also offer direct access packages at flat rates as low as DM 50.00.

Minimum prices and provider numbers for flat rate packages in Germany



For the first time pre-pay packages have been added to the range of payment options for Internet users. Pre-pay schemes, which have recently triggered nothing less than a boom in the mobile market, are a good way of controlling costs – an attractive feature for, say, companies and parents.

Mobile Radio Licences

Universal Mobile Telecommunications System (UMTS)/International Mobile Telecommunications-2000 (IMT-2000)

Following the President's Chamber Determinations of 18 February 2000 on the award conditions and the auction rules for the 3G mobile licences (Official Gazette 4/2000, Administrative Orders 13/2000 and 14/2000), intensive preparations began for the online auction. These included in particular writing the auction rules into a computer program, procuring and installing the required hardware, and making the necessary arrangements at the RegTP's office in Mainz, the venue for the auction. The mandatory bidder seminars were held between 3 and 14 July 2000, the auction start being set for 10.00 on 31 July 2000.

Paging

The RegTP published under Section 11(1) of the TKG a consultative document setting out the key elements of its concept for the award of a licence to operate transmission paths for publicly available paging services in Germany in the band at 460 MHz (Official Gazette 4/2000, Administrative Order 15/2000). In light of the responses received, the President's Chamber has – as provided for by Section 73(1) and (3) in conjunction with Section 11(1) and (6) sentence 2 subparagraphs 1 to 4 of the TKG – drafted a determination on the choice of award proceedings and the conditions and rules for the award, to be published for consultation together with a licence template in the RegTP's Official Gazette. The draft determination provides for the paging licence to be put out to tender by the year's end.

Digital trunked radio

The RegTP in 1999 published under Sections 10 and 11 of the TKG the key elements for its proposed new concept for trunked radio and the award of a national licence for a digital trunked network, seeking views on its proposals (Official Gazette 19/1999, Administrative Order 131/1999). A determination by the President's Chamber is expected by the end of this year.

Analogue trunked radio

The surrender of a number of trunked radio licences (by, amongst others, T-Mobil and Quick Funk) and – consequently – extensive network mergers, has made it necessary to reorganise the entire band at 410-430 MHz.

Satellite communications

The demand at both national and international level for satellite (Class 2) licences remains constant. The RegTP is part of an international working group tasked with harmonising satellite licensing procedures in member countries of the European Conference of Postal and Telecommunications Administrations (CEPT).

Transmission Path Licences (Class 3)
Voice Telephony Licences (Class 4)

Class 3 licences are granted upon application, with no restrictions. The number of licence applications made since the TKG took effect has surpassed all expectations.

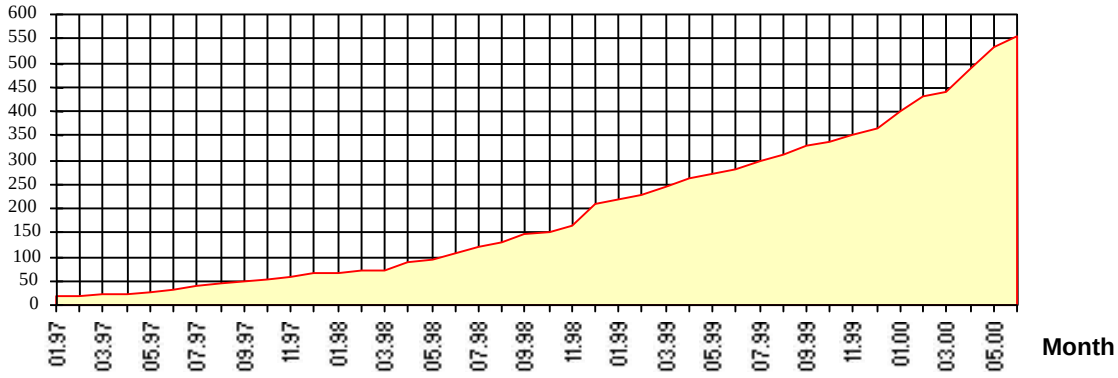
To date, 559 Class 3 licences (for transmission paths) have been granted, and 321 Class 4 licences (for voice telephony).

	1996	1997		1998		1999		2000	
	2nd half	1st half	2nd half	1st half	2nd half	1st half	2nd half	1st half	
Class 3	14	19	32	41	105	70	84	191	
Class 4	3	10	29	52	70	62	36	59	

These 880 Class 3 and 4 licences are in the possession of 305 companies, 91 of which are spin-offs from public utilities and municipal plants. 19 Class 3 licences and 60 Class 4 licences have been granted for nationwide operation. The following charts show the continued strength of the telecoms market, which has experienced dynamic development since the infrastructure and voice telephony monopolies were lifted.

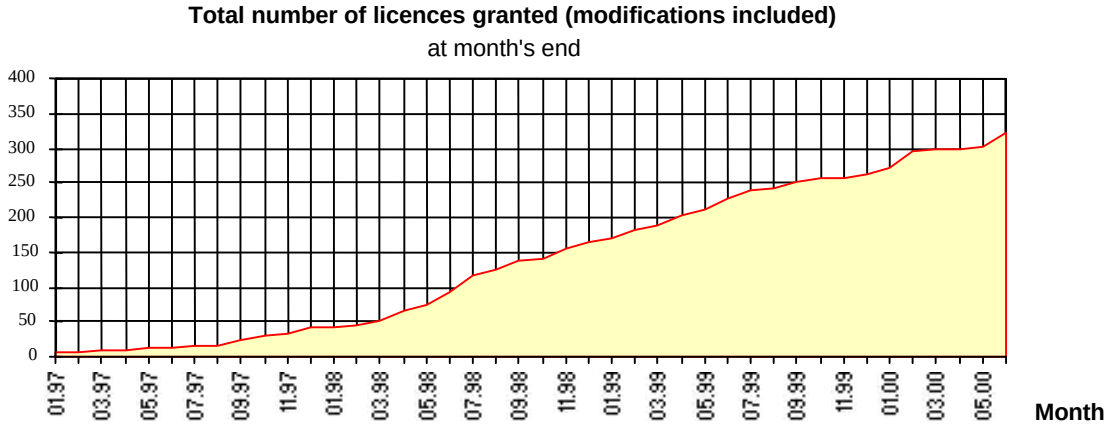
Licence Class 3 (transmission paths)

Total number of licences granted (modifications included)
at month's end (without broadcasting licences)



Currently, there are 250 holders of a Class 3 licence.

Licence Class 4
(voice telephony)



There are at present 173 holders of a Class 4 licence.

Rights of way

The RegTP is responsible for granting rights to use public ways in cases where the public ways are constructed and maintained by a licence holder or a company that has merged under the Restraints of Competition Act (GWB) with a holder. Here it is the RegTP's task to ensure that another licence holder wishing to use the public way is not discriminated against. Setting the technical conditions for any work to be done remains the task of the local authority. This logical division of responsibilities was agreed with the local authorities.

At present 72 licensees fall within the merger scope of the GWB. Since the TKG took effect some 6,900 approvals have been granted by the RegTP's regional offices.

Year	1997	1998	1999	**2000**
Approvals granted	365	1,902	2,887	**1,748**

Number Management

The RegTP took over responsibility for managing and allocating numbers in Germany on the opening up of the telecoms market to competition.

Number management first involves structuring the national numbering space, which includes ranges for local numbers, mobile numbers, and numbers for a range of value added services such as 0700 personal numbers, 0800 freephone numbers, and directory enquiry numbers. Also dealt with are the so-called "technical numbers" – carrier portability codes, national and international signalling point codes (NSPCs and ISPCs), charging reference branches, closed user group interlock codes (CUGICs), and manufacturers' codes for carriers and service providers, for instance.

However, structuring alone is not enough. Allocation rules that every user must observe are needed for the different types of number. These rules set out who is eligible to apply, what conditions must be met when the allocated numbers are used, what happens to numbers returned, and, last but not least, what fees are payable for allocation. Three sets of allocation rules came into effect in the first half of 2000: for international mobile station equipment identities (IMEIs), equipment manufacturer codes for telematic protocols, and numbers for public trunked networks.

Once the framework is in place, allocation can begin. Service providers apply to the RegTP for, say, blocks of 1,000 local numbers to suballocate to their customers, or numbers for directory information services they wish to offer, or codes they need in a capacity as long-distance operator. Individuals and companies in other branches can also apply, for instance for 0700 personal numbers, 0800 freephone numbers, 0180 shared cost service numbers, and 0190 premium rate numbers.

Applicants often feel they need sound advice and support on all aspects of numbering before making their application. In January 1999 a call centre was set up to meet this demand. The number of calls dealt with each month has almost reached the 4,000 mark. While most calls come from companies, the service is also used by private individuals and public authorities.

The following figures on the allocation of blocks of local numbers show the trend of competition:

	Allocated blocks	Local call areas	Operators
31.12.1998	3,088	710	53
31.12.1999	6,750	2,636	72
30.06.2000	44,355	5,200	83

By 31 December 1999 a total of 6,570 blocks of local numbers had been allocated for 2,636 call areas and 72 operators, compared to 3,088 blocks for 710 areas and 53 operators a year earlier.

The period from January to June 2000 saw the number of allocations soar to almost 45,000 blocks for 5,200 call areas and 83 operators. Following a transitional period, DTAG now also needs to apply to the RegTP for numbers for its new customers. The jump in the number of allocations in the first half of the year is accounted for by retroactive allocations to cover the years back to when responsibility was transferred to the RegTP.

Demand is also rising steadily in the value added sector:

Service	Numbers allocated 1st half 2000	Total numbers allocated
0800	15,033	121,892
0700	9,694	42,946
0180	8,312	79,353

There is also a strong demand for technical numbers, with an exceptionally high number of allocations (395) for NSPCs.

Technical resources			**Numbering resources**		
	1st half 2000	Total		1st half 2000 (blocks)	Total
NSPCs	395	1,068	Numbers for user groups	5	7
ISPCs	38	166	Numbers for international virtual private networks (IVPNs)	12	22
Carrier portability codes	20	113	Numbers for innovative services	-	3
CUGICs	1	11			
Charging reference branches	40	56			
Equipment manufacturer codes for telematic protocols	4	4			

Fixed line customers in Germany now take it for granted that they can keep their number when changing from one carrier to another. For mobile customers this is not yet reality. However, a major step towards introducing number portability in

mobile networks was made in the first half of 2000: **mobile operators are now required to guarantee carrier portability for customers in their networks by 1 February 2002.**

Frequency Management

World Radiocommunication Conference 2000 (WRC-2000)

Turkey hosted WRC-2000 from 8 May to 2 June 2000 in Istanbul. The RegTP sent five representatives to join the German delegation led by the Federal Ministry of Economics and Technology (BMWi). In all, the conference was attended by over 2,300 delegates from some 180 delegations and numerous international organisations.

The main issues on the agenda were extension bands for UMTS/IMT-2000, reorganisation of the satellite broadcast bands, allocations for fixed services with a high density of stations, and new allocations to the radionavigation satellite service. The RegTP headed the CEPT negotiating teams for the latter two topics. Thanks to its active participation in the European preparations for the Conference, Germany was able to attain almost all of its objectives, which had gained broad consensus at national level and been presented in a total of 322 European proposals. The decisions taken at WRC-2000 now need to be transposed into national regulations and – where coordination at European level is necessary – into European Radiocommunications Committee (ERC) Decisions. In particular the decisions on UMTS/IMT-2000 and the fixed services will favourably shape tomorrow's licensing options.

Publication of administrative principles for frequency usage

At the beginning of the year the RegTP published its administrative principles on the use of frequencies – the basis for the frequency usage plan, drawn up by the RegTP. The loose-leaf publication comprises tables detailing all the frequency usages in Germany in the band from 9 kHz to 275 GHz, which are updated as and when required. The tables show which bands have been allocated to which services, and which subbands designated for which types of radio application. The publication also sets out the general frequency usage conditions, giving a brief description of each frequency application, and information on relevant type approval specifications, frequency assignment procedures, licensing requirements, usage periods, national and international planning, and other recommended usage parameters. Also included are the provisions for using frequencies for other purposes (eg industrial, scientific, medical, domestic).

Orders for the publication can be faxed (RegTP, Dienststelle 125a, fax +49 228 14-6125) or e-mailed (Wolfgang.Becker@regtp.de). Copies are priced at DM 75.00 (38.35) (plus postage and packaging) each, with payment preferably on delivery.

Frequency Assignment

Point-to-point radio relay

Frequencies continue to be in great demand, and will be even more so with the upcoming connection of WLL point-to-multipoint (PMP) central stations via point-to-point fixed radio links. **There are currently 48,176 such links in Germany.** Of these, 3,301 were new assignments in the first six months of 2000.

Demand was heaviest in the following bands:

	Total	**New assignments 1st half 2000**
7 GHz	2,400	107
15 GHz	3,660	383
18 GHz	4,400	314
23 GHz	13,610	832
26 GHz	4,380	434
38 GHz	12,150	812

PMP radio relay (WLL)

The award by tender of frequencies for WLL PMP radio relay systems in late 1999 was followed up in the first half of 2000 by the assignment of frequencies in those regions with an adequate supply of spectrum:

	2.6 GHz band	3.5 GHz band	26 GHz band
Assignments by tender		**91**	**519**
Assignments by application	**271**	**266**	**329**

Most system operators have now completed their trials, but by 30 June 2000 startup of operations had been notified for only 40 coverage areas.

WLL PMP radio relay tendering in 2000

Following the tendering procedure initiated under Administrative Order 55/1998, a total of 162 frequencies in individual coverage areas remained available. These frequencies were put out to tender on 10 May 2000. The RegTP expects this to stimulate further competition in the local access market, not only for voice telephony.

52 of these 162 frequencies were tendered out in 1999, but were not applied for by the deadline of 27 May 1999. The remaining frequencies have become available as a result of optimising the way spectrum for the individual coverage areas was assigned to the companies winning in the first tender. The possibility of a second tender was voiced back in 1998. In addition, in some of the regions where frequencies had at first been assigned by application, demand has now outstripped supply, creating the need to put the frequencies out to tender in order to identify the best qualifying applicant.

Of the 162 assignable frequencies there are
12 in the band at 2.6 GHz (in 12 coverage areas),
47 in the band at 3.5 GHz (in 41 coverage areas), and
103 in the band at 26 GHz (in 90 coverage areas).

The 12 frequencies in the band at 2.6 GHz will be assigned for use until 31 December 2007 only, as it is likely that these frequencies will then be needed for UMTS/IMT-2000.

Tendering was officially launched on 10 May 2000, the deadline for applications being 21 June 2000. The requirements to be met by applicants largely mirror those in the first tender. **In all, 14 companies submitted a total of 503 separate applications for the 162 frequencies.** The applications are currently being processed. According to the rules, the spectrum available in each coverage area is awarded to the applicant who – on the basis of his tender – is best placed to meet customer demand for WLL by PMP radio relay.

Satellite communications

The first two quarters of 2000 saw **new assignments for 1,120 transmitting earth stations**, primarily very small aperture terminals (VSATs) and satellite news gathering (SNG) stations, 63 of which had to be coordinated with radio-relay systems operating in the same bands. **The total number of transmitting earth stations for which individual assignments have been necessary now stands at 9,876.** Receive-only satellite earth stations can be operated in Germany without individual frequency assignment.

The RegTP submitted to the International Telecommunication Union (ITU) in Geneva on behalf of the Federal Republic of Germany two new filings for non-

geostationary and two for geostationary satellite systems. It also initiated seven publications of existing German satellite network filings. To date, Germany has filed 30 geostationary and 12 non-geostationary satellite systems with the ITU.

Broadcasting

The number of broadcasting frequency assignments made during the first six months of 2000 is as follows:

16	for commercial terrestrial digital audio broadcasting (T-DAB) operation,
20	for test T-DAB operation,
4	for test terrestrial digital video broadcasting (DVB-T) operation,
8	for analogue TV,
104	for the very high frequency (VHF) band, and
110	for the high frequency (HF) band.

Tendering for T-DAB

The legal framework for the commercial launch of T-DAB is already in place in Baden-Württemberg, Bavaria, Berlin, Brandenburg, North-Rhine/Westphalia, Rhineland Palatinate, Saxony, Saxony-Anhalt, and Thuringia. The launch of commercial service in Lower Saxony coincided with the opening of EXPO 2000 in Hanover. Award proceedings are under way in the other federal states, and in some cases are due to be completed shortly.

This means that by the last quarter of 2000 frequencies are likely to have been awarded for all the federal states, paving the way for commercial T-DAB operation across the country. Alongside this, frequencies were assigned for trials involving new, innovative broadcasting applications based on DAB.

Mobile communications

Processed in the first half of 2000 were

- 9,000 new assignments, modifications and handbacks in the field of private mobile radio (PMR), 1,900 of these being new assignments; PMR networks are used for internal communication purposes in businesses and industry (eg industrial undertakings, transport companies), public administration (eg local authorities, highway maintenance depots), and internal security and public safety (eg police forces, fire brigades, rescue services);
- 1,000 acts in the fields of mobile data, telemetry and telecommand, eg remote control of equipment, remote data retrieval, road transport management systems, warning systems, 600 of which were new assignments;
- 19,000 citizens band (CB) radio acts, 3,500 of which were new assignments;

- 4,900 acts, 4,000 of which were new assignments for radio equipment for the remote control of models; and
- 2,900 acts, including 1,450 new assignments, in other areas of non-public mobile radio such as private paging and radio microphones.

A total of

- 6,155 cases of mobile radio frequency coordination with Germany's 10 neighbouring countries were completed; activity is currently focused on the mobile networks operating to the global system for mobile communications (GSM) standard, with strong growth expected in the number of networks in neighbouring countries; and
- 1,872 frequencies were assigned for short-term use for foreign users, eg for sporting events, media events, and state visits.

Experimental radio services

During the first two quarters of 2000, some 400 frequency assignments were made for experimental radio services, 81 of which were new assignments for

- digital trunked systems in the bands at 410–430 MHz and 380–400 MHz,
- WLL trials by new WLL network operators,
- short range devices (radio local area networks (RLANs), Bluetooth), and
- UMTS system development.

Civil-military frequency matters

In the six months to 30 June 2000 the RegTP

- dealt with 29 queries from the military (German armed forces, NATO, foreign armed forces stationed in Germany) about the availability of frequencies in 67 bands,
- granted 49 fixed-term assignments for 539 frequencies,
- made 27 open-ended assignments for 285 frequencies, and
- coordinated 676 sites under the civil-military site coordination procedure.

Operator licences

Awarded in the first half of 2000 were

- 4,135 flight radiotelephony operator licences, and
- 5,418 maritime radiotelephony operator licences.

The number of amateur radio permits and assignments in mid-2000 totalled some 85,000.

Telecoms Technical Regulation

Global trade relations, technological progress, the convergence of telecoms, information technology and other media, along with special customer needs are bringing about a sea change in telecoms, transforming it into a truly global market. It is therefore vital for the RegTP to achieve the regulatory aims set in the TKG and the upcoming national Radio and Telecommunications Terminal Equipment (R&TTE) Act. The RegTP experts lay the foundations for technical regulation by actively participating in working groups; their deliverables – national and international standards, international agreements – mirror these regulatory aims.

The primary areas of attention are

- the efficient use of the scarce spectrum and numbering resources,
- guaranteed mutual compatibility of telecoms services, and nationwide access to modern, low-cost telecoms services,
- the protection of persons and telecoms networks,
- consumer protection, and the safeguarding of fundamental rights (telecoms secrecy, personal data protection, metering and billing records), and
- the maintenance of public safety and order, and of communications infrastructures in the event of disasters or criminal attack.

The RegTP's working group activities at present focus on 3G mobile, implementation of the R&TTE Directive and Act, satellite communications, numbering, open network provision, end-to-end communications, cable and radio intercompatibility, media convergence, customer protection, and telecoms security.

International activities

37 experts represent the RegTP in over 40 national and some 210 international working groups at, for example, the ITU, the European Telecommunications Standards Institute (ETSI), the CEPT, the International Standards Organisation/International Electrotechnical Commission (ISO/IEC), the German Standards Institute/German Electrotechnical Committee (DIN/DKE), and the European Commission. They make an active contribution towards safeguarding regulatory aims, and elaborating widely accepted and recognised standards.

Location services (LCS)

Experience has shown that a mobile customer making an emergency call is often unable to say exactly where he is. This leads to unnecessary delays for the emergency services. But thanks to technological progress it is now possible to accurately locate a call, and transmit the details via the mobile radio network to, say, the emergency centre. The necessary standardisation work on LCS is being done by T1P1 (a technical subcommittee of the US standards body Committee T1) and the Third Generation Partnership Project (3GPP). The Federal

Communications Commission (FCC) has mandated that from 2001 onwards all mobile emergency calls in the US must be pinpointed to within a specified distance, and the callers' location forwarded to the emergency services. The RegTP is keeping a close eye on progress, and pushing for introduction of LCS for emergency calls in Germany.

National transposition of Directive 99/5/EC

of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive)

The R&TTE Directive took full effect throughout the European Union (EU) on 8 April 2000, freeing up market entry for manufacturers. The old type approval regime has been replaced by a system giving manufacturers full responsibility for conformity assessment. This considerably speeds up and simplifies market access routes for new products. The Directive will be written into national law through the R&TTE Act, planned for the second half of this year. To bridge the gap, transitional provisions were drafted in consultation with the BMWi and published in the RegTP's Official Gazette, and notified bodies provisionally recognised. This meant that the R&TTE Directive could also be implemented on time in Germany. RegTP staff have also given presentations at a seminar on the new national legislation and procedures, and have produced a number of documents on integrating the Directive into national law.

Production of interface regulations

in conjunction with the new regulations of the R&TTE Directive

Under the new scheme, the type approval specifications for broadcast and radio equipment will be supplanted by interface regulations that describe, amongst other things, the radio parameters and test methods. In all, 67 interface regulations are needed for equipment such as

- T-DAB transmitters,
- T-DAB repeaters,
- multipoint video distribution system (MVDS) transmitters for digital TV signal distribution,
- TV transmitters and repeaters,
- VHF, HF, and low frequency (LF) broadcast transmitters,
- DVB-T transmitters, and
- different types of radio equipment in the fixed satellite service.

The new regulations have been the subject of various forums and workshops. So far, nine drafts have been released by the RegTP's technical experts for publication. Another 33 are ready for internal approval, while 22 have been presented with a view to approval, to the special ad hoc groups comprising representatives of manufacturers, carriers, the broadcasting industry, and the

RegTP. Four regulations for fixed links in the bands at 4, 13, 23, 26, 28 and 38 GHz are still on the drawing board.

Advice of charge (AOC)

The majority of German carriers have decided to introduce AOC services for indirect access calls as from 14 November 2000. At the moment, this service – where a caller is informed of the charge payable at the end of his call – is not available to customers preselecting or selecting on a call by call basis an alternative carrier. This is now to change. Hotels, hospitals, and public authorities in particular often need reliable information on call charges, so that they can directly bill others for calls made. In order to guarantee this service, many access network operators providing AOC will connect calls only if the customer's choice of carrier also provides call charge information. The service will be available to all analogue and Euro-ISDN line customers who have activated AOC with their access network operator.

Data protection

The EU's Telecommunications Data Protection Directive (97/66/EC) has made it necessary to revise the Telecommunications Carriers Data Protection Ordinance (TDSV). One of the new requirements is that customers must be able to reject – via a simple means and free of charge – incoming calls where the caller deliberately withholds his number. The RegTP was involved in ETSI's activities to produce a specification for the new anonymous call rejection (ACR) feature based on this legal requirement, and work was successfully completed in the second quarter of 2000.

Open network provision

The conclusion to be drawn from discussions on open network provision and the targets agreed at the EU Lisbon summit is that nationwide access to affordable telecoms services, and in particular to digital (broadband) services, continues to be a key priority. That the spotlight is now on the Internet is due to the convergence of the traditionally separate areas of voice and data communications. Modern networks can now be used to transmit more or less any type of communication, be it speech, data, or video (multimedia), without the need for architectural changes. Hence the priority given to digital subscriber lines, and to the challenge to establish effective competition in national and European markets in this sector in particular. The RegTP followed and supported the policy and decision-making processes with a series of reports and assessments drawn up from a technical viewpoint and serving as input for a federal government position paper.

Security

The two points of focus here are the technical implementation of legal interception measures, and security in terms of telecoms secrecy and data protection. As regards the first, the national technical provisions for legal interception were brought more closely into line with the relevant ETSI standards; these standards contain various options that can be chosen to match national frameworks and then transposed into national technical directives and specifications. Second, compliance with the legal provisions ensuring telecoms secrecy and protecting data is decisive to the future growth of the ever more important Internet and voice over Internet protocol (IP) technologies: the acceptance of e-commerce and m-commerce depends largely on security factors. This is why the RegTP was keen to be involved in planning and developing voice over IP technologies from an early stage, its ultimate goal being to guarantee integral and confidential communications in the future, as at present.

Cable and radio intercompatibility

TV receiving and distribution systems operating in Germany in the midband (118-174 MHz), superband (230-300 MHz), and extended superband (302-446 MHz) channels use frequencies allocated on a primary basis to other radiocommunication services such as the aeronautical service (on-board communications, air traffic control) and public safety authorities. The CATV operators naturally want to continue to use the spectrum resources, and to upgrade their networks to carry digital TV, and Internet and data services. This means that the same frequencies will be used even more intensively for both cable and radio.

For both types of application to coexist satisfactorily, receiving and distribution systems need to be properly screened. Repeated measurements have shown that much of the equipment is faulty – in most cases it is the equipment lead, but in some cases the cable between the network termination point and the customer's socket. This sometimes results in radiated disturbance power levels well over the limit of 20 dBpW set in European Standard EN 50083-8. In the past it has also meant interference to aeronautical, aeronautical radionavigation, and safety communications, and it is this that has recently become the subject of heated public debate.

The draft Frequency Band Allocation Ordinance has now been presented to the German Bundesrat. The Ordinance aims to achieve the regulatory goal set in the TKG of efficient, interference-free frequency usage. Usage Provision 30 in the draft Ordinance regulates the use of frequencies in and along conductors, setting a radiated disturbance power limit of 20 dBpW for, amongst others, broadcast receiving and distribution systems for a transitional period of several years, and attaching special conditions to the use of frequencies also used by safety-related services.

A body of experts was formed specially to deal with this issue. It comprises representatives of

- the Federal Ministry of Defence, and the Federal Ministry of Transport, Building and Housing,
- the public safety authorities,
- the federal states,
- the Broadcast Technology Institute of the Austrian, German, and Swiss public broadcasting organisations (IRT),
- the technical committees of the federal states' regulatory authorities for broadcasting,
- DTAG, and
- the German association of private cable operators (ANGA).

The body has six key goals:

1. To relocate the aeronautical service's operating frequencies and implement a frequency offset in broadcast receiving and distribution systems for the transitional period, in the closest possible cooperation permitted by international coordination constraints.

2. To examine – in close cooperation with the federal state governments and regulatory authorities for broadcasting – the use of midband channel 10 for cable applications, to assess its use against the requirements of the public safety authorities in each region, and to prohibit its use for cable applications should the two services be incompatible.

3. To check that any new, modified or overhauled equipment meets the limits.

4. To ensure that network operators only allow systems to be connected to their cable networks (including at levels 4 and 5) if it is guaranteed that the systems will be operated correctly.

5. To guarantee – through appropriate checks on receiving and distribution systems, and random checks by the RegTP – that the radiated disturbance power levels are reduced in the transitional period to the level required in Usage Provision 30, and keep to this level.

6. To conduct preliminary studies on the suitability of receiving and distribution systems for digitisation.

The first steps to realise the unanimously accepted goals have already been taken:

1. DFS Deutsche Flugsicherung GmbH, the German air navigation services organisation, has relocated its operating frequencies from midband channels 3, 4 and 5, which are used by broadcast receiving and distribution systems. It has also initiated international coordination of the operating frequencies in

extended superband channel 24 that are at present used for instrument landing systems at Frankfurt, Hamburg and Schwäbisch Hall airports. However, in order to keep the risks within reasonable limits, DFS – in close cooperation with the RegTP, DTAG, and ANGA – has also given exact details of the approach areas in which interference may occur, and has specified the required frequency offset in extended superband channel 24 for receiving and distribution systems with a higher than permitted radiated disturbance power.

DTAG has now implemented the frequency offset at the relevant head ends of its cable network. ANGA has requested members using extended band channel 24 for systems with their own head end, and located in the approach areas on the DFS list, to implement a shift in frequency, or to check and ensure that their systems do not exceed the 20 dBpW limit.

Finally, the RegTP's radio monitoring and inspection service has scanned all the approach areas – in all some 2,000 km² – for receiving and distribution systems operating in extended superband channel 24 without the necessary frequency offset and with a radiated disturbance power above the limit.

2. The RegTP has hosted a preliminary forum for representatives of the operators of receiving and distribution systems, with a view to jointly developing suitable monitoring procedures.

3. A working group was set up on 27 April 2000 to deal with digitisation, also to be led by the RegTP.

   A series of measurements is being made in cooperation with the organisations concerned, with the aim to quantify the radiated disturbance power of digital signals from receiving and distribution systems, and to identify the interference effects of such signals on receiving equipment used in the aeronautical services and by public safety authorities.

Harmonised European standards

A harmonised European standard (Draft EN 301 360) for interactive satellite earth stations has recently been drafted. The standard will considerably simplify market access routes for satellite earth stations operating in the shared band at 27.5-29.5 GHz.

Market surveillance under the Electromagnetic Compatibility (EMC) Act

Some 65,000 types of equipment comprising 250 million electronic or electrical components, and appliances with such components, are put on the German market every year. This represents around 30 percent of the market of the European Economic Area (EEA).

The RegTP is responsible for
- ensuring compliance with the CE marking requirements,
- checking the plausibility of the EC declarations of conformity issued, and
- ensuring compliance with the relevant EMC protection requirements.

The RegTP carries out checks on electrical apparatus in the market, a task it is required to do by law. These checks are based on the EMC Directive 89/336/EEC and the Terminal Directive 98/13/EC, and their transposition into national law through the German EMC Act (EMVG) and the Telecommunications Type Approval Ordinance (TKZulV).

The R&TTE Directive entered into force on 9 March 1999, and is due to be written into German national law – the R&TTE Act – within the next few months. In the six months to 30 June 2000, the RegTP inspected a total of 14,640 items of equipment. Faults relating to the CE marking or the declaration of conformity were found with 410, or 2.8 percent, of the products checked. In addition, 558 series – with in all 2,563 items of equipment – were tested. Irregularities were found with 147 series, ie 26.3 percent of the series tested did not conform to the prescribed EMC protection requirements. The checks are made on representative samples of the different product groups in the German market. The sample sizes are determined by market volumes, and the products grouped in line with the applicable European or national testing standards.

In 1999 a scaled procedure was introduced for assessing compliance with the protection requirements set out in Section 3 of the EMVG. This provides greater differentiation in dealing with breaches of the EMVG. Initially, a temporary ban on distribution is pronounced and the offending party given the opportunity to state his case. Only when all the records have been examined is it decided whether to lift the ban or to make it definitive. The EMC Cost Ordinance can thus also be applied with greater differentiation.

In the first half of 2000, 50 sales bans were imposed on account of non-compliance with the protection or CE marking requirements. Of these, 23 led to invocation of the safeguard clause, 18 were lifted after the hearing, and nine are still pending.

Under the Provisions of the TKZulV, there were 19 cases of violation and 12 definitive bans on sales.

In 102 cases the EMC Cost Ordinance was applied in dealing with breaches of the EMVG.

Breakdown by product group						
Product group	No of series tested (✳)	No of items of equipment tested (✳)	No of non-conforming series (✳)	No of non-conforming items of equipment (✳)	Series quota	Equipment quota
1 Domestic appliances	160	743	24	119	**15%**	**16%**
2 Power tools	153	689	37	164	**24%**	**24%**
3 Lighting equipment	39	187	17	85	**44%**	**45%**
4 IT/office equipment	57	254	20	90	**35%**	**35%**
5 Consumer electronics	76	346	21	100	**28%**	**29%**
6 Telecoms equipment	14	70	1	5	**7%**	**7%**
7 Radio equipment	41	191	21	97	**51%**	**51%**
8 Industrial equipment	9	39	3	13	**33%**	**33%**
9 Medical devices	0	0	0	0	**0%**	**0%**
10 Scientific equipment	3	15	0	0	**0%**	**0%**
11 Installation materials	6	29	3	14	**50%**	**48%**
12 Other	0	0	0	0	**0%**	**0%**
	558	2,563	147	687		

✳ As a rule, five items of each equipment series are tested.

EMC standards

International activities have focused on the harmonised standards to be applied under the new R&TTE Directive and the national implementing regulations – in Germany the upcoming R&TTE Act. Intensive participation within the ETSI Technical Committee for EMC and Radio Spectrum Matters (ETSI TC ERM) and tight coordination meant that work on the EMC standard for radio equipment and services – EN 301 489, at present comprising 20 parts – was provisionally completed by the one-year deadline. All 20 parts are currently under national consultation, and are due to be available from September 2000 to all users (manufacturers, service providers, notified bodies, national authorities, and end customers). The DKE worked in parallel on the German version of the standard, for adoption at national level and publication in the DIN VDE[7] 0878 series. The RegTP also made a decisive contribution towards work on draft ETSI EG 201 450,

[7] German Association for Electrical, Electronic & Information Technologies

the ETSI Guide on identifying harmonised standards and other technical specifications covering requirements of the R&TTE Directive, which has now also been sent to the ETSI Membership Vote. In view of its crucial content for all users of harmonised standards under the Directive, a German translation of the Guide has been produced which is available on request from the RegTP. It is also planned to incorporate the content into the national guide on implementing the German R&TTE Act.

Good progress has also been made on the EMC standard for power line technology (PLT). The RegTP has successfully introduced the concept of responsibility for the entire system – power lines, network technology, and terminal equipment – into discussions at international level. It is now working on its measurement standard Reg TP 322 MV 05, which describes how to measure on site the unwanted emissions from power line cable routes. Work is being done in close cooperation with the RegTP's UK counterparts at the Radiocommunications Agency (RA), one of the aims being to coordinate the two sets of national unwanted emission limits.

A joint proposal was put forward to produce a harmonised European EMC standard for radio equipment, to be based on the national measurement standard and the limits defined in Usage Provision 30, and to provide a common working basis for all European Administrations in, for example, investigating radio interference. Work on the draft standard has recently been launched by a joint ETSI/CENELEC[8] working group. An international specification will be prepared by Subcommittee H of the International Special Committee on Radio Interference (CISPR).

The RegTP supervised an external study on the radiation of radio frequency signals from low voltage networks. The results – available to download on the RegTP's web site – provide valuable data on the physical coupling between a source and victim of interference, and a sound basis for assessing the permissible wanted and unwanted signal levels at the ports.

Protection of persons exposed to electromagnetic fields

The RegTP carries out transmitter site certification to make sure that the fixed radio transmitters in operation comply with certain defined personal safety and cardiac pacemaker limits, aimed at protecting persons exposed to electromagnetic fields. Its procedures follow the limits recommended by the International Commission on Non-Ionising Radiation Protection (ICNIRP), and the DIN VDE 0848 cardiac pacemaker limits.

From January to May 2000, the RegTP issued a total of 7,878 site certificates, assessing 28,204 radio systems.

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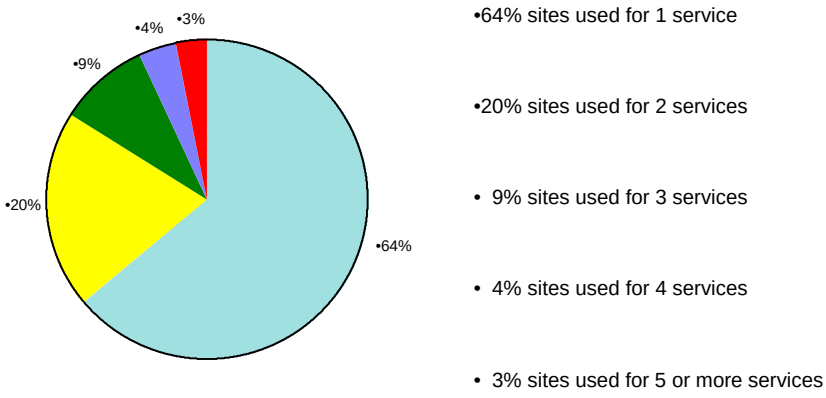
8 European Committee for Electrotechnical Standardization

The number of shared mobile transmitter sites has continued to rise: 36 percent of the 33,132 sites accommodating mobile base stations (in the C network, and the D and E networks) are shared, ie used for more than one mobile radio network, or more than one type of service.

Mobile transmitter site sharing



Total number of mobile base station sites in Germany: 33,132.

Accreditation and recognition

The RegTP's accreditation office is responsible for accrediting test houses, product certification bodies, and quality system certification bodies in the statutorily regulated field of telecoms and in the field of electromagnetic compatibility, the two focal points of the RegTP's accreditation activities. Independent experts determine whether the test houses are properly equipped to carry out certain tests or types of test for electrical or electronic equipment, and whether certification bodies are able to properly certify compliance with the applicable standards or statutory requirements. At present there are 55 test houses with RegTP accreditation for one or more technical areas (most notably for EMC, telecoms, and radio), and 29 competent bodies recognised under the EMC Act. Additionally, four certification bodies operating quality system certification have been accredited for the statutorily regulated field of telecoms. Annual reviews and comprehensive five-yearly assessments are necessary to ensure that the accredited and recognised bodies continue to perform to the required levels.

In the first six months of 2000, the accreditation office assessed the technical competence of the test houses and certification bodies seeking designation as a conformity assessment body (CAB) for the purposes of the mutual recognition agreements (MRAs) concluded between the European Community and Australia, Canada, New Zealand, and the US. The office has made 188 such assessments to date.

Metering and billing

Section 5 of the TKV requires public telecoms service providers to submit each year to the RegTP proof of the guaranteed accuracy of their metering and billing systems. This proof may be in the form of a test certificate issued by an accredited quality system certification body, or test results from an officially appointed, sworn expert. The technical requirements to be met by metering systems to ensure the required billing accuracy were published in Communication 168/1999 in the RegTP's Official Gazette 23/1999. Communication 18/2000 in Official Gazette 4/2000 set out the required content of the documents to be issued by the certification bodies and experts, the procedures to be followed in the interests of customer protection, and the measures foreseen for when the required documents are not submitted on time. The Chamber of Industry and Commerce in Offenbach is responsible for appointing officially authorised, sworn experts for the purposes of Section 5 of the TKV, and to date has appointed two such experts for metering and billing.

Telecoms type approval
Notified body under the EMC Act

The EU Member States were required to write the R&TTE Directive into national law by 7 April 2000. Administrative Order 28/2000 and various Communications published in the RegTP's Official Gazettes have provided for application in Germany of the Directive's provisions until the national R&TTE Act takes effect. The RegTP has established the procedures for public telecoms network operators to publish their interfaces, and for manufacturers to notify their intention to place on the market radio equipment using non-harmonised frequency bands.

The RegTP has designed a form for declaration of conformity, whose structure and content is based on the Directive and draft Act, and which is available on its web site. The RegTP hosted a forum on the R&TTE Directive, explaining the procedures, and fielding questions that were either answered on the spot or followed up in writing. It also dealt with queries surrounding the Directive within the working group of the German Electrical and Electronic Manufacturers' Association (ZVEI) responsible for public network interfaces. The RegTP continues to act as the notified and competent body under the national Act and the EU Directive on EMC.

Postal Market

In 1999, revenues in the German postal market totalled **more than DM 43 billion**, almost half the amount generated from telecoms services. Some two thirds of the market – mainly courier, express, and parcel, but also some letter post services – is now open to competition. The PostG provides the scope for a fully liberalised market by abolishing DPAG's restricted statutory letter post monopoly as from the beginning of 2003.

Nearly two thirds of revenues in 1999 were generated by DPAG, the other third being shared by a large number of mostly courier, express, and parcel service providers. Earnings from licensed services (⇨ conveying letters up to 1,000 grammes) were in the order of DM 19.6 billion. DPAG still commands almost 99 percent of this market, although some parts have already been opened up to competition.

DPAG still also captures over 95 percent of the market for conveying letters with identical contents (*Infopost* items, large mailings), even though parts of the market were liberalised some time ago (in 1995 for letters over 250 grammes, 1996 for letters over 100 grammes, and 1998 for letters over 50 grammes).

Universal Services (Access to Basic Services)

The PUDLV was promulgated in the Federal Law Gazette on 21 December 1999, and took retroactive effect on 1 January 1998. It defines the content and scope of postal universal services, including minimum quality standards (eg number of fixed facilities, delivery time targets) and criteria for pricing.

The PUDLV does not require any particular company to provide universal service, not even DPAG. Rather, it serves as a yardstick for deciding whether or not there is appropriate and adequate provision of universal services. Should this not – or no longer – be the case, the RegTP may call on one or more companies to provide universal service.

The services designated as universal services in the PUDLV are at present in appropriate and adequate supply in the market. No RegTP intervention has been necessary to date.

Fixed facilities

The PUDLV requires a minimum of 12,000 fixed facilities until the end of 2005, with 5,000 being manned by the company's own staff until the end of 2002.

Trend in the number of fixed facilities since the PUDLV took retroactive effect on 1 January 1998

	Total	Manned by own staff
31 December 1997	15,331	10,095
31 December 1998	14,482	7,946
31 December 1999	13,948	5,956
31 March 2000	13,884	5,556
PUDLV target	At least **12,000**	At least **5,000**

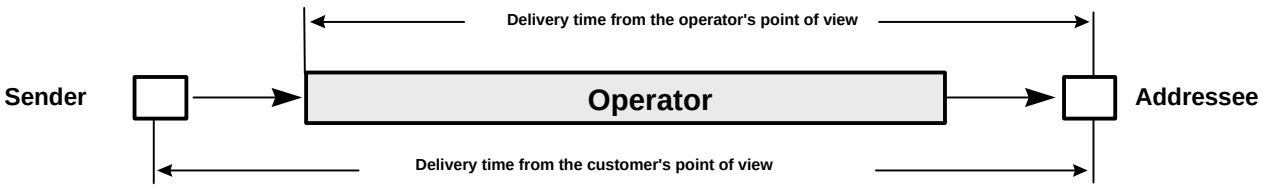
The PUDLV targets are met at present. To date, no company has been ordered to retain or reinstate a facility.

Letter delivery times

The PUDLV requires, on average over the year, at least 80 percent of domestic letters posted on a working day – excluding large mailings with 50 letters per mailing – to be delivered on the first working day after posting (D + 1), and 95 percent by the second working day after posting (D + 2).

The RegTP and, previously, the now defunct Federal Office for Posts and Telecommunications (BAPT) have since 1993 regularly monitored the quality of the letter post service. Measured are the delivery times achieved by DPAG (as the dominant company commanding around 99 percent of the market). Measurements are made nationwide on a continuous basis. Measuring is done by sampling, using test letters to determine delivery times across the country. **Each year, some 300,000 test letters are sent.** The results can be used to calculate the delivery times from the customer's and from the operator's point of view.

Delivery times from the customer's and operator's point of view



Delivery time for the customer means the time between posting a letter in a post box or at one of the operator's acceptance points at the normal times of business or day, and receipt by the addressee. The time starts as soon as the letter is out of the customer's hands. Measured, then, is the time from end to end – from

sender to addressee. The operator's variable closing times do not have any bearing on the results of this method.
Delivery time for the operator means the time between a letter entering his operating system and being delivered to the addressee. The time does not start until the operator actually has the letter in his hands. Measured here is the internal delivery time – from provider to addressee. The operator's closing times (last posting time at the counter, last collection time at letter boxes) play a key role here: the operator can influence the results of the measurements by, for example, having earlier last posting and collection times to give himself more time to process the letters.

Delivery times from the customer's and operator's point of view

RegTP measurements	**Delivery times from the customer's point of view**		**Delivery times from the operator's point of view**	
Period	**D + 1 [%]** (1)	**D + 2 [%]** (2)	**D + 1 [%]** (1)	**D + 2 [%]** (2)
1998 (annual Æ)	86.0	98.8	94.8	99.5
1999 (annual Æ)	86.0	98.8	95.0	99.5
1st quarter 2000	85.7	98.8	95.6	99.6
2nd quarter 2000	86.6	99.0	95.7	99.7
PUDLV target	**80.0**	**95.0**		

(1) Percentage of letters delivered within one working day of posting.
(2) Percentage of letters delivered within two working days of posting.

Although the PUDLV does not specify which method should be used, the RegTP believes the delivery times from the customer's point of view are the closest match for the targets. What counts is the needs of the economy, which include those of the customers.

The PUDLV targets (80 percent D + 1, and 95 percent D + 2) are comfortably met at present (86.6 percent D + 1, and 99 percent D + 2).

Prices and price level for letters

The prices charged by DPAG as at 30 June 2000 for the products within the scope of its restricted statutory monopoly were as follows:

- **Postcard** DM 1.00
- **Standard letter** ≤ 20 g DM 1.10
- **Compact letter** ≤ 50 g DM 2.20
- **Large letter** < 200 g DM 3.00

-	**Maxi letter**	< 200 g	DM 4.40

2000 price level: **DM 1.58**.

$$\text{Price level} = \frac{m_1}{M} \times P_1 + \frac{m_2}{M} \times P_2 + \ldots\ldots + \frac{m_n}{M} \times P_n$$

where $m_1, m_2, \ldots m_n$ = quantity of product 1 to n,
M = total quantity ($m_1 + m_2 \ldots + m_n$), and
$P_1, P_2, \ldots P_n$ = prices for products 1 to n.

Taken are the quantities of the products sold and paid for in full in 1999 in Germany.

The price level for 2000 in itself says very little: only when compared with that of other years, other German companies, or companies abroad, can conclusions be drawn.

Comparing prices with those in previous years does not help, because they have not changed since September 1997. Nor can a comparison be made with the prices charged by other German companies, because DPAG's restricted statutory monopoly prevents other companies from offering these products.

What is feasible, though, is an international comparison. The price level lends itself well, because various products with different prices and weights can be covered. This in turn weakens methodical differences that may distort results when prices are compared for one product only, for instance a standard letter up to 20 g.

Prices/weights for letters up to 50 g	**D** [DM]	**UK** [£]	**A** [Sch]	**F** [FFr]	**USA** [$]	**GR** [Dr]
Standard letter (up to 20 g)	1.10	0.27	7	3.00	0.33	100
Compact letter (20-50 g)	2.20	0.27	8	4.50	0.55	170
Compact v standard letter	**+100%**	**+0%**	**+14%**	**+50%**	**+67%**	**+70%**

International price comparison method

1. **All** the EU countries, together with Australia, Canada, Japan, New Zealand, Norway, Switzerland, and the US, were selected as the peer countries.

2. The products in each peer country that most closely matched DPAG's standard, compact, large, and maxi letters were selected as the peer products. The fastest delivery option for standard letters – with no guaranteed delivery

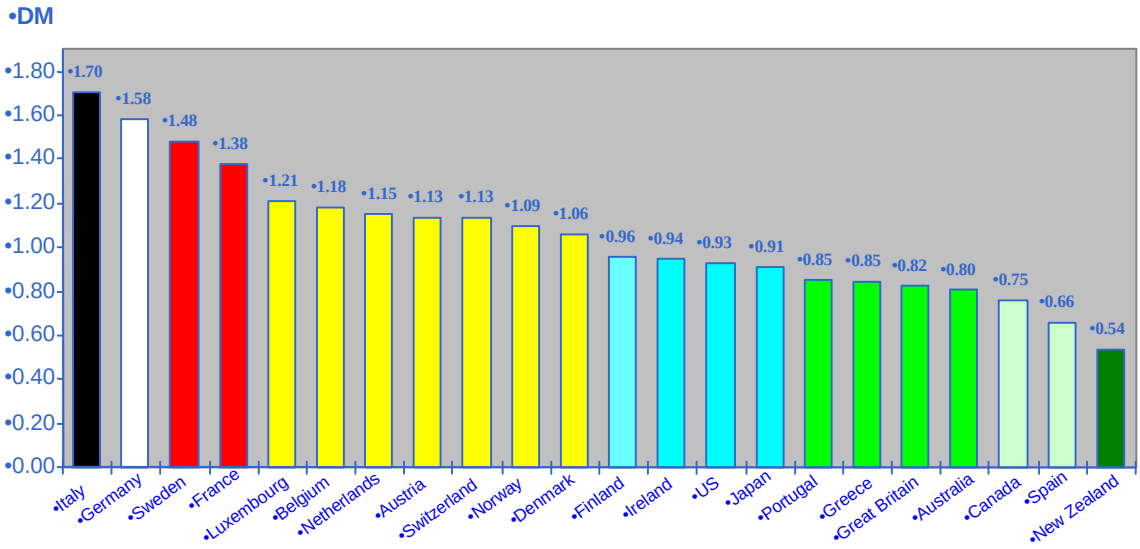
times, but (if anything) expected, non-binding delivery times, as in Germany – was selected.

3. The June 2000 price in local currency for each peer product was weighted with the quantity of the product sold and paid for in full, as for the German prices. All the individual weighted prices were added together to give the price level in local currency.

4. The price level in local currency for each peer country was then converted into Deutschmarks, using the (1999 average) consumer price parities calculated by the Federal Statistical Office on the basis of a "German basket". The goods and weighting for the basket are representative of the **consumer spending** (excluding rent and car purchases) of all private households in Germany.

5. The **results** are shown in the graph below (the detailed input data and results are available from the RegTP; the RegTP also holds details of the product quantities sold and paid for in full, but these data are not publicly available).

Price level for letters



Notes

- The delivery times for the peer products differ from country to country (D + 1 to D + 3). This raises the question of whether or not – and to what extent – customers should pay more for faster delivery, if all they actually want and need is nationwide access to affordable basic services. Shortening delivery times is, in the first place, only a matter of cost: according to the US Postal Rate Commission, shortening times for delivery within 600 miles (around 1,000 km) from D + 2 to D + 1 would in the US lead to an increase in costs over the entire transport chain of no more than 10 percent. How much these

costs can be shifted to the consumers via prices depends on how intensive competition is. A monopoly operator would be able to do this without any trouble at all.

- The Organisation for Economic Co-operation and Development (OECD) purchasing power parities (PPPs) cannot be used to convert local currency prices, because the PPPs are calculated using a US basket of goods and services that is not representative of Germany.

- Expenditure on letters is clearly part of consumer spending: converting prices using data based on costs or wages instead of consumption expenditure would distort the results.

- It would also be misleading to make **further** adjustments to the price level or prices to take account of differences in labour costs, because the changes in the results would be relevant to **costs**, but not **prices**.

Market access

Postal services are provided as private sector services by DPAG and other private operators. This means that everyone has the basic right to offer postal services in the market.

This applies without exception to conveying letters heavier than 1,000 grammes, parcels, newspapers, and magazines, and to courier services as defined in the PostG. No special authorisation is required for these commercial activities.

By contrast, a licence is required to convey letters up to 1,000 grammes. There is an unlimited number of licences, and every operator meeting the prerequisites has a legal right to a licence.

Certain other letter post services fall within the scope of the restricted statutory monopoly held by DPAG until the end of 2002, and defined in the transitional provisions of the PostG.

Postal licences

Licensable services

Until DPAG's statutory monopoly ends, licences may be granted for the following services only:

A conveying – on a profit basis – letters weighing between 200 and 1,000 grammes, and/or letters costing more than five times the price payable on 31 December 1997 for corresponding postal items in the lowest weight category (⇨ letters ≥ 200 g or > DM 5.50);

B conveying – on a profit basis – letters with identical contents and weighing over 50 grammes, with at least 50 letters per mailing (⇨ letters with identical contents > 50 g and ≥ 50 letters);

C conveying – on a profit basis – letters delivered by the sender to a document exchange and collected by the addressee from the same or another exchange operated by the same service provider, with the sender and addressee using the service under a permanent contract (⇨ document exchange service);

D services distinct from universal services, with special features and of higher quality (⇨ higher quality services);

E conveying – on a profit basis – letters collected on the sender's behalf from the sender and taken to the nearest DPAG acceptance point or another within the same community (⇨ mailing at DPAG acceptance point);

F conveying – on a profit basis – letters collected on the addressee's behalf from DPAG PO boxes and delivered to the addressee (⇨ collection from DPAG PO box facilities).

After DPAG's restricted statutory monopoly ends, licences may be granted on application for any service to convey (⇨ collect, transport or distribute) letters up to 1,000 grammes.

Higher quality services (category D)

The PostG does not clearly state which features a service must have to qualify as a higher quality service, and therefore does not provide any clear and readily comprehensible decision criteria.

The RegTP therefore established standardised criteria for deciding when a service qualifies as a higher quality service, as outlined in the PostG, and published the criteria in its Official Gazette 8/1999 of 12 May 1999.

Market study on higher quality services

The RegTP took the occasion of a market study on competition law to conduct at the beginning of the year a brief survey aimed at finding out which features customers value most in letter post, and in particular higher quality, services.

The top five features in order of priority were
1. reliable or guaranteed delivery,
2. value for money,
3. fast delivery,
4. collecting letters from customers, and
5. timed delivery.

Other valued features included providing changes of address, redelivering items, assuming liability, and redirecting letters. Features that by themselves seem less practical, but play a key role in adding to higher quality services as a whole – for instance money-back guarantees, and diverting or recalling letters – are also seen as important.

The list of top five features shows that although speed – a focus in standard services – is a priority, it is not the priority. Speed alone in an otherwise simple standard service is obviously not enough to accommodate the customers' various requirements. Those surveyed placed most value on quality, in other words reliable and safe delivery.

The survey showed that the standard service provided by DPAG under its statutory monopoly may well seem adequate to meet basic needs, but that customers do in fact want more, and that there is a demand for a wider range of services. What is remarkable is the creativity of the new operators, and customer acceptance of the rainbow of features offered.

Licensing

The RegTP published in its Official Gazette 8/1999 of 12 May 1999 a Communication on how to apply for letter post licences. The Communication aimed to make clear the prerequisites for a letter post licence, in particular so that applicants might provide correct and complete information from the outset. Only when all the necessary information and documents are submitted can a licence be issued within the six-week period specified in the PostG.

This step – and in particular the transparency created – has proved its worth: most licence applications now received can be processed without any problem.

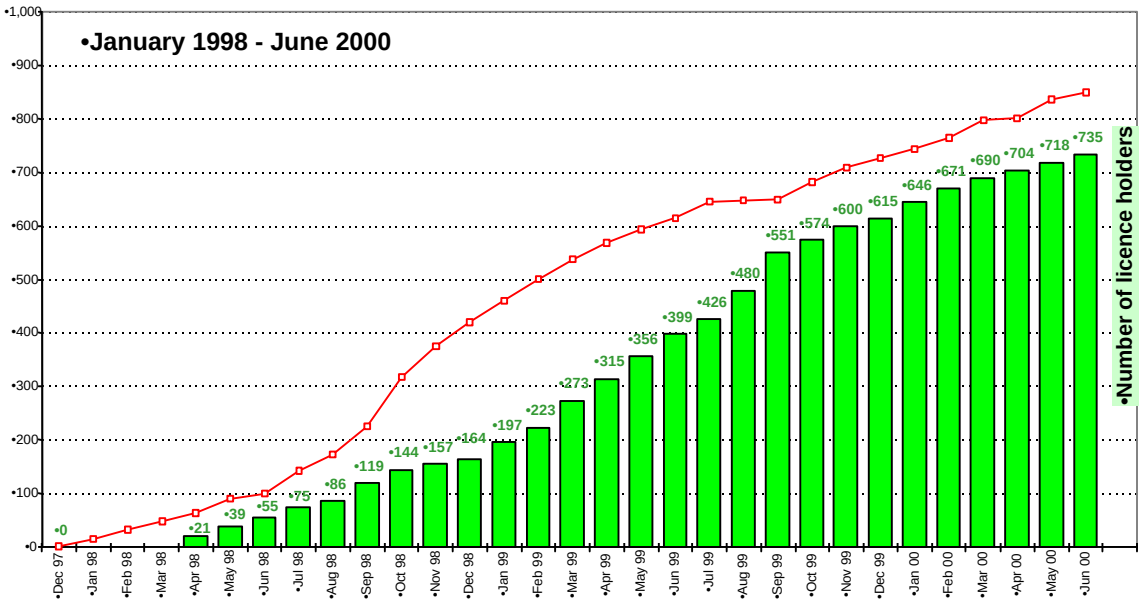
Applications and licences

30 June 2000	1st half 1998	2nd half 1998	1st half 1999	2nd half 1999	1st half 2000	Total
Applications processed	**101**	**288**	**152**	**160**	**149**	**850**
↳ **Applications pending (1)**	--	10	4	24	75	113
Licences granted	**101**	**276**	**148**	**136**	**74**	**735**
Licences denied	--	**2**	--	--	--	**2**

(1) Documents missing (in particular Central Trade Register entry, certificate of good conduct, General Credit Protection Agency (SCHUFA) report) and/or licence requirements not/not yet met.

To date, two licences have been denied, because there were grounds (Federal Central and Central Trade Register entries) for assuming that the applicants did not have the reliability and efficiency necessary to exercise the licence rights.

Licence applications and licence holders



Regional breakdown of licences

30 June 2000				Licensed activity[1)]					
Federal state	**Applica-tions**	**Licence holders**	**Licence density[2)]**	**A**	**B**	**C**	**D**	**E**	**F**
Baden-Württemberg	61	53	5.1	41	39	15	42	44	45
Bavaria	57	48	4.0	33	28	19	34	38	38
Berlin	31	26	7.6	19	17	11	22	23	23
Brandenburg	56	45	17.5	18	22	11	42	37	38
Bremen	3	3	4.5	3	3	2	3	2	2
Hamburg	29	25	14.7	15	10	0	4	20	23
Hesse	40	36	6.0	21	21	11	28	32	31
Mecklenburg-Western Pomerania	42	40	22.1	17	15	6	38	30	29

Lower Saxony	104	94	12.0	59	58	33	80	82	76
North-Rhine/Westphalia	191	157	8.7	87	87	42	118	119	114
Rhineland-Palatinate	27	23	5.7	10	10	4	18	19	18
Saarland	8	6	5.6	5	5	4	5	5	5
Saxony	73	62	13.7	33	34	13	55	45	44
Saxony-Anhalt	53	48	17.8	33	26	17	44	40	40
Schleswig-Holstein	41	40	14.5	35	32	21	34	33	33
Thuringia	34	29	11.7	15	18	9	28	21	21
Total:	**850**	**735**	8.96	444	425	218	595	590	580

[1] See pp54-5 for details.
[2] Licence density = number of licence holders per one million inhabitants.

Use of licence rights

A licence authorises its holder to perform the activities specified in his application, in accordance with the PostG and the ordinances issued under the PostG. The licence does not, however, oblige the holder to take up the activity as such: this depends entirely on the holder's business plans.

A market survey conducted by the RegTP in December 1999 showed that 160, or more than 30 percent, of the 525 licence holders surveyed, were not, not yet, or no longer operating. This means that probably only about 500 of the 735 current licence holders are active in the market. 30 out of the 100 or so old-type licences – licences granted before 1 January 1998 as an exemption from DPAG's statutory monopoly – are still in use.

Post-grant checks

Licences are granted on application if and when the requirements are met – ie if there are no grounds for denial at the time the licence is issued – and are valid only for as long and as far as they are met. Compliance with the requirements is monitored by the RegTP through its system of checks: first, each licence holder undergoes a regular check at least once a year; second, additional checks are made if occasioned internally or externally. Both types of check are made on site – normally by staff from the RegTP's regional offices, but if necessary by specialists from the RegTP's headquarters. If faults are found, the licence holder is given a certain period of time to take remedial action.

If the holder remedies the faults on time, and informs the RegTP accordingly, a follow-up check is made three months later, focusing on whether or not the faults have actually been eliminated for good.

If the holder does not remedy the faults within the given period, proceedings may be instituted, and could ultimately lead to all or part of the licence being revoked. This is done in line with the principles of the Administrative Procedures Act (VwVfG).

Initial results of post-grant checks
To date, two licences have been revoked, because facts came to light which justified the assumption that the holders did not, in particular, have the required efficiency and reliability. 45 holders have surrendered their licence on account of termination of business or bankruptcy, while another seven are at present the subject of insolvency proceedings. Five licences have expired as the holders no longer operate independently. The RegTP has carried out on-site checks on 85 holders across the country, finding no serious breaches of licence rights.

The irregularities found were due to holders' lack of knowledge of provisions, and lack of experience, ie failing to
- register activities, in particular courier services;
- serve documents properly (not applying for exemption or approval of prices);
- inform the RegTP of changes, in particular in staff numbers, address, and company form; and
- initially provide service in the minimum licence area (> 2,500 km²), or deliver on time (category D services).

Six checks were made during the first half of 2000 to follow up reports in the press or elsewhere which justified the assumption that a licence holder or applicant might not, or no longer, have the required qualifications, such as reliability. In one case, a licence became invalid through insolvency proceedings initiated immediately after the RegTP's check. In another, an applicant was denied a licence. The checks have, amongst other things, shown just how much the holders need to be informed. The advice given on site to holders should lead to improved performance in the not too distant future.

Legal proceedings

DPAG believes that the RegTP has wrongly granted licences for higher quality (category D) services, and has therefore applied firstly to an administrative court for rescission of the licences, and secondly to civil courts for injunctions to prevent its licensed competitors from providing service.

Proceedings before Cologne administrative court (30 June 2000)
- Actions pending – DPAG v RegTP: around 500

- Judgments rendered (test cases): 6

Four out of the six test case judgments dismissed DPAG's action (⇨ same day delivery). In the other two cases (⇨ overnight delivery) DPAG was partly successful.

None of these judgments is final. Indeed, both DPAG and the RegTP have applied to the higher administrative court in Münster for admission of appeal. DPAG claims that even same day delivery does not qualify as a higher quality service. The RegTP maintains its view that even when letters are collected after 17.00 and delivered by 12.00 the next day, this makes for a higher quality service because – as with same day delivery – it is one day faster than DPAG's standard service. Five out of the six applications were granted in March 2000, a ruling on the sixth still being outstanding.

Status of civil court proceedings
According to current information, the status of the proceedings is as follows:
- proceedings pending: 41;
- proceedings completed (regional/higher regional court judgments/rulings): 47.

Although the judgments and rulings do not all coincide, they do show the following tendencies:
– where the competitor does not hold a licence from the RegTP, DPAG wins in the vast majority of cases (13 out of 16);
– where the competitor holds a licence from the RegTP, he wins in the majority of cases (19 out of 30).

In addition, the Federal Court of Justice has admitted an appeal on points of law in respect of a higher regional court ruling against a licensed competitor.

Development of the Market (licensed services)

Market study

The RegTP ran a market study between December 1999 and April 2000 covering the 629 operators licensed up to 30 September 1999:
- **525 holders of a licence** granted under the PostG after 1 January 1998, and
- **104 holders of an old-type licence** to convey large mailings (granted as an exemption from the statutory monopoly before the PostG took effect).

The operators were asked for their revenue and sales figures for 1998, 1999 and 2000 (forecast), and their staff numbers as at 1 November 1999. By the end of April 2000, 625, or over 99 percent, of the operators had sent a written reply.

Results

Revenues and sales from licensed services (including DPAG)

1998		1999		2000 (forecast)	
Revenues [DM]	**Sales [volume]**	**Revenues [DM]**	**Sales [volume]**	**Revenues [DM]**	**Sales [volume]**
19.2bn	**15.05bn**	**19.6bn**	**15.45bn**	**20.2bn**	**15.9bn**

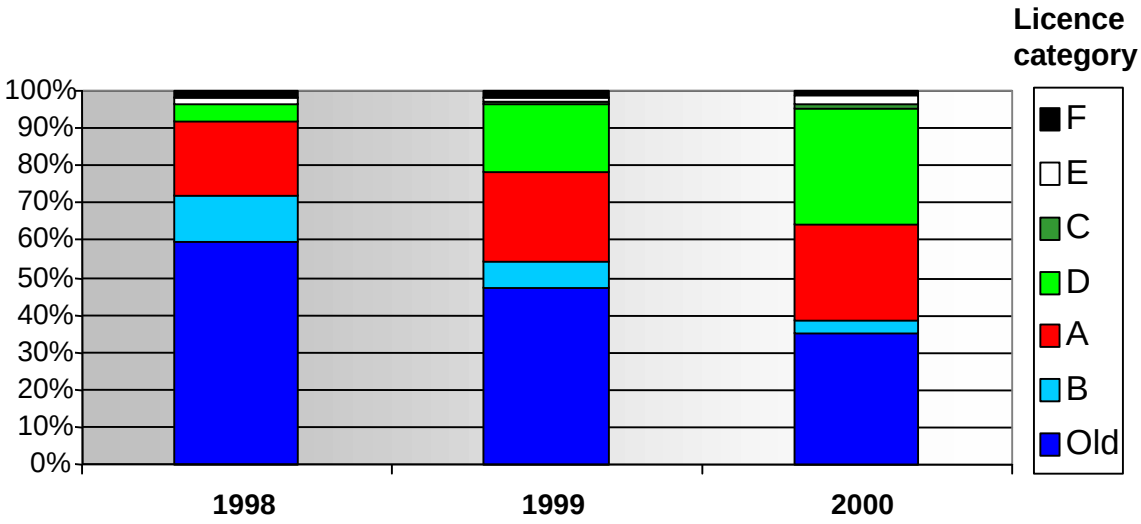
Company size by revenues (excluding DPAG)

Revenues	**DM 1 to DM 1,000**	**DM 1,001 to DM 10,000**	**DM 10,001 to DM 100,000**	**DM 100,001 to DM 1m**	**Over DM 1m**
1998	2	18	44	41	14
1999	14	62	156	106	30
2000 (forecast)	4	23	101	177	53

Breakdown of revenues by activity [DM]

				Forecast
Licensed activity		**1998**	**1999**	**2000**
A	Letters > 200 g or > DM 5.50	30.5m	60.9m	100m
B	Letters with identical contents > 50 g	19.1m	17.2m	14m
C	Document exchange	0.3m	1.6m	3m
D	Higher quality services	6.7m	45.6m	120m
E	Mailing at DPAG acceptance points	2.5m	3.9m	9m
F	Collection from DPAG PO box facilities	2.5m	3.7m	5m
Old-type licences (large mailings)		90.3m	119.7m	134m
Total		151.9m	252.6m	385m

Breakdown by licence category



Note: The trend among services is away from simple transport (mostly category B and old-type licences) and towards added value (notably category A and D licences).

Market shares

Licensed services (including statutory monopoly services)

	1998	1999	*Forecast* 2000
Total revenues [DM]	19,200m	19,600m	20,200m
Revenues for holders excluding DPAG [DM]	151.9m	252.6m	385m
Market share for holders excluding DPAG	**0.8%**	**1.3%**	**2.0%**
DPAG's market share	99.2%	98.7%	98%
Revenues from category D licences [DM]	6.7m	45.6m	120m
Market share for category D licences	**0.03%**	**0.24%**	**0.63%**

Licence holders' shares in the market for letters with identical contents > 50 g (old-type and category B licences)

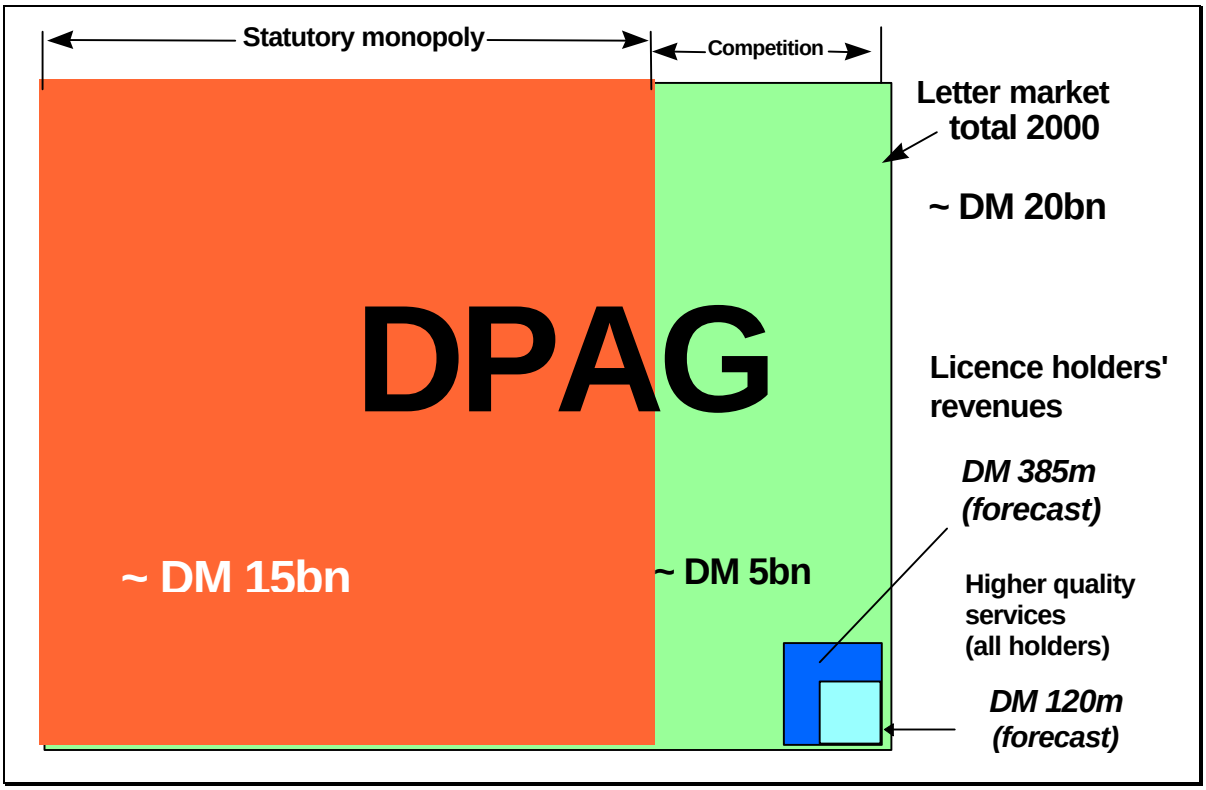
Forecast

	1999	2000
Total revenues [DM]	**2,575m**	**2,750m**
Revenues from old-type and category B licences [DM]	**136.9m**	**148m**
Market share for old-type and category B licence holders	**5.3%**	**5.7%**

Note:
The figures relate solely to letters with identical contents **over** 50 grammes, which account for less than 50 percent of total revenues from letters with identical contents. The licence holders probably command around 2.5 percent of the total market for letters with identical contents (*Infopost* items, direct mail).

Postal market in 2000 (forecast)

(areas correspond to revenues)



Ruling Chambers

Ruling Chamber proceedings
1st half 2000

Ruling Chamber	Rates regulation		Control of anti-competitive practices		Licensing		Frequency award	Inter-connection orders		Other proceedings (conciliation, complaints authorisations)		Total no of proceed-ings	No of sum-mons	Disputed proceedings	
	T	P	T	P	T	P		T	P°	T	P	T + P	T + P	Pending	Com-pleted
1							1					1			
2	19											19	80	5 (2)*	
3	2		2							12		16	71	0 (2)*	
4	9		1					8		13**		31	159	4 (10)*	1
5		53		4					15		2	74	3	5	
Total	30	53	3	4			1	8	15	25	2	141	313	14 (14)	

T = telecoms
P = posts

* The figures in brackets ( ) relate to proceedings from late 1999 that were ruled on in 2000.
** Revocation of interconnection orders.
° Access to PO box facilities, change of address information, and incidental services.

Ruling Chamber 2
(rates regulation, rates subject to approval for transmission paths and voice telephony)

Subject to the RegTP's approval on the basis of Sections 24 and 27 of the TKG are rates and rate-related components of general terms and conditions for transmission paths and voice telephony offered under Class 3 and 4 licences according to Section 6 of the TKG, where the holder has in the relevant market a dominant position as defined in Section 19 of the GWB (Section 25(1) of the TKG). Chamber 2 – being responsible for regulating such rates – ruled in the first half of 2000 on a total of 19 rates proposals.

Rates for transmission path offerings

The majority of the prices subject to approval are those for DTAG's analogue and digital standard leased lines and digital carrier leased lines, and leased transmitters and transmission paths for VHF and TV broadcasting and for DAB in the individual federal states. Regulating the prices firstly protects the customers'

interests, and secondly guarantees fair and effective competition, as in particular carrier leased lines are needed by DTAG's competitors to build out their own networks. In the first six months of 2000, the Chamber ruled on one price proposal each for the three types of leased line, for VHF and TV broadcasting, and for DAB in Saxony, Saxony-Anhalt, and Thuringia. It also ruled on a price proposal for international interconnection (access to border crossings or submarine cable landing points) – which is classed as special access but bears a close similarity to carrier leased line provision – and on the prices proposed for express fault repair for international interconnection. Finally, the Chamber launched two studies to determine whether or not DTAG has market dominance in respect of DAB in Bavaria, and in Baden-Württemberg and Rhineland-Palatinate. The proposed prices – in most cases accompanied by unusually complex cost statements – had to be assessed against costs of efficient service provision (Section 27(1) subparagraph 1 of the TKG). In accordance with the Chamber's determination of 8 September 1999, an additional cut was made in the prices for standard and carrier leased lines, bringing them further into line with efficient operator costs. The prices were cut for all types of standard and carrier leased line, including high bit rate lines, in both the access and the core network. Some prices did not meet the criteria of Section 24 of the TKG and therefore did not qualify for approval. In these cases the Chamber did not refrain from approving any prices at all, but determined prices lower than those proposed. These prices included some of those proposed for digital standard and carrier leased lines, and nearly all of those proposed for international interconnection and for DAB in Saxony, Saxony-Anhalt, and Thuringia. In assessing the prices for standard and carrier leased lines, the Chamber designed and applied a new methodology for leased line international price comparisons, as provided for by Section 3(3) of the Telecommunications Rates Regulation Ordinance (TEntgV), which was published after public consultation in Communication 12/2000 in the RegTP's Official Gazette 4/2000 of 23 February 2000.

Rates for voice telephony offerings

DTAG, being at present the only operator with dominance in the German voice telephony market, is currently the only company that must obtain approval for its rates and rate-related components of general terms and conditions.

Price cap regulation

The now defunct Federal Ministry of Posts and Telecommunications (BMPT) in its Communication of 9 December 1997 set out the price cap regime applicable to DTAG's telephone call prices as from 1 January 1998. The regime defined the baskets of services, and fixed the benchmarks and secondary provisions to be applied in assessing and approving proposed prices for voice telephony services offered under Section 6 of the TKG. The regime was published on 17 December 1997 in the BMPT's Official Gazette.

Before expiry of the first price cap period, Chamber 2 in its Communication of 23 December 1999 (BK 2c 99/050) ruled that the basket structure would remain unchanged, and that in the second price cap period (from 1 January 2000 to 31 December 2001) DTAG's *BusinessCall 500*, *BusinessCall 700*, *City Plus 600/800* and *Select 5/10* would be added to the business basket, and *City Plus 600/800* and *Select 5/10* to the residential basket.

The Federal Statistical Office's June 1999 consumer price index was up 0.4 percent compared to June 1998. In light of this, the price cut target for the second price cap period was fixed at 5.6 percent. The new regime was published in Communication 1/2000 in the RegTP's Official Gazette 1/2000 of 12 January 2000. For the second price cap period the average price for the services grouped in each basket had to be cut in the first quarter of 2000 by 5.6 percent. DTAG's prices proposed in the first quarter of 2000 met this target. DTAG's competitors and their associations had – even before DTAG put forward its prices – criticised as inadequate the benchmarks used to check the proposed customer prices for the discounts prohibited under Section 24(2) subparagraph 2 of the TKG. This prompted the Chamber to review its decision-making procedures.

In the past, the Chamber had assumed that the benchmark used to check for prohibited discounts – the interconnect rates plus 20 percent to allow for distribution costs – enabled DTAG to cover at least its long run incremental costs (LRICs) as referred to in Section 3(2) of the TEntgV. Both DTAG and its competitors based their calculations on the interconnect rates.

The interconnect rates reflect the costs of DTAG's competitors using the DTAG network, and DTAG's own network infrastructure costs, the price for call origination being the applicable price for *City* calls (within 20 km), and that for call termination varying according to distance. This matched the approach taken by the Chamber, and was pursued. According to the companies concerned, the product-related distribution costs amount to between one and three thirds of 20 percent of revenues.

In light of this, the Chamber decided it was reasonable to allow for product-related distribution costs of two thirds of 20 percent, or 13.35 percent, of revenues, which is midway between DTAG's data and its competitors' calculations. Adding billing-related distribution costs of 6.5 percent gives total distribution costs of 19.85 percent or, rounded up, 20 percent. The Chamber therefore decided to take as the benchmark for determining LRICs the interconnect rates plus 25 percent.

The Chamber reserves the right, however, to review this benchmark to take account of any new findings on quantifying distribution costs.

***T-ISDN-XXL* trials**
DTAG's scheme – initially open to ISDN line customers only – offers special prices for certain national and international calls for a monthly charge of DM 12.83 (net), or DM 14.89 (gross). One particularly attractive feature is that on Sundays and national holidays *T-ISDN-XXL* customers can make national calls and surf the Internet completely free of charge. Otherwise, the call charges are the same as for DTAG's *AktivPlus*. The scheme was approved on 27 April 2000 for a trial period only, and subject to the following conditions:

1. The scheme is approved for the period to 31 December 2000 only.

2. The trial period begins no earlier than 1 June 2000.

3. DTAG must submit a new price proposal for the scheme, together with verifiable cost statements, by 30 September 2000.

4. DTAG must give the RegTP a monthly report on customer numbers and actual usage once the scheme is introduced.

5. The minimum term of contract may not be more than one month.

The scheme was approved for a trial period on the grounds that the advantages of introducing the offer as soon as possible outweighed the lack of reliable forecasts and the potential competitive disadvantages. One key deciding factor was that DTAG was the first to react to the increasing demand in Germany for special low-cost call plans, and to the demands voiced by consumers and in the political arena for creative, innovative and modern telecoms services. There have been repeated calls for affordable, all-inclusive payment options, aimed to promote widespread use of the Internet. The scheme – offered for a limited period only and to selected customers only – is unlikely to have a major impact on competition.

Ruling Chamber 3
(special control of anti-competitive practices in the telecoms market, and *ex post* telecoms rates regulation)

Three cases from the first half of 2000 are cited for their general importance*:*

Billing and payments
In autumn 1999 DTAG terminated its invoicing and payment agreements with its long-distance carrier competitors with effect from 1 April 2000, since it planned to discontinue some of the services provided to its competitors as from that date. The only services to continue were issuing a standard bill for voice telephony, accepting bank transfers for total amounts invoiced, and forwarding payments due to other carriers. DTAG also planned to introduce a new payment scheme for this considerably reduced range of services. After some three months of investigations

conducted under Section 33 of the TKG, the Chamber on 21 February 2000 first requested, and on 14 March 2000 was then obliged to order, DTAG to continue to provide the same services – on the same conditions and at the same prices – until 31 December 2000.

DTAG was ordered to submit by 30 June 2000 a proposal for a new agreement regulating the terms and conditions applicable as from 1 January 2001. This agreement was to cover voice telephony, value added, directory enquiry, and Internet-by-call services. It was to provide for a standard bill listing each item and the total amount invoiced, a request for payment of the total amount invoiced to a standard DTAG bank account, initial direct debit by DTAG of the total amount invoiced, forwarding of payments due to other carriers, and – at the customer's request – an itemised bill for all voice telephony services. The new prices for these services were to be non-discriminatory and non-prohibitive. DTAG was also required to provide its competitors in good time before 1 January 2001 the customer data necessary for its competitors to be able to process complaints and collect debts themselves as from that date. A decision on the proposed conditions for 2001 is still pending.

Local loop access

The second case of anti-competitive conduct concerned various clauses in DTAG's local loop access agreements with 82 competitors. The Chamber's determination of 7 June 2000 dealt with three key aspects:

(1) DTAG was ordered to amend the clause obliging its competitor to pay the full costs of relocating a collocation room, so that the costs are shared equally between DTAG and the competitor concerned.

(2) DTAG was required to change its times for providing collocation rooms and for connecting local loop lines. First, it was ordered to give guaranteed times instead of forecast times. Second, it was ordered to shorten the time for extending a collocation room from 16 to seven weeks, and the time for connecting a local loop line from a minimum of 10 to a maximum of seven days.

(3) Finally, DTAG was ordered to allow its local loop partners to, for example, re-lease a local loop line as part of a leased line, or to use a local loop line together with third parties such as high bit rate service providers.

Although DTAG committed itself, as ordered, to amend the contracts in the following few weeks, it is likely to take action against the Chamber's determination.

Access to cabling
Following up a case of anti-competitive behaviour dealt with in 1999 concerning access to the cabling between a network termination and a customer's socket as part of the local loop, the Chamber made two price determinations.

Firstly, the Chamber approved in February the proposal to make a cost and time-based charge for initial access, as DTAG had no empirical data to calculate costs or flat rates. All of the other price proposals, and in particular the proposed monthly rental charge, were rejected.

A new determination was due in June 2000 as the first was effective for six months only. However, as still no company had requested cabling access, the Chamber extended its first ruling by another six months.

Ruling Chamber 4
(special network access, including interconnection)

In the first two quarters of 2000, Chamber 4 dealt with a total number of 31 cases: nine price proposals for special network access as provided for by Sections 35 and 39 of the Act; eight requests for interconnection orders under Sections 37 and 39 of the TKG; one case concerning anti-competitive practice; and 13 cases where the Chamber, having consulted the carriers concerned, revoked interconnection orders issued in 1999 and 2000.

The majority of the cases were settled through Chamber determinations. Seven of the eight requests for interconnection orders were withdrawn following a number of consultations with the carriers concerned, dispensing with the need for a Chamber decision. The case of anti-competitive behaviour was also closed after those involved were consulted and the practice in question ended.

The nine price proposals concerned the prices for optional and additional interconnect services, air conditioning in collocation rooms for interconnection and local loop access, transmitting suffixes for certain service numbers, connecting local loop lines at special times, collocation rooms for interconnection, inter-building links, and service provider access. In some cases, the Chamber approved the proposed prices, while in others it fixed prices lower than those proposed, or gave its provisional approval. One key determination is that of 31 March 2000 (BK4e-00-004/E28.01.00) approving the prices payable for a range of optional and additional services as from 1 April 2000, and those payable as from the introduction of carrier selection phase II, scheduled for 1 July 2000.

Most of the prices approved were published under Section 6(5) of the Network Access Ordinance (NZV) as prices for standard services.

The interconnection orders issued under Section 37 of the TKG primarily concerned disagreements on the prices for optional and additional interconnect services after introduction of carrier selection phase II, and bundling.

Mannesmann Arcor AG's application of 30 June 2000 for an order to interconnect with DTAG concerns the element based charging (EBC) scheme planned to supersede the distance based charging scheme as from 1 February 2001. In the new scheme, charges are based on the number of network elements used for each call. The Chamber needs to clarify which form of telecoms network is efficient in terms of the TKG, and then which charging scheme should be used. The Chamber is likely to issue a number of summons, as the matter involves all DTAG's interconnect partners.

The case of anti-competitive behaviour concerned how much DTAG should be allowed to charge its competitors to cover the costs of unpaid calls to 0190 premium rate numbers.

The proceedings listed in the table include those initiated in the first half of 2000 only: it does not include cases launched in late 1999 and not settled until the following year.

The Chamber has been involved since the end of 1999 in discussions with DTAG and its competitors on the future EBC scheme.

Ruling Chamber 5
(postal rates regulation, and special control of anti-competitive practices in the postal market)

Chamber 5 has initiated proceedings against DPAG on account of suspected anti-competitive price discounts for large volume customers for heavyweight *Infopost* items. It is making preliminary investigations into whether or not DPAG's prices for *Fotopost* and certain printed paper items contain discounts prohibited under Section 20(2) sentence 1 subparagraph 2 of the PostG. The Chamber has also launched preliminary investigations following a complaint from a company that the prices calculated using franking machines already switched to euros are too high, and have not been approved. In addition, the Chamber took preparatory action in connection with the price cap regime for letters, as provided for by Section 21(1) subparagraph 2 of the PostG, for the period after 31 August 2000.

In accordance with Section 34 sentence 4 of the PostG, the approval of rates for serving documents in accordance with the relevant codes of procedure and legislation constitutes a special form of rates regulation. In this case, the criteria established in Section 20(1) and (2) of the PostG for regulating dominant companies only are to be applied accordingly to all – ie dominant and non-dominant – providers. This has not given rise to any problems in practice. The average price regularly proposed for approval by the regional licensees is about

DM 8.00 (excluding value added tax (VAT)), some 30 percent less than DPAG's rate of DM 11.00. In the first six months of 2000 the Chamber approved 27 price proposals for service of documents.

Another – special – form of rates regulation is the procedure provided for by Section 31(2) of the PostG. Under certain circumstances the Chamber is, on request, to determine the basic conditions of a contract between a dominant provider and a competitor, relating to incidental services (Section 28) or access to PO box facilities and change of address information (Section 29), where the parties fail to conclude a contract within three months from the time the competitor first requested services or access. In contrast to the rates approval and review procedures as provided for by Sections 19ff and Sections 24 and 25 of the PostG, the Chamber is in this case obliged to fix both the price structure and the prices themselves, as the parties cannot usually agree on the price to be paid for the particular service or access.

In connection with contracts on access to PO box facilities, the Chamber – in agreement with the Federal Cartel Office – considers reasonable a maximum rate of DM 0.17 (0.09) for each letter item deposited by a DPAG staff member in a PO box facility. As DPAG's past cost statements were insufficiently detailed, the price was determined by means of a comparative analysis. In 1999 the Chamber issued three orders requiring application of this rate. From January to June 2000, six applications were submitted for access to PO box facilities, with the Chamber ruling on three.

Furthermore, in connection with contracts on access to change of address information, the Chamber – again in agreement with the Cartel Office – sees as reasonable the following maximum rates:

- DM 0.23 (0.12) plus VAT for matching old and new address data via remote data transmission,

- DM 5.54 (2.83) plus VAT for processing and transmitting via remote data transmission a set of data relating to permanent changes of address, and

- DM 6.94 (3.54) plus VAT for processing and transmitting via remote data transmission a set of data relating to temporary changes of address.

In the first two quarters of 2000, six applications were submitted for access to change of address information, with the Chamber ruling on two.

The Chamber – within its scope for special control of anti-competitive practices as provided for by Section 32 of the PostG – is also investigating DPAG's procedure for handling letters that are conveyed by its competitors but land in DPAG's domain. The Chamber has raised an objection in particular to DPAG's plans to destroy in certain circumstances any such letters after 14 days only.

Finally, the Chamber has also objected in this same capacity to DPAG's form for redirecting post: the current form takes inadequate account of the interests of alternative providers requesting change of address information.

The RegTP's Personnel and Financial Resources

Proactive staff management is a priority at the RegTP. Matching the right staff with the right positions is a vital resource for a modern authority. The RegTP's highly interdisciplinary field of activity requires experts from a wide range of backgrounds such as law, economics, engineering, mathematics, information technology, and administration.

The RegTP has about 2,600 staff, roughly 12 percent of whom work part-time; some 900 are based at its headquarters, and around 1,600 work in its network of regional offices across the country.

Analysis of staff

Traineeships
The RegTP is this year awarding another **six places** for office communication trainees.

Senior grade
(about 200 staff, including some 70 graduate engineers)
The non-technical posts are filled by economics and business economics graduates with various core areas of expertise, legal experts, and other graduates in disciplines specific to their specialised field of work. Among the 70 or so technical graduates are construction and mechanical engineers and communications engineers.

Upper grade
(about 950 staff, including some 800 engineering and technical specialists)
Most of the non-technical personnel are administrative and business economics graduates from higher education colleges; the 800 or so technical staff are mainly communications engineers.

Medium grade
(about 1,400 staff, including some 600 technical staff)
Most of the non-technical personnel have completed civil service traineeships in administration; the technical staff have had vocational training as telecommunications workers or communications electronic technicians.

Basic grade
(about 70 staff, including 20 technical staff)
These members of staff, some with a completed apprenticeship, work in a variety of areas such as internal administration and maintenance.

Regional offices

When the RegTP was set up on 1 January 1998 some of the more technical tasks were performed by the staff in its network of 54 regional offices. The offices' catchment areas were based on the federal states and urban and rural administrative districts. The RegTP's new streamlined range of executive tasks means that in future only 29 regional offices and four special offices will be needed. 10 of the 29 regional offices will be responsible for administrative tasks in matters such as organisation, personnel, training, budget, administrative offences, occupational health and safety, and fire prevention.

The key customer-oriented activities at all of the regional offices are
- implementing the legislation regulating the telecoms and postal markets by, for example, managing the spectrum,
- assigning frequencies,
- monitoring compliance with licence and frequency assignment conditions,
- acting as correspondent conciliators,
- answering enquiries addressed to the Number Management call centre,
- processing requests for rights of way,
- implementing the EMC Act,
- investigating electrical interference,
- certifying transmitter sites, and
- assigning call signs to radio amateurs.

Financial resources

The RegTP's income and expenditure is budgeted for in Section 09, Chapter 0910 of the federal budget. This Chapter is essentially incorporated in the flexible budget management system. The tables below show the RegTP's income and expenditure budget for 2000, and performance as at 30 June 2000:

Income:

Type of income	Target DM'000	Performance DM'000
Administrative income	302,650	294,655
1. Fees and contributions payable under the TKG	171,000	284,719
2. Other fees and contributions	129,000	9,116

3. Other administrative income	2,650	820
Other income	101	38
Total income	**302,751**	**294,693**

Note:
The higher income from fees and contributions payable under the TKG is accounted for by unforecast income from licence fees paid under the Ordinance concerning Telecommunications Licence Fees (TKLGebV).

Expenditure:

Type of expenditure	Target DM'000	Performance DM'000
Staff costs	177,707	80,957
General administrative expenditure and appropriations	70,992	30,199
Investments	51,461	13,831
Minus efficiency dividend and blocked funds	-9,794	-------
Total expenditure	**290,366**	**124,987**

List of Abbreviations
used in the RegTP Mid-Year Report 2000

Abbreviation	Meaning
3G	Third Generation
3GPP	Third Generation Partnership Project
ACR	Anonymous Call Rejection
ADSL	Asymmetric Digital Subscriber Line
ANGA	German association of private cable operators
AOC	Advice Of Charge
BAPT	Federal Office for Posts and Telecommunications
BMPT	Federal Ministry of Posts and Telecommunications
BMWi	Federal Ministry of Economics and Technology
CAB	Conformity Assessment Body
CATV	CAble TeleVision
CB	Citizens Band
CENELEC	European Committee for Electrotechnical Standardization
CEPT	European Conference of Postal and Telecommunications Administrations
CISPR	International Special Committee on Radio Interference
CUGIC	Closed User Group Interlock Code
DAB	Digital Audio Broadcasting
DFS	Deutsche Flugsicherung GmbH
DIN	German Standards Institute
DKE	German Electrotechnical Committee
DPAG	Deutsche Post AG
DSL	Digital Subscriber Line
DTAG	Deutsche Telekom AG
DVB	Digital Video Broadcasting
DVB-T	Terrestrial Digital Video Broadcasting
EBC	Element Based Charging
EEA	European Economic Area
EITO	European Information Technology Observatory

EMC	ElectroMagnetic Compatibility
EMVG	EMC Act
EN	European Standard
ERC	European Radiocommunications Committee
ETSI	European Telecommunications Standards Institute
ETSI TC ERM	ETSI Technical Committee EMC and Radio spectrum Matters
EU	European Union
FCC	Federal Communications Commission
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
GWB	Restraints of Competition Act
HF	High Frequency
HSCSD	High Speed Circuit Switched Data
ICNIRP	International Commission on Non-Ionising Radiation Protection
IEC	International Electrotechnical Commission
IMEI	International Mobile station Equipment Identity
IMT-2000	International Mobile Telecommunications-2000
IP	Internet Protocol
IRT	Broadcast Technology Institute
ISDN	Integrated Services Digital Network
ISO	International Standards Organisation
ISP	Internet Service Provider
ISPC	International Signalling Point Code
ITU	International Telecommunication Union
IVPN	International Virtual Private Network
LCS	LoCation Services
LF	Low Frequency
LRIC	Long Run Incremental Cost
MAN	Metropolitan Area Network
MRA	Mutual Recognition Agreement
MVDS	Multipoint Video Distribution System

NATO	North Atlantic Treaty Organisation
NSPC	National Signalling Point Code
NZV	Network Access Ordinance
OECD	Organisation for Economic Co-operation and Development
PLT	Power Line Technology
PMP	Point-to-MultiPoint
PMR	Private Mobile Radio
PostG	Postal Act
PPP	Purchasing Power Parity
PUDLV	Postal Universal Service Ordinance
R&TTE	Radio and Telecommunications Terminal Equipment
RA	Radiocommunications Agency
RLAN	Radio Local Area Network
SCHUFA	General Credit Protection Agency
SDSL	Symmetric Digital Subscriber Line
SES	Société Européenne des Satellites
SMEs	Small and Medium Enterprises
SMS	Short Message Service
SNG	Satellite News Gathering
T-DAB	Terrestrial Digital Audio Broadcasting
TDSV	Telecommunications Carriers Data Protection Ordinance
TEntgV	Telecommunications Rates Regulation Ordinance
TFTS	Terrestrial Flight Telecommunication System
TKG	Telecommunications Act
TKLGebV	Ordinance concerning Telecommunications Licence Fees
TKV	Telecommunications Customer Protection Ordinance
TKZulV	Telecommunications Type Approval Ordinance
UMTS	Universal Mobile Telecommunications System
VAT	Value Added Tax
VDE	Association for Electrical, Electronic & Information Technologies
VHF	Very High Frequency
VSAT	Very Small Aperture Terminal

VwVfG	Administrative Procedures Act
WAP	Wireless Application Protocol
WLL	Wireless Local Loop
WRC	World Radiocommunication Conference
ZVEI	Electrical and Electronic Manufacturers' Association