Annual Report 2003

Market data

of the Regulatory Authority for

Telecommunications and Posts

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German broadband market in dynamic change

Many chances for Internet access competition

The German broadband market is undergoing dynamic change towards more competition. Internet service providers competing with the market leader T-Online are rapidly catching up and at year's end already had a share of 26 per cent of the customers. To the approx. 500,000 DSL customers of the competitors taken care of via cable, satellite or rented subscriber line must be added 700,000 DSL customers with a DSL access from Deutsche Telekom AG (DT) but with a competitor as Internet service provider. With 60,000 bidirectional cable accesses and 45,000 internet accesses via satellite intermodal competition in the broadband field is picking up speed.

Apart from self-laid lines or radio accesses, for direct access (analogue, ISDN, DSL) competitors use primarily DT's available subscriber accesses. More than 90 per cent of all competitor accesses at the end of 2003 were based on rented subscriber lines. In all, 1,349,848 such lines had been rented from DT at the end of 2003. With an increase of 405,000, more subscriber lines were rented in 2003 than in the first three years of liberalisation in total.

In 2003, the trend away from narrowband to broadband Internet access services increased. In the past two years the narrowband call minute volume has decreased slightly whereas the DSL traffic volume more than doubled to 403 m Gbytes in the past year.

At the end of 2003 2 m customers opted for preselection via an alternative long-distance carrier for calls in the local network. Hereby, and with the use of open call by call, at the end of 2003 the long-distance carriers attained a share of roughly 15 per cent of the local calls. To this figure should be added approx. 10 per cent of the local call minutes handled by city and regional carriers. Hence the competitors had reached about a quarter of all local calls by the end of 2003.

After some difficult years the telecommunications sector overall now has clearly discernible positive growth perspectives. In 2003 turnover increased by 3 per cent to € 63.4 bn, and in this year mobile telecommunications and Internet also expect above-average growth rates.

Matthias Kurth
President of the Regulatory Authority
for Telecommunications and Posts

Database and market observation data methodology

Continual market observation
RegTP continually observes the developments on the telecommunications market and presents data in its reports within the framework of its latest findings.

Database
The figures are mainly based on primary data collected within surveys conducted amongst the companies. The company data is checked for plausibility and discussed with the company, if necessary. In addition, evaluations of generally accessible publications and own analyses are used.

Every two years a full-scale survey is carried out within the framework of the Activity Report under § 81 of the Telecommunications Act. Every year, this survey is supplemented by a sample of the most important companies on the market. Within its legal mandate RegTP cannot avoid collecting data from companies, if need be by obligation. The markets can be described reliably using the company data in conjunction with long-term observation. Data pertaining to 2003 is currently still provisional since companies have not yet completed their balance sheets.

Methodology
From the outset the data is collated in accordance with a single methodology so that sampling statements are always comparable. In RegTP's reports descriptors and markets are defined. In comparisons with other studies the relevant definition and delimitation are important (retail markets, wholesale markets).

For the description of the overall market, the telecommunications companies' turnover is used. In 2003 these companies achieved a turnover totalling **€ 63.4 bn** (provisional figure).

The following markets are observed in detail:

- fixed network (services for fixed line accesses),
- mobile telephony,
- leased lines,
- interconnection (inter-carrier business)
- cable TV.

The remaining descriptor „miscellaneous" which is not defined in greater detail is derived after deducting the aforementioned markets after detailed analysis from the overall turnover. This descriptor covers, inter alia, turnover from data communication including also non-telecommunications-related services such as software or content.

RegTP's consumer service

Telecommunications

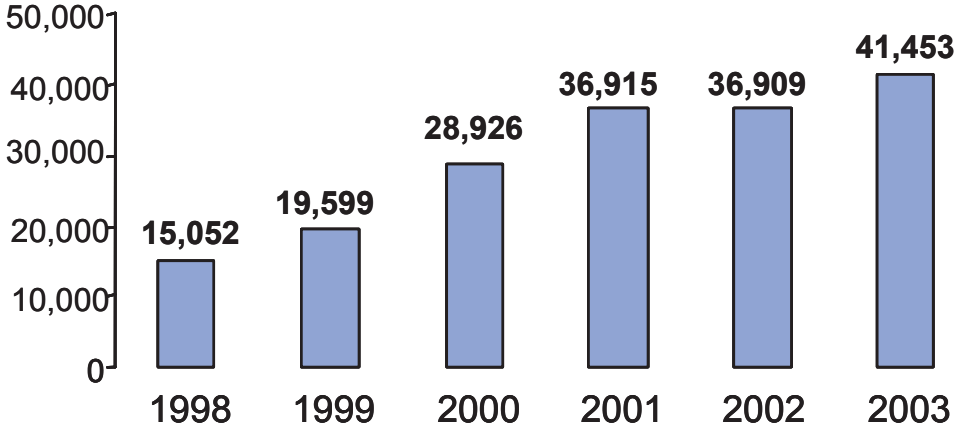
Consumer queries

In the dynamic environment of the liberalised telecommunications markets in Germany and the associated development of new telecommunications services consumers find it difficult to retain an overview of the telecommunications sector and to select relevant information.

RegTP's consumer service has developed into a proven central contact point. It offers customers general information about the telecommunications market and helps in the case of difficulties with telecommunications providers. Up to date information is always available on RegTP's web site (www.regtp.de).

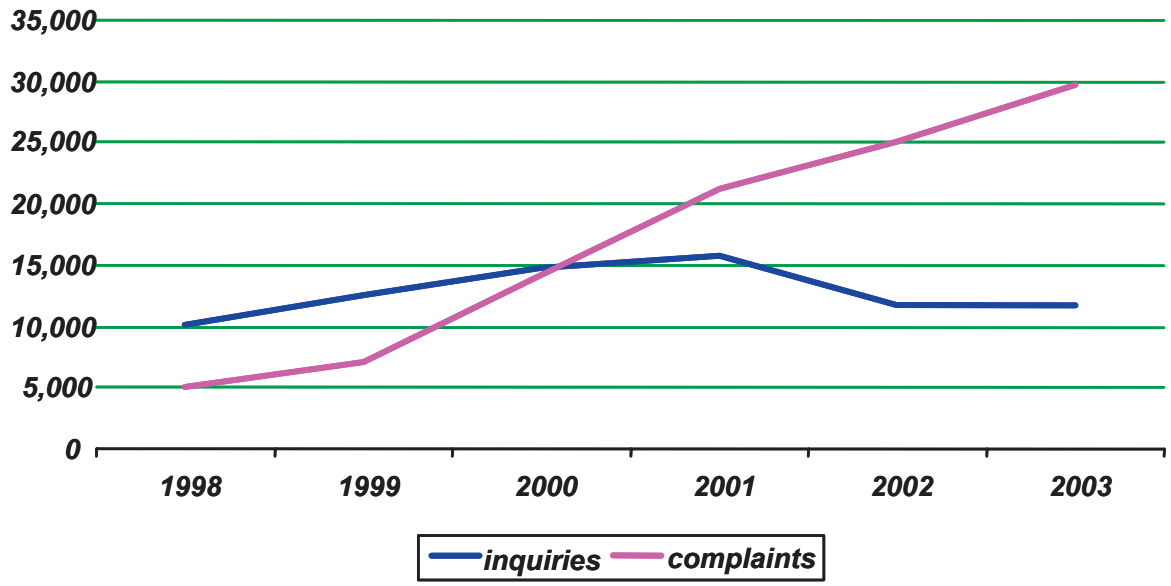
The high acceptance of the consumer service is also borne out by the annual increase in queries addressed to it.

Requests and complaints received by RegTP's consumer service



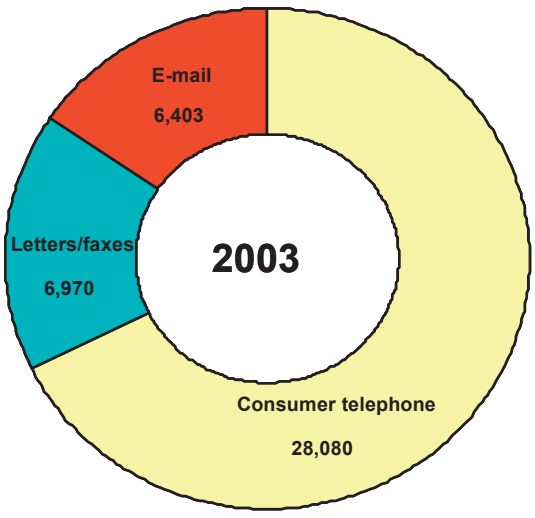
In view of consumers' high level of acceptance of RegTP's consumer service representative statistical data about the inquiries and complaints are available sorted according to providers and to contents. Analyses of the developments of the inquiries and complaints show that the portion of complaints is continuing to increase compared with the portion of general inquiries.

Inquiries and complaints



The increase in complaints on the one hand mirrors the dissatisfaction of consumers with the services of their telecommunications provider (e.g. availability by telephone and counselling, reply to written inquiries, publication of up-to-date customer information) and on the other is also indicative of the consumers' increased awareness regarding their rights in the telecommunications market.

In 2003, RegTP's consumer service received **41,453 inquiries and complaints**:



Major topics were

rates requests	27.8 per cent
unsolicited ads	27.8 per cent
contractual matters	10.2 per cent
numbering issues (porting, assignment and barring of call numbers)	7.0 per cent
rates/tariffs	5.3 per cent
Value-Added Services Act	5.0 per cent
other	16.9 per cent

With the increasing spread of the Internet complaints about excessively high or **incomprehensible bills** relating to Internet use are on the rise. A check of these bills often reveals that so-called dialler programmes have caused the high costs.

Another major issue of complaints involves **unsolicited ads** via fax, SMS or e-mail. Following the entry into force of the second ordinance amending the Telecommunications Customer Protection Ordinance on 28 August 2002 and the entry into force of the Abuse of (0)190/(0)900 Value-Added Service Numbers Act it is discernible that other number subranges such as (0)137, (0)180 and local network numbers are occupied by spam.

Furthermore, there are complaints about the manner in which certain companies acquire customers and the way in which advertising promises are kept. RegTP does not have any intervention rights regarding form and content of advertisements as the Unfair Contract Terms Act does not fall within RegTP's scope of competence.

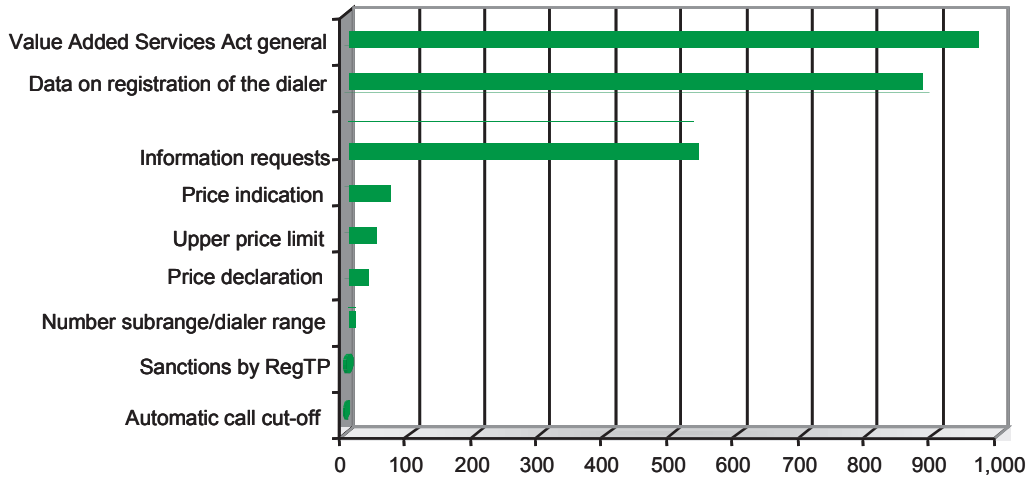
As before, a number of consumers assume that RegTP is a surveillance authority for the individual companies (non-market-dominating companies) and hence also contact the consumer service for help in the case of **contractual matters**. In its provision of information, RegTP is bound by the Legal Counselling Act and can therefore only answer questions within its own area of responsibility, i.e. posts and telecommunications. In addition, definitive counselling in matters requiring assessment exclusively under private law is not possible.

Time and again RegTP is requested to verify the **rates and tariffs** of the individual telecommunications providers as to their validity. In view of the publication of the providers' price lists in RegTP's Official Gazette, consumers presume that the authority has a regulatory influence on the matter. Under § 305a of the Civil Code and § 27 of the Telecommunications Customer Protection Ordinance RegTP is obliged to enable service providers the publication of General Terms and Conditions and other general customer information in its Official Gazette. As such, the Official Gazette merely serves as publication medium. The service providers' notifications are subject neither to verification nor approval by RegTP. Solely the service providers are responsible for the content of the notifications.

Number portability in the case of change of provider in mobile and fixed communications, questions concerning number assignments and the possibilities of number blocking are major issues in connection with **numbering matters**.

Since entry into force of the Value-Added Services Act on 15 August 2003 as many as 2,496 inquiries and complaints reached the consumer service regarding this topic. Apart from general questions about the Act, queries regarding dialler registration and the approach regarding determination of the number holder were answered.

Primary contents regarding the Value Added Services Act



At RegTP, various offices deal with different aspects of counteracting the abuse of (0)190/(0)900 numbers. Apart from the consumer service a specially created section deals with adherence to the Act. That section's contribution is set forth on page 43.

Additional information on numbering principles in connection with the introduction of the Act may be found on page 42.

A contribution on the legally prescribed specifications of RegTP regarding legal conformity of diallers and their registration is set out on page 77.

Positive list regarding itemised billing

Under § 14 of the Telecommunications Customer Protection Ordinance all providers of voice communications services are obliged to furnish their customers with the standard form of itemised call statement free of charge upon request.

In its interpretation of § 14 of the Telecommunications Customer Protection Ordinance RegTP has specifically defined the individual parameters of the standard itemised call statement. To ensure as wide a scale of uniform practice by as many telecommunications providers as possible, RegTP maintains a „positive list" in which those providers can have themselves registered who pledge to adhere to the itemised billing parameters prescribed by RegTP. This list is updated annually and published in the Official Gazette and on RegTP's web site. According to the latest update of the positive list there are currently 49 companies on the list. An update is scheduled for the first quarter 2004.

Conciliation
For the purpose of conciliation between telecommunications providers and end customers § 35 of the Telecommunications Customer Protection Ordinance provides for the chance of end customers of a supplier of access to a public telecommunications service or a voice telecommunications service in the case of infringement of their own rights under the Telecommunications Customer Protection Ordinance to appeal to RegTP for the purpose of conciliation. Since June 1999 RegTP has created a conciliation office for this purpose. RegTP's conciliation office settles disputes according to the Amended Code of Procedure published in its Official Gazette of 14 November 2001 as Communication No. 22/2001 in conjunction with § 35(1) of the Telecommunications Customer Protection Ordinance.

A conciliation process is hence permissible when the applicant can claim infringements of his own rights to which he is entitled under the Telecommunications Customer Protection Ordinance, no court case dealing with the same matter is pending, no conciliation process dealing with the same issue is under way or has taken place, an attempt to come to an agreement with the other party was made prior to the application, the other party does not claim that the limitation period regarding the matter has expired, and the conciliation procedure will not impede clarification of a basic legal matter.

As a rule, the conciliation procedure is carried out in the form of a written procedure. The proceeding is set forth in the Amended Code of Procedure. Both parties voluntarily take part in the proceedings. The fact that participation is voluntary implies that the proceedings must be concluded if a party refuses to take part in it.

The procedure pursues the goal of an amicable agreement. The conciliation process fails if the applicant withdraws his application, the other party refuses to consent to the conciliation process or the conciliation proposal is not agreed to. In his decision to apply the applicant must bear in mind that the conciliation process is a means of settling disputes while bypassing the courts in which the conciliation office evaluates the comments on the issue submitted by the two parties, the proofs accompanying them, and the explanations regarding the legal status. On the basis of the data supplied by the two parties the conciliation office develops a proposal aiming at a compromise between the different demands of the parties involved. The result of the conciliation proceedings hence depends substantially on the extent to which the two parties themselves contribute to the clarification of the matter and are willing to contribute to a solution by means of a compromise. Under § 15a(3) of the Act regarding the introduction of the Code of Civil Procedure RegTP's conciliation office is "another quality office". As a result and providing that a federal state has transposed § 15a of the Code of Civil Procedure, the conciliation procedure as carried out by RegTP may in the case of pecuniary disputes with a disputed value of up to € 750 taken up by the local courts replace the obligatory conciliation procedures by a quality office established or approved by the Land administration of justice. In this connection it should be noted that compromises arrived at in RegTP's conciliation office are not executory titles in terms of § 794 of the Code of Civil Procedure.

The conciliation procedure is subject to a fee. The fee is € 25 per initiated conciliation procedure. If the value of the disputed matter exceeds € 25,000 the fee is fixed at 0.1 per cent of the value of the matter in dispute. The costs are decided upon by the conciliation office as appears fair with due consideration being given to the facts and

matter in dispute. Furthermore, §§ 8 to 21 of the Administrative Expenses Act apply accordingly.

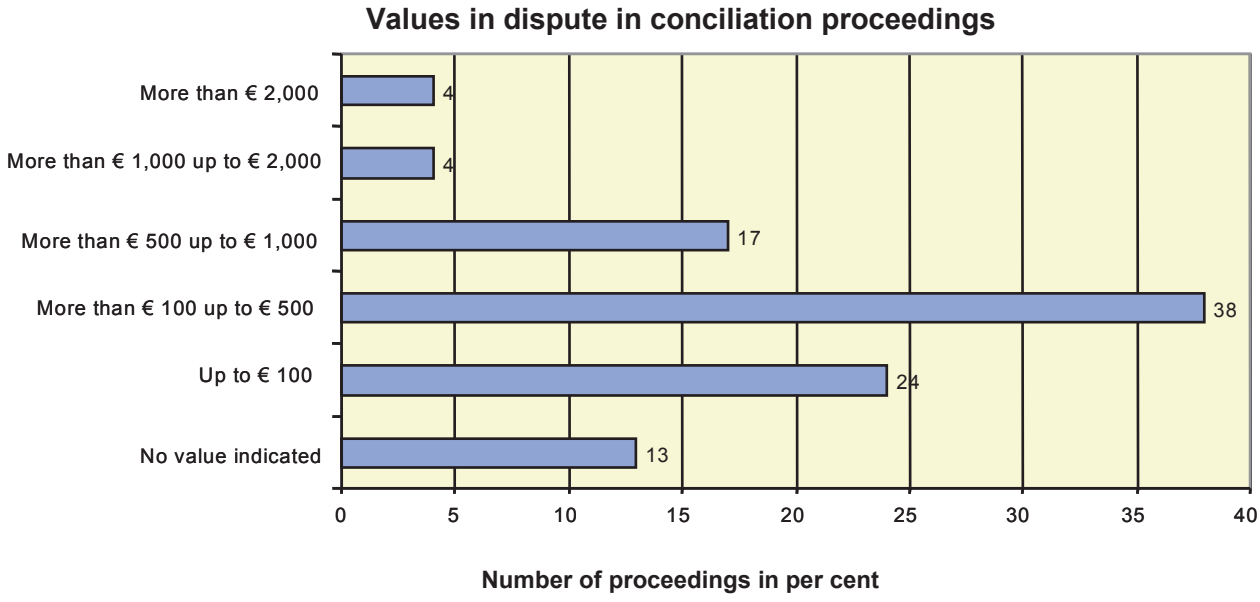
RegTP's conciliation office has already received more than 2,500 conciliation requests. In 2003 the number totalled 466 of which 291 resulted in conciliation proceedings. Compared with the previous year, the number has hence nearly doubled. RegTP interprets this as a sign that consumers continue to use conciliation intensively as a means of settling disputes between the end customers and their providers in telecommunications matters without recourse to the courts. The conciliation office is therefore particularly keen to improve its efficiency in its dealing with conciliation procedures.

The contents of conciliation requests have not changed from those of the previous year. Of course the increasing diversity of telecommunications service types is also mirrored in the contents of such requests.

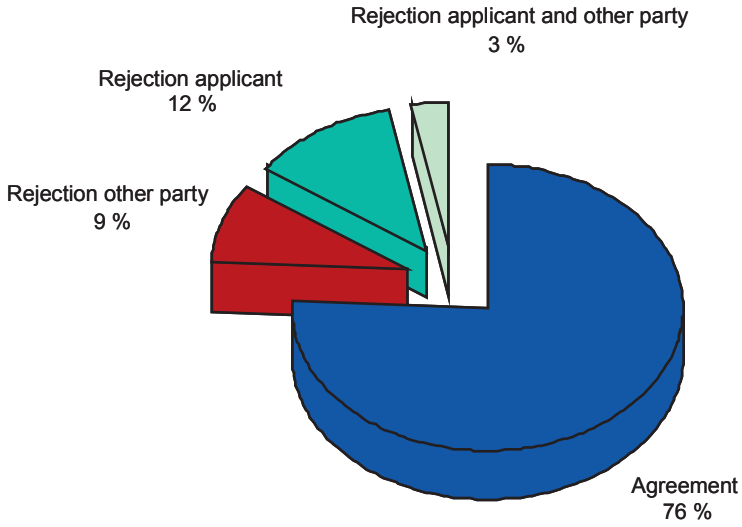
The conciliation requests primarily relate to the following:

- questions or disputes regarding the sums demanded in telephone bills,
- complaints regarding the quality and service of the services furnished by the providers,
- diverging views of end customers and providers
  on all types of invoiced tariffs, the use of value-added services (0190) and the use and duration of online services.

The **disputed values** of the conciliation procedures range in magnitude as follows (in per cent):



The **conciliation proposals** made by the conciliation office were mostly accepted by the parties involved:



A number of conciliation requests involved irregularities in the compliance with the contractual agreements between end customer and provider, however, arrangements under the Telecommunications Customer Protection Ordinance were not affected. In these cases a conciliation proceedings in accordance with § 35 of the Telecommunications Customer Protection Ordinance is not possible.

The willingness of companies to contribute to a successful agreement has increased. This is confirmed by the high success rate of submitted conciliation proposals. As in the case of consumer data evaluation, companies involved in conciliation proceedings are informed by RegTP and their attention is drawn to relevant facts with corresponding conclusions.

Universal services

Under §§ 18 und 19 of the current version of the Telecommunications Act of 25 July 1996 (Federal Law Gazette I p 1120) a company is only obliged by RegTP to provide universal services if inadequate coverage is determined on the relevant product market. So far, this has not been the case. However, according to § 97(1) of the Telecommunications Act Deutsche Telekom AG (DT) must notify RegTP one year prior to entry into force of any changes in scope or in the conditions pertaining to the provision of universal services even after the end of the voice telephony service monopoly.

On the basis of this legal framework RegTP's activities with regard to the universal service complied with the goal set by the EU's universal service arrangements, viz. to initially take advantage of the efficiency of competition with respect to the market coverage with universal services and to become active in a regulatory manner only if and when coverage deficits become discernible. Hence in several individual cases RegTP helped customers with their claim justification as to network access (telephone access) and entry in public directories.

Further RegTP activities concerned the universal service „provision of public telephones". Taking full fixed network coverage and the scope of expansion of the mobile networks with currently more than 61 million mobile customers as a basis, DT, the local leading

associations and RegTP agree to comply with the completely changed telecommunications behaviour of users with an extremely low demand for public telephones and to adopt new approaches to ensure coverage also at uneconomical locations within the framework of a new structural concept. These considerations still foresee the retention of uneconomical locations in their functionality and the installation of so-called „basic telephones“ with fewer convenience features. DT had declared to RegTP that it is the company's goal to continue to fulfil the legal mandate to provide public telephones in the future. So as to be able to continue providing and operating public telephones at such rarely frequented locations at reasonable cost in terms of cost-efficient service provision and at reasonable prices for users throughout the country DT planned a pilot trial. At its 27th meeting on 26 November 2001 RegTP's Advisory Council had approvingly noted this approach subject to solutions agreed with the local leading associations. This agreement was then reached at the beginning of 2002 between the local leading associations, DT and RegTP. At the end of 2002 DT announced that it was preparing the installation of the basic telephones and that installation was scheduled beginning in the second quarter 2003. After the Advisory Council of RegTP had approvingly noted this approach at its 33rd meeting on 31 March 2003 the pilot trial planned for the period 2003 - 2005 with the installation of 7,500 basic telephones was duly begun in 2003. This pilot trial is monitored by a body comprising representatives from the local leading associations, the Land committee, the consumer associations, the Wissenschaftliches Institut für Kommunikationsdienste (WIK), DT and RegTP. Independently thereof, the „RegTP criteria ensuring country-wide provision of public telephones“, supplemented at the Advisory Council's suggestion by the criterion „mobile coverage“ continue to apply (Communication No. 136/2002 in RegTP Official Journal 04/2002 of 6 March 2002).

Postal sector

Citizen input and consumer protection

In 2003 RegTP received 1,531 citizen inputs in the postal sector. This implies an increase of about 45 per cent compared with the preceding year.

Citizen input statistics

Registration period: 1 January - 31 December 2003	Figures	%
Access to the postal services (esp. letter boxes, auxiliary offices, agencies)	558	36.5
Other (incl. financial services)	375	24.5
Delivery of postal items	197	12.9
Type of complaints handling by the provider	139	9.1
Loss of items	86	5.6
Late/delayed delivery	48	3.1
Posting of items	37	2.4
Change of address	27	1.8
Damaged items	26	1.7
Crossborder postal items	25	1.6
Behaviour and competence of the provider's staff	11	0.7
Postal Service Ordinance	2	0.1
Total:	1,531	100.00

Universal service
Stationary facilities

Under § 2(1) and § 3 of the Postal Universal Service Ordinance at least 12,000 stationary facilities must be available nationwide at which contracts about letter and parcel mail services may be concluded and implemented, and of which at least 5,000 must be manned with company staff. The number of stationary facilities of Deutsche Post AG (DP) has developed as follows:

Deadline	Stationary facilities DP total	self-run auxiliary offices
Ordinance specification	at least 12,000	at least 5,000
31.12.97	15,331	10,095
31.12.98	14,482	7,946
31.12.99	13,948	5,956
31.12.00	13,663	5,590
31.12.01	12,818	5,331
31.12.02	12,683	5,030
31.12.03	13,514	5,513

Source: DP

In 2003, DP began to restructure its contractual relationships with its agencies. RegTP does not have any influence over this legal relationship. However, the Federal Cartel Office has thoroughly examined the new contracts.

RegTP carefully observes the developments regarding available stationary facilities for ensuring the universal service and thereby relies on the specification in the Postal Universal Service Ordinance stating that the stationary facilities must be available. It particularly takes care that possible service gaps are filled forthwith, i.e. without undue delay.

DP's agency contracts normally specify a period of notice of at least six months. In the case of standard terminations of agency contracts DP has sufficient time to open a subsequent facility. In the case of unanticipated vacancies the obligation to fill the gap forthwith is deemed met if the gap exists for at most three months.

To improve the surveillance of the coverage with stationary facilities RegTP agreed on a vacancy information and notification system with DP. DP notifications to date indicate that in the period March to October 2003 95 cases of exceptional terminations of agency contracts occurred. In 77 cases operation continued within three months. In three cases a vacancy continued for more than three months. In 15 cases a new stationary facility has not yet been announced because the three month period has not yet expired.

Letter boxes
In the spring DP reduced the number of letter boxes from more than 130,000 to just over 100,000. This resulted in vehement protests on the part of the consumers as a closely meshed letter box network is in their interest. However, also in this case RegTP is bound to the provisions in the Postal Universal Service Ordinance so that subjective consumer preferences cannot always be taken into consideration. Admittedly, in many

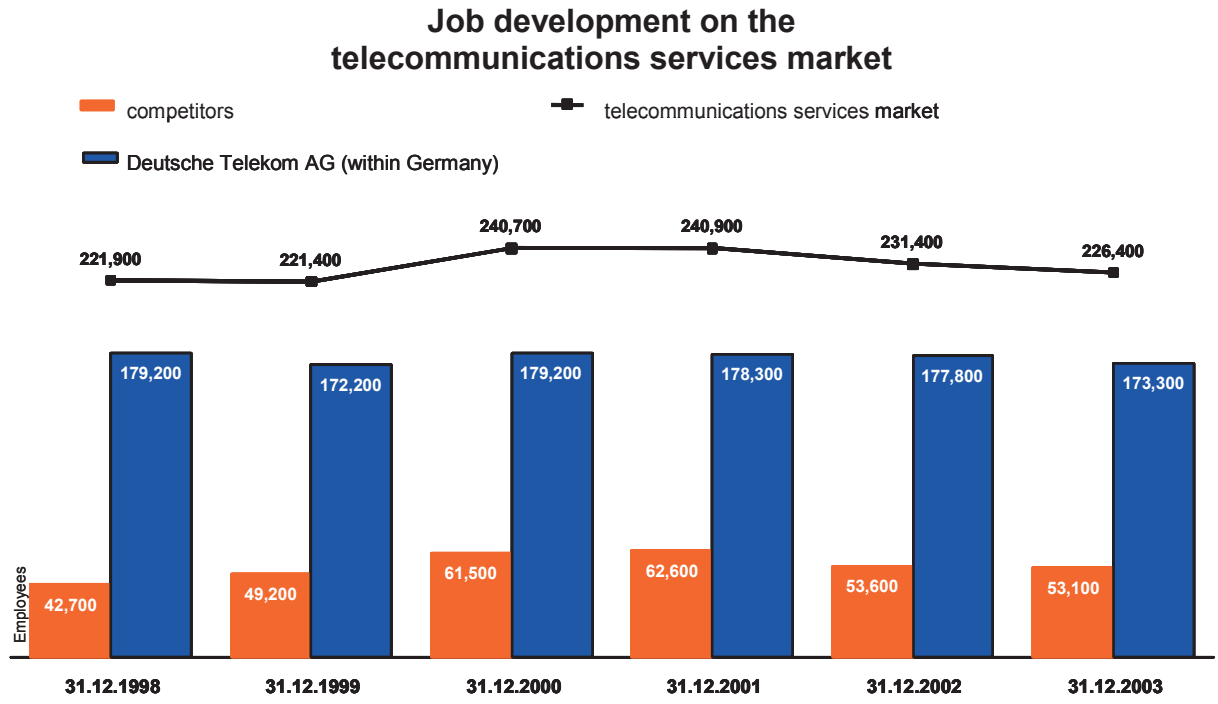
cases the consumer has a longer way to go to the nearest letter box than was hitherto the case but the 1,000 metre rule was meticulously observed, as in the past. In some cases letter boxes had indeed been removed which under the provisions of the said Act should have remained where they were. Upon RegTP's intervention, usually as a result of consumer objections, these cases were corrected by DP.

Position under § 47 of the Postal Act
The experience gained with the Postal Universal Service Ordinance and the evaluation of citizen inputs have induced RegTP to publish modification proposals in the Activity Report (2002/2003) under § 47 of the Postal Act regarding the specification of those postal services which count as universal services in terms of § 11 of the Postal Universal Services Act.

Further details on RegTP's recommendations are set out on page 271 ff in the Activity Report 2002/2003 at RegTP's web site www.regtp.de .

Employment development

Telecommunications sector
Compared with the previous year, at the end of 2003 the number of employees in the telecommunications services sector fell by 2.2 per cent (5,000) to 226,400. Compared with 2002 the drop in employment was lowered by nearly two percentage points, viz. more than 4,000 employees.



Decisive for the drop in employees is the reduction in DT's employees in Germany by 2.5 per cent (4,500) to 173,300.

The competitors (licence holders classes 1 to 4, mobile service providers, licence-exempt suppliers registered in accordance with § 4 of the Telecommunications Act), on the other hand have largely kept their employee number constant at 53,100 compared with the previous year (drop of just under one per cent).

In the sector-specific differentiation between fixed network (licence holders classes 3 and 4 without broadband communications offers and exclusive of DT) and mobile telephony (licence holders class 1) it is to be noted that the reduction of employees in the fixed network at the end of 2003 with 1,300 employees was higher than in the mobile telephony service with a minus of 900 employees. In total, the licensed competitors in the fixed network had 22,300 and the network operators in the mobile telephony service 24,300 employees.

Apart from those employed by the mobile telephone service network operators, 5,600 people work for the mobile service providers. At the end of 2003 network operators and service providers hence had 29,900 employees, exclusive of the employees of DT group 21,100 employees.

About 9,700 employees of competitors work for licence-exempt telecommunications service providers, cable TV providers and other broadcasting service providers.

Postal sector

Employees in the licensed sector in the year 2002 (annual average*)*

According to company data, in 2002 in the licensed sector (conveyance of letter items up to 1,000 g) there were (annual average) 178,630 full-time, part-time and staff in insignificant employment, of which 23,727 worked for the new licence holders. Figures for 2003 are not yet available, they can only be collected with the market survey in spring.

Year 2002	DP	Licencees	Other licence holders *)
Full-time employees (employees with a working week of 35 or more hours)	102,859	5,430	55
Part-time employees (employees not belonging to the group of full-time employees and **not** belonging to the group of staff in insignificant employment)	50,988	4,036	6
staff in insignificant employment (employees earning a maximum of € 325 per month and working less than 15 hours per week)	1,056	14,107	93

*) Licences issued prior to the entry into force of the Postal Act for the conveyance of bulk mail up to 100 g and valid at most until the end of 2007 (here, there are no specifications regarding work relationships).

According to company information, in the year 2002 in the licensed sector there were (annual average) 15,256 staff in insignificant employment, of which 14,107 worked for the new licence holders. These staff members in insignificant employment have the following employment relationships:

Classification staff in insignificant employment according to employment relationships

Year 2002	DP	Licensees new licences	Licensees old licences
Insignificant second job (up to € 325 per month and less than 15 hrs per week) next to another main job liable to social insurance contributions	9	2,724	51
Several insignificant employment contracts with different employers (totalling more than € 325 per month and more than 15 hours per week)	12	177	6
Solely insignificant employment on a permanent (self-employed) bases (up to € 325 per month and less than 15 hours per month (= flat rate insurance))	202	9,470	6
Short-term or seasonal employment (maximum 2 months or maximum 50 days per year) [not liable to insurance]	833	1,736	30
Sum	**1,056**	**14,107**	**93**

The overview illustrates that in the meantime just under 90 per cent of the employees of licensees to whom a licence was issued from 1998 under the Postal Act are in relationships liable to social insurance contributions. For companies with an “old licence” (licence issued before the entry into force of the Postal Act for the conveyance of bulk mail up to 100 g and valid at most until end 2007) there are no specifications regarding employment relationships.

Classification of employees (excl. DP) according to federal states

	Full-time employees	Part-time employees	staff in insignificant employment
Baden-Württemberg	175	306	310
Bavaria	235	134	958
Berlin	697	383	60
Brandenburg	142	202	1,292
Bremen	2	1	3
Hamburg	1,819	992	412
Hessen	295	243	94
Mecklenburg-Western Pomerania	172	114	3,695
Lower Saxony	165	227	788
North-Rhine/Westphalia	943	574	1,086
Rhineland-Palatinate	116	232	50
Saarland	23	247	418
Saxony	304	263	2,632
Saxony-Anhalt	178	44	545
Schleswig-Holstein	24	46	117
Thuringia	195	34	1,740
Sum	**5,485**	**4,042**	**14,200**

At the end of 2002 the licensees had created more than 23,000 new workplaces – not workplaces that had been transferred by DP. These workplaces would not have been created without the entry of new companies on the market. Incidentally, the majority of these workplaces is not located in urban areas but primarily in structurally less well developed regions.

Development of employment at the licensees (2000 - 2002)

	2000	2001	2002
Full-time employees	4,535	5,113	5,485
Part-time employees	5,005	3,461	4,042
Staff in insignificant employment	11,015	13,218	14,200
Sum	**20,555**	**21,792**	**23,727**

Development of employment at DP – letter sector

	1997	1998	1999	2000	2001	2002
Employees*)	153,467	147,043	142,332	140,613	137,130	130,546

(Source: Deutsche Post AG); *) at year end, calculated as full-time employees

Hence DP has reduced its workforce in the letter sector by about 23,000 full-time employees between the end of 1997 and the end of 2002 (- 15 per cent). There are no reductions in sales or turnover to match this reduction. The number of letters conveyed has increased by more than ten per cent, turnover has more or less remained flat (-0.5 per cent).

Market observation telecommunications

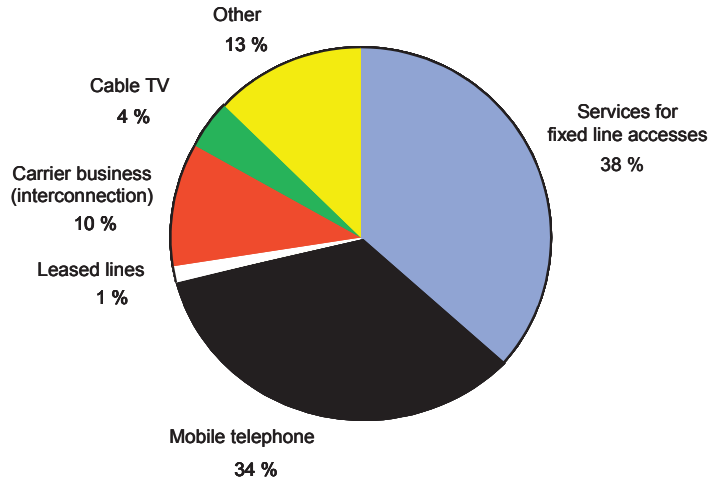
Development of the markets for telecommunications services

Within the framework of market observation RegTP continuously observes the number of enterprises, their turnover, employees and investments. In addition, the number of customers, network accesses and traffic development are also surveilled.

Turnover development[1]

According to current data the turnover volume of the telecommunications market in 2003 totalled approx. € 63.4 bn which is an increase of three per cent compared with the preceding year.

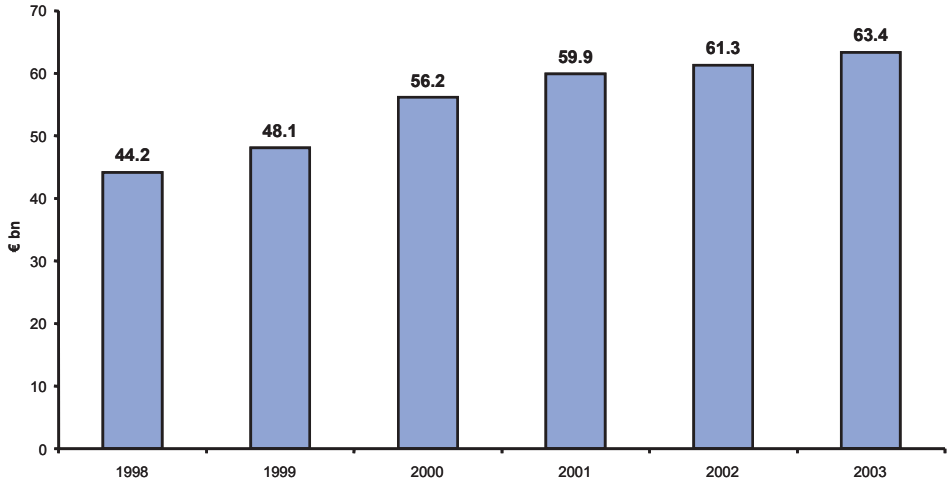
Companies‘ turnover 2003 from telecommunications services



Total turnover € 63.4 bn

[1] A distinction is made between services for fixed network accesses, mobile telephony, leased lines, carrier business, cable TV and other services. The service market for fixed network accesses comprises all fixed network services of licensees with end customers and resellers, especially the provision of accesses and the set-up of switched calls of any type. Switched calls to value added services (Premium Rate Numbers) or to the Internet include services which may exceed the mere set-up of calls (information content). Resellers' turnover is also included. Mobile telephony turnover comprises both the network operator turnover and mobile service provider turnover. The data on the mobile telephony service and the fixed network sector does not cover proceeds from interconnection services. Interconnection services are related to the carrier business segment. Carrier business is defined by call and access services which telecommunications companies render by the interconnection of their networks, including the joint use of buildings (collocation), the lease of subscriber lines, billing and preselection services. Leased lines are bundled in a separate segment. The segment cable TV comprises the turnover of the cable TV operators from connection fees and charges for feeding programmes. The segment „other services“ refers to such telecommunications services which cannot be allocated to any of the other segments. They include especially data communication services, services for corporate networks, broadcasting transmission services and trunked radio, wireless data and paging. „Other services“ may also include software services and other non-telecommunications-specific services provided by a telecommunications enterprise or group.

Companies' turnover from telecommunications services 1998 - 2003



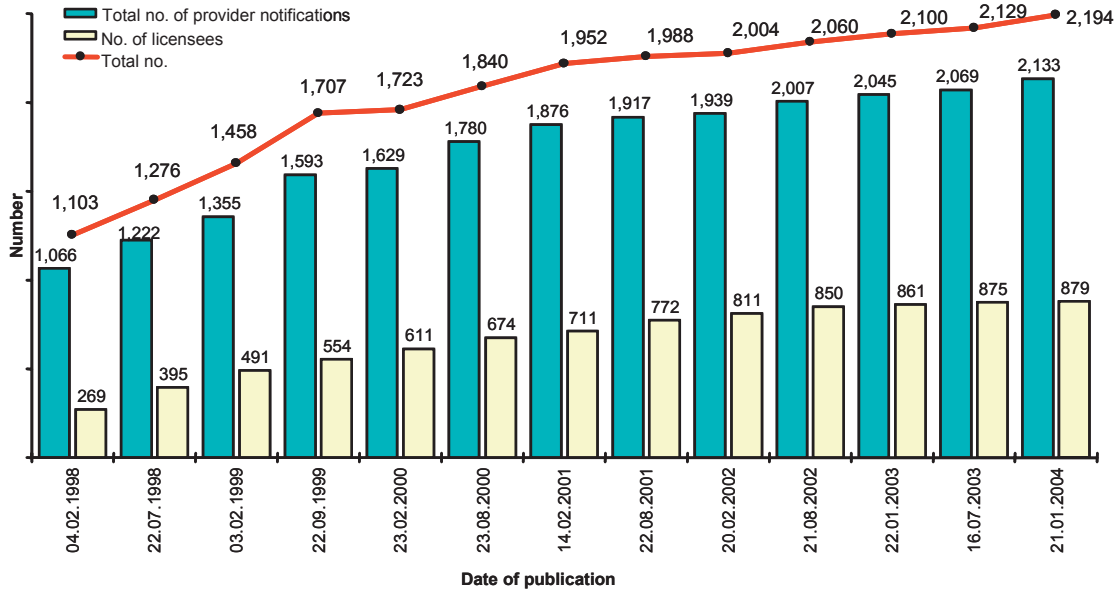
Investments

According to preliminary estimates, in 2003 telecommunications companies invested over € 5 bn in equipment and plant. The larger part of this sum at about € 2 bn was invested in mobile communications.

Number of providers/service offer trend

Up to the end of 2003 2,194 providers had registered with Reg TP.[2] 525 companies had an unrestricted network and/or voice telephony licence.

Development of the number of providers of telecommunications services



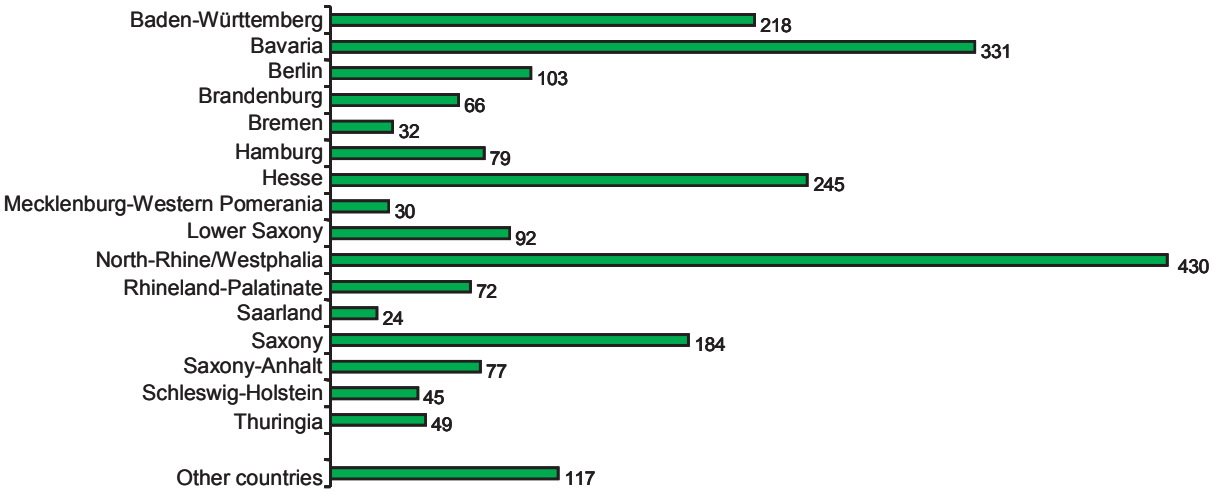
[2] Under § 4 of the Telecommunications Act whosoever offers telecommunications services is obliged to register with RegTP. In this connection RegTP published the latest provider list in the Internet on 21 January 2004. The list can be downloaded from RegTP's web site (www.regtp.de) under „Regulierung Telekommunikation" and the key word „Anbieter von TK-Dienstleistungen".

The total number of licensees in the graph includes holders of the licence classes 1 to 4. Licensees with more than just one licence were merely counted once.

Owing to the direct effect of Article 3(2) of the Authorisation Directive (Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services) the activities hitherto subject to a licence under § 6 of the Telecommunications Act no longer require a separate RegTP licence after 25 July 2003. Hence no further licences were issued after that date under § 6 of the Telecommunications Act. The right of way issued with the licences in classes 1 to 3 remains in force.

The following overview illustrates the federal states in which the providers have their headquarters. Their activity may cover the whole Federal Republic or certain regions.

Location distribution of providers of telecommunications services

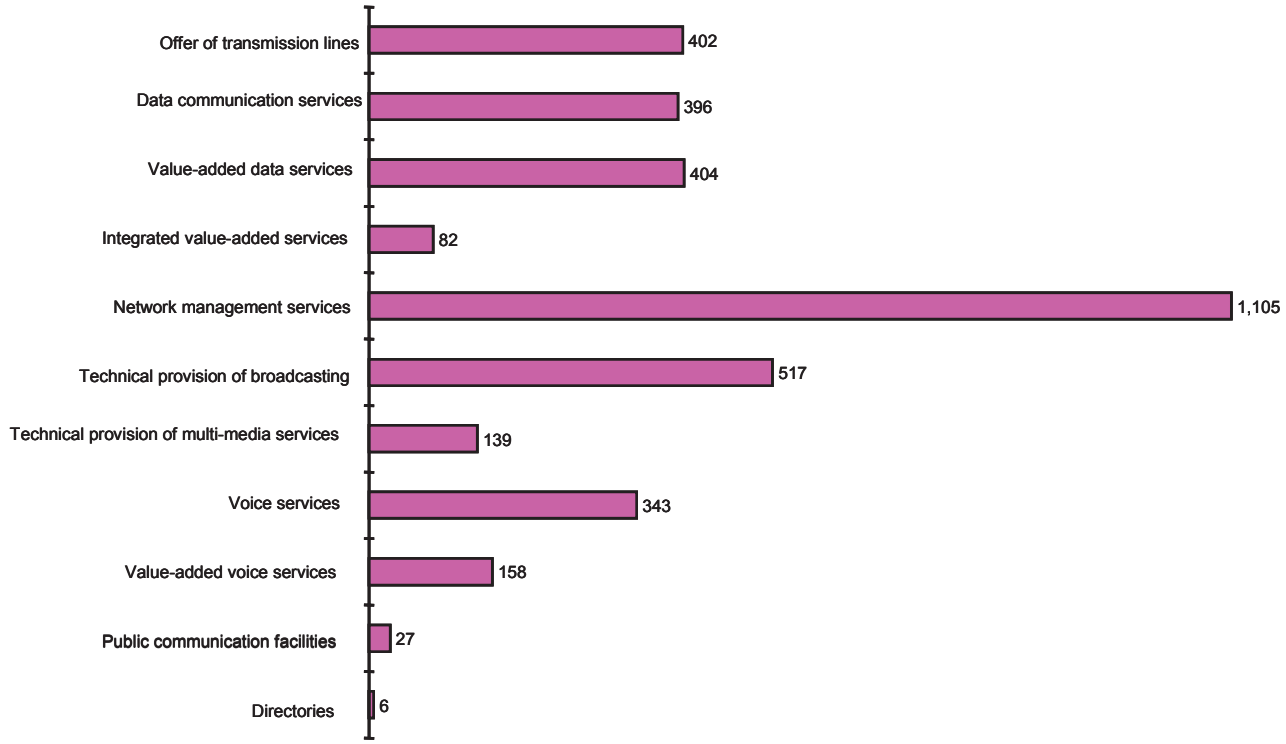


Most frequent are offers in the category „network management services“. Within the network management services access services to the Internet, Internet Service Providers (ISP), with 797 offers constitute the majority. Most of the new providers are registered in connection with these Internet access services and with voice services.

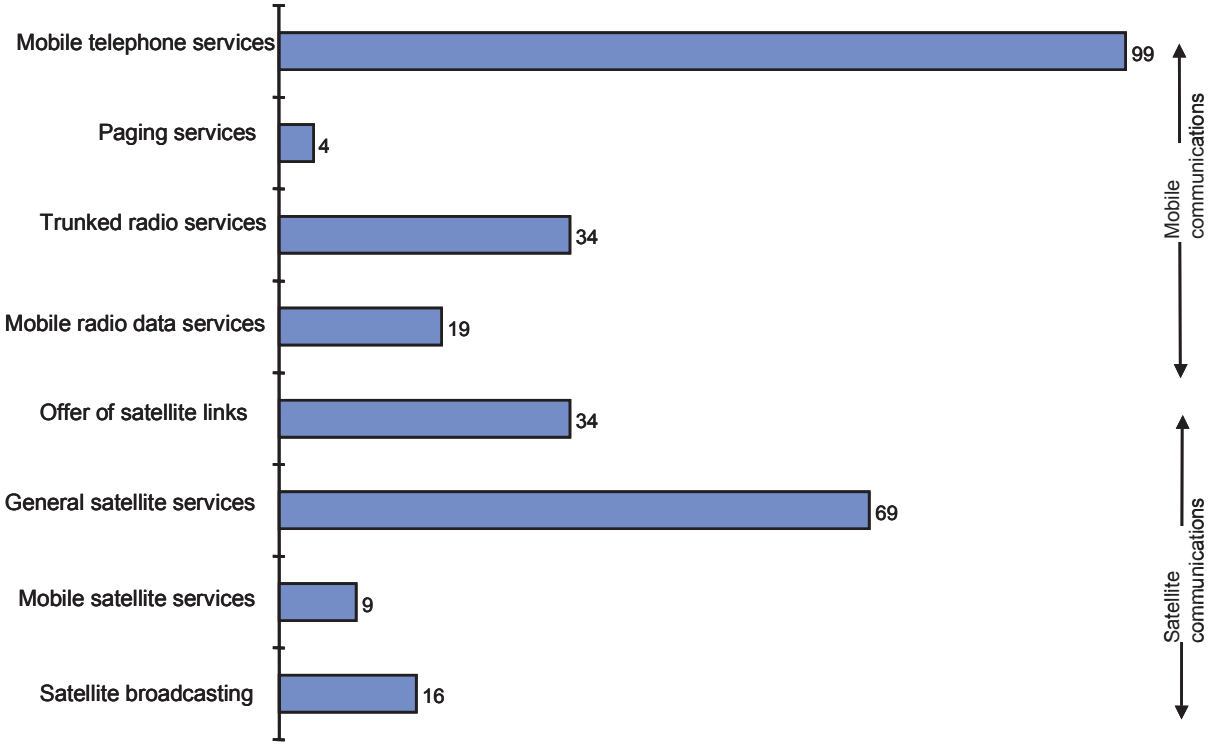
At the end of 2003, 343 companies offered voice services in the fixed network of which approximately 100 providers offered voice telephony via call by call, preselection or direct access over their own carrier or access networks. The other providers act simply as resellers. They purchase telephony minutes from network operators and market these under their own names and under their own account. By these means a diverse range of offers is available on the German voice telephony and voice value-added service market.

The frequency of the offers is illustrated as follows:

Offers of fixed line telecommunications services



Offers of mobile telephony and satellite telecommunications services



Fixed network access development

Narrowband accesses

At the end of 2003 there were a total of 54.35 bn telephone channels[3] in Germany. These derived from 27.8 bn analogue accesses[4], incl. public telephones, 11.43 m ISDN basic accesses[5] and 123,300 ISDN primary rate accesses[6]. Additionally, about 4.5 m DSL[7] accesses were in operation.

[3] The speech channel is **s**uitable as a benchmark for direct accesses, i.e. the equivalent of a 64-kbit/s channel. With this determinant the various access types such as analogue accesses, ISDN basic accesses and ISDN primary rate accesses can be summarised and presented. The access is not understood in terms of a telephone number but in terms of the access capacity. The number of channels comprise the public telephones. The channel and accesss numbers contain a limited number of internal requirements of the competitors and DT.

[4] Conventional telephone station (a speech channel with 3.1 kHz bandwidth)

[5] ISDN (Integrated Services Digital Network) basic access: two independent usable speech channels with a bit rate of 64 kbit/s each

[6] ISDN primary rate access: 30 independent usable speech channels with a bit rate of 64 kbit/s each

[7] DSL (Digital Subscriber Line). DSL is a high bit rate access based on the copper line from the exchange to the end customer. Various DSL technologies (ADSL, SDSL, HDSL, etc.) are offered on the market. They differ in transmission rate. ADSL (Asymmetric DSL) offers various transmission rates in the two directions of transmission (downstream and return channel). SDSL (Symmetric DSL) and HDSL (High Data Rate DSL) offer the same transmission rates in the two directions. Contrary to ADSL and SDSL HDSL does not offer the possibility of parallel use of telephone services in the baseband.

Telephone channels
Shares DT and its competitors

	1998	1999	2000	2001	2002	2003
Competitors						
Total no. of channels/m	0.16	0.40	0.86	1.62	2.27	3.12
of which analogue	15%	22%	17%	12%	11%	10%
of which ISDN	85%	78%	83%	88%	89%	90%
No. of suppliers	21	40	55	61	64	65
DT						
Total no. of channels/m	46.37	47.81	49.36	50.83	51.51	51.23
of which analogue	78%	72%	65%	60%	56%	53,7%
of which ISDN	22%	28%	35%	40%	44%	46,3%
Sum						
Total no. of channels/m	46.53	48.21	50.22	52.45	53.78	54.35
Share competitors	0.3%	0.8%	1.7%	3.1%	4.2%	5.7%
Share DT	99.7%	99.2%	98.3%	96.9%	95.8%	94.3%

Number including public payphones

The competitors were able to increase their telephone channel base to 3.12 m channels in 2003. As such they achieved a share of 5.7 per cent of the total number of channels. Their nationwide share of analogue channels totalled 1.1 per cent, their ISDN basic rate share 9.0 per cent and their primary rate access share 20.8 per cent.

Telephone accesses and competitors' shares

	2002		2003	
	Total no./m	Competitors' share	Total no./m	Competitors' share
Analogue accesses (excl. publ. tel.)	29.13	0.9%	27.69	1.1%
ISDN basic accesses	10.43	6.7%	11.43	9.0%
ISDN primary rate accesses	0.123	17.1%	0.123	20.8%
Public telephones	0.110	3.7%	0.107	3.4%

Owing to late notifications of some companies, the data on competitors' accesses and channels from 2001 required slight modification. Compared with the previous data records the competitors' share is slightly higher.

Regionally the competitors were able to epand their market shares measured in terms of telephone shares to different extents in the past few years. In certain regions of Germany the national average of 5.7 per cent relating to telephone channels were substantially exceeded. There are local networks in which the competitors' share exceeds 20 per cent.

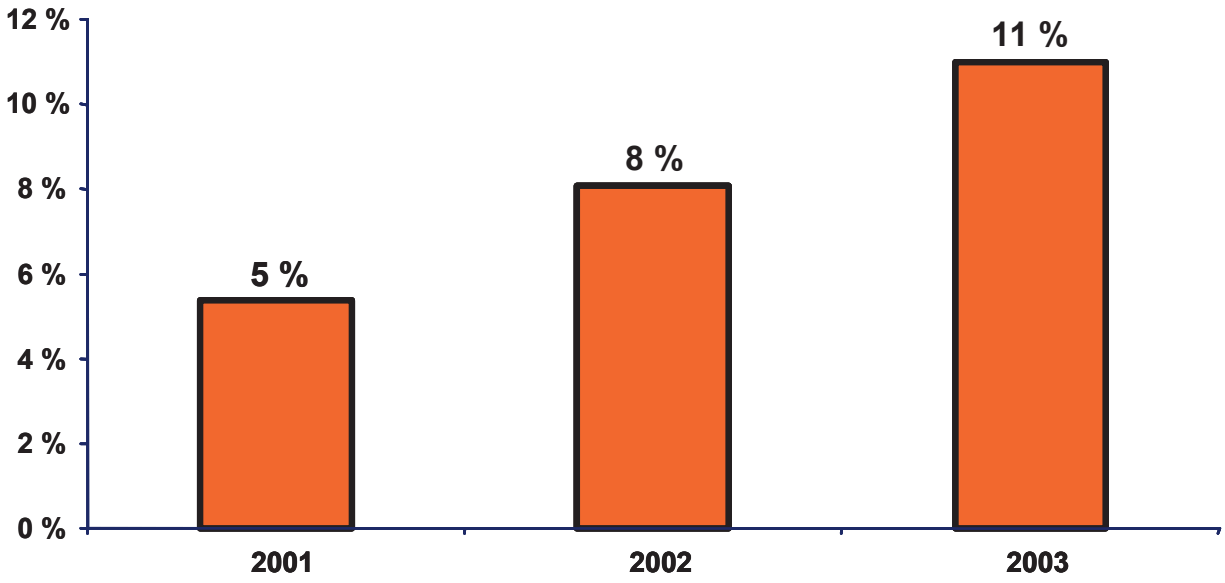
As a result of the distribution of mobile phones, the demand for, and number of, coin-operated and cardphones decreased at the end of 2003 to 107,000. The competitors' share corresponds to 3.4 per cent.

On the basis of the contracts concerning the access to DT's subscriber lines or on the basis of own telephone subscriber lines 65 licensees apart from DT offered analogue accesses or ISDN direct accesses.[8] Owing to these offers at the end of 2003 more than half the population was able to choose between more than one access operator.

Broadband accesses

Broadband accesses with transmission rates of more than 128 kbit/s are offered over DSL, cable television accesses (cable TV), powerlines and satellite. At the end of 2003 more than 4.6 m broadband Internet accesses were in operation in Germany, of which 4.1 m were DT T-DSL[9] accesses, about 400,000 DSL accesses of fixed line competitors, more than 60,000 bidirectional cable accesses, 8,000 PLT accesses and about 45,000 Internet accesses via satellite.[10] This means that at the end of 2003 DT's competitors had a broadband access share of about 11 per cent compared with roughly 8 per cent in the year 2002.

Competitors' share of broadband accesses
(DSL, cable, satellite, PLT)



According to providers' expansion plans a rapid expansion of broadband offers is to be expected.

DSL

At the end of 2003 about 50 enterprises (DT inclusive) offered DSL. The majority of alternative providers were city and regional carriers. Their DSL offers are only available in certain towns and communities. At nationwide level, apart from DT, four competitors were present on the market with relevant offers. However, for technical and economic reasons these offers are also not available throughout Germany.

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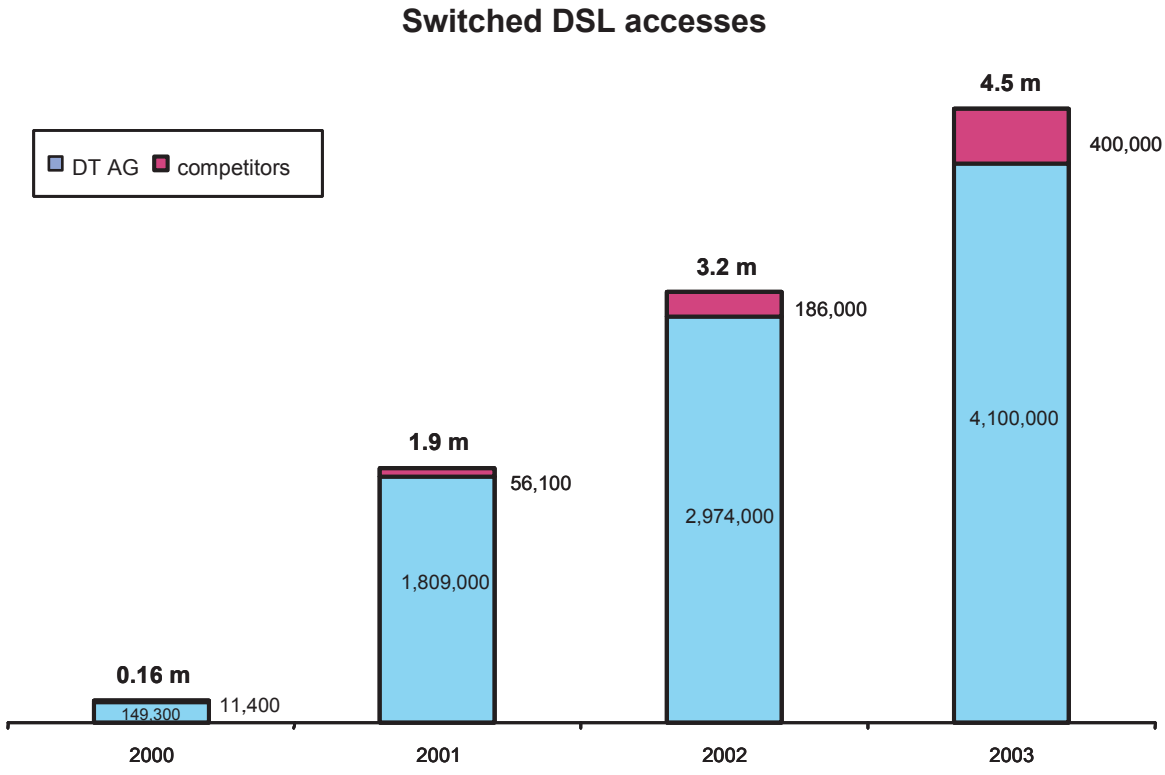
[8] In a fraction the offers are linked to minimum turnovers.
[9] DT markets different DSL variants under the brand „T-DSL".
[10] Cable accesses and PLT are offered exclusively by competitors whereas Internet accesses via satellite are also provided by DT.

For Internet access a customer usually needs another contract with an ISP.[11] On the basis of the DSL accesses of individual access network operators these offer diverse tariffs for the use of the Internet. On the other hand, the offers of city and regional carriers which as access network operator have their own access network at their disposal often comprise not only the telephone and DSL access but also Internet access, i.e. they also act as ISP and cam offer their customers telephony, DSL and Internet access in one contract.

At the end of 2003 DT already had 4.1 m T-DSL accesses in place. DT's competitors together provided a total of about 400,000 DSL accesses. Related to the territory of the Federal Republic of Germany, the competitors' DSL share hence reached about 9 per cent compared with roughly 6 per cent in the previous year.

A regional view of the competitors' shares reveals that in individual local networks occasionally market shares of more than 40 per cent were achieved.

Apart from the asymmetric Internet accesses (ADSL) where the data transmission rates vary in the transmit and receive directions, symmetric DSL accesses (SDSL) gained in significance in 2003. Especially business users increasingly tend to opt for network access technology which is relatively inexpensive compared with fixed leased line accesses.



[11] Cf. also the section „Internet accessses".

Cable accesses

At the end of 2003 there were about 21 m cable accesses in Germany. The cable TV network accesses are primarily used for broadcast reception (sound and television). In the event of the installation of a return channel capability and with the use of a cable modem they enable additional broadband services, e.g. Internet. Such cable Internet accesses are usually offered with bit rates of up to 2 Mbit/s.

Biggest cable TV operator used to be DT which had direct customer access in about a third of the cable TV households. The sale of regional cable companies was initiated by DT in 2000. The process was finalised by the sale of the last minority shareholding in 2003. Hence the cable TV companies have completely been transferred to the competitive sector. After initial financial obstacles and a phase of stagnation the cable TV companies' willingness to invest seems to take on a more definite shape. There are first indications that network level 4 operators and network level 3 operators are prepared to cooperate.

In an international comparison rapid access to the Internet via the medium cable TV counted in Germany to the less favoured access modes but customer interest in this broadband access possibility seems to be growing. Two dozen cable network operators had such products on offer at the end of 2003. More than 60,000 households had indeed connected to the Internet via broadband cable modems. Compared with 2002, this is an increase of 33 per cent.

Powerline

Two companies currently offer broadband Internet access via powerline telecommunications (PLT) at different locations. At the end of 2003, more than 8,000 households used a broadband Internet access via PLT. 155,000 households could be connected direct.

Satellite

Broadband access possibilities are also available via satellite connections, both within the framework of public applications and within the framework of closed user groups.

Via the satellite systems ASTRA and EUTELSAT two broadband Internet access variants are offered. The first targets professional applicants. In the case of this bidirectional connection both the up- and downlink data streams are conveyed via the satellite. At present, only few companies offer this service in Germany. The user numbers are presumably in the range of a few thousand. Owing to the relatively high installation, hardware and provision costs of on average € 2,000, this bidirectional service is solely of interest to business applications.

The other variant is an Internet service for private customers. The satellite connection is used for the downstream direction whereas the return channel to the Internet is implemented via the telephone channel. DT has been making such satellite DSL offers since 2002 to customers who cannot be reached with T-DSL via the fixed network for technical reasons. There are about another five companies offering unidirectional satellite Internet services in Germany. The customer numbers in this segment should total around 45,000.

For non-public applications, connections via Very Small Aperture Terminal (VSAT) networks have been used for many years. These are networks operated primarily by

large multinationals amd international institutions and press agencies. Already more than 700 corporate networks exist which enable the rapid conveyance of large data volumes nationally and across continents. As a rule, the enterprise's headquarters serve as central hub connected to the subsidiaries and production plants via satellite (point-to-multipoint communications).

Furthermore, there are meshed network structures in which the terminals are capable of exchanging information without even having to divert to a central hub. The high data rates of these quick-to-install networks enable not only intranet communications but video conferences and business TV among other applications as well. In Germany there are eight VSAT service providers. RegTP intends to publish the frequency usage conditions for VSAT earth stations and a list of the allocated satellite networks in the near future.

WLAN

Current WLAN offers furnish customers with additional communications means and enhance the convenience of existing (broadband) Internet access technologies (e.g. DSL).

Wireless Local Area Network (WLAN) refers to radio networks within the frequency ranges 2.4 GHz and 5.2 GHz authorised by RegTP which are characterised by a limited transmit and receive range of a few hundred metres. On the radio link maximum transmission capacities of 11 Mbit/s or 54 Mbit/s are achieved, depending on the standard and related frequency bands used.

In hot spots this technology is used to offer public access to subsequent services, e.g. the Internet. A hot spot is an area in which reception is possible. Typical is a receive radius of 40 to 100 metres. A hot spot comprises technologies to connect such subsequent services, to register the users and for billing. Customers can hence surf the Internet at selected public locations with their notebook or Personal Digital Assistent (PDA) independently of a fixed cable access. Hot spots are being established at busy places, primarily airports, railway stations, hotels and cafés. They are being set up in densely populated areas but also outside such centres at recreational and recuperative locations and at meeting places.

At present, about 25 commercial providers operate approximately 1,200 publicly accessible hot spots.[12] Apart from those there are numerous non-commercial WLANs (private providers, clubs).

A thorough technical, market and regulatory analysis has led RegTP to believe that WLANs do not constitute competition vis-à-vis UMTS but that these two systems supplement each other to the benefit of all market players concerned.

Since WLANs are not designed as nationwide cellular networks but at best as insular solutions for hot spots they are only capable of covering comparatively small areas at high data rates, admittedly at next to no mobility.

[12] Source: Hot spot database of VATM and additional RegTP research

Geographical distribution of commercial hot spots in Germany (as from January 2004)

Both commercial and private customers use the hot spots. According to Berlecon Research there will be approximately 3.2 m private and business hot spot users in Germany in 2005.[13] The market for commercial customers alone currently comprises nearly half a million people, half of which use an Internet access on three quarters of their trips.[14]

According to providers' plans it can be assumed that by the end of 2004 there will be more than 10,000 commercial hot spots in Germany. In 2005 this figure could again increase drastically.

The extension of the public WLAN offer can open up the possibility of meeting the communication requirements of potential customers and hence of accelerating the broadband market.

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[13] Berlecon Research, Marktanalyse Public Wireless LAN - Die Zukunft des Hot Spot-Markts in Deutschland, 07/2003

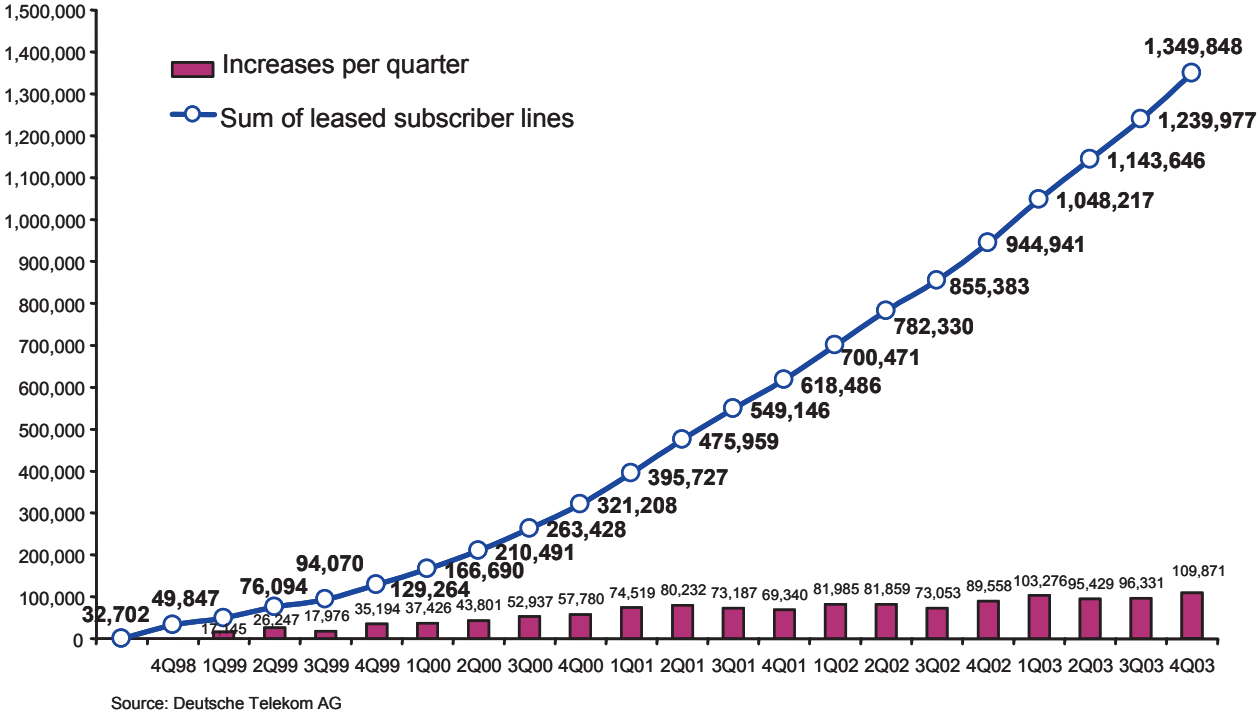
[14] Analyses by the consultant Gelszus

Providers and associations are currently endeavouring to achieve greater transparency and convenience in the mode of use. On the one hand, the Verband der Anbieter von Telekommunikations- und Mehrwertdiensten e. V. (VATM) is attempting to record the WLAN offers uniformly in a database. On the other, the Verband der deutschen Internetwirtschaft (ECO) is striving to lay down a mandatory roaming arrangement between the various hot spot and service providers so that users can be offered a less complicated access to more locations and different operators.[15] Also an improvement of the security standards and new transmission standards enabling rates up to 54 Mbit/s could encourage the development of this market. Apart from the spatially limited hot spot offers trends are discernible to cover larger areas with radio-based broadband access partly based on WLANs and partly on other standards.

Access to DT's subscriber line

For their customer accesses (analogue accesses, ISDN accesses, DSL accesses) competitors use not only self-installed lines or radio ports but primarily DT's existing subscriber lines. At the end of 2003, 83 companies had made contractual arrangements with DT. As a rule the subscriber lines involved are copper pairs, in exceptional cases fibre optic accesses. More than 90 per cent of all accesses provided by competitors at the end of 2003 were based on leased subcriber lines. In total, at the end of the year 2003 1,349,848 subscriber lines had been leased from DT.

Development of DT leased subscriber lines



Source: Deutsche Telekom AG

[15] By means of a standardised „Greenspot" clearing procedure

In 2003 with about 405,000 more subscriber lines were leased than in total during the first three years of liberalisation. It should be borne in mind that telephone and DSL accesses are implemented in parallel over a subscriber line. In view of the significance of narrowband and broadband Internet traffic in the fixed network the demand for subscriber lines on the part of the network operators is driven in the main by Internet use. Concerns that the introduction of carrier selection for local calls could negatively affect the offer of accesses based on subscriber lines have not turned out to be true.

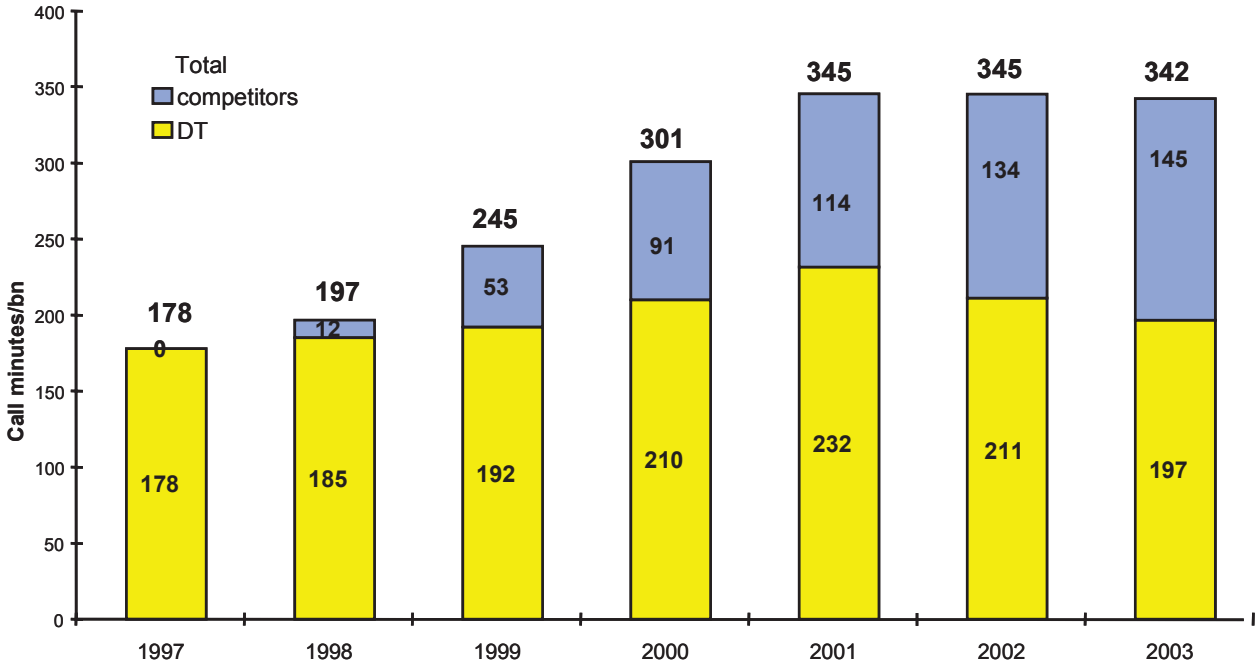
Prerequisite for the use of the subscriber line is the joint use of technical rooms and the acess to the main distribution frames (MDF) in DT's local exchanges (collocation). The competitors' demand for collocation in the first quarter of 2003 involved approximately a third of DT's access areas. At this point in time, of the roughly 7,900 existing DT access areas about 2,500 were accessible via collocation. These concern mainly access areas in larger towns with a correspondingly high subscriber penetration. Meanwhile, however, some local network operators are increasingly expanding their networks to cover larger areas.

Leased lines
Beyond the aforementioned access possibilities permanent broadband connections with bit rates of 2 Mbit/s to 155 Mbit/s are used for business applications via leased lines.

Fixed network traffic development
The narrowband traffic volume (via switched connections of the analogue and ISDN accesses) in the fixed network in 2003 is estimated at 342 bn minutes and hence decreased compared with previous years. This is a result of the substantial traffic relocation from narrowband switched connections to broadband DSL connections. By the end of 2003 calls to the Internet were made from over 4.5 m DSL accesses.

These high-speed accesses are usually characterised by particularly high usage rates. Also the increased use of mobile communications has an effect on the fixed network switched traffic. The broadband traffic volume via DSL accesses amounted to about 400 m GBytes in the year 2003 according to current data.

Fixed network switched call minutes 1997 – 2003



Carrier (pre)selection in the local network

Since April 2003 it has also been possible for consumers to freely choose a provider for local calls via call by call. Furthermore, since July 2003 preselection has been possible for local calls. Hence long-distance carriers can offer local calls on a nationwide basis if they have implemented all interconnection points in the relevant locall networks.

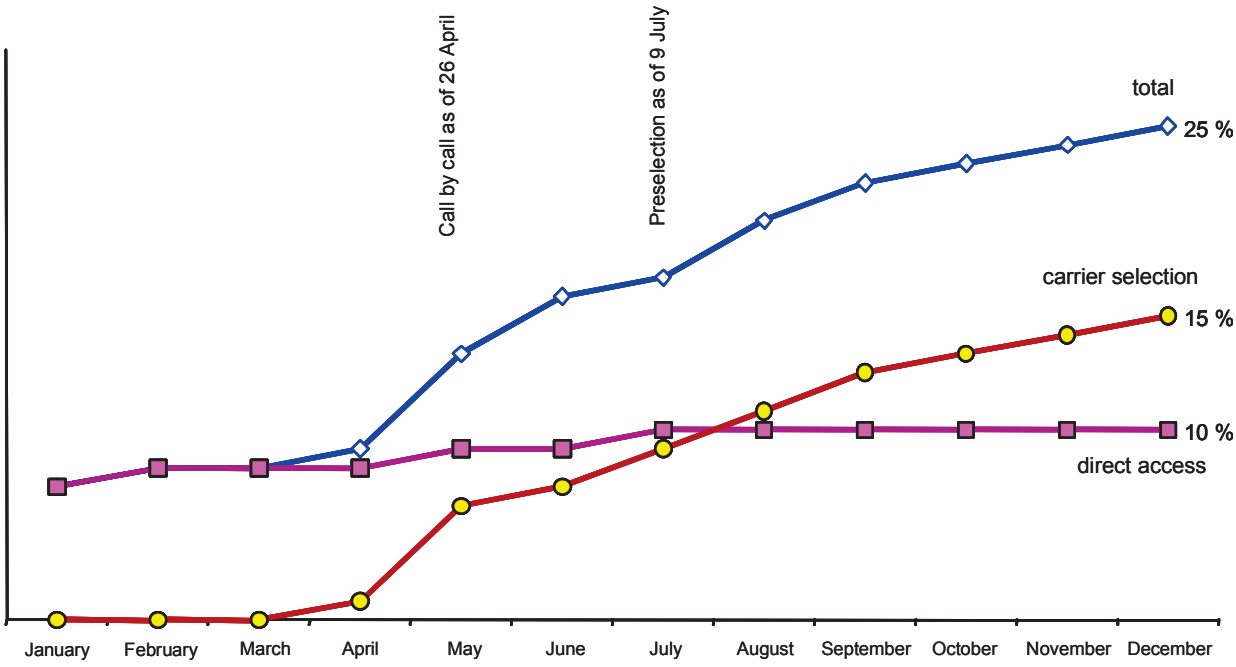
For a nationwide offer of local calls 475 interconnection points with DT's network are needed. This requirement had already been met by some network operators by the end of 2003.

Apart from call by call, the possibility of preselection for local calls appealed to many consumers. At the end of 2003 2 m customers had let themselves be preselected to an alternative carrier for calls in the local network.[16]

[16] Incl. of preselection adjustments for local and long-distance calls.

At the end of 2003 the long-distance carriers achieved a local call share of about 15 per cent. To be added is a share of about 10 per cent of the local call minutes which were handled by the city and regional carriers. Consequently, the competitors handled roughly one quarter of all local calls by the end of 2003.

Competitors' share of local traffic 2003

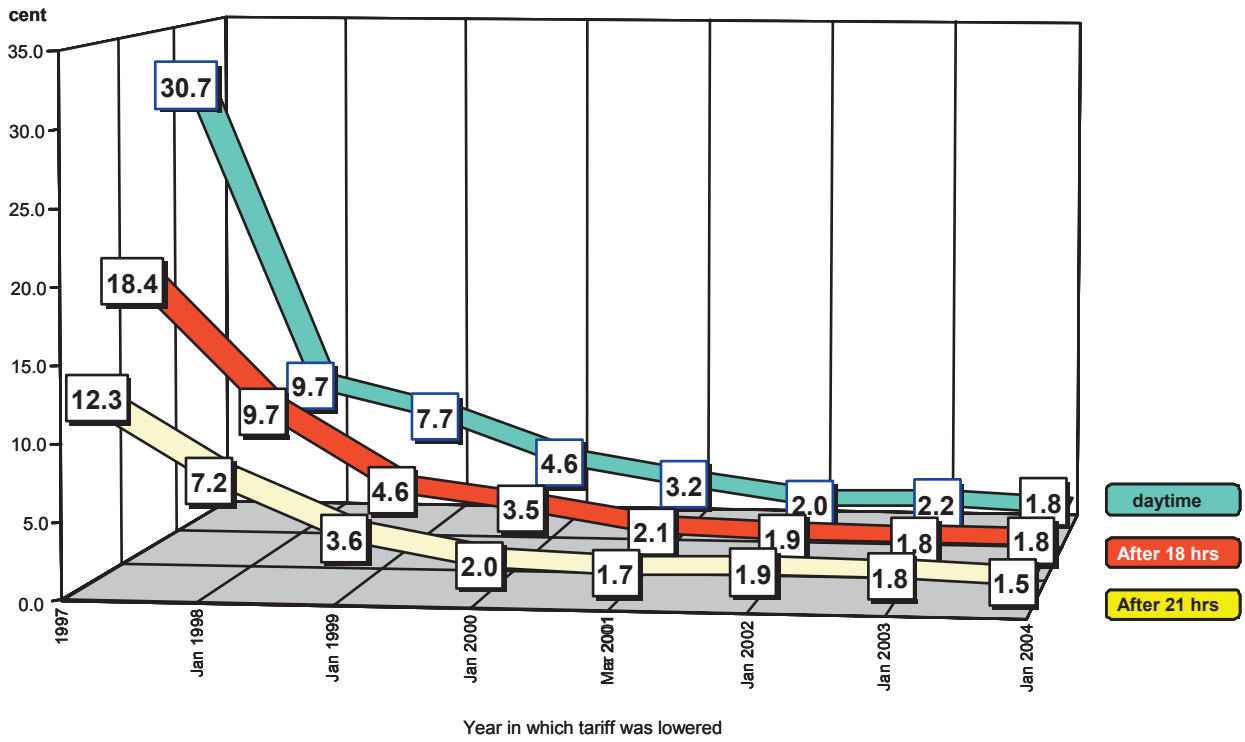


Price development

Since the liberalisation of the voice telephony service on 1 January 1998 the prices for long-distance calls have decreased considerably as the result of the onset of competition. For national long-distance calls on workdays depending on the time of day the consumer today only pays about 6 per cent of the sum levied during the monopoly era. The development of the tariff level on the basis of the corresponding cheapest provider is shown in the diagram below, taking call by call connections as an example.

Minimum tariffs in the fixed network for a national long-distance call

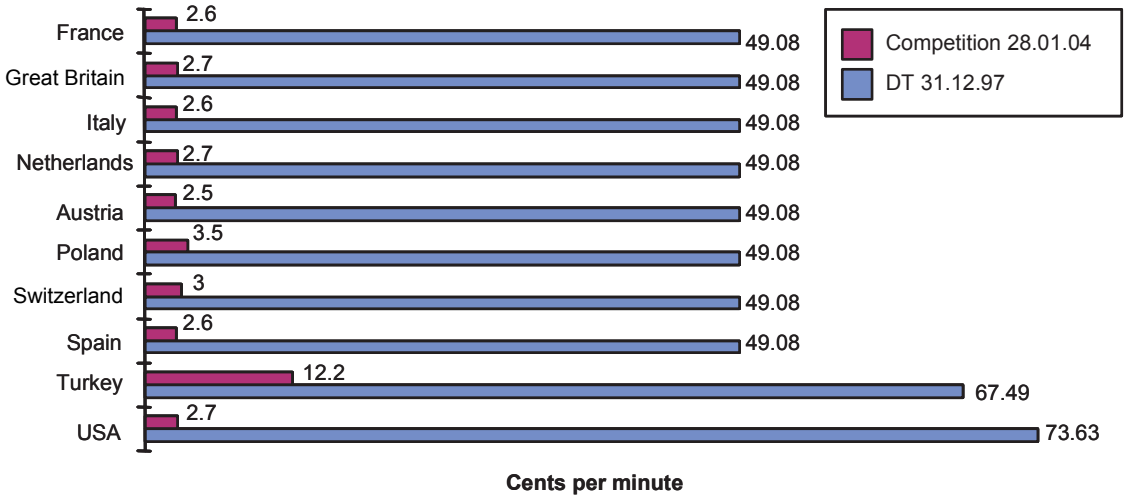
Standard tariffs without a rebate
Prices in cents per minute, working days, call-by-call



Also in the case of international calls competition has been of great advantage to consumers. Along the ten most important international links since liberalisation at the beginning of 1998 the tariffs at peak hours have dropped by more than 96 per cent. At the same time, it was possible to observe a continual drop in tariffs. From January 2003 to January 2004 they again decreased by as much as 37 per cent in certain cases.

Development of the international tariffs to the 10 most important destination countries

(as from 28 January 2004)
Standard tariffs without discount – peak hours weekdays



With effect from 1 May 2002 DT's monthly basic rentals were increased by € 0.56 (net) for all types of access. At the same time the metering price for city calls was lowered by € 0.011 (net). With effect from 1 February 2003 and 1 September 2003 DT's monthly rate for a simple analogue access was increased by € 0.33 (net) and € 1.68 (net) respectively. At the same time in both cases it was possible to lower the standard tariffs for city calls by changing the time rates in the city area, since 1 February 2003 by on average 4.2 per cent and since 1 September 2003 by another more than 4 per cent.

At present, within a number of direct access operators local calls within the operator's own access network are covered by the monthly connection charge whereas DT with its optional XXL tariff and higher monthly one-off fee of € 9 per month enables calls to be made throughout Germany on Sunday and public holidays without additional charge.[17] In the case of city calls the call-by-call tariffs of the competitors are partly more than 75 per cent lower than DT's tariffs.

As a result of the introduction of carrier selection (preselection or call by call) for local calls as well, additional price competition arose in this segment in 2003. The cheapest local calls during peak hours were available for 1 cent/minute in autumn 2003. Noticeable is the consumers' tendency to use flat rates in which usage-related prices decrease but monthly basic rentals increase.

Market development mobile telephony service

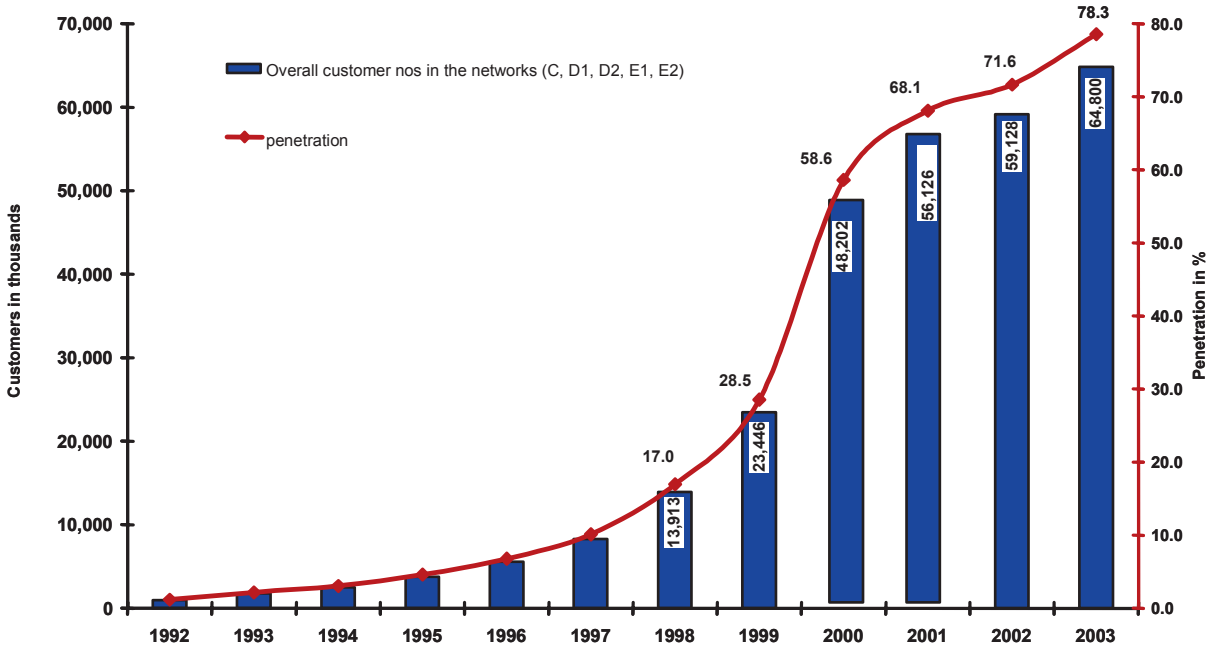
Customers and penetration

At the end of 2003 64.8 m customers could be reached in the German mobile phone networks (D1, D2, E1, E2). This corresponds to a penetration rate[18] of 78.3 per cent and a high annual growth rate of nearly 5.7 m customers.

[17] On 2 September 2003 RegTP approved the rates applied for by DT on 24 June 2003 for the optional tariff „AktivPlus xxl (neu)" on a temporary basis until 30 Juni 2004. The new optional tariff enables customers to make city and long-distance calls over the weekend and on public holidays against payment of an additional monthly fee (€ 9) without additional call charges.

[18] Penetration = mobile subscribers/total population

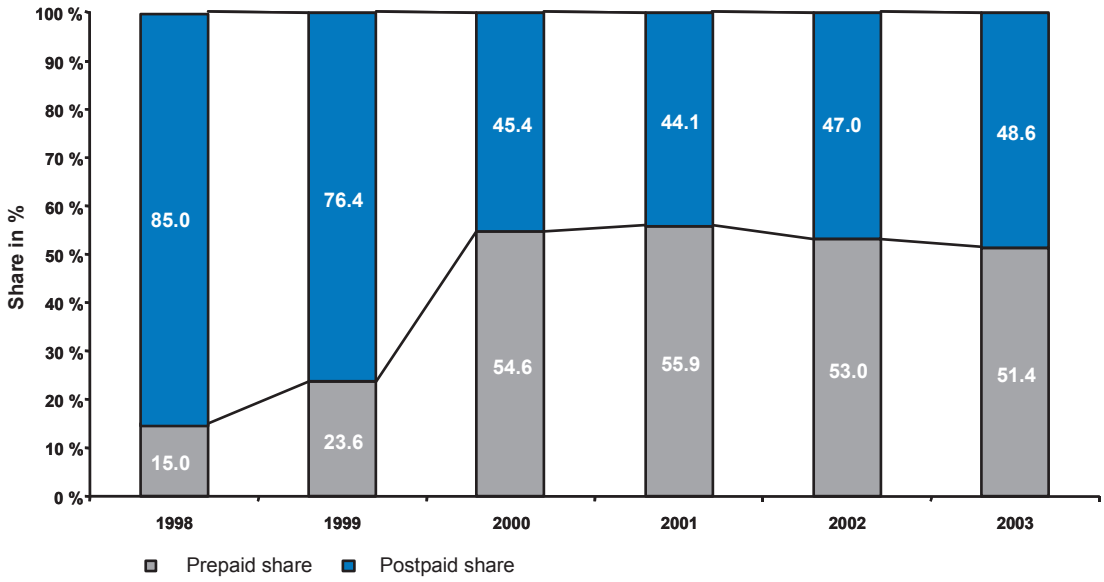
Customer development (penetration and increases) in mobile telephone networks



The penetration rate in Germany is hence below the west Eurpean average of 83 per cent. However, in international comparisons it should be borne in mind that the German mobile radiocommunications statistics have been cleared from non-active prepaid clients. To what extent this also applies to other countries is difficult to assess.

The following graph illustrates the decline of prepaid customer shares in favour of contract subscribers.

Development of the customer prepaid share in the mobile telephony service



The independent service providers' share of the mobile telephone service changed in the year 2003 to around 27 per cent of the overall customer base from about 28 per cent in 2002.

Turnover
The cumulated turnover figure[19] of the mobile radiocommunications enterprises (network operators and service providers) totalled 25.1 bn in 2003 (€ 23.6 bn in the preceding year). Mobile telephone calls, the transfer of messages (SMS, MMS), data traffic (GPRS[20], HSCSD[21], i-mode) and a slightly higher price level contributed to the turnover. The network operators booked a total turnover of about € 20.4 bn in 2003.[22] Compared with the previous year (€ 18.7 bn) this is an increase of 9 per cent. The service providers' turnover fell slightly compared with that of the preceding year.

Mobile call volume
According to the figures available to date from the network operators, in 2003 mobile customers made outgoing calls totalling roughly 34 bn minutes.

Based on the data technologies GPRS and HSCSD the network operators and service providers were able to sucessfully market new data and Internet services. An estimated five million customers used GPRS services. Nearly 31 m short messages were transmitted via Multimedia Messaging Services (MMS) in 2003. This is a significant increase compared with the mere three m MMS in the year 2002. By contrast, according to current data anticipations regarding the Short Messaging Service (SMS) with about 20 bn sent messages in 2003 were not met. However, this figure is based on RegTP estimates. Reliable data for 2003 is not yet available.

According to the Federal Statistical Office, the prices for mobile telephony increased in 2003 by 1.1 per cent compared with the year 2002.

Investments/mobile communications
Network operators in the mobile telephony service invested just under € 2 bn in 2003. These investments concerned primarily the construction of the UMTS networks scheduled to start in 2004.

Market development Internet

Internet access
The ISPs offer narrow- and boradband Internet access services. They presuppose one of the aforementioned narrow- or broadband accesses which a customer subcribes to with a network operator. Network operators also being ISPs can offer both the access and the Internet service from one hand. In the case of DSL, however, the access operator is often a different company than the ISP so that the customer requires two contracts, one for an access with his network operator and one for Internet services with his ISP (e.g. for a DSL flatrate).

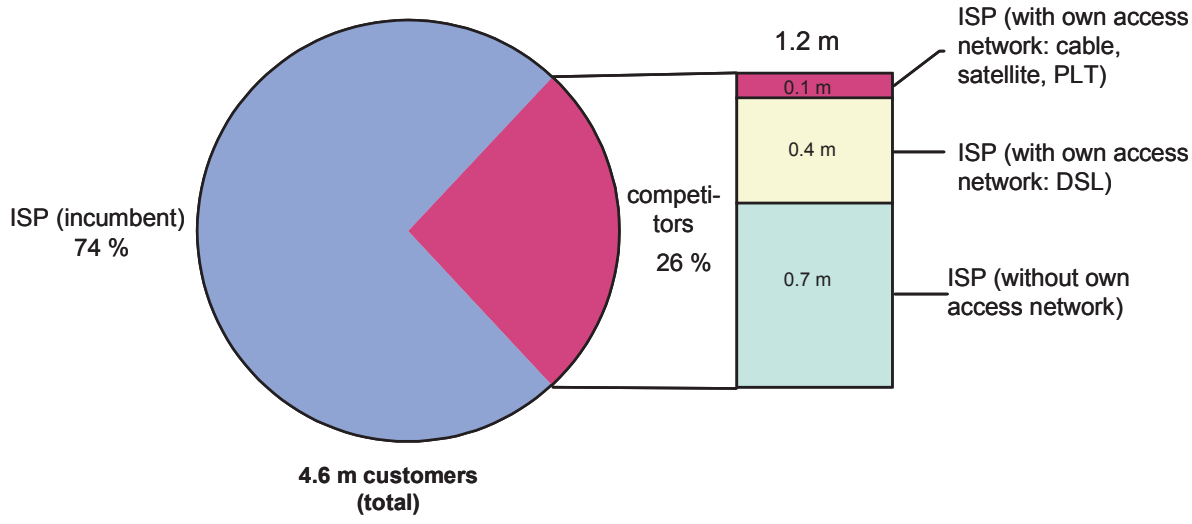
[19] Incl. carrier business.
[20] General Packet Radio Services
[21] High Speed Circuit Switched Data
[22] This figure includes turnover from affiliated companies.

In Germany, the broadband Internet access offers (transmission rate > 128 kbit/s) are primarily implemented via DSL. Nearly 98 per cent of the broadband Internet accesses are realised via these high-speed digital copper subscriber lines, the remainder is provided via cable, PLT, etc. About 12 per cent of households used Internet services via a DSL access at the end of 2003.

Of the estimated more than 23 m Internet customers in Germany (these are those that have signed an agreement with an ISP, not to be confused with the number of users) still about four fifth are narrowband users. But the number of people seeking access to the Internet by broadband means has also risen substantially in 2003, even if not as dramatically as in the previous year. Whereas in 2002 growth rates of about 70 per cent were achieved in the case of broadband accesses, the number of customers requesting such accesses rose to about 4.6 m in 2003 (of which 4.5 m DSL accesses). This corresponds to an increase of more than 40 per cent.

Apart from the ISPs offering accesses and Internet service out of one hand, ISPs without their own access network were also able to record high growth rates in the marketing of broadband Internet accesses in 2003. These ISPs will probably have supplied broadband Internet access services to approximately 700,000 customers. Moreover, about 400,000 customers are offered ISP services and DSL accesses out of one hand by competitors. Furthermore, roughly 100,000 customers are being served by competitors who offer ISP services and cable, satellite or PLT accesses out of one hand. As such, about one quarter of the 4.6 m broadband customers are associated with ISPs competing with the DT group (ISPs with or without their own access network). This development has also contributed to the high traffic growth rates in high-speed data transmission.

Market shares of broadband Internet access services



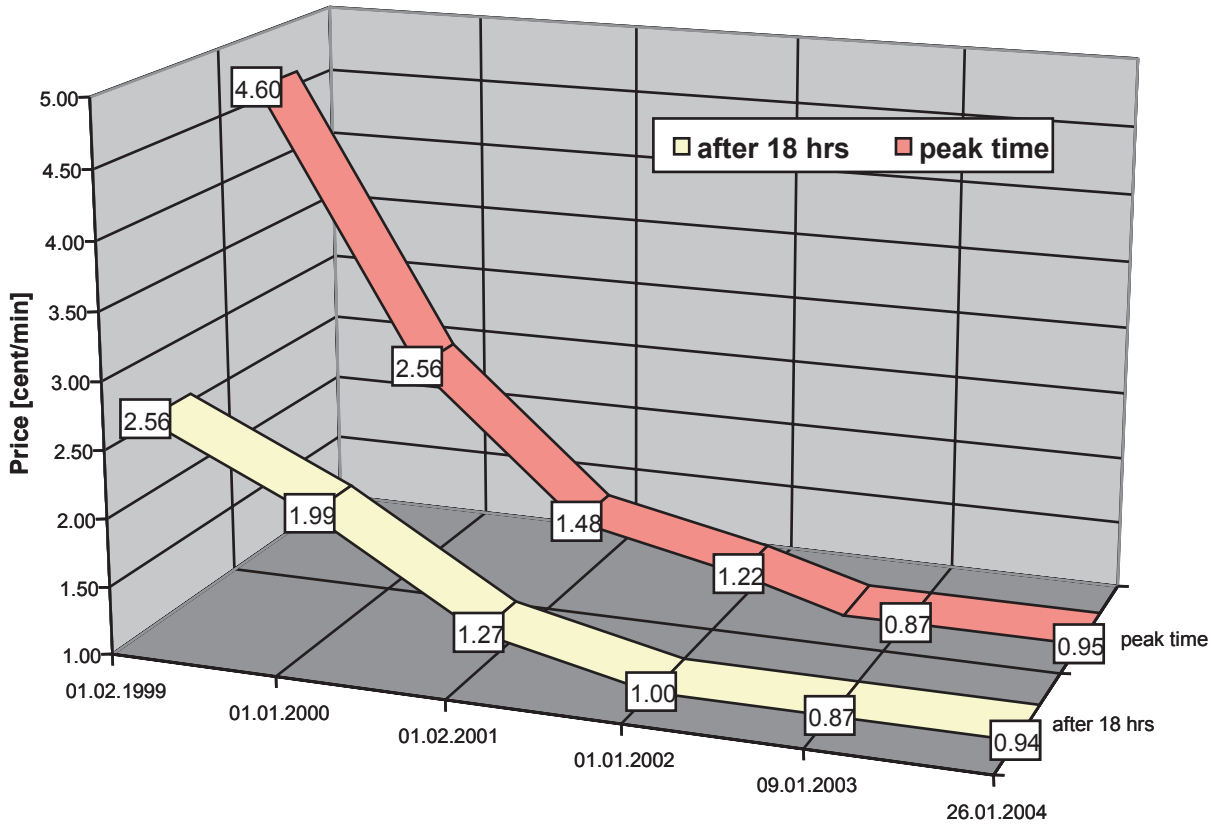
The degree of the future broadband penetration is also affected by the success attained by placing competitive offers on a broader basis. Here, better suited wholesale products such as bit stream would strengthen the position of alternative network operators and ISPs. Bit stream access would put competitors in a better position to offer DSL accesses and Internet termination out of one hand.

Internet offers

At the beginning of 2004 about 800 ISPs were registered with RegTP. The Internet service offer is hence extraordinarily diversified. Not just the price drop contributed to customer growth and increased usage durations. This applies both to Internet-by-call and to flatrate offers.

Internet-by-call permits use of the Internet without a permanent contractual relationship. The costs for the user with this type of offer have continued to decrease. Since February 1999 the reduction has reached the level of 79 per cent. Additional cost reductions in the Internet-by-call procedure can be achieved by registering with the relevant provider. It is noticeable that the current tariffs vary at a lower level than was the case a year ago. Owing to these variations snapshots, as shown by the diagram below, cannot mirror the lower price level.

Internet-by-call minimum tariff
(as of 26 January 2004)



The price decline in Internet services is confirmed by the consumer price index of the Federal Statistics Office according to which in 2003 the annual average cost of Internet use decreased by 1.3 per cent compared with 2002.

For heavy users especially the Internet flatrates offered by online providers are of interest. Inclusive of the regional online providers more than 50 companies offer flatrates. In some cases, however, the transfer volume is limited. All of 18 companies offer flatrates via cable TV accesses.

Internet customers

In 2003 the number of Internet users in Germany again increased significantly. Reg TP estimates on the basis of various analyses that at the end of 2003 nearly 39 m Germans over the age of 14 were in the Internet by various means, e.g. at work, at home, at friends' or in Internet cafés. This corresponds to over 55 per cent of this age group. Also the number of German adults with Internet access rose. According to a representative survey by the research group Wahlen, 58 per cent have access whereas the figure in the last quarter of 2002 was still at 50 per cent.

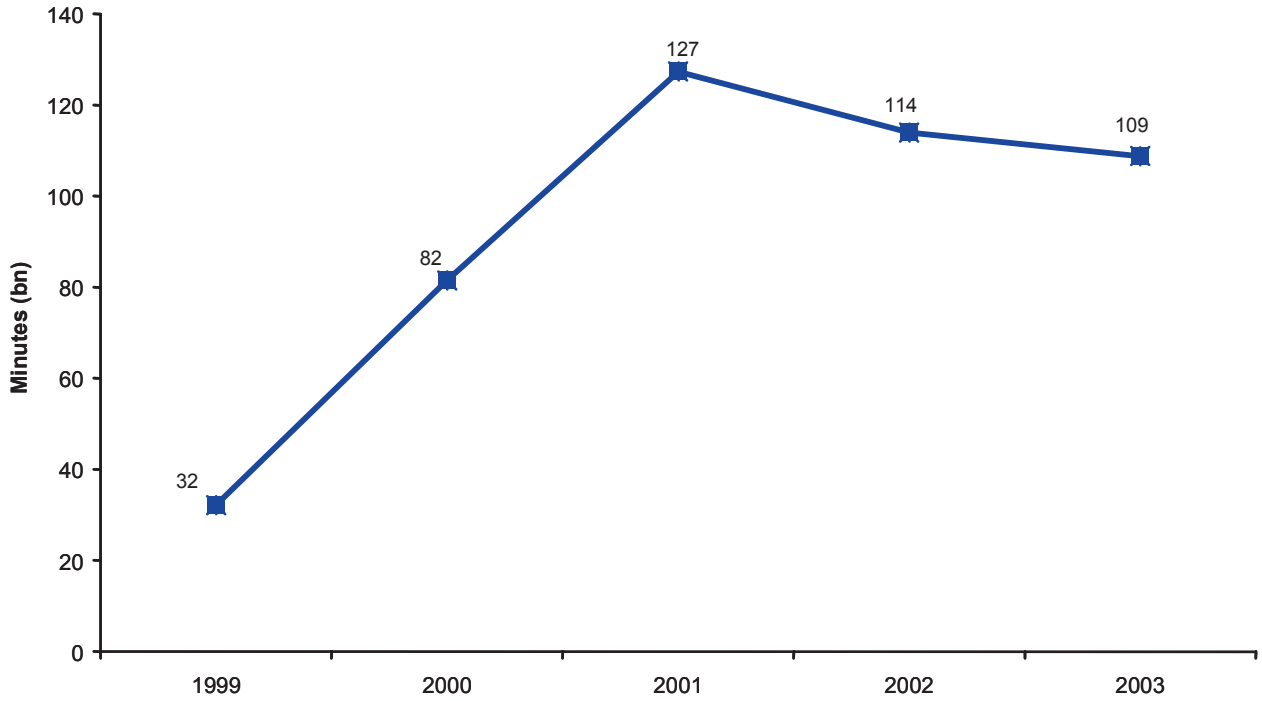
The trend for especially heavy users to switch from narrowband accesses (analogue/ISDN) to broadband continued in 2003. In a European comparison, Germany ranks amongst the highest with nmore than eleven hours of Internet use per month according to Nielsen-NetRatings.

Internet traffic development

The traffic volume generated via fixed-network-based narrowband Internet accesses has continued to decrease in 2003 compared with the preceding year. The share of these connections of the overall fixed network traffic more or less remained flat at approximately one third in the year 2003.

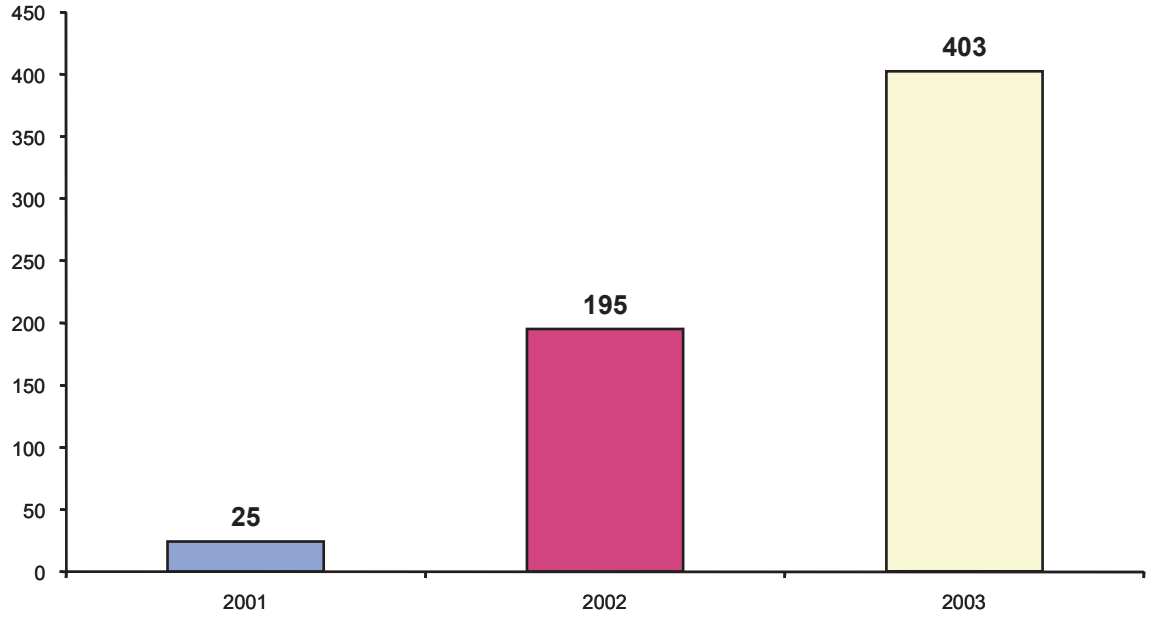
For DT's competitors narrowband Internet traffic is of great significance. In 2003 more than half the call minutes generated by the competitors in the switched network derived from Internet traffic.

Internet call minutes narrowband



The declining volume of narrowband Internet traffic is due to the migration of many heavy users from narrowband to high-speed accesses, especially DSL. Hence DSL traffic, measured in GByte based on the transmitted data volume, substantially increased due to the high growth rate in DSL accesess in 2003 compared with the previous year.

Development DSL traffic



The traffic data in the above diagramme includes both the traffic volumes of the alternative network operators simultaneously offering Internet access services as ISPs and the broadband volumes generated by the customers of ISPs without their own network.

Market development cable TV and terrestrial digital video broadcasting

Cable TV

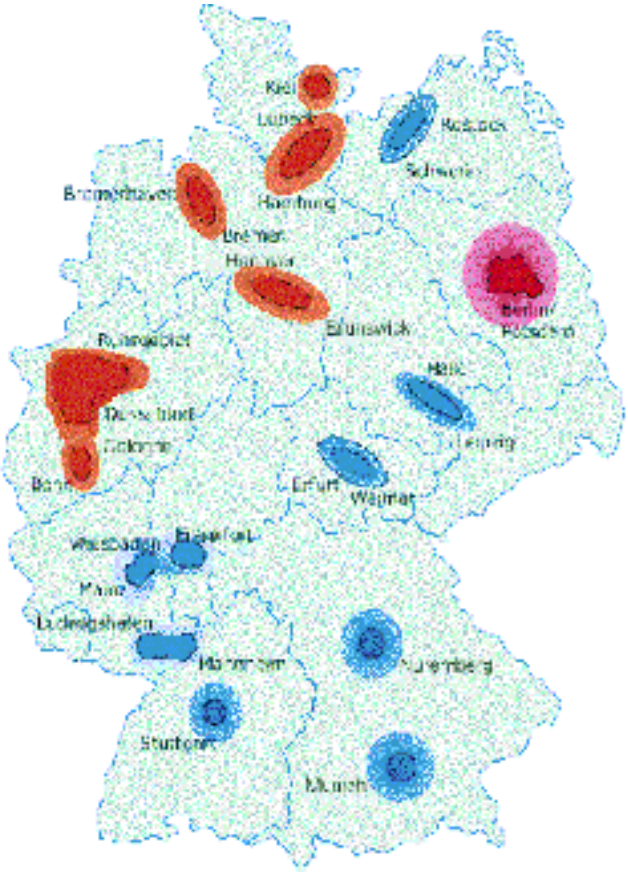
According to RegTP estimates in 2003 about 21 m households received their programmes via cable. The number of users compared with the previous year has therefore virtually remained the same. The focal point of cable activities is currently the expansion of digital TV.

Terrestrial digital video broadcasting (DVB-T)

On 31 October 2002 regular DVB-T operation began on two channels with eight programmes in Berlin/Brandenburg. The transition to exclusively digital terrestrial television broadcasting had already been completed with the disconnection of the last four programmes broadcast by analogue means on 4 August 2003. The capital region is hence – as far as is known – the first transmitting area worldwide in which this change-over has been completed. According to estimates by the Deutsche TV-Plattform already

more than 200,000 of the set-top boxes needed for reception have been sold. The launch dates in the other federal states have already been fixed so that it will presumably be possible to begin with the coverage of all densely populated areas in Germany within the next two years.

DVB-T launch regions in Germany
(planning date: October 2003)



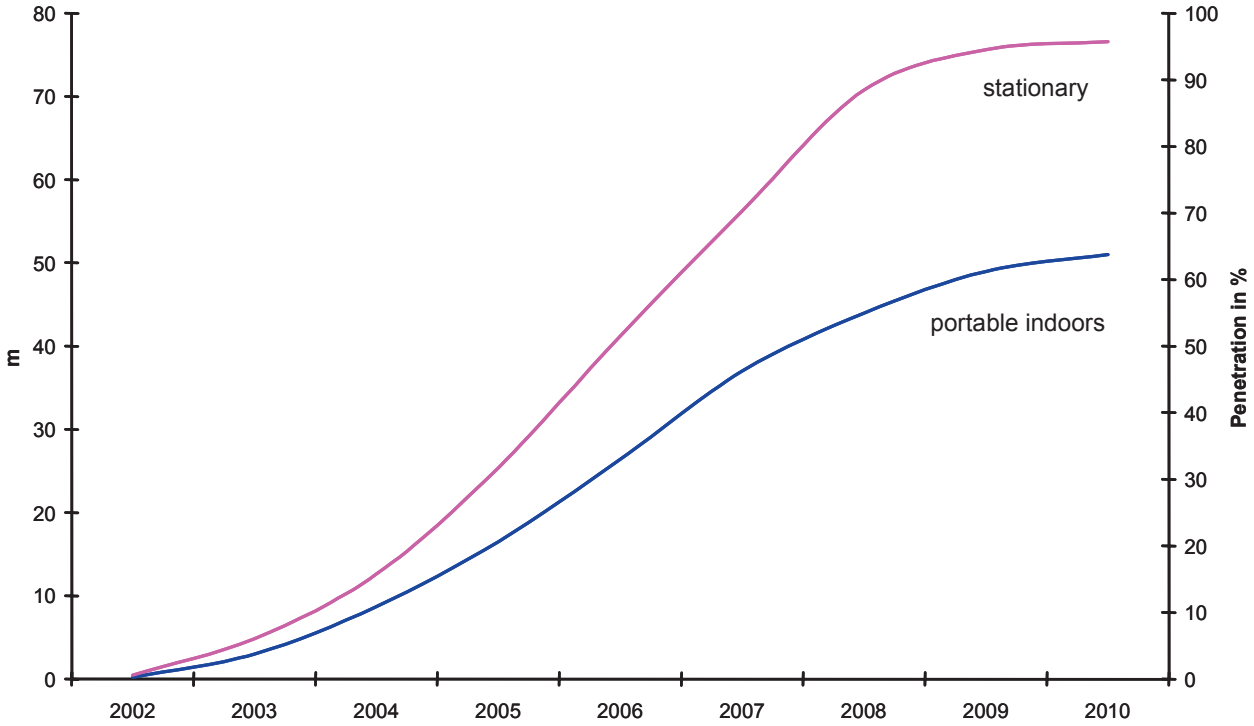
Coverage goal: portable indoors in urban areas as schematic presentation:
dotted = questionable for priv. broadcasting

Start regular operation : ● 2002 ● 2004 ● as of 2005

Source: DVB-T Projekte/IDR BNA Copyright: Bayerische Medien Technik/www.bmt-online.de

According to RegTP estimates the provision of the population with DVB-T up to the disconnection of the last terrestrial television transmitters in 2010 will take place as follows. A distinction is made between the ability to receive with a small dielectric rod antenna in the home („portable indoors“) and with the conventional roof antenna („stationary“).

Coverage of the population with DVB-T



DVB-T is basically a digital data communication method. It therefore enables not only the reception of up to 30 television programmes in prime sound and picture quality but also the transmission of any other type of broadband data and information. Portable and mobile receivability which led to the term „ubiquitous TV“ together with a return channel offers new possibilities for service providers. Conceivable are applications in the business and leisure sphere and in the travel sector with information about traffic and road conditions, sights, restaurants and the weather. DVB-T together with terminals still to be developed offers the chance of being able to access, everywhere and at all times, a combination of TV, Internet and multimedia information of all types.

Cooperation with the European Commission

Cooperation with the EU Commission is characterised by the fulfilment of the reporting requirements and participation in the Communications Committee (COCOM). The reporting requirements included primarily data collection for the Leased Lines Report 2002 and the Ninth Report on the Implementation of the EU Electronic Communications Regulatory Package (Telecommunications in Europe – Regulation and Markets 2003)“. The Implementation Report ist structured in a main part and two annexes with specific market data. The complete report is available under http://europa.eu.int/information_society/topics/ecomm/all_about/implementation_enforcement/annualreports/9threport/index_en.htm. The annexes are available in English only.

Cooperation with other regulatory authorities

International cooperation with other national regulatory authorities was intensified by visits to RegTP and an intensive exchange of experience on all aspects of regulation. Furthermore, questions regarding the organisation of RegTP and its cooperation with other institutions and authorities at national level were dealt with.

Number management

Responsibility for the administration and allocation of call numbers in Germany was transferred to RegTP with the opening of the telecommunications market. It is the goal to guarantee that all market players have non-discriminatory access to the resource “numbers” and to ensure that there are no bottlenecks in the availability of numbers. The structure of the numbering area, the drafting of allocation rules, the specification of usage conditions for the various number ranges and the allocation of numbers to network operators, service providers and consumers are key tasks of number management.

An overview of the allocated number blocks in the 5,200 local networks, the number of call numbers allocated to value-added services, directory services, long-distance carriers and „Technical Numbers “ is given in the tables below. Moreover, focal point of activities in the year 2003 was the introduction of carrier selection in the local network and measures relating to the introduction of the Act on Countering the Abuse of (0)190/(0)900 Value-added-service Numbers.

Number allocation
Operators of telecommunications networks apply to RegTP for allocation of number blocks of 1,000 numbers each for the local networks in order to be able to provide their customers with call numbers. At the end of 2003 a total of 68,843 number blocks in 5,200 local networks had been allocated to 76 operators.

The value added services include Free Phone (0)800, Shared Cost (0)180, Premium Rate (0)900 and Personal Numbers (0)700. The number of call numbers allocated in the year 2003 and in total by the end of 2003 is shown in the table below.

Service	Numbers allocated in the year 2003	Allocated number total on 31.12.2003
(0)800	17,028	160,931
(0)180	12,313	117,207
(0)900	24,382	83,476
(0)700	7,346	96,261

Technical resources		
Allocations	2003	Total by 31.12.2003
National Signalling Point Codes (NSPC)	143	2,345
International Signalling Point Codes (ISPC)	32	376
Carrier portability codes	8	182
Closed User Group Interlock Codes (CUGIC)	0	22
Charging reference branches	1	109
Equipment manufacturer codes for telematic protocols	0	15
Notification of International Carrier Codes (ICC)	1	10
Individual TETRA Subscriber Identity (ITSI)	2	6
International Mobile Subscriber Identity (IMSI)	5	21
Data Network Identification Code (DNIC)	1	17

Number resources		
Allocations	2003	Total by 31.12.2003
Numbers for user groups	5	22
Numbers for Intern. Virtual Private Networks (IVPN)	8	47
Numbers for innovative services	1	7

Of particular importance among the call numbers are the directory enquiry services and the carrier selection codes.

	Numbers allocated in 2003	Numbers allocated in total by 31.12.2003
Numbers for enquiry services	5	73

	Codes allocated in 2003	Codes allocated in total by 31.12.2003
Codes for long-distance carriers	8	114

Carrier selection in the local network

Selection of the network operator at each call (call-by-call selection) and presetting of a telephone access to a particular network operator (preselection) have been possible since 25 April 2003 and 9 July 2003 for local calls as well. The consumer hence also has the chance of free provider selection in the local network. By 31 December 2003 eleven network operators offered call by call in the local network via the codes provided for this feature in the 010xy and 0100xy range.

Measures to counter the abuse of (0)190/(0)900 value-added service numbers
On 15 August 2003 the Act on Countering the Abuse of (0)190/(0)900 Value-added service Numbers entered into force. It is the goal of the Act to counter the abuse of value-added service numbers in a basic and comprehensive manner. Apart from the registration of diallers described elsewhere in this report, as a result of the Act a number of steps were taken in the field of number management.

Information for consumers about the holders of value-added service numbers
To date, it had been difficult for consumers to determine the responsible party in the case of questions or for asserting their rights in relation to a service used via a (0)190/(0)900 number. For the (0)190 numbers the Act on Countering the Abuse of (0)190/(0)900 Value-added Service Numbers now foresees a written enquiry sent to RegTP which must be answered within ten working days. For the (0)900 numbers RegTP now maintains a database in the Internet. Since the (0)900 numbers are assigned individually and it is prohibited to forward the number on a contractual basis, consumers can immediately determine the provider of the value added service from the database. The relevant information may also be requested from RegTP by telephone.

Legitimation procedure for particularly expensive and particularly long services
Under the Act on Countering the Abuse of (0)190/(0)900 Value-added-service Numbers the customer has the possibility of exceeding the specified price limit of € 2,00 per minute or € 30,00 € on a one-off basis or of exceeding the time limit of one hour. To this end he must provide personal legitimisation to the provider prior to using the service by means of a procedure specified by RegTP. Partly in parallel to the legislative procedure, RegTP elaborated a legitimisation procedure prescribed since entry into force of the Act. Under this procedure, whenever the caller uses a service requiring legitimisation he must authorise himself by entering a four-digit PIN coupled to the call number(s) of the recipient of the bill. The provider obliged to carry out the procedure may only assign a PIN upon request and only to the recipient of the bill.

Provision of a special subrange for diallers
The main function of diallers is the telephone bill accounting for services offered in the Internet. Since 14 December 2003 diallers may only be operated in the subrange (0)900 9. Also diallers hitherto registered in the subranges (0)190 and (0)900 must be transferred to this range and registered there by this deadline if they do not wish to be operated illegally. By the end of the year, 745 dialler numbers from the range (0)900 9 had been allocated.

If the consumer is sure that he does not wish to call a dialler in the German network, he can have the subrange (0)900 9 barred by his network operator. Should neverthless a dialler dial-in, he can only have done so illegally from another subrange and there is no payment obligation on the part of the provider.

Act on Countering the Abuse of (0)190/(0)900 value-added-service Numbers
Since 15 August 2003 RegTP has been tasked with the implementation of the Act on Countering the Abuse of (0)190/(0)900 Value-added-service Numbers. These numbers serve to invoice the services used via the telephone or the Internet, e.g. counselling services, simply and quickly via the telephone bill of the telecommunications company. The Act serves the purpose of structuring the offer of (0)190/(0)900 value-added service numbers more transparently and hence to improve the legal position of consumers.

Owing to the new Act everyone has a right to the information as to who is behind a (0)190 or (0)900 number. The Act also empowers RegTP to intervene in a definite case of abuse so as to prevent further abuse. To this end various means are available to RegTP ranging up to the withdrawal of the abusively used call number and the obligation of the network operator to disconnect this number. Furthermore, RegTP can in a definitive case of abuse request the party drawing up the invoice to stop invoicing for this call number. Under the new Act dial-up programmes via (0)190/(0)900 value-added-services numbers, so-called diallers, must be registered with RegTP.

Since entry into force of the Act RegTP has dealt with 9,955 written and verbal consumer queries and complaints. In 130 cases time-consuming Internet research and complex investigations resulted in investigation protocols which form the basis for further steps by RegTP. Registration applications regarding a total of 3,411,146 diallers have been received, 424 queries by applicants were answered verbally or in writing. The applications were answered either in the positive or negative, partly retracted by the applicants or - depending on receipt and registrative ability - are being processed. From 14 December 2003 priced diallers may only be registered in the range (0)900 9. Within the framework of information requests about the service provider ultimately responsible for a (0)190 value-added service number RegTP has so far provided 6,800 written notifications under § 43(a) subpara 1 of the Telecommunications Act. The number management's call center has provided information in about 1,900 cases on the number range (0)190/(0)900. Further general queries were received by other RegTP sections such as the consumer service.

RegTP has examined the consumer complaints received and has initiated measures under § 43c of the Telecommunications Act in 149 cases. Under § 43c subpara 1 p. 1 of the Act RegTP can decide on orders or other suitable steps within the framework of number management to ensure adherence to legal regulations and the conditions issued in conjunction with number allocations.

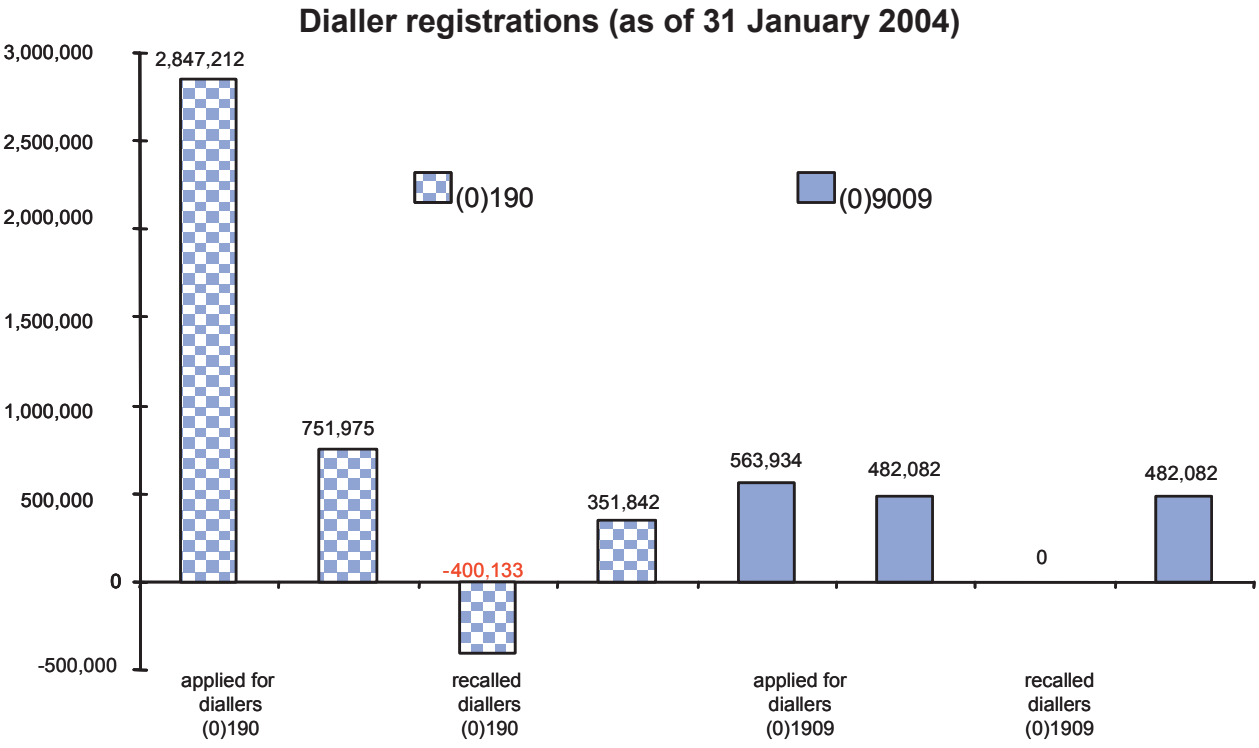
Major issues
Diallers
Under the new Act, diallers via (0)190/(0)900 numbers must be registered with RegTP. Registration takes place when the dial-up programme meets certain minimum requirements and the party obliged to register provides written confirmation to the effect that illegal use is not possible. The details of the registration procedure, the written confirmations to be given as part of the registration and the minimum requirements to be met by diallers were published in Official Gazette Nos 16/2003 and 24/2003. For the registration application (incl. collective applications) an electronic interface was programmed and implemented in time for 15 August 2003 on RegTP's web site. The dialler registrations are stored in a database and are retrievable fron the Internet as a so-called "positive list". The registration of diallers with RegTP does not constitute a sign of quality. Unregistered diallers or diallers not meeting the minimum requirements may no longer be used.

For just under 400,000 diallers the registration was withdrawn retroactively. In the case of these diallers consumer complaints and samples revealed that despite the legal conformity declaration submitted by the applicant the minimum requirements were not adhered to in numerous respects. As the registrations were withdrawn retroactively, the payment obligation on the part of the consumers for the use of these diallers, even for the period during which the dialler was registered, no longer applies. Furthermore, for several numbers disconnection was ordered since unregistered diallers were being operated over

them. All in all, 51 call numbers were disconnected. In one case the allocation of a number was withdrawn.

Until 13 December 2003 the subranges (0)190 and (0)900 were available for diallers. Since 14 December 2003 priced diallers may only be operated in the subrange (0)900 9. Priced diallers operating in subranges other than (0)900 9 after 13 Dezember 2003 cannot be registered and are hence illegal. RegTP is of the opinion that no payment obligation exists in the case of unregistered diallers and diallers operating in the ranges (0)190 and (0)900 (0-8) after 13 Dezember 2003.

By 1 February 2004 482,082 diallers in the subrange (0)900 9 had been registered with RegTP. The remaining registered diallers in the phased-out subranges (0)190 and (0)900 (0-8) total 751,975. The high number of registrations so far and the fact that diallers are already registered in the subrange (0)900 9 shows that the registration procedure can be successfully carried out. A prerequisite is that the documentation received is complete and that the corresponding formal registration requirements are met. Since 15 August 2003 approximately 10,000 queries and complaints heve been received by RegTP on the subject of diallers.



Spam via (0)190/(0)900

Complaints about unsolicited message, viz. spam, have increased substantially and taken up more of RegTP's time. In total, about 850 complaints had been received by RegTP by 31 December 2003 in relation to spam in connection with (0)190/(0)900 call numbers. They were related to spam via fax, SMS and e-Mail and so-called provoked recalls. In the latter case the calling parties' phone only rings for a short time. Upon activation of the automatic recall button the recall is initiated with the aid of the list of received calls and in which the caller dials a (0)190/(0)900 number. Owing to the broad

scope of § 43c of the Telecommunications Act RegTP was also able to become active in the field of spam, provided that a (0)190/(0)900 number was used, since spam is deemed an infringement of legal regulations such as §§ 1 of the Unfair Competition Act, 823(1) of the Civil Code in conjunction with the general personality legislation and § 1004 of the Civil Code. Moreover, as a rule the provider does not reveal his identity and also fails to provide a wide range of obligatory data under the Remote Distribution Law so that § 312c of the Civil Code in conjunction with Article 240 of the Introductory Act of the Civil Code and § 1 of the Civil Code InfoV are violated. In view of the increasing convergence of media RegTP does not distinguish between whether the unsolicited message reaches the consumer via fax, e-mail or SMS as long as a (0)190/(0)900 value-added-service number is indicated in the message.

Name violations
RegTP also received complaints from towns and districts relating to misleading, supposedly official directory services. The facts presented themselves, for example, as follows:

In the local telephone directory under the term „Road Traffic Office Information Car Registration Office Driving Licence Town SA“, a local number is indicated under which information about the aforementioned terms are supposedly available. If this local number is dialled, an automatic message is heard, stating that the call number for the road traffic information office, car registration office and driving licence office can immediately be obtained by dialling the number (0)190-xy. For this (0)190 number the Straßenverkehrsamtauskunft, car registration office, driving licence office and town SA is claimed to charge € 1,86.

Since the consumer through this offer mistakenly gains the impression that an official information service of the district/town is involved, the matter concerns a violation of § 12 of the Civil Code and § 43c of the Act on Countering the Abuse of (0)190/(0)900 Value-added Service Numbers. The holders of the value-added-service numbers concerned were requested to prohibit their customer offering a directory service for the road traffic office etc. under the number (0)190-xy from continuing this legal violation forthwith and to inform RegTP of the steps taken to successfully put an end to the violation. Also, a warning of an administrative fine was given. By way of example, as a result of such measures it should be noted that the telephone book entries were modified on a nationwide basis. The automatic messages were also changed in such a way that a link could no longer be established to official information.

EU telecommunications package and amendment of the Telecommunications Act

Since the new legal framework for electronic communications networks and services was established in 2002 with the European Communities' (EC) telecommunications package which must now be transposed into national law by the Member States, the Telecommunications Act was thoroughly revised in 2003. The Federal Ministry of Economics and Labour has compiled a draft for the Telecommunications Act in which RegTP has input the experience gained from previous application of the legislation. The draft was accepted by the cabinet at its meeting on 15 October 2003. On 19 December 2003 the Bundesrat expressed its first views on the draft. The first reading

of the draft by the Bundestag took place on 15 January 2004. The new Telecommunications Act will presumably enter into force in the course of the year 2004.

Independently of the current legislative procedure some of the provisions of the aforementioned telecommunications package are already being applied. For example, in view of the immediate effect of Article 3(2) of the Authorisation Directive (Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services) activities formerly requiring a licence no longer need special authorisation. Accordingly, in its Official Gazette RegTP announced that a licence is no longer needed for market entry (Communication No 189/2003, RegTP Official Gazette No 14/2003 of 16 July 2003, p. 764 f).

Compilation of the complete frequency usage plan

After entry into force of the Frequency Usage Plan Ordinance (Federal Law Gazette No 20 of 8 May 2001) RegTP continued with the compilation of the frequency usage plan begun with the Administrative Principles Frequency Usage in accordance with the provisions of the Frequency Usage Plan Ordinance. The frequency usage plan to be compiled currently comprises a total of 462 frequency usage subplans corresponding to the individual frequency ranges in the Frequency Band Allocation Ordinance. In 2002 RegTP had decided to deal first of all with the two frequency usage subplans 198 (156.8375 - 174 MHz) and 223 (440 - 470 MHz) as they include, inter alia, the frequency ranges of the former mobile network C which are to be made available to the market as soon as possible (see RegTP Activity Report 2002/2003). The completion and publication of the two frequency usage subplans 198 and 223 were announced in Official Gazette 8/2003 of 16 March 2003, Communication No 97/2003. The two frequency usage subplans 198 and 223 have therefore entered into force.

In April 2003 RegTP had completed the drafts of the frequency usage subplans 1-197, 199-222 and 224-457 after consultation of the RegTP's Advisory Council and announced their publication in the same Official Gazette in Communication 96/2003. As such, the procedure for the compilation of the 460 frequency usage subplans was initiated and supreme federal and supreme state authorities, interested parties and the frequency allocation holders affected by the modifications were given the chance to comment in writing. It was possible to submit suggestions and concerns regarding the draft frequency usage subplans to RegTP within a period of two months ending 17 June 2003. It was possible to order printed copies of the frequency usage subplans from RegTP, they were also retrievable from RegTP's web site.

At the end of the aforementioned deadline and with due consideration being given to data privacy matters RegTP provided all suggestions and concerns expressed within the prescribed period for information for a month starting 18 June 2003. The suggestions and concerns were provided in printed form by RegTP and in electronic form on RegTP's web site. RegTP examined the suggestions and concerns expressed, there was no obligation to furnish information about the outcome of the examination.

Subsequently RegTP combined these 460 frequency usage subplans and the two subplans 198 and 223 to a complete frequency usage plan. The publication of the complete frequency usage plan was announced in Official Gazette Communication 359/2003 in Official Gazette 23/2003 of 19 November; the frequency usage plan hence entered into force on 20 November 2003. The complete frequency usage plan covers

the entire frequency range from 9 kHz to 275 GHz; it can be ordered from RegTP in printed form. Further details are available on RegTP's web site under www.regtp.de -> Regulierung Telekommunikation -> Frequenzordnung -> Frequenznutzungsplan.

Refarming in frequency regulation
"Refarming" in frequency regulation relates to the application of existing and still to be etablished administrative financial and technical measures which may serve to make a certain frequency range hitherto used for one frequency application available for another one. These steps can be applied in the short, medium or long term. The special significance of refarming in frequency regulation is generally acknowledged by the national frequency administrations in Europe. It is also confirmed within the exchange of experience in international bodies which have tasked themselves with analysing the issue of refarming in greater detail than was hitherto the case. Against the backdrop of the limited availability of the resource "frequency" and the significant increase in the demand for this resource the question arises as to whether existing framework conditions of the individual frequency administrations are adequate in view of the growing requirement for frequencies to adequately meet the claims arising from this development.

At present the following potential refarming steps are feasible within the framework of current legislation:

Refarming steps at planning level: This includes the survey of demand for frequencies and the modification of the Table of Frequency Allocations and/or the frequency usage plan.

Refarming within the framework of existing frequency applications: At this level the withdrawal of an already allocated frequency must be mentioned in which the reasons justifying the withdrawal may differ.

Steps pertaining to later facilitated refarming measure: This includes, inter alia, the provision of a frequency on a temprary basis and/or the withdrawal proviso.

Within the framework of the amendment of the Telecommunications Act it is envisaged to allow frequency trade under certain conditions. Refarming could also profit from such a frequency trade.

The two steps "refarming" and „frequency trade" – and international opinion concurs – could, if jointly applied, lead to synergies.

Usage provision 30 and powerline telecommunications (PLT)
The frequency usage plan comprises, inter alia, usage provision 30 (NB 30) which defines limits for the interfering field strengths of frequency applications by telecommunications facilities and networks in and along conductors. The limits have been chosen such that on the one hand frequency applications in free space under normal operating conditions are not unduly interfered with and that on the other hand new telecommunications processes in and along conductors are not prevented à priori by excessively low limits. Usage provision NB 30 also specifies that frequency applications in and along conductors do not benefit from protection against interference from transmitters and that the restrictive conditions for frequencies up to 30 MHz apply from 1 July 2001 and above 30 MHz from 1 July 2003.

According to (4) of usage provision NB 30 for frequency applications in and along conductors not adhering to the limits RegTP may lay down the space- and time-related and factual specifications either in the frequency usage plan or in the requisite frequency assignment for the relevant application with due consideration being given to the principle of proportionality and after consultation of the parties concerned. It is also specified that if safety-related radiocommunication services are affected it is particularly important to examine the extent to which a definitive risk to security must be assumed. The safety-related frequency ranges below 30 MHz were largely published in Official Gazette 12/2001 of 27 Juni 2001 in Communication 363/2001, the safety-related frequency ranges above 30 MHz in Official Gazette 13/2003 of 2 July 2003 in Communication 165/2003. In connection with usage provision NB 30 it should be noted that there is a tendency on the part of potential manufacturers and operators in the field of PLT with a few exceptions to withdraw or stop their activities; exceptions being applications within buildings. The reasons given for this were regulatory obstacles and the uncertain framework conditions for this technology.

Satellite communications
Up until the abolition of the licensing requirement on 25 July 2003 only one Satellite Licence was issued in 2003. Eleven Satellite Licences granted under the former Telecommunication Installations Act expired in 2003. One licence issued under the Telecommunications Act was returned in 2003 for corporate reasons. For the year 2003 this results in 37 valid Satellite Licences. To these should be added three licences for Satellite Personal Communications Systems (SPCS) which comprise a combination of licence classes 1 and 2.

Public trunked radio
Up until the abolition of the licensing requirement on 25 July 2003 five new trunked radio licences were issued in 2003 which permit digital frequency use in public trunked mobile networks. No licence applications for the operation of analogue trunked mobile networks were submitted in 2003. At present, a total of 41 licences for public trunked radio have been issued. 23 additional frequency assignment holders operate public trunked mobile radio services on specific premises either licence-exempt (since entry into force of the Telecommunications Act) or still on the basis of type C protected trunked radio licences dating back to the years 1993 -1996.

Class 3 (transmission lines) and class 4 (voice telephony service) licences
As a rule class 3 and class 4 licences were applied for and issued without restriction. As an exception, in line with the application class 3 licences were granted with restrictions regarding the use of the transmission lines (use of the transmission lines exclusively for the reception and/or distribution of broadcast signals). In addition those class 3 licences are listed below which were issued to operators of transmission lines for the terrestrial sound and television broadcasting coverage within the scope of responsibility of the federal states or for the terrestrial distribution of media and teleservices for direct reception by the public (broadcasting transmitter operators).

Class 3 and 4 licence development
A total of 2,964 licences of classes 3 and 4 have been issued. In 2002 and 2003 considerably fewer licences were issued than in the previous years. This is primarily due to the unfavourable economic situation and associated consolidation processes in the

telecommunications sector. With the issue of the Ordinance concerning Telecommunications Licence Fees 2002 licensees were given the opportunity to return all licences of a licence class by 13 Dezember 2002 and to combine the previous licence areas in a new licence (possibly with a larger licence area). About 100 licensees took advantage of this offer. In conformity with § 2(6) of the Ordinance concerning Telecommunications Licence Fees 1,032 licences were returned. Further licences weere returned for other reasons or replaced by other licences. A total of 1,316 licences are no longer valid.

Overview of currently still valid licences

	Licences	Licensees
Class 4	328	186
Class 3 (total)	1,320	733
unrestricted class 3 licences of class 3 broadcasting transmitter operators	31	25
other unrestricted class 3 licences	899	439
restricted class 3 licences	390	282
Total	1,648	793

In the case of 72 class 3 licences and 87 class 4 licences the spatial scope of the licence covers the entire Federal Republic of Germany.

Transfer of rights of way after abolition of the licensing obligation
Owing to the direct effect of Article 3(2) of the Authorisation Directive (Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services) the activities previously requiring a licence under § 6 of the Telecommunications Act no longer need special RegTP authorisation since 25 July 2003. For this reason no further licences were issued in accordance with § 6 of the Telecommunications Act after this date. Since the abolition of the licensing obligation the free transfer of a right of way for the use of public ways (§ 50 of the Telecommunications Act) is processed separately upon application. Until the end of the year 2003 rights of way were transferred in two cases.

Frequency regulation

For each industrialised state the balanced use of the frequency spectrum constitues a major infrastructural prerequisite. As a result of deregulation especially the telecommunications market has developed into a grwoing economic factor in Germany.

By way of example, RegTP carries out the following tasks in the field of frequency regulation which in other fields are characterised both by conceptional and executive aspects beneficial to network operators, service providers and users.

Frequency band allocation
For an efficient and interference-free frequency use frequency ranges are allocated to radiocommunication services and other electromagnetic wave applications. The key

framework conditions for the national possibilities of using the frequency spectrum are laid down by the decisions taken by the world radiocommunication conferences (WRCs).

World and regional radiocommunication conferences
In 2003 RegTP participated extensively in the preparation and execution of the ITU World Radiocommunication Conference 2003 (WRC-2003) and in the preparation of the Regional Radiocommunication Conference of the ITU 2004/2005 (RRC-04/05). The International Telecommunication Union (ITU) is a special agency of the UNO and responsible for telecommunications matters at global level. RegTP itself was involved in the relevant national and international preparatory bodies for the RRC and the WRC and in WRC-2003. Key issues of WRC-2003 which took place in June 2003 in Geneva are listed below:

- worldwide frequency regulations for wireless local networks (WLAN/RLAN),
- precision of the frequency regulations for the envisaged European satellite-based navigation system GALILEO,
- provision of frequency spectrum and usage conditions for satellite applications with a high radio station density,
- harmonisation of frequencies for radiocommunication services serving public security,
- introduction of digital modulation methods in high frequency broadcasting,
- review of provisions pertaining to unwanted emissions of radio equipment,
- review and update of the regulations for the maritime mobile service in the medium and HF bands with account being taken of digital technologies.

At WRC-2003 regulations were successfully adopted for wireless local networks around 5 GHz. RegTP had already opened up the corresponding frequency ranges by means of a general assignment in 2002. It was also possible to complete the regulations for navigation applications via satellite and hence to eliminate the regulatory barriers for GALILEO. Apart from the individual items the agenda for WRC-2007 was adopted. RRC-04/05 will deal with the introduction and planning of digital terrestrial broadcasting for Region 1 and Iran whereby in the first phase 2004 the entire technical basis and in the second phase 2005 the new plan for digital broadcasting for the frequency bands III and IV/V are to be elaborated. In 2003 RegTP actively participated in the drafting of the technical report of the ITU for RRC-04 which has meanwhile been adopted by ITU-R Study Group 6.

European harmonisation
The Comittee for Electronic Communication (ECC; formerly ERC European Radiocommunications Committee) of the European Conference of Postal and Telecommunications Administrations (CEPT) is responsible for radio and frequency matters whithin Europe. It has several permanent working groups as well as project-oriented groups established for specific work items. RegTP was actively involved in the elaboration of the CEPT-wide framework conditions for frequency uses. Especially new frequency applications require in the interest of a common European market international cooperation with regard to the definition of regulations.

In 2003 inter alia the following results were achieved:

- harmonisation of the frequencies and frequency usage conditions for a number of radio applications with low power (Short Range Devices) and also for applications within the framework of digital trunked radio,

- CEPT Recommendations on the opening up of frequency ranges for radio-relay applications,

- agreement on boundary conditions for the release of individual assignments for specific satellite terminals in different frequency ranges.

In addition especially the following topics were dealt with:

- elaboration of a strategic plan for PMR/PAMR frequencies (corresponds in Germany to private mobile radio and trunked radio),

- implementation of a publicly accessible database EFIS (ERO Frequency Information System), it renders European frequency uses more transparent.

In relation to the terrestrial digital video broadcasting service (DVB-T) comprehensive preparations were made within CEPT for the ITU planning conference for the compilation of a digital broadcasting plan, scheduled for 2004 and 2006. In connection with the ITU planning conference, inter alia the Stockholm Agreement 1961 applicable to the analogue television broadcasting service is to be revised and replaced by an agreement in favour of DVB-T.

RegTP's work focussed primarily on the following issues:

- development of the planning-technical basis and definition of the technical parameters and procedures,

- frequency-related investigation,

- development of administrative procedures for the planning and coordination process,

- processing of frequency-regulatory questions,

- elaboration of ECPs (European Common Proposals) and CEPT-internal guidelines for RRC-04.

RegTP cooperates in those EU bodies which were newly created on the basis of Radio Spectrum Decision 676/2002/EC. The EU Commission is supported in its view under Article 3(1) by the RSC (Radio Spectrum Committee) by submitting to it suitable technical transposition measures in accordance with Art. 4(1) in order to ensure harmonised conditions for the availability and efficient use and for the availability of information concerning the use of the frequency spectrum.

According to the Commission's decision (2002/622/EC) of 26 July 2002 a Radio Spectrum Policy Group (RSPG) was created. The Group is to contribute to the further development of the Community's frequency policy which takes into account not only

technical matters but also economic, political, cultural, strategic, health-related and social aspects and also takes into consideration the various and possibly conflicting frequency user requirements and ensures that a just, non-discriminatory and appropriate balance is achieved. The Group includes high-ranking experst from the Member States as well as senior Commission representatives. At the Commission's request or at its own initiative the Group accepts opinions addressed to the Commission. RegTP is actively involved in this process and as such presents national views to the European harmonisation process. Another field of activity in EU Commission bodies involves the cooperation in TCAM where RegTP represents frequency-regulatory aspects of European harmonisation. In the elaboration of the air interface descriptions to be notified to the EU Commission the frequency-regulatory issues are represented to ensure harmonised and equal market entry opportunities for all providers in the European market while guaranteeing national and CEPT-wide efficient and interference-free frequency use.

Strategic frequency regulation aspects
In view of the changing telecommunications market requirements and extremely rapid technological progress it must be ensured that the structure of the framework conditions for frequency use are as flexible, efficient, non-discriminatory and technology-neutral as possible.

To this end some key issues of frequency regulation in the coming years were presented to the interested parties concerned for discussion in "Strategic Aspects of RegTP Frequency Regulation". By these means transparency is to be ensured regarding RegTP's future frequency regulation and the market is to be given some orientation regarding the development and future of business models, innovations and investment decisions.

The first part of the strategy document contains a general description of the significance of frequency regulation for innovation and competition followed by determining elements in the form of key issues and grouped according to subject for the implementation of an efficient and non-discriminatory frequency regulation. The individual cases selected briefly represent the status quo of currently important developments and the general approach envisaged by RegTP. No claim to completeness is made and additional subjects can be added in a future revision. It is intended to continuously update the document, to publish it at intervals, and to present it for discussion purposes.

Frequency assignment
It is also necessary to make economic use of the scarce resource „frequencies" in the period under review. This regulatory task provided RegTP with a range of measures to ensure efficient and interference-free use of frequencies which must be guaranteed especially by means of the administrative act „frequency assignment" and the associated general specifications or in individual cases specific specifications of the parameters and frequency usage conditions relating to the relevant application purpose. The various types of frequency assignment must correspond to the particularities of the frequency use.

In this connection Article 5(1) of the EC Authorisation Directive (Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services) must be observed. It states the following: " Member States shall, where possible, in particular where the risk of harmful interference is negligible, not make the use of radio frequencies subject to the grant of individual rights of use but shall include the conditions for usage of such radio frequencies

in the general authorisation." It has hitherto been RegTP's approach to assign frequencies ex officio as general frequency assignments whenever possible. Hence in the past general assignments were already issued for many radio applications (e.g. wireless microphones, Bluetooth, immobilisers, inductive applications, WLAN). In RegTP Official Gazette No. 14/2003 (Communication 193/2003) of 16 July 2003 explanations concerning the administrative practice of issuing general assignments were published. Transposition took place in RegTP Official Gazette No. 25/2003 of 17 December 2003 in which the newly established or revised general assignments wre published. In addition, certain old general assignments were abolished (see Official Gazette Orders 60 to 89). The complete text of these general assignments is retrievable from RegTP's web site.

Frequency assignments for innovative radio applications (experimental radio service)
On the basis of § 4(3) of the Frequency Assignment Ordinance frequencies are assigned for testing new technologies, research projects, complex radiocommunications networks etc.

These frequency assignments may diverge from the radiocommunications services/frequency applications in the Table of Frequency Allocations and the frequency usage plan but may not impair these services/applications. Such frequency assignments are hence the first step towards the introduction of new radio applications and new technologies. Focal points of current new developments are: UMTS base stations and terminals, WLAN products at 5 GHz, radar sensors in motoring technology (ultra wideband applications).

Broadcasting
The following frequency assignments were recorded in the broadcasting sector in 2003:

921	frequency assignments	for	VHF,
349	frequency assignments	for	HF,
23	frequency assignments	for	MF,
7.063	frequency assignments	for	TV,
748	frequency assignments	for	T-DAB,
113	frequency assignments	for	DVB-T.

Terrestrial digital sound broadcasting (T-DAB)
The continued increase in T-DAB frequencies illustrates the development in digital sound broadcasting. Already in 1999 RegTP and the competent federal state authorities initiated the transition to the regular operation of T-DAB. All in all, in the period 1998 – December 2003 1,301 frequency assignments were issued for regular T-DAB operation in the Federal Republic of Germany, of which 1,062 for regular operation.

Terrestrial digital video broadcasting (DVB-T)
In its Determination of 20 March 2002 (Administrative Order 6/2002) the President's Chamber specified key elements for the award of frequencies for DVB-T. In view of the notification of the nationwide coverage requirements of the federal states it is now possible to launch the frequency assignment pprocedure for the federal states of the Federal Republic of Germany on the basis of this Determination. Relevant coverage requirements have been submitted. Up to now it has been possible to successfully conclude nine frequency assignment proceedings of which five concerned the federal

state Berlin, three the federal state Brandenburg and one the entire Federal Republic of Germany.

Assignment of frequency applications for earth stations

With expiry of the transposition period for the EC telecommunications package of 24 April 2002 for the telecommunications sector by 24 July 2003 the licence obligation for the offer of satellite-based telecommunications services for the public (hitherto licence class 2) also ceases in Germany. According to the Authorisation Directive (Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services) frequency assignments should be pronounced where possible as general assignments in the satellite sector as well. Individual assignments for frequency applications are only permissible if needed to ensure interference-free and efficient frequency use. Ahead of this regulation RegTP had already issued a general assignment for Very Small Aperture Terminal (VSAT) applications in the frequency range 14.0 – 14.25 GHz exclusively allocated to satellite-based radiocommunications services in 2002. This general assignment covers terminals which operate with a maximum equivalent isotropically radiated power (e.i.r.p.) of 50 dBW (or a max. transmitter output power of 2 Watts) and which during transmit operation keep a minimum distance of 500 metres to airports. For frequency applications of earth stations in frequency ranges used jointly with other radiocommunications services (usually radio relay) or for earth stations in the vicinity of airports an individual assignment must still be issued in line with the EC telecommunications package. In these cases an individual frequency and location coordination procedure and in the vicinity of airports an examination of the compatibility of the location with the electronics on bord of aircraft needs to be carried out to ensure an interference-free and efficient coexistence of the different radio applications. In 2003 RegTP issued 191 individual assignments for transmitting earth stations. As a rule, these involved larger stations within the framework of point-to-point transmissions (e.g. for the forwarding of Internet traffic but also for transmission lines in crisis areas) and for feeding for nationwide distribution (e.g. for TV programmes).

Assignments for satellite networks

Satellite earth stations are often operated within networks. These usually include a large number of terminals the frequency use of which is primarily monitored and controlled by the network operator. The end customer (e.g. the user of a VSAT terminal) has no influence on the frequency-related technical properties of the terminal device. This suggests that the operator of the satellite network needs a frequency assignment for the frequency application of the overall system, hence also covering the operation of the terminals. Reg TP decided in 2003 to apply this approach in the case of the assignment of VSAT satellite networks as well. As a result, the existing VSAT general assignment was abolished with Administrative Order No. 60/2003, Official Gazette 25/2003. Individual VSAT earth stations can be operated on the basis of an assigned VSAT satellite network and frequency usage conditions without further assignment. The repeal of the VSAT general assignment does not affect the end user. However, the operators of VSAT networks require an assignment for the satellite network which comprises especially prerequisites as to international coordination of the satellite system and to the avoidance of aircraft interference. RegTP will publish the frequency usage conditions for VSAT earth stations and a list of assigned satellite networks in its Official Gazette and on its web site. This new satellite network assignment approach ensures that apart from interference-free and efficient frequency use, also the fees and contributions in Part Eleven of the Telecommunications Act (secrecy of telecommunications, data protection,

assurance) can be linked to the holder of the satellite network assignment. As such, a uniform procedure is achieved in relation to VSAT and S-PCS networks or other satellite-based networks. The procedure is also consistent with that associated with terrestrial networks (e.g. GSM) which likewise merely consists of an assignment to the network operator and dispenses with a general assignment for terminals. In addition, in 2003 RegTP issued further assignmenets for satellite networks. This case involved an assignment for the fleet management system of the company Space Checker and a data communications system on bord aircraft from the company Connexion by Boeing.

International registration and coordination of satellite systems
Furthermore, RegTP notifies German satellite systems to the International Telecommunication Union (ITU) in Geneva and takes care of the international coordination of the orbirtal and frequency usage rights. In this lengthy international coordination procedure RegTP represents German interests and contributes to the availability of frequencies and orbital positions for German users. Moreover, within the framework of the ITU procedures RegTP protects terrestrial radiocommunication services in the numerous frequency ranges used jointly with satellite communications.

In 2003 three new notifications were made to the ITU on Germany's behalf for the non-geostationary systems ATM-MEO, MAGNIFYING GLASS and RAPID EYE. These concern a project for a satellite-based air traffic management system and two earth observation satellite systems. One of the focal points of RegTP's activities continued to concern the German notification for the European radionavigation satellite system GALILEO.

Although Germany does not belong to the world's leading space nations RegTP takes care of numerous satellite notifications to the ITU for the most diverse projects of different firms, institutions and organisations. At present, in Germany's name there are 16 orbiting and 39 geostationary satellite network notifications. For these notifications, lengthy and ongoing coordination (lasting up to seven years) needs to be carried out to ensure availability and compatibility of the orbital and frequency usage conditions, followed by the need to protect existing notification rights over the entire lifetime of the system (often ten years). To this end in 2003 ITU Circular Letters contained 55 publications (a total of 880 pages) for 42 German satellite systems which were followed up by 303 coordination requests by foreign telecommunications administrations. To protect German satellite notifications and terrestrial services RegTP submitted 306 objections against foreign satellite systems.

Frequencies for authorities
Frequencies are also required by numerous authorities for ensuring their tasks. RegTP assigns frequencies to such users which include the public safety organisations, DFS Deutsche Flugsicherung GmbH, Wasser- und Schifffahrtsverwaltung, and the railways on the basis of the frequency usage plan and the Frequency Assignment Ordinance. Frequency applications of the Federal Ministry of Defence do not require a RegTP assignment in the exclusively military frequency ranges. In the civil or civil-military frequency ranges, however, a RegTP assignment is required for frequency applications of military users (Bundeswehr, Nato, foreign armed forces). The general security situation and the Bundeswehr's international orientation continue to give rise to a high frequency demand in the entire frequency spectrum. Especially for communication purposes off-the-shelf devices are increasingly being used in many frequency ranges for cost reasons.

In 2003 RegTP processed 76 frequency supportability inquiries of military authorities (Bundeswehr, Nato, foreign armed forces) and issued 343 frequency assignments (e.g. for visiting ships, manouvres, out-of-area deployments but also long-term applications) in civil frequency ranges. Inversely, in 2003 RegTP also coordinated numerous frequencies for civil users in military frequency ranges with the military authorities, e.g. for 175 amateur radio relay stations.

Short-term assignments
Short-term assignments are issued by RegTP within the framework of sports and cultural and other media events. These cases involve frequency assignments limited to a few hours or days. In this area the applicants are often from abroad and request frequencies which are earmarked for other purposes in Germany. In these cases RegTP examines whether short-term operation is nevertheless feasible without impairing other intended operations. In the case of events in areas bordering neighbouring countries these examinations can be quite comprehensive since coordination is then required with the neighbouring states.

In 2003 RegTP issued a total of 1,163 short-term assignments. These cases involved a total of 6,791 frequency applications in the most varied frequency ranges between 146 MHz to 22 GHz for 594 events. The majority of short-term applications were issued for racing events (e.g. Formula 1 and DTM), bicycle races and winter sport events. To ensure an interference-free and efficient frequency use RegTP attended some of these events armed with monitoring vehicles. Already in summer 2003 initial activities were launched by RegTP in preparation of queries concerning frequency use during the World Football Cup 2006 in Germany.

International frequency coordination in mobile communications
It is the goal of international frequency coordination to prevent the mutual harmful interference of radio stations and to optimise use of the frequency spectrum. Furthermore, all countries are to be given equal access to the frequency spectrum in border areas where possible. The arrangements for international frequency coordination in mobile communications are set forth in bilateral and multilateral agreements with neighbouring administrations. At a meeting in Berlin at the end of November 2003 parts of the Agreement between the telecommunications authorities of Austria, Belgium, the Czech Republic, the Federal Republic of Germany, France, Hungary, the Netherlands, Croatia, Italy, Liechtenstein, Lituania, Luxembourg, Poland, Rumania, the Slovak Republic, Slovenia and Switzerland on the coordination of frequencies between 29.7 and 39.5 GHz for the fixed service and the land mobile service were updated. This agreement sets forth the main prerequisites for the international frequency coordination for the fixed service and the land mobile service. The meeting had been preceded by various meetings of the technical subgroups whose work results were largely influenced by RegTP representatives. For mobile communications especially the calculation procedure used for the frequency coordination was adapted to new recommendations of the International Telecommunication Union (ITU). Furthermore, supplementary agreements were reached with some neighbouring countries for frequency sub-bands for mobile communications. For example, in 2003 the possibilities for frequency use by the public safety organisations in border areas were optimised within the framewok of bilateral coordination agreements with the telecommunications administrations of Poland and France. To make frequencies available for German users in border areas, it is often necessary to first send a request to at least one neighbouring administration; this applies correspondingly for frequency uses of neighbouring countries in their border

areas. Purpose of these requests is to ensure interference-free use of radio stations in the border area. In 2003 approximately 3,800 coordinations were carried out for German radio stations and about 2,300 coordination requests for foreign radio stations.

Professional mobile communications

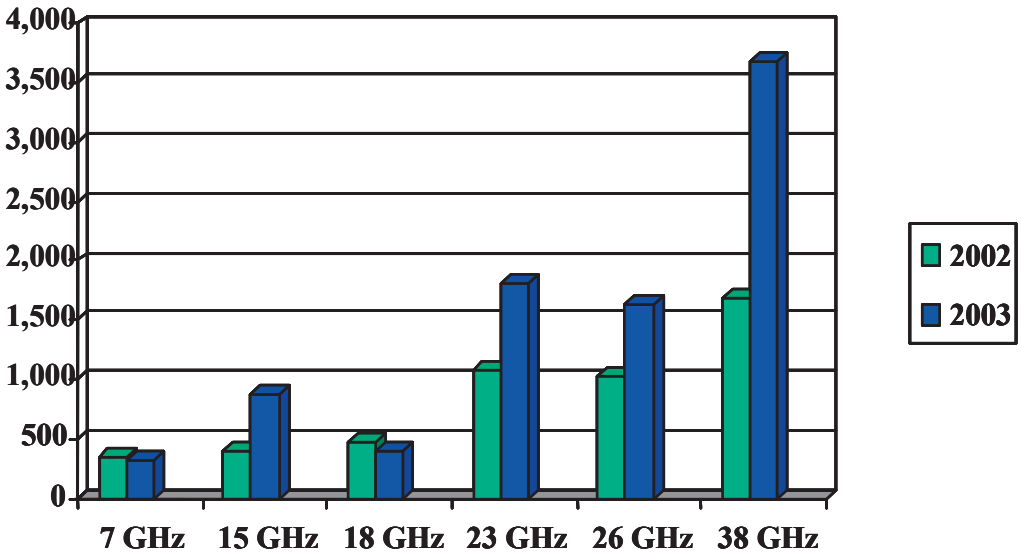
Professional mobile communications (PMR) consist of different non-public radio applications and is particularly characterised by the fact that it is tailored to the individual needs of the user and does not require an external network operator. PMR has hence consolidated its position as custom-tailored communications medium for the individual user requirements of closed user groups despite the steady expansion of public mobile communications. Conventional core of PMR is trunked radio which serves for the transmission of intra-company messages in the form of speech or data within a particular region, especially in the industrial and commercial sector, e.g. of industrial enterprisees, transport or transportation companies and in the administrative area such as that of communes and street maintenance offices. A special structure is that of the public safety organisations, e.g. the police, fire brigade and emergency services. Frequency assignment in this sector presupposes the consent of the competent supreme federal or state authority. Personal paging is also of greater importance. Another partial area of non-public mobile communications comprises mobile data and telecontrol (remote control of machines, remote data retrieval, traffic control systems, alarms). To ensure efficient and interference-free use of the frequencies usually assigned to PMR on a regional basis the frequency usage conditions and parameters relating to the individual case must be defined in the light of the relevant purpose of use and local criteria. In 2003 RegTP regional offices dealt with about 15,000 processes (especially new assignments, modifications, withdrawals and waivers) in the field of trunked radio. In the remaining field of non-public mobile communications, e.g. telecontrol, personal paging and radio microphones and radio equipment for driving instruction purposes, about 10,000 processes were dealt with.

The aforementioned processes concern analogue applications mainly in the 2-m band. Apart from these processes, an increase in the number of assignments for PMR networks with trunked radio/digital technology in the 70-cm band was observed during the period under review. In these instances larger networks are concerned, especially those of industrial enterprises or transportation companies and in the communal sector.

Point-to-point radio relay

The number of frequency assignment applications continued at a high level in 2003 as well. Decisive were the endeavours by companies to consolidate and expand telecommunications services and to carry out measures in the infrastructural sector of the UMTS/IMS-2000 mobile networks being established. As before, this yields a high frequency demand for point-to-point radio-relay links. The overall transmission capacity available in radio-relay networks has also continued to grow in 2003. At the end of the year 53,823 radio-relay links were in operation in Germany. For 9,966 of the radio-relay links frequencies were actually assigned in 2003.

Number of annual assignments 2002 - 2003



The figure clearly shows the substantial increase in new assignments in the higher radio-relay frequency ranges.

Point-to-multipoint radio relay for transmission lines in the infrastructural area of telecommunications networks

For the implementation of infrastructural transmission lines in telecommunications networks by point-to-multipoint radio-relay facilities, frequencies are available in part of the 26-GHz range. The frequencies can be used, for example, for the connection of base stations in mobile communications to higher-order network elements. In view of the extremely limited spectrum available these frequencies are not available for the provision of subscriber accesses. The frequency assignments apply for a specific area of operation in which the frequency may be used by an arbitrary number of radio installations. The planned taking into operation of the point-to-multipoint radio-relay facilities must be notified. About 100 new frequency assignments and more than 600 service notifications for already existing assignments were processed in 2003.

Point-to-multipoint radio relay for transmission lines in the infrastructural area of UMTS/IMT-2000 mobile communications networks

For the operation of the UMTS networks a considerable number of transmission lines are needed to interconnect the radio cells and network nodes. These transmission lines can be implemented by means of radio relay in the radio-relay frequency ranges between 7 and 38 GHz also used by other parties or by point-to-multipoint radio-relay facilities in the 26-GHz range. In view of the high demand anticipated, part of the 28-GHz range is also available exclusively for radio relay in the UMTS networks. For this application the frequencies are also assigned area-related, i.e. for a certain area of operation. The assignments justify the deployment of point-to-point radio-relay facilities and point-to-multipoint radio-relay facilities. By means of the type of assignment the licensees can rapidly and flexibly establish the requisite transmission lines in accordance with UMTS network roll-out. The first assignments have been issued.

International frequency coordination in radio relay
The guarantee of efficient frequency use in areas bordering neighbouring countries of the Federal Republic of Germany necessitates the coordination of these frequency applications with these countries. In 2003 7,237 coordination procedures were carried out for German frequency applications in border areas. During the same period responses had to be given to 4,278 coordination requests from neighbouring countries. In 176 cases the transmit and receive frequencies of earth stations in the fixed-satellite service had to be coordinated. The coordination requests of the operators in Germany and abroad were approved once the active and passive compatibility of the frequency applications with that of the radio-relay links operated in the same frequency ranges had been investigated. To simplify the coordination procedures for frequency applications in border areas further preferential frequency consultations were carried out with the neighbouring countries, especially for individual frequencies in the frequency ranges 3.5 GHz, 26 GHz, and 28 GHz.

Protection of radio-relay links
The question of the protection of radio-relay transmission lines in connection with the construction of building is gaining in importance. In 2003 280 information requests and requests for administrative assistance had to be processed. Of these requests, about 80 per cent were related to the planned installation of wind turbines for the generation of alternative energy (more than 500 windmill contruction plans were checked) whereas about 20 per cent were submitted to prevent interference to the operation of radio installations by various construction projects.

Operator's certificates and call sign allocations
In the case of the aeronautical service and the amateur service, participation in the radio communications calls for special knowledge. To this end RegTP carries out special examinations and certifies the evidence of the necessary knowledge by issuing operator's certificates. In 2003 approximately 7,000 Flight Radiotelephony Operator Licences and about 1,900 amateur radio licences were issued. For participation in the amateur service, admission with a personal call sign allocation is needed. The number of admissions and the other call signs allocated for other purposes in the amateur service is shown in the Table below (as of 31 December 2003):

Class	No. of admissions to participation in the amateur service	Number of further call sign allocations				Total no. of allocated call signs
		club stations	relays/beacons (incl. experimental ones)	special allocations § 16 Amateur Radio Ordinance	trainee radiocommunications	
1	2	3	4	5	6	7
1	42,010	2,321	30	19	706	45,086
2	30,887	155	1,037	1	102	32,182
3	5,410	17	8	1	63	5,499
Total	**78,307**	**2,493**	**1,075**	**21**	**871**	**82,767**

Technical regulation telecommunications

The rapid development of information and communications technologies and the electronic media has an impact on the economy, the labour market, society, education, culture, politics and democracy. The increasing functionality of devices and networks and the increasing interrelationship between the most diverse applications entail substantial changes and open up considerable opportunities. One of the prerequisites of the information society in technological respect is the convergence of basic technological areas. Through computing, telecommunications, audio, video, optical fibre cables, satellites, the increasing commercialisation of the electronic media, flexible network structures and modems for remote data transmission it is possible to control information worldwide. These technologies may describe trends but cannot furnish adequate information about the communications society of the future. Current and future developments are driven by market forces. The requirements and tasks of technical regulation change as a result of the increasingly complex technologies, communication is becoming faster and more important every day. The functioning of critical infrastructures such as power supply, telecommunications, banking, emergencies and rescue services, water supply, etc. is to an increasing degree dependent on the supporting information and communications systems. Hence standards and recommendations emerge for the monitoring of technical aspects and for ensuring the interconnection and interoperability of networks since the borderlines between the telephone and the computer on the one hand, and between speech and data communication on the other are gradually disintegrating. It is certain, though, that the information and communications technologies are encouraging a structural change in the economy and society which will continue to become more dynamic.

Participation in national and international bodies
The activities of members of RegTP's Technical Regulation in national and international bodies currently focus particularly on the convergence of media, Software Defined Radio, satellite communications, radio compatibility, security in telecommunications, communications in emergencies, recognition of conformity assessment bodies, market surveillance under the Electromagnetic Compatibility Act and the Radio and Telecommunications Terminal Equipment Act, customer protection and quality management.

While observing German regulatory rules, RegTP members accompany and compile standards and recommendations in working group of, for example, the Commission of the European Union, ITU (International Telecommunication Union), CEPT (European Conference of Postal and Telecommunications Administrations), ETSI (European Telecommunications Standards Institute), ISO/IEC (International Organization for Standardization), IMO (International Maritime Organisation) and ICAO (International Civil Aviation Organization), and ensure a balance of interests between industry, users and regulatory rules.

During the period under review, RegTP members were active in 29 Project Teams or working groups of the European Committee for Electronic Communication (ECC) of the CEPT, in 45 bodies within the radiocommunications sector of the ITU, in 13 bodies within the telecommunications standardization sector of the ITU, in 7 other ITU bodies (e.g. TSAG), in 68 bodies within ETSI, including the Board and 3GPP, at 22 international meetings (e.g. TCAM, EU Workshops) and at 100 national meetings

(e.g. PLT, radio compatibility). On RegTP premises a total of 30 international meetings took place, attended by participants from 30 countries.

Product testing on the German market under the Electromagnetic Compatibility Act and the Radio and Telecommunications Terminal Equipment Act
Under its legal mandate RegTP carries out tests on electronic equipment on the market. Basis for this product testing are the EMC Directive 89/336/EEC and the Directive on radio equipment and telecommunications terminals 1999/5/EC and their transposition into national law by the Electromagnetic Compatibility Act and the Radio and Telecommunications Terminal Equipment Act of 31 January 2001.

Annually about 65,000 product types with a total of 250 m devices and components with electric or electronic elements are placed on the German market. This volume corresponds to a market share of about 30 per cent of the European Economic Area (EEA). RegTP checked conformity with the CE marking obligation, the plausibility of the EC declarations of conformity, adherence to the EMC protection requirements, conformity with the essential requirements of the RTTE Directive and the data on the intended operation and possible operating restrictions in the case of radio equipment and telecommunication terminals.

Within the framework of market surveillance under the Electromagnetic Compatibility Act and the Radio and Telecommunications Terminal Equipment Act RegTP registered a total of 17,382 market surveillance activities in the year 2003. 13,108 devices were measured or subjected to a visual inspection. This figure splits up into 10,743 devices subject to the EMC Directive and 2,365 devices subject to the RTTE Directive. In 2003, for the first time adherence to the essential requirements under § 3(1) of the Radio and Telecommunications Terminal Equipment Act (device and product safety aspects) was verified.

Distribution of market surveillance activities among product groups EMC Directive (10,743 products)

Household appliances	23 %	2,553 products
Power tools	15 %	1,641 products
Lighting equipment	15 %	1,603 products
Information technology equipment and office machines	18 %	1,884 products
Consumer electronics	16 %	1,676 products
Medical, scientific and industrial equipment	6 %	615 products
Other products	7 %	771 **products**

RTTE Directive (2,365 products)

Telecommunications terminals	28.79 %	681 products
Radio equipment	56.75 %	1.342 products
Combined devices under the Radio and Telecommunications Terminal Equipment Act	14.46 %	342 products

As far as CE marking and the declarations of conformity were concerned, in the case of 342 devices, i.e. in 3.2 per cent of the tested products, shortcomings under the EMC Directive and in the case of 657 devices, i.e. 27.78 per cent of the tested products, shortcomings under the RTTE Directive were identified. All in all, in these tests 7.62 per cent of the tested devices were faulty.

As regards the verification of the marking, declarations of conformity and documentation accompanying the products, RegTP's market surveillance took part in the European market surveillance campaign under the RTTE Directive. 100 products were observed and shortcomings noted in 53 per cent of the products.

1,250 series and 226 individual devices were measured. 379 series and 47 individual devices were faulty, i.e. 30 per cent of the tested series and 21 per cent of the individual devices did not conform to the EMC protection requirements or the essential requirements in the Radio and Telecommunications Terminal Equipment Act. Sampling among the products on the market is based on the availability of the product groups on the German market. The groups are established in accordance with the relevant standards or national test specifications.

Also in 2003, for the assessment of the adherence to the protection requirements under § 3 of the Electromagnetic Compatibility Act and § 3(1) item 2. of the Radio and Telecommunications Terminal Equipment Act a stepped procedure was applied, thereby ensuring a more qualified monitoring of the infringements of the Electromagnetic Compatibility Act. At first, a hearing is conducted. It is only after the hearing and the comprehensive review of the documentation that the decision is taken on the administrative act to be applied, e.g. a marketing ban or another action.

It was therefore possible to differentiate the reimbursement of expenses in line with the EMC/FTE Cost Ordinance. In the course of 2003, 232 marketing bans were pronounced in accordance with the Electromagnetic Compatibility Act and 296 marketing bans in accordance with the Radio and Telecommunications Terminal Equipment Act as a result of non-adherence to the protection requirements/essential requirements or because of faulty marking. Of these, so far four marketing bans under the Electromagnetic Compatibility Act and 120 marketing bans under the Radio and Telecommunications Terminal Equipment Act led to initiation of a safeguard clause proceeding.

Overview of the measurements
Evaluation serial measurements

View of the individual product groups					
Product group	No. of measured series	No. of measured devices	No. of faulty series	No. of faulty devices	Quota series
Household appliances	129	447	24	87	19 %
Power tools	188	724	41	162	22 %
Lighting equipment	223	880	108	414	48 %
Information technology equipment/office machines	227	782	53	213	25 %
Consumer electronics	213	706	32	128	17 %
Telecommunications devices	90	314	29	114	36 %
Radio devices	133	519	54	213	41 %
Industrial equipment	43	158	25	96	58 %
Medical devices	1	5	0	0	0 %
Scientific devices	6	23	2	8	33 %
Installation accessories	39	140	11	41	28 %
Other	4	16	0	0	0 %
Combined devices under the Radio and Telecommunications Terminal Equipment Act	8	32	0	0	0 %

✷ As a rule, five devices of a series are measured.

Evaluation measurement of individual devices

View of the individual product groups					
Product group	No. of processes	No. of measured devices	No. of faulty processes	No. of faulty devices	Quota devices
Household appliances	62	63	8	8	13 %
Power tools	3	3	0	0	0 %
Lighting equipment	2	4	1	2	50 %
Information technology equipment/office machines	47	50	17	18	33 %
Consumer electronics	9	12	1	2	17 %
Telecommunications devices	10	10	0	0	0 %
Radio devices	1	1	0	0	0 %
Industrial equipment	8	8	3	3	38 %
Medical devices	1	1	1	1	100 %
Scientific devices	16	16	1	1	6 %
Installation accessories	36	37	7	7	19 %
Other	1	1	0	0	0 %
Combined devices under the Radio and Telecommunications Terminal Equipment Act	**0**	**0**	**0**	**0**	**0 %**

Protection of radiocommunication services

Prior to the introduction of new radiocommunications services RegTP must basically verify compatibility with other services. This is to ensure that the new service does not

impermissibly interfere with applications hitherto used and on neighbouring frequencies on the one hand, and that the other radiocommunications services do not interfere with the new radiocommunications service to an unreasonable degree. These tasks were yet again carried out in 2003 in close cooperation with other international administrations, the developers and potential operators of the new technologies. Hence the interests of radio compatibility were represented by RegTP in various international bodies of CEPT ECC SE (Spectrum Engineering) and of the International Telecommunication Union (ITU).

The year 2003 was an important one for the large-scale introduction of Wireless LAN systems in the 5-GHz range. Owing to the special circumstances in the frequency range between 5150 - 5725 MHz it was necessary to define technical parameters for WLAN applications in order to be able to continue guaranteeing compatibility with other radio systems. As soon as it was possible to internationally specify requisite techniques such as Dynamic Frequency Selection (DFS), Transmitter Power Control (TPC) and restrictions on indoor or outdoor use within the ITU in a recommendation in June 2003, planning security for the global use of WLAN was assured.

Intensive compatibility analyses with a view to the future introduction of various UWB (Ultra Wideband) applications for communications purposes (3 - 10 GHz) or radar applications to avoid motorcar collisions (Short Range Radar) in the 24-GHz range were internationally pushed ahead in 2003. As such, the decisive prerequisites were established for the introduction of these innovative radio technologies in Germany on a long-term basis.

Numerous new studies were also carried out in conjunction with mobile communications. It was possible to make progress with various compatibility analyses of future frequency ranges for UMTS and other neighbouring radiocommunications services. Further reports examining the compatibility of new technologies such as Wideband CDMA in the surroundings of other radiocommunications services were presented internationally.

As has already been known for quite some time, radiocommunications services can also be affected by unintentional radiations from cable installations and power lines. This radiation issue is becoming more significant with the increasing use of DSL (Digital Subscriber Line) or the introduction of PLT. It was possible to complete various compatibility analyses in 2003 and the results must now be incorporated in a European EMC standard. At the same time, it will be necessary to take into account national decisions such as the agreed protection requirements applying to broadband cable installations to protect radio applications of the public safety organisations and in aeronautical radio in the frequency range 5 - 30 MHz.

Standardisation in the field of electromagnetic compatibility (EMC)
RegTP's activities in 2003 in the international and national standardisation bodies were marked by endeavours to introduce limits for the permissible emissions of devices, systems and also installations in the frequency range above 1 GHz. For industrial, scientific and medical (ISM) devices, IT equipment, telecommunications devices and for the EMC generic standards on unwanted emissions RegTP's experts submitted their own justified proposals which met with recognition in the relevant bodies. Here, it will be necessary to further consolidate the positions in the interest of radiocommunications

users. The work on the introduction of radiation limits in the relevant standards EN 61000-6-3, EN 55011 and EN 55022 is still continuing.

As far as the electromagnetic compatibility of mobile radiocommunications equipment for use in motor vehicles is concerned, RegTP had endeavoured to achieve the disentanglement of the overlapping areas in the RTTE Directive 99/5/EC and the Motor Vehicle Directive 95/54/EC. Here, the EMC conformity assessment processes under the RTTE Directive compete with the EMC type test under the Motor Vehicle Directive. The activities aimed to achieve a European stable and above all transparent arrangement for EMC conformity assessment in which – at best on the basis of a modified Motor Vehicle Directive - it is possible to avoid duplicate EMC testing of radio equipment.

With RegTP's participation, in spring 2002 the draft for a European EMC standard on permissible unwanted emissions from telecommunications networks and facilities was elaborated within a joint ETSI/CENELEC working group under mandate M/313. The primary application of this standard was initially seen in the processing and elimination of radiated disturbance but since September 2002 the goal has been to establish an EMC standard which is suitable for verifying, inter alia, the presumption of adherence of a telecommunications network or telecommunications facility with the protection requirements of the EMC Directive. The European EMC standard being drafted will hence resemble an EMC conformity standard similar to those hitherto available for products intended for free trade within the common market. Since September 2003 a first complete draft has been available laying down the limits and measurement methods for permissible unwanted emissions from telecommunications networks and faclities. However, it has not yet been possible to achieve agreement within the group on the limits to be included in the draft. The goal is to have the limits in Usage Provision No. 30 (NB 30) in the Table of Frequency Allocations incorporated in the standard. It is assumed that this approach will allow the electromagnetic environmental conditions currently prevailing in operational reality to be mirrored to a satisfactory degree.

Counselling on the application of EMC standards

Also in the year 2003, questions regarding rapid and expert counselling of internal and external customers on the application and interpretation of EMC standards, the Electromagnetic Compatibility Act, the Radio and Telecommunications Terminal Equipment Act, the Telecommunications Act and the relevant European Council Directives constituted a focal point of the work carried out. It was possible to answer most of the enquiries over the telephone, by e-mail or received in writing expertly within a few days to the full satisfaction of customers. In case of complex problems endeavours were made to discuss the matter with the expert groups of the Deutsche Elektrotechnische Kommission (DKE) and solutions and interpretations were found in cooperation with industry representatives. For the assignment of frequencies for the operation of industrial, scientific and medical (ISM) RF applications as prescribed by the Telecommunications Act, proposals for supplementing existing ordinances having the force of law were elaborated. The implementation of these proposals is now scheduled for 2004.

Electromagnetic fields (EMF)/EMF measurements

The Ordinance on the Verification of the Limitation of Electromagnetic Fields has been in force since August 2002. Under § 13 of the Ordinance on the Verification of the Limitation of Electromagnetic Fields the functionality of the location procedure must be

documented by RegTP by regular EMF measurements. To this end RegTP established a measurement specification which was discussed with the Ministries for the Environment of the federal states. With this joint measurement specification a uniform quality standard was introduced in Germany for EMF measurements. Measurements meeting this quality standard are now comparable and meet both European and national requirements.

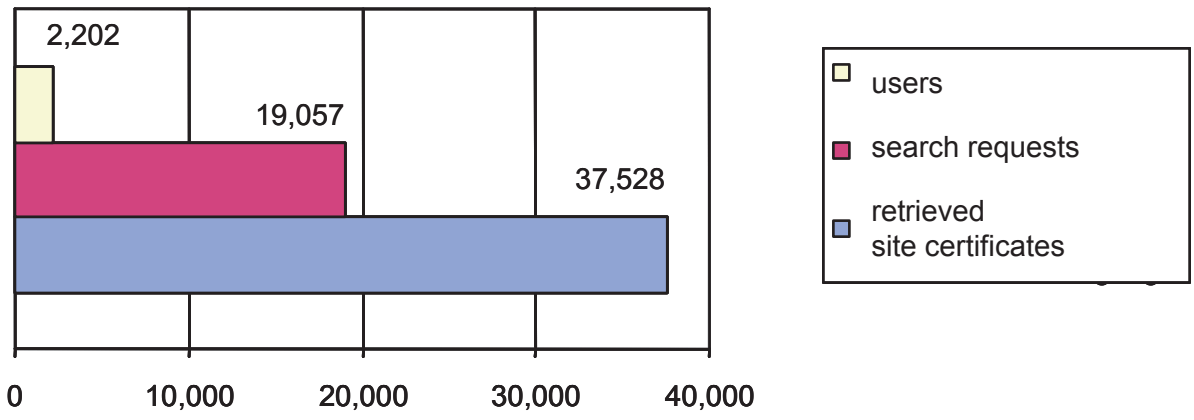
In 2003, EMF measurements were carried out in accordance with the measurement specification agreed with the Ministries of the Environment of the federal states at more than 2000 locations. Half of the measurement locations are selected by the federal states, the other half by RegTP.

RegTP determines the measurement locations in accordance with the following criteria:

Vicinity to stationary radio installations (e.g. broadcasting transmitters, private mobile radio (PMR) sets, mobile radio installations, etc.); public ways and squares; areas of particular interest (e.g. Kindergardens, schools, hospitals, etc.); measurement locations at which in the course of previous RegTP measurements a comparatively high rate of agreement with the limits was discerned (this applies especially for the measurement locations within the immediate vicinity of broadcasting transmitters). The locations selected by the Ministries for the Environment of the federal states were incorporated unchanged in RegTP's EMF measurement campaign. Each measurement location in the campaign with the evaluated measurement result is input into RegTP's database and is hence available to the interested public via the Internet (http://www.regtp.de).

Municipal location database
Since 20 June 2002 federal state authorities and municipal authorities have access to a password-protected RegTP location database. This database contains the locations of operational radio installations for which RegTP has issued a site certificate. More than 52,000 locations are registered. For this database RegTP was awarded the BundOnline-Star in the category „Government-to-Government" by the Federal Ministry of the Interior in October 2003.

Municipal location database



Cartographic EMF database of RegTP
At the federal government's behest, which is thereby obeying a Bundesrat recommendation, and as a result of a coalition agreement, RegTP's operational, password-protected location database is now freely accessible to the public, due account being taken of data privacy-related issues and of operating and trade secrets. The opening of this database is also intended to ensure compliance with the requirement under the Environmental Information Act under which the interested public is to be supplied with information about environmental data. The transparency generated in this way is intended to render the discussion about biomedical effects more factual and to increase the acceptance of modern communications networks.

The EMF database consists of two parts. On the one hand it contains the locations of fixed radio installations which require an operational authorisation by RegTP called a "site certificate". On the other, the database contains the places at which measurements were carried out to determine whether the limits applicable for the protection of people against electromagnetic fields are met. For each registered place it is possible to open a window containing information about the fixed radio installations or information about the EMF measurements performed.

Recognition of conformity assessment bodies (CAB)
With the entry into force of the Functions Assignment and Recognition Ordinance of 7 June 2002 RegTP was tasked with the recognition and functions assignment of conformity assessment bodies (CABs) in the following sectors: radio installations, telecommunication terminals and electromagnetic compatibility (EMC).

Recognition of notified bodies under the FTEG
RegTP is responsible for the recognition of notified bodies under Directive 1999/5/EC (RTTE Directive), transposed in Germany by the Radio and Telecommunications Terminal Equipment Act in conjunction with the Functions Assignment and Recognition Ordinance of 7 June 2002. At present, six notified bodies have been recognised under the Radio and Telecommunications Terminal Equipment Act which are continuously being monitored.

Functions assignment of notified bodies and recognition of competent bodies under the Electromagnetic Compatibility Act
RegTP is also responsible for the functions assignment of notified bodies and for the recognition of competent bodies under Directive 1989/336/EEC (EMC Directive), transposed in Germany by the Electromagnetic Compatibility Act in conjunction with the Functions Assignment and Recognition Ordinance of 7 June 2002. At present, functions have been assigned to four notified bodies under the Electromagnetic Compatibility Act and 20 competent bodies have been recognised under the Electromagnetic Compatibility Act which are continuously being monitored.

Third Country Agreements (MRAs)
Another executive task under the aforementioned Functions Assignment and Recognition Ordinance concerns the recognition of CABs for third countries. With a view to improving international economic cooperation several agreements on the mutual recognition of CABs (Mutual Recognition Agreements - MRAs) were signed between the EU and third countries. The mutual recognition of CABs has the effect that a country carries out procedures in accordance with the rules of the other country within its own national borders and that the other country recognises the procedure as though it had

carried it out itself. RegTP carries out conformity assessment procedures on the basis of the legal basis valid in the third countries. Agreements exist with the following third countries: USA, Canada, Australia, New Zealand, Japan and Switzerland. All in all, 20 bodies have been recognised as CABs under the MRAs.

Certification of quality systems
RegTP certifies quality systems on the basis of the DIN EN ISO 9000 series of standards in the legally regulated area of telecommunications. With entry into force of the Radio and Telecommunications Terminal Equipment Act and the resultant expiry of the Functions Assignment and Accreditation Ordinance of 10 December 1997 on 6 April 2001 accreditation for the certification of quality systems in the legally regulated area of telecommunications was abolished. In pursuit of the defined goal that the state is only to be active in those areas for which a legal mandate exists, RegTP decided to carry out only those activities after this date for which contractual arrangements exist in the area of certification on the basis of the DIN EN ISO 9000 standards. With the expiry of these contracts in April 2004 the certification authority will discontinue its work.

Basic legal and economic telecommunications issues
Work on technical regulation issues calls for the interdisciplinary cooperation between engineers, legal experts and economists to be able to find adequate solutions. To enable this internal cooperation and to be able to deal with the legal and economic aspects of technical regulation in depth, the basic section „Telecommunications Legislation and Economic Aspects in Respect of Technical Telecommunications Regulation“ was created. This Section targets future-oriented regulatory issues and accompanies the work of other technical regulation sections whenever regulatory questions dominated by legal or economic aspects arise. In 2003 this led to the following key activities:

- continued legal support regarding the implementation of the provisions of the Ordinance on the Verification of the Limitation of Electromagnetic Fields in the site certificate procedure for the planning and establishment of mobile radio transmit facilities;
- supervision in relation to legal questions concerning electromagnetic compatibility, especially of telecommunications systems and networks;
- legal evaluation of the questions arising in connection with the application of the Telecommunications Customer Protection Ordinance regarding billing accuracy and the elaboration of forward-looking concepts ensuring and supporting such accuracy;
- evaluation of legal questions regarding RegTP activity in the field of German accreditation;
- coordination of the views on issues relating to technical regulation in the draft telecommunications bill and associated ordinances;
    - Article 18 of the new Framework Directive contains a provision on the development of open and interoperable standards for interactive digital television in Europe -
- observation of, and participation in, the activities at European level serving the implementation of Article 18 of the Framework Directive;
- initiation of an examination of regulatory questions arising in connection with Next Generation Networks (NGN) and participation in the development of minimum

specifications for dial-up programmes for value-added service numbers within the implementation of § 43b of the Telecommunications Act.

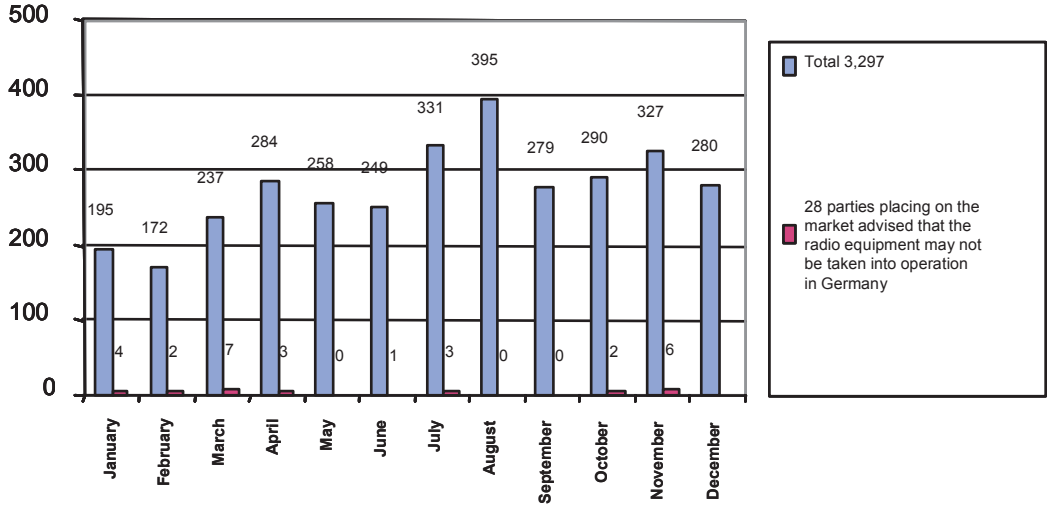
Radio and Telecommunications Terminal Equipment Act
The Radio and Telecommunications Terminal Equipment Act which came into effect on 8 February 2001 represents the transposition of Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (RTTE Directive) into German law. The experience gathered to date with this Act are largely positive. Owing to the abolition of the cost-intensive authority approval procedure for equipment within the purview of the Radio and Telecommunications Terminal Equipment Act both manufacturers and parties placing on the market can benefit from a significantly accelerated time to market of new and also innovative products. However, manufacturers and parties placing on the market in the non-EC zone but also in the EC area still have numerous questions needing clarification regarding the procedure for the placing on the market of radio equipment and telecommunications terminals. The information hence placed on RegTP's web site for the public in the form of answers to frequently asked questions concerning the application of the Radio and Telecommunications Terminal Equipment Act is therefore still being used in the course of numerous contacts and provide proof of a continued high degree of interest on the part of the public in this information. The e-mail adress FTEG@regtp.de specially created to deal with questions about the application of the Radio and Telecommunications Terminal Equipment Act was also used very intensively. More than 200 queries in connection with the application of the Radio and Telecommunications Terminal Equipment Act were answered usually at short term in 2003. The circle of inquirers focused primarily on manufacturers and parties placing on the market from the EC area and from overseas (Taiwan, Korea, China, USA) but also included private parties in Germany.

The experience collected with the application of the Radio and Telecommunications Terminal Equipment Act (and hence the RTTE Directive) were presented to the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM) established by the Commission within the framework of the Directive and are incorporated in the decisions made by this Committee in conjunction with all Member States. Owing to active participation in the ADCO Group (Administrative Co-operation Group) by the Member States on the RTTE Directive, established with the Commission's support to ensure uniform interpretation and application of the Directive within the Community, it was possible to solve most problems arising in connection with the uniform application of the Directive. In this context the organisation and coordinated execution of a Community-wide market surveillance campaign (with the participation of the acceeding countries) should be noted which revealed some of the problems with the application of the RTTE Directive.

Notification of the placing on the market of radio equipment operating on frequencies the use of which is not harmonised within the Community
Manufacturers of radio equipment or parties placing such products on the market which operate on frequencies the use of which is not harmonised within the Community need to inform the national authority responsible for frequency management in the relevant Member State at least four weeks in advance of the intended placing on the market in accordance with § 10 (4) of the Radio and Telecommunications Terminal Equipment Act

(or Article 6(4) of the RTTE Directive). In the Federal Republic of Germany RegTP is the responsible authority. Notification of the placing on the market serves to ensure the efficient use of the frequency spectrum. RegTP furnishes manufacturers or parties placing on the market with explanatory notes about the type of frequency assignment possibly needed for the operation of the radio equipment and possibla also about existing restrictions on frequency use in Germany. The number of notifications received in 2003 averaged about 275 per month and hence rose about 45 per cent compared with the previous year (on average 190 per month). This points to the constantly rising potential of new radio applications especially in the field of Bluetooth and WLAN in the 5-GHz range for which Germany is a substantial market. A sample of the notification form in German and English can be downloaded from RegTP's web site http://www.regtp.de/tech_reg_tele/start/fs_06.html.

Statistics of incoming notifications under § 10 (4) of the Radio and Telecommunications Terminal Equipment Act and Art. 6(4) of the RTTE Directive in 2003



Interfaces at public telecommunications networks

Operators of public telecommunications networks are obliged under § 5 of the Radio and Telecommunications Terminal Equipment Act to reveal their network access interfaces. This obligation is met when RegTP is notified of the source for obtaining the interface specifications or their references so that publication in the RegTP Official Gazette is possible. Purpose of the revelation is to enable manufacturers to design telecommunications terminals capable of using all the services offered by the interface and to enable all tests pertaining to telecommunications terminal as regards the interface-oriented essential requirements to be carried out. Examples for interface specifications may be found at http://portal.etsi.org/Portal_Common/home.asp .

A compilation of the references published to date in the RegTP Official Gazette can be viewed on RegTP's web site under http://www.regtp.de/tech_reg_tele/start/fs_06.html .

Overall, about 1,000 descriptions of network access interfaces have been presented to RegTP by public telecommunications network operators to date. Direct access possibilities to the interface descriptions via download over the Internet are offered by about 20 per cent of the network operators.

Digitisation of VHF and TV receivers
Whereas even a short time ago the view prevailed that the conventional VHF receiver and analogue TV receiver would continue to dominate consumer electronics for some time to come, the digitisation of sound and images is constantly gaining ground. Video recorders are fitted with IEEE-1394 interfaces, TV receivers are equipped with slots for storage media enabling the reproduction of photographs, satellite receivers can be supplied with a new operating system via serial interfaces. All of these underline the need for a new standard for these equipment categories which lays down the limits for spurious radiation and immunity. Up to now, multimedia devices must adhere to the consumer electronics standards (EN 55013/EN 55020) and the IT standards (EN 55022/EN 55024) which implies increased testing and a greater number of measurements. As a result, at international level effort is being invested at the standardisation body CISPR in the development of a multimedia standard. To this end, the appropriate German bodies of DKE UK 767/15 and UK 767/17 – RegTP is represented in both of them – present proposals. In parallel to these endeavours, work is being continued on existing standards. At the last annual CISPR meeting in September 2003 Germany submitted various applications for the removal of inaccuracies and mistakes in the standards which are now being incorporated by a CISPR working group. This will increase the comparability of measurement results which again is an important basis for market surveillance.

Broadcasting transmitters
RegTP was also involved in the creation of harmonised standards for broadcasting transmitters in 2003. In two ETSI working groups draft standards were established for terrestrial analogue and digital sound and television broadcasting transmitters. The contents of these standards basically focus on the essential requirements under Article 3.2 of the RTTE Directive, i.e. the protection and effective use of the frequency spectrum. Adherence to these requirements is a prerequisite for the placing on the market and putting into operation of radio equipment. Draft standards for T-DAB, DRM, DVB-T transmitters will probably be published in autumn 2004.

Cable television networks
Compared with the previous year, the year 2003 has seen progress being made with the expansion of the cable TV networks into interactive broadband networks. The huge success of the introduction of DVB-T in the densely populated region Berlin Potsdam has indirectly contributed to this. In this region the complete transition to digital terrestrial television was completed on 4 August 2003 which means that analogue terrestrial TV coverage was no longer available after this date. The number of DVB-T boxes which have meanwhile been sold, viz. approximately 180,000, underlines the success of the transition to digital TV. Numerous cable TV network operators, especially city carriers, now offer digital programme packages and partly also high-speed Internet access („Fast Internet“) via return channels. Offers in line with requirements and a rapid provision of new programme contents have increased consumer acceptance.

Furthermore, RegTP activities focus on ensuring the electromagnetic compatibility in the case of joint frequency use between cable TV networks and the radiocommunications services in accordance with the specifications in NB 30. RegTP representatives have cooperated in a range of different bodies, working groups and committees or have chaired them. Within the working group „Signalübertragung in Rückkanälen“ chaired by RegTP in which the operators of cable TV networks and safety-related radiocommunication services were represented, comprehensive measurements were

carried out on equipment of safety-related radiocommunication services in the frequency range 5 MHz to 30 MHz (e.g. receivers used by the public safety organisations, HF aeronautical service receivers and ground stations for aeronautical service receivers) and evaluated with the aid of different interference models. As a result it was determined that the limits in Table 1 in NB 30 can be retained for frequencies between 15 MHz and 30 MHz. For frequencies from 5 MHz to 10 MHz, however, they must be lowered by 10 dB and for frequencies between 10 MHz and 15 MHz by 5 dB in order to protect the safety-related radiocommunication services.

At the same time comprehensive measurement campaigns were carried out on open area test sites (OATS) to check the shielding quality of coaxial cables available on the market and to determine whether they meet the aforementioned limit requirements. All in all, more than 2,000 measurements were carried out on five types of coaxial cable. Inter alia, it was noted that commonly available class A coaxial cables adhere to the necessary surface transfer impedance for frequencies below 30 MHz of Z_t = 5 mΩ/m.

Ultra wideband radio applications
In the course of the year 2003 ETSI, actively supported by RegTP, was able to complete the requisite technical system descriptions for new innovative ultra wideband applications. These applications include new broadband communications applications for the home and office and new types of anti-collision radars for the automobile industry in which especially German industry is particularly interested. The European Commission has issued a special mandate for this work as well as subsequent standardisation activities.

Wireless Local Area Network (WLAN)
Mid-2003 the harmonised ETSI standard for radio installations for broadband transmission within local networks within the frequency ranges 5150 - 5350 MHz and 5470 - 5725 MHz was completed. In conjunction with the primary frequency assignment for mobile radio equipment in the 5-GHz range as decided at WRC-03 this standard forms the basis for the 5-GHz technology steadily gaining ground on the world market. To ensure the implementation of the necessary requirements within the framework of the RTTE Directive RegTP tests samples of equipment newly on the market. It is the goal of these tests to remove equipment likely to cause interference to military radars to be protected from the market as early as possible. By the end of 2003 the question regarding the extent to which the use of ad-hoc networks supplementary to infrastructure networks should be enabled is to be examined. In parallel to the publication of the general frequency assignment for WLAN radio installations in the 5-GHz frequency range in the RegTP Official Gazette of November 2002, an interface description for radio equipment for broadband data transmission within local networks in the frequency ranges 5150 - 5350 MHz and 5470 - 5725 MHz was compiled and sent to the European Commission for notification.
Final notification is expected to take place soon after the consultation procedure.

Emergency calls
The current drafts of the Telecommunications Act (cabinet version) and the Telecommunications Emergency Call Ordinance envisage the elaboration of a Technical Directive by RegTP in cooperation with the associations, the representative for emergency call answering positions, network operators and manufacturers appointed by the Federal Ministry of the Interior. In the Technical Directive the technical, operational and organisational details resulting in future from the Telecommunications Act and the Telecommunications Emergency Call Ordinance are to be laid down. Within the framework of the preparatory work for the Technical Directive to be established by RegTP discussions were held to gain a first overview of the current technical, operational and organisational status quo and to be in a better position to estimate the possible emergency call requirements deriving from the drafts of the Telecommunications Act and the Telecommunications Emergency Call Ordinance.

Reconfigurable radio systems/Software Defined Radio (SDR)
Future radiocommunications systems will no longer consist of a single system but will support a whole range of different systems and services through selection options. In line with its plans, in 2003 RegTP carried out a public enquiry on SDR in relation to the RTTE Directive. The first findings are as follows: In principle, no restrictions are imposed by the software on the possibility to implement the features. It is a matter of time and money. In the near future a vertical SDR market is anticipated. SDR will presumably first be implemented for handset updates, error correction and WLAN, and in UMTS/IMT 2000 base stations. To create a horizontal market, the RTTE Directive must be supplemented. By way of example, in this connection manufacturers would need to be asked to reveal their internal interfaces.

Timescale for the introduction of SDR
In the case of base stations used for the UMTS/IMT 2000 infrastructure, the introduction will take place very soon, this likewise applies to WLAN. For applications in the automobile industry, the launch is expected between 2005 and 2007. Here, the broadcast standards for cars will be combined with SDR. An early standardisation of SDR systems is absolutely vital, especially for the specification of security mechanisms. For SDR devices with open interfaces there is a need for standardisation; especially for download mechanisms, authentication of software modules, and for open interfaces. In a vertical market it should be ensured that the devices do not accept unauthorised software. For radio parameter software initially only a vertical market should be possible.

For the creation of a horizontal market active regulatory specifications are needed. It would also be possible to restrict software deployment in the horizontal market to applications and services without the authorisation to modify the radio parameters.

In the TCAM Group on SDR (TGS) chaired by Germany, the EU Member States do not yet have a unanimous view on the regulatory aspects for SDR under the RTTE Directive. For this reason a pan-European TCAM survey was carried out in the third quarter 2003 on the basis of the questionnaire drawn up by TGS. The responses received were discussed by TGS at the beginning of 2004. Based on these discussions TGS will compile a report for TCAM containing a recommendation on the scope of regulation of SDR devices in relation to the RTTE Directive. The research project Smart user-Centric cOmmUnication environmenT (SCOUT) in which RegTP has taken part since 2002, will discontinue its work at the end of March 2004. Inter alia, a report will be compiled on the regulatory aspects of SDR devices in relation to the RTTE Directive. At

the European industry's suggestion up to now four integrated research projects on SDR or reconfigurable radiocommunications systems with different key elements have been incorporated in the European Commission's 6th reasearch programme. One of these is E2R (End to End Reconfigurability). The overall duration of the project is to total six years (end 2010) and is due to start in January 2004. The first part will last two years. RegTP is one of 29 project partners from European industry.

Global circulation
Global circulation of SDR devices will be an important future issue since it is foreseeable that the conformity assessment procedures or approval procedures and the essential requirements applicable to SDR will differ considerably in the USA, Asia and the EU. As in the case of IMT 2000, the ITU will assume special significance. As in the case of the Global Circulation Agreement for UMTS/IMT 2000, RegTP will take an active part in the work within the ITU to enable a worldwide uniform use of SDR.

Standardisation activities in the field of quality of service, consumer quality parameters and Directive 2002/22/EC
RegTP is actively participating in the meetings of ETSI TC/STQ (Technical Committee Speech processing Transmission and Quality of Service aspects) at ETSI and in Study Items 2 (Operational aspects of service provision, networks and performance) and 12 (End-to-end transmission performance of networks and terminals) of the ITU-T. These working groups elaborate, inter alia, standards on the description, registration and measurement of service qualities. In particular, large-scale standardisation work is being carried out on consumer quality parameters serving to describe and measure the quality of telecommunicatins services from the consumer's point of view. The bandwidth ranges from general quality parameters (such as service features and billing) to parameters for speech, fax and data services as well as mobile radiocommunications services and services in the Internet access field. RegTP takes an active part in the standardisation, partly also chairs some of the sub-groups, coordinates the drafting of the standards and holds working group meetings. As such, numerous standards have been and are being initiated within ETSI and ITU-T on the subject of telecommunications services quality and also the chairmanship of corresponding sub-groups has been accepted. This work should be viewed against the background of Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive). This Directive envisages an increase of consumer protection to the extent that consumers should be given transparent and comparable information about the quality of telecommunications services. By these means the consumer should be given the chance to make informed decisions within the telecommunications market and so influence competition along his own lines. To this end it is essential that corresponding standards are drawn up for definitions and measurement methods forming the basis for comparable quality publications comprehensible to the consumer. This basic concept was also incorporated in the draft for the amendment of the Telecommunications Act (Telecommunications Customer Protection Ordinance (new) §§ 2 and 5). With this, RegTP hopes to strengthen the consumers' position and to promote competition in the field of quality. To attain this goal it is indispensible that harmonises standards on quality description and comparison be made available. This is achieved by attending the relevant ETSI and ITU-T committees.

Telecommunications service providers' quality obligation regarding call price calculation

With the launch of competition on the telecommunications market, customers expect improved and cheaper telecommunications services. They demand that the sum invoiced for their use of services is correctly and accurately determined. To this end, first the data of the individual telecommunications services must be ascertained correctly and must subsequently be valued reliably with the contractually agreed tariffs. Since customers are not in a position to to verify the internal operational processes of the suppliers to ensure that the call charges have been determined in line with contractual arrangements, in § 5 of the Telecommunications Customer Protection Ordinance the legislator has laid down rules to guarantee billing and charging accuracy which are to ensure the customers' confidence in the correctness of the charge determination.

All those telecommunications providers are obliged to provide proof of ensurance of billing and charging accuracy which offer their services to the public at large and whose call charges are determined on the basis of time and/or distance tariff systems and which are billed to the end customer within contractual conditions independently of the service rendered, the bandwidth used or the transmission and switching technology used to provide the service. In 2003, 85 documentations were examined. In the event of non-adherence to the technical requirements applicable to the charge determination systems, the presentation of differential expert opinions was demanded. Numerous telecommunications providers who are required to furnish relevant proof were advised by RegTP that § 5 of the Telecommunications Customer Protection Ordinance prescribes an annual presentation of proof. In view of their new service offer, a range of telecommunications providers were asked to meet the requirement regarding the furnishing of proof under § 5 of the Telecommunications Customer Protection Ordinance. To enforce the obligation to furnish proof ten administrative fines proceedings were intiated. A large number of queries from telecommunications providers and institutions entitled to compile the evidence were answered.

Elaboration of regulations for countering the abusive use of value-added service numbers by diallers

The dialling-up of chargeable services via data communications connections (e.g. the Internet) can take place via a dial-in programme (dialler). Basically, such a programme may - without configuration measures on the part of the user – establish a connection, for example, to a value-added service number, often (0)190/(0)900 numbers. In the past, abusive use was often made of value-added service numbers since existing dial-in connections over calls established via these numbers were often cleared by dial-in programmes in the background without the user's knowledge or intervention and reestablished to an expensive value-added service number.

Owing to the planned modification of the Telecommunications Act to counter the abuse of (0)190/(0)900 value-added service numbers, at the Ministry's request RegTP established a working group in spring to prepare for the implementation of the Act on Countering the Abuse of (0)190/(0)900 Value-added Service Numbers.
In accordance with § 43b(5) the working group's results are as follows:

key elements for a registration procedure,
definition of minimum requirements for such dial-in programmes, and
definition of the content of the written assurance to be issued by the providers of such dial-in programmes.

These elements eventually formed the basis for the procedure published in RegTP Official Gazette 16/2003 of 13 August 2003.

The main goal of these arrangements is to create transparency for the user so that he can make an informed decision. Hence the minimum requirements applicable to dial-in programmes specify that users can recognise these dial-in programmes for what they are, both at acquisition, installation and/or activation and at actual call set-up. Furthermore, for each of these steps explicit consent by the user is required so that no unnoticed and/or automatic functions may be initiated without the explicit approval of the user.

To provide further legal security the supplier must furnish an unambiguous marking of the relevant dial-in programme in the form of an electronic fingerprint (hash code) which is stored in RegTP's database at registration. By comparing the hash code transmitted by the supplier upon acquisition of a dial-in programme with the hash code stored in RegTP's database upon registration the user can check whether the dial-in programme is registered with RegTP and according to the provider's statement should fulfill the minimum requirements. RegTP's web site contains comprehensive information about the implementation of the Act on Countering the Abuse of (0)190/(0)900 Value-added Service Numbers under the hyperlink „(0)190er/(0)900er-Missbrauchsgesetz / Suchmaschinen".

Radio monitoring and inspection service
With the aid of sophisticated mobile and stationary measurement technology, during the period under review the radio monitoring and inspection service on a nationwide scale actively contributed to the possibility of using the entire frequency spectrum efficiently and without interference. Key elements of the comprehensive radio monitoring and inspection activities were the elimination of interference, followed by verifications of frequency use, market surveillance, measurements of electromagnetic fields (EMF), identification of frequency use without a frequency assignment and many other tasks. Special attention was given to the rapid and successful elimination of all types of interference.

Interference processing
Amongst RegTP's most frequently occuring and most demanding tasks the clarification of electromagnetic and radio-related interference should be mentioned, especially those cases where sensitive radiocommunications services and applications are concerned and are given top priority in the processing of tasks. To determine domestic and foreign sources of interference, apart from stationary direction-finding stations and measuring stations and depending on the interference case in question, various special vehicles are deployed.

In the field of aeronautical radio a total of 1,091 cases of interference were processed by the radio monitoring and inspection service in the year 2003, of which 794 concerned the aeronautical emergency frequencies and 297 aeronautical communication. Not without significance are 12 interference cases concerning the military radio applications

and nine cases of interference affecting the radiodetermination service. Furthermore, cases involving interference caused by the new technologies xDSL and PLT were clarified. As further notable interference cases during the period under review should be mentioned incompatibilities related to the introduction of digital broadcasting. Members of the radio monitoring and inspection service were also able to sucessfully clarify interference caused to mobile radiocommunications.

From the overall number of interference cases 41 per cent involved interference to transmitting/receiving stations (without sound/TV), four per cent electromagnetic incompatibilities involving other facilities/devices and 55 per cent interference experienced by sound/television broadcasting receiving installations. All in all, the number of interference cases processed remained virtually unchanged compared with that of the previous year. The nationwide call number **0180 3 23 23 23** for notifying radio interference was used as actively as in the previous year.

Examination of frequency use
Within the framework of frequency use, in 2003 the radio monitoring and inspection service verified more than 10,000 frequency assignments in various frequency applications. Bases for the verification are the frequency assignment parameters. The precautionary verification of frequency use is related to the goal of the early detection of problems regarding joint frequency use and by these means to minimise interference.

Within private mobile radio (PMR) in 29 per cent of cases deviations from the frequency assignment were ascertained. In total, about 26,000 radio devices were checked within the field of PMR. Within inland waterways service, in 37 per cent of the cases diversions from the frequency assignment were determined. Owing to the roll-out of UMTS, the radio application “radio relay” is expanding considerably. In this area infringements of the regulations in the Telecommunications Act were identified in 27 per cent of the cases. Diversions from the coordinates were often discovered. In radio relay, these are of considerably importance for future frequency assignments. In 2003, for the first time frequency use examinations were carried out in the field of WLAN radio applications. The frequency usage examinations carried out by the radio monitoring and inspection service on a nationwide basis contribute significantly to ensuring efficient and interference-free frequency use.

EMF measurements
In the field of EMF, last year the radio monitoring and inspection service started the regular nationwide EMF measurements in accordance with the measurement method agreed with the federal states. In total, 1,976 measurement points were investigated. At none of these points the limit was exceeded. The results were published on RegTP’s web site. As such, RegTP had made a significant contribution to rendering the discussions more factual (cf. the cartographic EMF database of RegTP). In 2003 the radio monitoring and inspection service took part in an EMF ring measurement. The goal was to achieve comparability of official measurements.

Market surveillance of the radio monitoring and inspection service
Also the market surveillance carried out by the radio monitoring and inspection service in accordance with the Electromagnetic Compatibility Act/ Radio and Telecommunications Terminal Equipment Act serves to make significant contributions at European level to ensuring efficient and interference-free frequency use. The necessary tasks were carried out on a nationwide basis by the regional offices and one

measurement laboratory. The accredited laboratory carried out EMC tests on all products covered directly or indirectly by the Directive on electromagnetic compatibility 89/336/EEEC or the Electromagnetic Compatibility Act. In 2003 accreditation was extended to include key parameters of radio devices, and a test site for verifying the specific absorption rate (SAR) of mobile telephones was established. With this test site it is now possible check the essential requirements specified in the Radio and Telecommunications Terminal Equipment Act for the protection of the health of users in this field.

Space services
In the space services sector the radio monitoring and inspection service of the earth station Leeheim contributed to the monitoring of frequency use in Europe by carrying out 45 measurement requests for efficient spectrum use of the satellite downlinks. Furthermore, the nationwide radio monitoring and inspection service also examined the uplinks of about 100 satellite earth stations on broadcasting buildings, petrolstations, banks, other industrial facilities, etc. Roughly 40 infringements of telecommunications–related regulations were identified and prosecuted to ensure interference-free frequency use.

Electronic signature

RegTP is the competent authority under the Digital Signature Act which entered into force in 1997 and was amended in 2001. Among its tasks especially the accreditation of (private) certification service providers, the supervision of such providers, the operation of the state trust centre as supreme certification authority (root) and the maintenance of a directory service; the certification of testing agencies and attestation bodies, and the determination of suitable algorithms for qualified electronic signatures and the support of legislative procedures should be mentioned.

Legislative procedure
After entry into force of the Digital Signature Act and the Digital Signature Ordinance in 1997 and their amended in 2001 upon which they were adjusted to the European Signature Directive, the modification of the Digital Signature Act was again discussed in 2003. The reason for this was the federal government’s and some potential providers’ wish to facilitate the application procedure and issue of qualified certificates. RegTP actively monitored the associated negotiations and presented the practical experience gained with the Digital Signature Act.

Certification service providers
The number of monitored trust centres has constantly grown since the entry into force of the Digital Signature Act. At the end of the year 2003 a total of 23 certification service providers offered the products and services needed for the compilation and verification of qualified electronic signatures. A prerequisite for this is the notification to RegTP. The provider must prove that he is in possession of the reliability and specialised knowledge needed for operation and that he is also in possession of a liability policy. He must also show by means of a security concepts how he implements the measures needed to fulfill the security requirements under the Digital Signature Act.

All 23 certification service providers voluntarily submitted to the RegTP accreditation procedure prior to service launch. In this procedure the trust centre’s security is already

checked in advance. It is only after the operator's reliability and specialised knowledge have been ascertained and the orderly implementation of the security concept has been certified by an attestation body recognised by RegTP that RegTP accreditation is issued and as such the high-level security of the trust centre is "certified by the state", so to speak. Accredited certification service providers are issued a quality mark by RegTP and are entitled to refer to their certified security in their legal relations and business transactions.

For the first time since entry into force of the Digital Signature Act in May 2003 RegTP recalled an accreditation and prohibited continuation of the service offered by a certification service provider since the provider concerned was no longer in a position to guarantee adherence to the Digital Signature Act. RegTP therefore had to make sure that the documentation and the directory service of the certification service provider concerned were taken over and continued. The documentation was viewed and archived by RegTP. As a transitional solution, the provisional continuation of the directory service by another accredited certification service provider was envisaged. RegTP will take over the service concerned itself at the earliest possible point in time.

Technical operation of the supreme certification authority (root Certification Authority)

Operation of the trust centre as root includes the generation of signature keys for accredited certification service providers, the issue of certificates for certification service providers with which an unambiguous relationship between public key and the owner of this key is determined, and the maintenance of a directory generally acccessible around the clock of the certificates issued or barred by RegTP. By these means it is ensured that the qualified certificates can be checked by anyone at any time.

The root Certification Authority (root CA) was already taken into operation at the beginning of 1999. To ensure interoperability between all providers and to keep pace with rapid technical developments in this field, a comprehensive modernisation of the RegTP trust centre was initiated in 2003. The putting into operation of the new trust centre in Mainz is scheduled in the near future.

Counselling/participation in organisations

The market for qualified electronic signatures has not yet developed to the degree expected. This was partly due to the lack of legal prerequisites. By modifying the Civil Code, the Code of Civil Procedure, the Law on Administrative Proceedings and other legislation, the legal framework is now available. Against this background the issue is gaining in public interest and significance. The demand for counselling in the economy, on the part of other authorities and potential users is increasing accordingly. Since Germany has has taken on a worldwide leadership role with the creation of the legal framework for electronic signatures and their practical implementation, considerable international interest is being shown in RegTP's legal, technical and administrative solutions. It is also important to present the experience gained in Germany in international bodies. Counselling and participation in the relevant bodies are therefore given a high priority and they have continued to increase considerably in 2003. The qualified electronic signature and the requisite associated infrastructure is also gaining in importance due to the project BundOnline 2005. This has also led to intensive participation by RegTP in this context in 2003. The critical support of standardisation processes such as the draft interoperability specification ISIS-MTT also formed part of

RegTP's tasks. Especially the lack of interoperability between various signature products and services formed a market barrier in the past.

In 2003 RegTP carried out a 2-day signature workshop in Mainz and with it stimulated the general discussions about the subject. Detailed insights were given both into the signature technology and into the signature legislation. The validity model, the long-term archiving, the algorithm catalogue, the signature legislation-conform ISIS-MTT and possible modifications of the Digital Signature Act were highlighted, especially from a practical viewpoint. The workshop was attended by nearly 250 visitors.

Continuing a very successful tradition, in 2003 RegTP in cooperation with the Cast-Forum, a competence centre of the Fraunhofer-IGD, Fraunhofer-SIT and the Technische Universität Darmstadt organised and chaired the workshop on public key infrastructures in Darmstadt.

Further RegTP activities entailed participation in CeBIT with lectures on the subject of the electronic signature on the stand of the Federal Press Office, regular participation in the work of the „Arbeitsgruppe der anerkannten Bestätigungsstellen" and participation in national and international bodies, e.g. the Forum of European Supervisory Authorities for Electronic Signatures initiated by RegTP. This body of the European supervisory authorities concerned with electronic signatures regularly meets 3 to 4 times a year to exchange information and to clarify cross-border problems arising in connection with the use of qualified signatures.

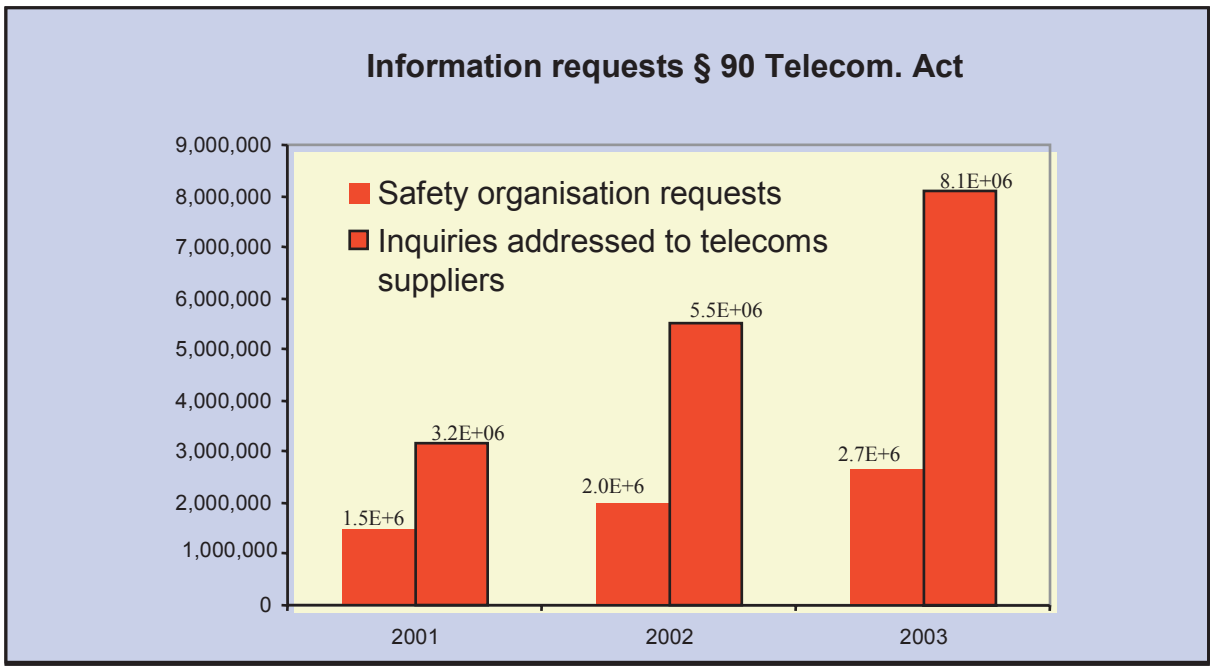
Publications in the field of the electronic signature
In 2003 as well and in accordance with its legal mandate, RegTP published the following information material: The public keys of the competent authority and the telecommunications connections under which the certificates issued by RegTP can be retrieved, the approved certification authorities, the technical components which have been attested, and the suitable algorithms and associated parameters.

Information request under § 90 of the Telecommunications Act

Inquiries from authorised bodies

The courts, public prosecutor's offices, police force and a number of other authorities listed in § 90 of the Telecommunications Act need information from telecommunications providers' customer files in order to be able to carry out their repective legal tasks. Upon request by the authorised bodies RegTP determines the names, addresses and call numbers of interception subjects within the framework of the automated information request procedure. The data is obtained by retrieval from the databases of the legally authorised telecommunications service providers and subsequently forwarded to the authorised bodies. The service is available non-stop round the clock.

In 2003 RegTP processed 2.67 m inquiries. Compared with the previous year, this represented an increase of about 33 per cent. The inquiries by the authorised bodies led to 4.9 m fixed network service provider database retrievals and 3.2 m mobile provider database retrievals. The number of retrievals is higher than the number of inquiries because the identification of the call numbers of known names often calls for retrievals from different providers' databases.



Postal market

Licences for postal services
The legislator has given DP a legally exclusive licence valid until 31 December 2007 (§ 51(1) sentence 1 of the Postal Act). Until the end of the year 2007 providers other than DP may offer the following services for which according to the legal definition (§ 51(1) sentence 2 of the Postal Act) the exclusive licence does not apply:

A Commercial conveyance of letters in accordance with the following table:

Period	Individual weight	Individual price	Source
01.01.03 - 31.12.05	more than 100 g	at least three times the (relevant) price for the corresponding postal items in the lowest weight class *)	Third Act amending the Postal Act of 16.08.2002
01.01.06 - 31.12.07	more than 50 g	at least two and a half times the (relevant) price for the corresponding postal items in the lowest weight class*)	

*) RegTP and DP disagree on the criterion for the calculation of the minimum price limit decisive for the classification of the products which are subject to the exclusive licence. To be more precise, in court the question as to which product of DP constitutes the „postal item in the lowest weight class“ (postcard or standard letter) and whether the price cited in § 51(1) sentence 1 refers to the gross or net price (for further details, see „Administrative Court Proceedings“) is debated.

B Commercial conveyance of letters with identical contents weighing more than 50 g of which the sender posts at least 50.

C Commercial conveyance of letters posted by the sender at an exchange centre and fetched by the recipient at the same or another exchange centre of the same service

provider whereby the sender and recipient use this service within the framework of a permanent contract (document exchange service).

D Services separable from universal services with special features and of a higher quality.

E Commercial conveyance of letters fetched from the sender at his request and posted at the nearest lodging point of DP or at another DP lodging point within the same municipality.

F Commercial conveyance of letters fetched from DP post box facilities at the recipient's request and subsequently delivered to him.

G Commercial conveyance of outgoing letters intended for foreign destinations (§ 51(1) sentence 2 subpara 7 of the Postal Act).

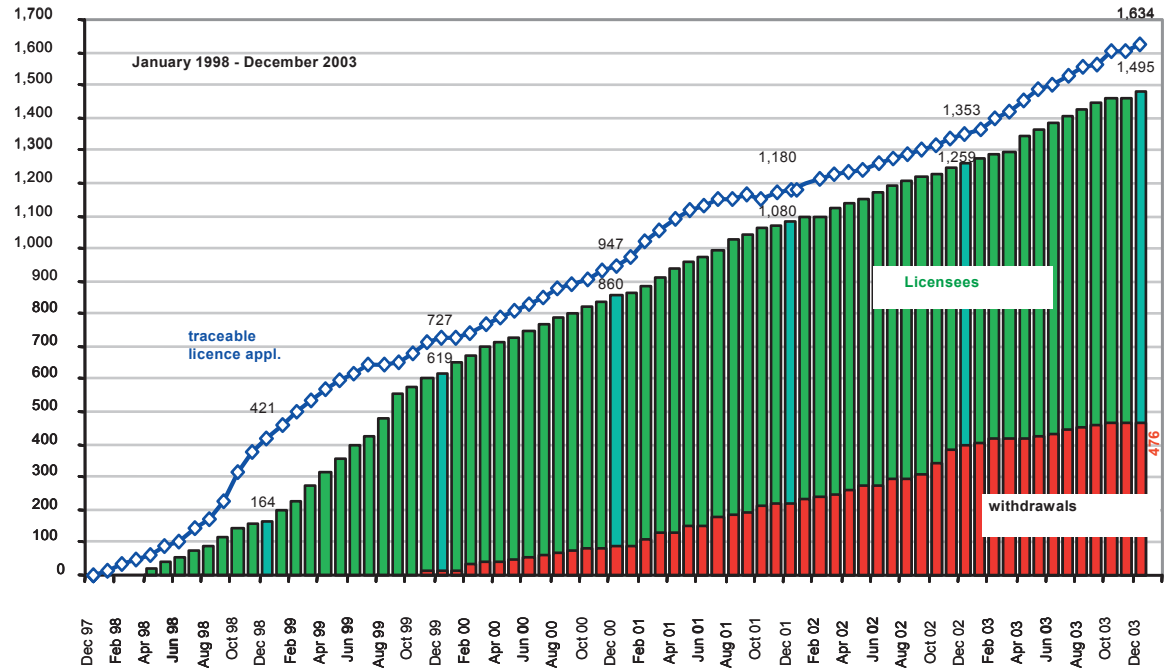
H Commercial conveyance of letters coming from abroad and destined for DP lodging points responsible for international letters (§ 51(1) sentence 2 subpara 8 of the Postal Act).

Licence applications, licences and market exits

As of 31.12.2003	1998	1999	2000	2001	2002	2003	Total
Pursued licence applications	382	292	210	236	202	312	1,634
Licences issued[*)]	164	455	241	220	179	236	1,495
Withheld licences	3	1	0	0	0	3	7
Market exits	-	17	70	134	180	75	476

*) In relation to the date of licence issue

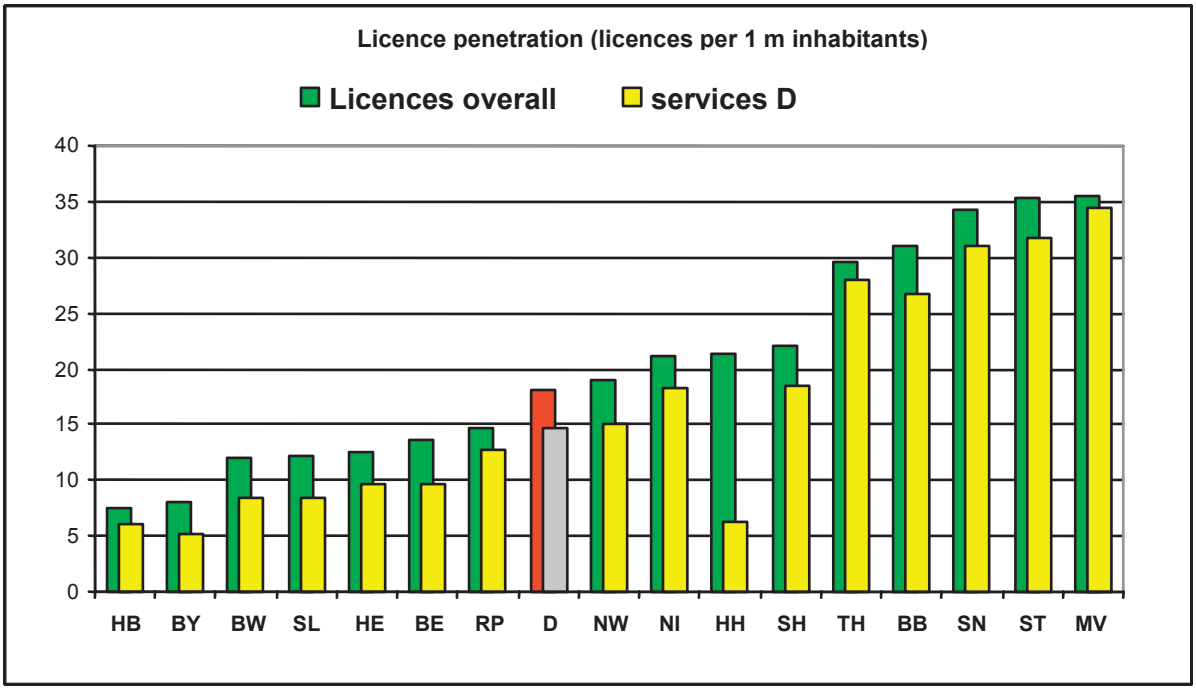
Development licence applications/licensees/market withdrawals



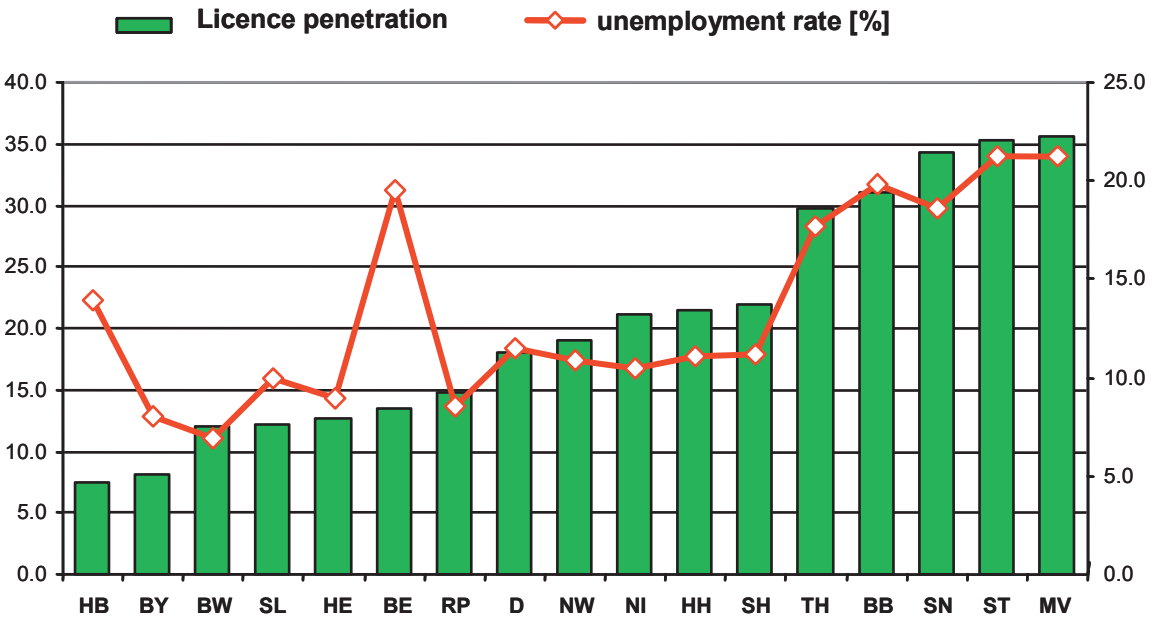
Distribution of licensees among federal states
(as of 31 December 2003)

			Service subject to licence							
	Licence holder	**Licence pene-tration (licences/m pop.)**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Baden-Württemberg	128	12.20	90	88	53	90	113	102	6	6
Bavaria	100	8.20	62	57	40	65	88	87	5	4
Berlin	46	13.59	28	27	19	33	41	37	2	2
Brandenburg	80	30.77	43	56	31	69	67	64	2	2
Bremen	5	7.56	5	5	4	4	4	3	0	0
Hamburg	37	21.64	23	20	6	11	32	33	3	3
Hesse	77	12.71	55	51	31	59	66	61	7	6
Mecklenburg-Western Pomerania	62	34.77	39	36	22	60	50	47	4	4
Lower Saxony	169	21.36	113	111	65	146	142	133	8	8
North-Rhine/ Westphalia	343	19.06	224	222	153	272	291	284	34	32
Rhineland-Palatinate	60	14.89	46	45	34	52	56	55	2	2
Saarland	13	12.15	9	11	9	9	11	11	1	1
Saxony	149	33.54	100	100	70	135	121	112	26	26
Saxony-Anhalt	90	34.18	62	56	41	81	78	77	3	3
Schleswig-Holstein	62	22.29	54	51	35	52	53	52	4	4
Thuringia	71	29.10	44	49	25	67	60	57	2	2
EC	3	---	3	3	3	2	3	3	1	1
Total:	**1,495**	**18.10**	**1,000**	**988**	**641**	**1,207**	**1,276**	**1,218**	**110**	**106**

Licence penetration



The licence penetration in the new federal states continues to rank towards the top of the scale. Furthermore, in the new federal states there is a close relationship between unemployment rate and licence penetration (see survey below).



Use of the licence rights
With the issue of a licence, the licence holder is entitled to execute certain activities under the Postal Act and associated ordinances. However, the licence issue does not oblige the holder to actually take up the licensed activities. The decision to do so and the relevant point in time are entirely up to the licensee.

Of the former 1,495 licence holders 912 were active on the market at the end of 2003. Of the remaining 583, 107 were not or no longer using their licence rights. 359 companies have returned their licences. 106 of them because of the subsequent fee increase under the Licence Fee Ordinance. 38 companies have ceased to exist, 37 licensees have cancelled their trade, and 37 insolvency proceedings are known. Five licences were recalled because facts which emerged later justified the assumption that the capability and reliability needed especially for the execution of the licence rights were not assured.

Examination of the licence issue
Licences are issued upon application provided that the perequisites are met, i.e. when at the point of time of licence issue no reason for denial exists. After taking up the service the licence holder must ensure that the licensing prerequisites continue to exist. This is regularly verified by RegTP in situ. If defects are discovered, the licensee is given the chance to eliminate them within a certain period of time. If the defects are removed and RegTP is informed accordingly, in a renewed test three months later special note is taken of the fact as to whether or not the defects have indeed been permanently removed. If the licensee has failed to eliminate the defects within the prescribed period, a proceeding may be initiated. As the last resort, this proceeding may lead to the partial or complete revocation of a licence.

Investigation results
In 2003 RegTP carried out in situ examinations of about 430 licenses. 30 of these were carried out for a special reason. The regular verifications concern the operation of the enterprise, adherence to the relevant legal provisions, collateral clauses and licence conditions. Apart from their investigative tasks, the examiners also have a counselling function. As such they form an important link betwen RegTP, the licensees and the licensees' customers.

Overall, the regular examinations have yielded a positive view. Serious infringements were not revealed. This also applies to working conditions. In a number of cases it was discovered that licensees had failed (as yet) to fulfill their requirement to inform RegTP of a changes in licensee, ownership or the commercial register. The licensees concerned have in the meantime done so. As far as the running of the enterprise was concerned, the most common failure concerned the practical implementation of the higher quality level in relation to the time criteria.

However, as a rule it was possible to locally eliminate the defects revealed. In most cases the investigations launched for a particular reason were due to complaints by other licensees or from letter mail recipients. In this connection it was discovered that the reason was usually traceable to unreliable deliveries or sub-contractors. The investigations frequently led to settlement between the parties concerned.

Furthermore, during the investigations again a number of providers were discovered who were offering postal services subject to licence without in fact being in possession of such a licence. In most cases this was due to a lack of knowledge about the legal framework.

The relevant companies have meanwhile applied for, and received, the requisite licences. In 2003, it was not necessary to initiate an administrative fines proceedings. In two cases the investigation has resulted in a withdrawal of the licence.

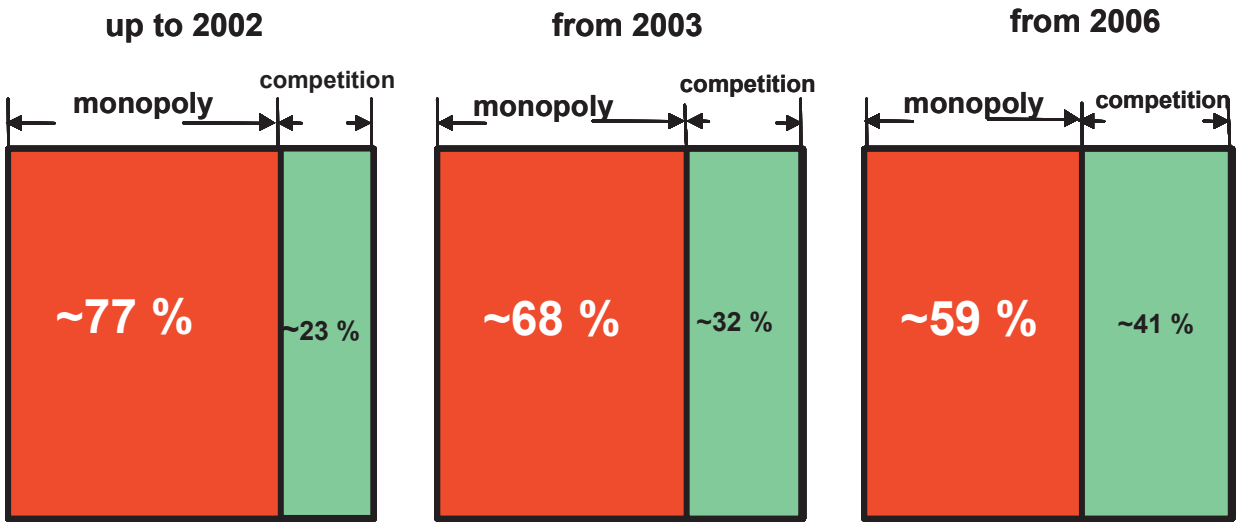
Market structure data/postal market

In 2003, the German postal market's revenues totalled more than € 23 bn. About two thirds of the postal market – primarily the courier, express and parcel services but also parts of the letter market - have already been opened up to competition. Nearly two thirds of the revenues were DP's. The remaining third is spread among a number of providers, especially courier, express and parcel services.

The revenues in the licensed area (conveyance of letter items weighing up to 1,000 g) in the year 2003 are estimated at around € 10.1 bn. Hence DP continues to control a market share of nearly 96 per cent despite the opening up of parts of the market to competition.

Development of the monopoly and the competitive sector

According to RegTP calculations, the modification of the monopoly weight and price limits by the Third Act amending the Postal Act of 16 August 2002 affects the scope of the monopoly and the competitive sector as follows:



The percentages show which part of the letter markets still falls within the monopoly and which part has already been opened up to competition. According to current legislation, there will no longer be a monopoly sector after 2007.

Basis of the market analysis in the licensed area

As every year, at the beginning of 2003 RegTP carried out a market survey among the licensees in which data was requested on turnover and sales in 2002 (results) and 2003 (empirical values/estimates) and on the number of employees.

Results of the market analysis
Turnover and sales in the licensed area (incl. DP)

2000		2001		2002		2003*)	
Turnover	**Sales**	**Turnover**	**Sales**	**Turnover**	**Sales**	**Turnover**	**Sales**
€ bn	bn items	€ bn	bn items	€ bn	bn items	€ bn	bn items
10.3	16.6	10.2	16.5	10.2	16.5	10.1	17.1

**) Empirical value*

Turnover of the licensees (excl. DP) with the licensed services (in € m)

Licensed services	2000	2001	2002	2003*)
A Letters > 200 g or > € 2.55	32.9	37.3	40.6	-
A Letters > 100 g or > € 1.35	-	-	-	57
B Letters with identical content > 50 g	60.2	86.4	92.5	100
C Document exchange service	0.5	0.5	1.2	1
D Higher quality services	46.5	82.9	125.8	180
E Posting at DP lodging points	4.0	4.8	9.2	9
F Collection from DP post box facilities	2.9	3.7	3.6	4
G (Items destined for abroad)	-	-	-	15
H (Items from abroad)	-	-	-	n.a.
Alt „former licences“ (bulk mail)	26.7	33.0	32.6	34
Total	**173.7**	**248.6**	**305.5**	**400**

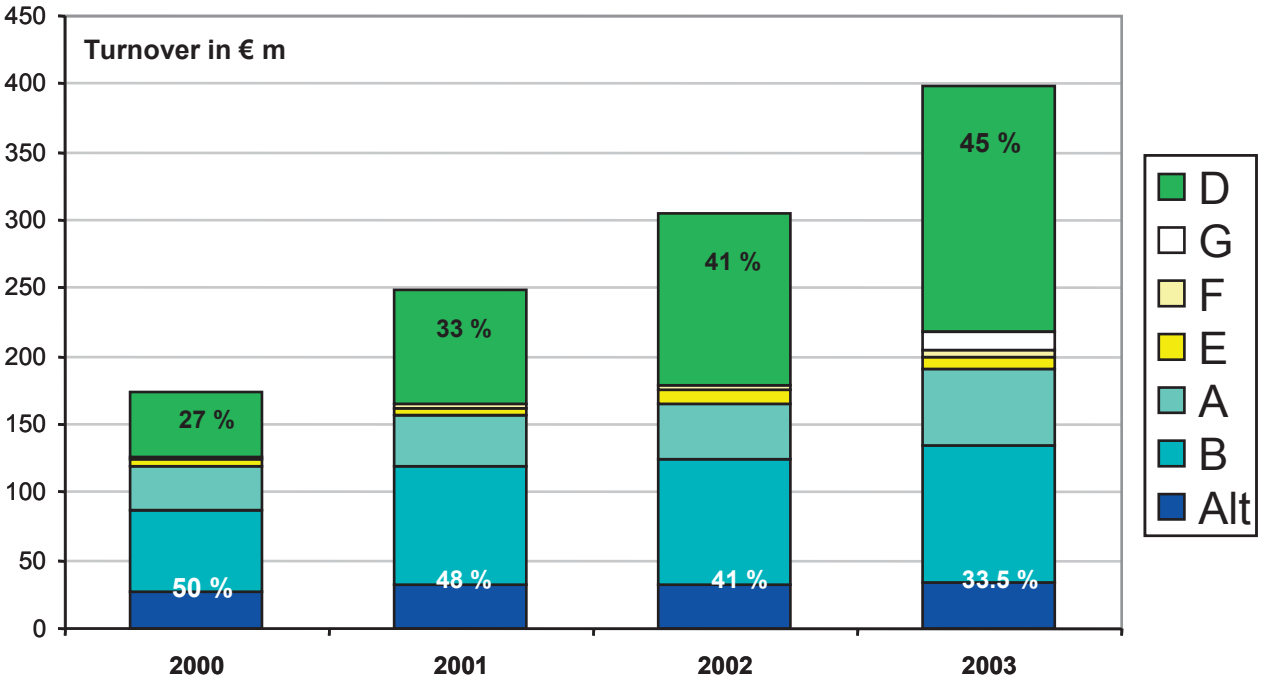
*) Empirical value

It has only been possible to offer the services A (letters > 100 g or > € 1.35), G and H since 1 January 2003. The Third Act amending the Postal Act of 16 August 2003 (Federal Law Gazette I p 2271) lowered the weight and price limits and added the services G and H.

Distribution of the licensees' turnover among licence types

The revenues of the new licensees in the overall licensed sector continue to rise (+ 130 per cent since 2000) but are still at a low level (market share just under 4 per cent). Revenues > € 1 m are achieved in the aforementioned services A, B, D, E and F as well as G (since 2003).

Distribution of the licensees' turnover (> € 1 m) among services



The service portfolio offered by the new licensees continues to tend towards value-added services (higher quality services - service D). In relation to turnover these services reached a share of 27 per cent in 2002; in 2003 a share of 45 per cent is expected. The share relating to mere conveyance services (especially B services and former licences) continues to decline from 50 per cent in 2000 to presumably a mere 33.5 per cent in 2003.

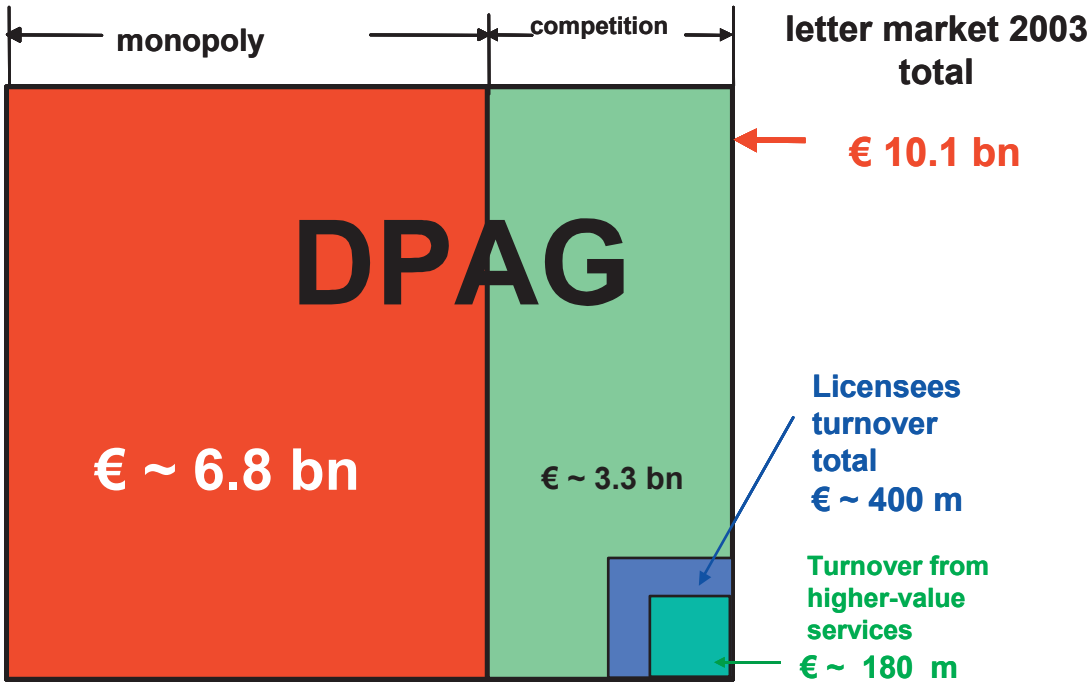
Distribution of turnover among companies (excl. DP)

Turnover	Up to € 10,000	€ 10,001 to € 100,000	€ 100,001 to € 500,000	€ 500,001 to € 1,000,000	€ 1.000.001 to € 10 m	more than € 10 m
1998	30	51	26	3	7	3
1999	108	167	62	11	15	4
2000	91	178	129	23	15	4
2001	77	192	143	21	30	5
2002	96	186	149	32	41	7
2003*)	116	167	160	38	49	10

*) Anticipated value

From a quantative viewpoint companies with a turnover of less than € 50 m and fewer than 500 employees are considered to belong to the *Mittelstand*. Companies with an annual turnover of up to € 0.5 m are deemed small enterprises, and with a turnover of more than € 0.5 m are deemed medium enterprises. According to this definition, in 2002 there were 80 medium enterprises. In 2003, 97 such enterprises are expected.

Market relationships and shares in the licensed area (conveyance of letter mail up to 1000 g)



Market relationships in the licensed area (estimate 2003)

	2000	2001	2002	2003*)
Total market (€ **bn**)	10.3	10.2	10.2	10.1
Turnover licensees (excl. DP) (€ **m**)	173.7	248.8	305.5	400.0
Market share licensees (%)	1.7	2.4	3.0	4.0
Market share DP (%)	98.3	97.6	97.0	96.0
Turnover higher quality services (€ m)	46.5	83.0	125.8	180.0
Market share higher quality services (%)	0.45	0.81	1.2	1.8

*) Expected value

In 2002, i.e. after a period of five years, the licensees have only achieved a market share in the licensed area (conveyance of letter mail up to 1,000 g) of three per cent. According to estimates for 2003 the licensees' market share could rise to just under four per cent. DP would then still hold a market share of more than 96 per cent but of a market volume that has increased from 1998 (€ 9,827 m) to 2003 (€ 10,107.8 m) by just under three per cent.

Market shares in the competitive area

	2001	2002	2003*)
Competitive sector in total (approx. € m)	2,400	2,400	3,300
Turnover licensees (excl. DP) (€ m	248.8	305.5	400.0
Market shares licensees (%)	**10.4 %**	**12.7 %**	**12.1 %**

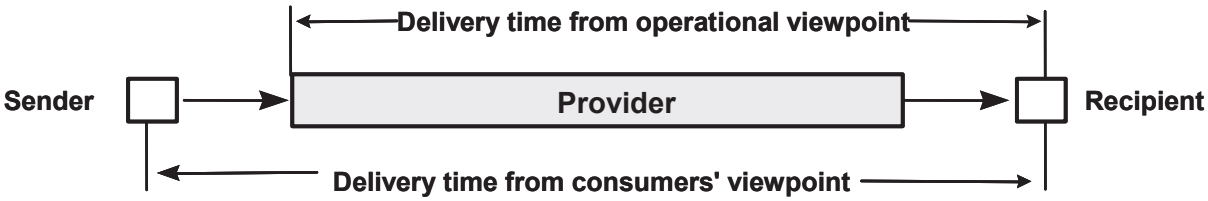
*) Anticipated value

In 2002, DP's competitors achieved a market share of the competitive sector (services to which DP's exclusive rights do not apply) of again only 12.7 per cent. In 2003, the competitive sector was extended (from € 2,400 to € 3,300 m). Due to this the competitors' market share dropped to 12.1 per cent. DP hence still holds a market share of more than 87 per cent also in the area opened up to competition.

Letter delivery times

The Ordinance concerning Universal Services for the Postal Sector specifies that of the national letter items posted on a working day – with the exception of items with a minimum mailing requirement of 50 per posting – at least 80 per cent must be delivered on the next day (E + 1) and 95 per cent on the next working day following the next day (E + 2) as an annual average. Up to now, only the letter delivery times of DP are measured (market dominating company, market share above 95 per cent). The measurements are carried out continuously throughout the Federal Republic of Germany. The measurement results yield both the delivery times as seen by the consumer (from sender to recipient, as set forth in the Ordinance concerning Universal Services for the Postal Sector) and the delivery times as seen from an operational point of view (from entry into DP processing right up to the recipient).

Letter delivery times from the viewpoint of consumers and from the viewpoint of operation



For the consumer the delivery time is the time between the posting of a letter in the mail box or its posting at a lodging point during usual working hours or at usual times of day and delivery to the recipient. The delivery time counts from that moment at which the consumer releases the letter. The end-to-end delivery time is measured – from the sender to the recipient. The acceptance deadlines which may be altered by the provider at any time do not affect the result of this measurement method.

For the purposes of the Ordinance concerning Universal Services for the Postal Sector only the delivery times from a consumer's viewpoint are relevant. Since the Ordinance concerning Universal Services for the Postal Sector is an ordinance protecting the consumers, from a consumer's point of view only the day on which the letter was put into the letter box and not the working day on which it was removed from there counts.

Letter delivery times from the consumers' viewpoint

Period	E+1 [%] [1)]	E+2 [%] [2)]
1998 (annual average)	88.1	98.9
1999 (annual average)	86.0	98.8
2000 (annual average)	86.7	99.0
2001 (annual average)	86.6	98.8
2002 (annual average)	86.9	98.9
2003 (annual average)	86.8	98.8

Specification Ordinance concerning Universal Services for the Postal Sector	**80.0**	**95.0**

1) Share of letters with a delivery time of E + 1 (day of mailing + 1 working day)
2) Share of letters with a maximum delivery time of E + 2 (day of mailing + 2 working days)

According to the Ordinance concerning Universal Services for the Postal Sector, the clearance time of letter boxes are to be based on business requirements. RegTP's measurements assume a last letter box clearance based on business requirements at 5 p.m. If 6 p.m. is assumed, then the result from a consumers' point of view for 2003 would not be 86.8 per cent E + 1 but merely 83.7 per cent E + 1 which is already very close to the specification in the Ordinance concerning Universal Services for the Postal Sector (at least 80 per cent E + 1).

From 2004 the European Standard 13850 (EN 13850) applies to all delivery time measurements in all EU Member States. The measurement method set out in EN 13850 is obligatory, it is based on „transit time" which is DP's internal processing time.

EN 13850 contains, inter alia, the specification that RegTP must be involved in the selection of an auditor for verification of adherence to the provisions of the standard. This selection procedure which necessitates a public invitation to tender comprising corresponding deadlines is currently being prepared in cooperation with DP.

At the completion of the preparatory work (probably the first quarter 2004) all delivery time measurements will be carried out by a private company in accordance with EN 13850. The special requirements applying to delivery times measurements implied by the provisions of the Ordinance concerning Universal Services for the Postal Sector are currently being defined and integrated into the measurement method. RegTP monitors adherence to the specifications for the delivery time measurements. It evaluates the results of these measurements in relation to the relevant end-to-end service quality in accordance with the Ordinance concerning Universal Services for the Postal Sector (as before, from the consumers' point of view).

To ensure the continuity of the measurement results and to be able to verify the validity of the results in accordance with the new procedure, the former and new procedure will

be carried out in parallel for about six months. It will then be possible to discontinue RegTP's own delivery time measurements in the second half of 2004.

Prices and price level for letter mail
DP prices for its major products within the legal exclusive licence from 1 January 2003/1 January 2004:

Postcard		0.45 €
Standard letter	≤ 20 g	0.55 €
Compact letter	≤ 50 g	1.00 €
Large-size letter	< 100 g	1.44 €

Price level PN = $\sum_{i=1}^{i=n} p_i \cdot g_i$ where $g_i = \frac{m_i}{M}$

where $m_1, m_2, \ldots m_i$ = volume of products/services
M = total volume ($M = m_1 + m_2 + \ldots + m_n$
$P_1, P_2, \ldots P_i$ = prices of the products/services
g_i = weighting

The volumes were based on the volume of sales of the relevant products in Germany. This yielded a price level for Germany (with volumes weighted prices) of € 0.71 (rounded).

The price level itself is hardly informative. It only becomes useful when compared with the price level of another company or within an international comparison. Comparison with the price level of other companies in Germany is not possible as the products referred to may currently not be offered by others due to DP's legal exclusive licence. hence only an international comparison remains.

In the international comparison of the price level as defined above several products with different price structures can be included (examples see table below). At the same time, differences are alleviated which could distort the comparison if it were restricted to only one product, e.g. standard letter up to 20 g.

Price/weight structures for letters up to 50 g

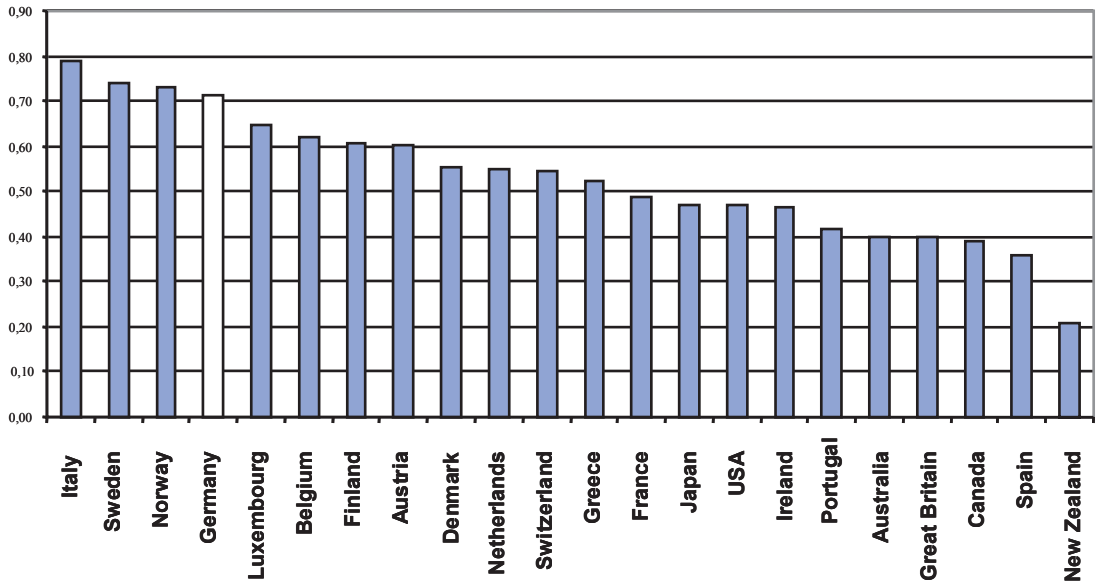
Price/weight structures of letter items up to 50 g	D [€]	UK [£]	A [€]	GR [€]	F [€]	USA [$]	B [€]	NL [€]
Standard letter (up to 20 g)	0.55	0.28	0.55	0.47	0.50	0.37	0.49	0.39
Compact letter (20 to 50 g)	1.00	0.28	0.75	0.67	0.75	0.60	0.79	0.78
Compact letter compared with standard letter	**+ 82 %**	**+ 0 %**	**+ 36 %**	**+ 34 %**	**+ 50 %**	**+ 62 %**	**+ 61 %**	**+ 100 %**

As of January 2004

For the countries in the comparison those products were chosen which closely corresponded to DP's products. The quickest mode of conveyance in the standard letter service for which no delivery deadline is guaranteed was used. The prices were weighted in the same way as in the determination of the German price level. The sum of the weighted individual prices yields the price level in € or the national currency.

The price level in the other countries was subsequently converted with the help of the consumer price parities determined by the Federal Statistical Office in accordance with the German currency scheme. The German market basket used by the Office in this process represents consumer spend (exclusive of rent and car purchase) of all private households in Germany with respect to the goods in the basket and their weighting.

Price level for letter mail (€)
As of January 2004



Offer of incidental services; access to P.O. Box facilities and address changes

To encourage market entry and competition on the market for postal services subject to licence the Postal Act envisages access to the infrastructure of the market dominating provider (§§ 28 and 29 of the Postal Act) for parties having a demand in this market (end users and competitors). Such contracts need to be presented to RegTP to ensure, inter alia, that the post-related legal prerequisites are met by the dominating provider.

Incidental services

An incidental service is the service remaining after reduction of the service rendered by the actual party having a demand which is otherwise offered in its entirety as a conveyance service subject to licence. Such an incidental service claim may be made vis-à-vis a market dominating provider of postal services subject to licence (§ 28 of the Postal Act). In Determinations of Ruling Chamber 5 dated September 2000 both competitors and customers of DP were for the first time offered incidental service

accesses to the despatch area at mail centres (mail centre for the consolidation of outgoing items) and the receipt area at mail centres (mail centre for the delivery of incoming items).

The table below gives an overview of the structure and number of contracts concluded and presented in 2003 in accordance with RegTP specifications. However, not only new contracts were concluded. Old contracts were updated and became effective on 1 January 2003. The latter are not included in the table. They concern 582 contracts on individual letter items (despatch area at a mail centre: 197; receipt area at a mail centre: 385) and 112 on letters with identical content.

Incidental service contracts 2003				
Item types	**Individual letter items**		**Infopost**	**Total**
Contracting party ⇩	BZA	BZE	only BZE	**Total**
End users	184	330	84	**598**
Competitors	1	1	0	**2**
Gesamt	**185**	**331**	**84**	**600**

BZA: despatch area at a mail centre (beginning)
BZE: receipt area at a mail centre (end)

P.O. Box facilities
A market dominating provider of postal services subject to licence is obliged to permit other providers of postal services the delivery of postal items to the P.O. Box facilities operated by him against payment of a fee (§ 29 of the Postal Act). DP has submitted 40 contracts to RegTP in 2003 concerning access to P.O. Box facilities. All 40 contracts had been concluded in accordance with the contractual specifications authorised by Ruling Chamber 5 in 2002.

Access to address changes
A market dominating provider is also obliged to permit other providers access to the information in his possession regarding adddress changes against payment of a fee (§ 29(2) in conjunction with (1) of the Postal Act). In 2003 DP presented 74 contracts concerning access to address changes to RegTP.

Administrative court proceedings

In 2003 DP again brought actions against the licences issued within the area of higher quality services at the administrative court in Cologne, however, in fewer than 100 cases. Since the administrative court had already ruled in 1999 that letter delivery on the same day constituted a higher quality service in terms of § 51(1) sentence 2 subpara 4 of the Postal Act, DP has withdrawn or refrained from bringing such actions again.

The objections and actions now especially concern licence holders offering conveyance with overnight delivery (collection from 17:00 hours, delivery on the next day by 12:00 midday at the latest) or a punctual or particularly secure conveyance.

The administrative court in Cologne has already ruled on some model cases and, as mentioned earlier, deemed delivery on the same day but not overnight delivery a higher quality service. Also in favour of the competitors, on 13 November 2001 the administrative court had dismissed several DP actions concerning the issue of licences to providers with punctual letter delivery. The court had upheld RegTP's view that this service also constituted a higher quality service in accordance with § 51(1) sentence 2 subpara 4 of the Postal Act and is hence not covered by the scope of the exclusive licence.

An appeals ruling of the Higher Administrative Court for the federal state North-Rhine Westphalia on licence issuance – especially the question which services are to be deemed higher quality services under § 51(1) sentence 2 subpara 4 of the Postal Act – took effect on 6 October 2003. It confirms the lawfulness of the licences for services with overnight delivery and with punctual delivery. DP has lodged an appeal with the Federal Administrative Court. An unappealable decision is hence still pending.

On 24 October 2003 in a ruling in a summary proceeding by the Higher Administrative Court for the federal state North-Rhine Westphalia it was decided that DP's objection to a so-called A licence issued to a competitor has suspensory effect. This was based on the fact that at the competitor's request RegTP had given the competitor confirmation to the effect that the licence (also) permitted the conveyance of letter items each weighing up to 100 g at an individual price of at least € 1.35 (gross). Until a decision on the merits of the case, the licence may only be exploited to the extent that letter items weighing up to 100 g each may not be conveyed at an individual price of less than € 1.65 (gross).

Ruling Chambers

Ruling Chamber 2
Rates regulation, rates subject to approval in the field of transmission lines (licence class 3) and voice telephony (licence class 4)
Under the legal provisions of the Telecommunications Act, the rates and rate-related elements of the General terms and Conditions for the offer of transmission lines within the framework of licence class 3 and voice telephony within the framework of licence class 4 under § 6 of the Telecommunications Act – provided the licensee has a dominant position on the relevant market in accordance with § 19 of the Restraints of Competition Act under § 25(1) of the Telecommunications Act – require RegTP approval according to §§ 24 and 27 of the Telecommunications Act.

In 2003, Ruling Chamber 2, responsible for rates regulation in accordance with § 25(1), issued a total of 28 decisions (24 rate approval decisions, three declaratory decisions and one procedure on the modification of the price cap regulation 2003). To the public oral proceedings a total of 182 parties involved – excepting the applicant – were summoned.

Rates for the offer of transmission lines
The approval requirement concerning rates and rate-related elements of the General Terms and Conditions for the offer of transmission lines within the framework of licence

class 3 under § 6 of the Telecommunications Act primarily relates to leased lines offered by DT as analogue standard fixed lines, digital standard fixed lines and digital carrier fixed lines, and the rates for the analogue sound and television broadcasting facilities and circuits provided on a permanent basis and for digital radio transmitters. The regulation of the relevant rates ensures both end customer protection and fair and workable competition, especially since the carrier fixed lines are needed by competitors for the establishment of their own networks.

In the period under review, Ruling Chamber 2 carried out a total of six proceedings in this area, two rates approval procedures for leased lines and four rates approval procedures in the broadcasting sector. The highly complex rates approval procedures in the leased lines sector concerned two rates approval procedures for digital standard fixed lines and digital carrier fixed lines and services rendered in this context such as the “Comfort” service and express fault clearing.

The complex rates approval procedures in the broadcasting sector concerned two rates approval procedures for sound/TV circuits provided on a permanent basis and a rate approval procedure for VHF and TV transmitting facilities for private broadcasters, and a rates approval procedure for digital radio transmitting facilities in the VHF and L band. The rates approval applications had to be decided upon on the basis of the costs of the individual services incurred through best practice efficiency (§ 27(1) subpara 1 of the Telecommunications Act).

In its assessment of the rates proposals for digital standard fixed lines and carrier fixed lines the Ruling Chamber resorted not only to the cost documentation submitted in accordance with § 3(3) of the Telecommunications Rates Regulation Ordinance but mainly to the international tariff compariuson designed for leased lines, the methodology of which was published after public consultation in RegTP Official Gazette No. 4 of 23 February 2000, Communication No. 112. Insofar as individual rate items were not eligible for rate approval in relation to the criteria in § 24 of the Telecommunications Act, the Ruling Chamber approved them in modified form.

Ex post regulations procedures regarding a rate for the use of public telephones for calls to free call numbers (so-called Payphone Access Charge, PAC in short)
In its Determination BK2g 02-008 of 23 July 2002 Ruling Chamber 2 determined in an ex post rates regulation procedure under § 30(2) of the Telecommunications Act that the charge levied by DT since 1 December 2001 for the termination of Freephone calls from its public telephones in the amount of € 0.1659 per minute (net), PAC, failed to meet the requirements in § 24(2) of the Telecommunications Act. With the aforementioned notice DT was requested to adjust the charge to € 0.09 per minute (net). As DT did not fulfill this requirement, in its Determination of 25 November 2002 the Ruling Chamber prohibited the charge in accordance with § 30(5) of the Telecommunications Act and declared the charge to be invalid if it exceeded € 0.09 per minute (net).

DT took legal action against the Determination of 23 July 2002 and applied for provisional court protection. In its ruling of 12 Juni 2003 (13 B 240/02) the Higher Administrative Court in Münster ordered suspensory effect of DT’s suit on the grounds that a PAC of € 0.09 per minute at a rough estimation was significantly too low.

On 12 September 2003 the Ruling Chamber ex officio initiated another ex post rates regulation procedure dealing with PAC. In the course of this procedure DT was able to

prove certain cost items not submitted in the previous procedure. Furthermore, due account was taken in the rates examination of the call minutes from public payphones which had meanwhile dropped dramatically. In the light of these changed circumstances it was possible to determine that the charge of € 0.1659 per minute now levied by DT net was based in the long term on the costs of efficient service provision and hence met the criteria in § 24 of the Telecommunications Act. As the prerequisites for an order under § 30(4) of the Telecommunications Act were hence no longer applicable, the Ruling Chamber discontinued the procedure on 12 November 2003.

Rates verification procedures regarding the charges levied by DT for voice communications services for „closed user groups“
RegTP had received in particular complaints from Arcor AG & Co., BT Ignite GmbH & Co and tesion Telekommunikation GmbH about the aforementioned DT products which claimed that DT applied an abusive approach. Thereupon in October 2002 in two individual cases ex post rates regulation procedures were initiated ex officio.

The regulatory procedures focused on a verification of the rates for voice communications services agreed by DT. The rates and elements of the General Terms and Conditions as are relevant to tariffs covered by the examination were treated in the two procedures BK 2f 02/023 and BK 2g 02/024 in the year 2002 as services according to § 25(2) of the Telecommunications Act as a precautionary measure until RegTP's view was legally clarified in order to prevent a possible impairment of competitive opportunities. DT subsequently applied to the administrative court in Cologne for interim legal protection. In this connection on 25 March 2003 the administrative court in its ruling 1 L 353/03 decided to order the suspensory effect of DT's action against RegTP's Determination BK 2f 02-023 of 9 December 2002 due to the lack of market analysis data. In the appellate procedure the Higher Administrative Court confirmed the ruling by the administrative court in Cologne and delimitated a market for speech-oriented system solutions for closed user groups in which DT does not have a dominating position. The decision regarding the association of individual locations with a „closed user group“ has been separated and as such is still pending at the administrative court in Cologne.

Rates for the offer of voice telephony
The approval requirement pertaining to rates and elements of the General Terms and Conditions as are relevant to tariffs for the offer of voice telephony within the framework of licence class 4 under § 6 of the Telecommunications Act is hitherto only applicable to DT since only DT has a dominating position on the relevant product and geographical market.

Extension of the approval of the rates for the optional offers „AktivPlus basis“, „AktivPlus“ and „AktivPlus xxl“
The approval of the rates and rate-relevant elements of the General Terms and Conditions for the optional offers „AktivPlus basis“, „AktivPlus“ and AktivPlus xxl“ were extended in Determination BK 2a 03/002 of 11 April 2003 beyond 30 April 2003 until 30 September 2004 on the condition that RegTP continues to be informed on a monthly basis of the actual experience gained with regard to the estimated user behaviour of the „xxl“ customers.

The approval was preceded by a comprehensive investigation of the impact of the AktivPlus tariffs on the customers' demand behaviour and the impact on the competitive

opportunities of other voice telephony service providers. The major finding of this investigation was that contrary to competitors' statements, the AktivPlus tariffs did not violate the abuse prohibition defined in §§ 19, 20 of the Law against Restraints of Competition and Art. 82 of the EU Treaty. On 2 September 2003 RegTP approved rates and rate-relevant elements proposed by DT on 24 Juni 2003 for the optional tariff „AktivPlus xxl (neu)" which is to be offered in addition to the already approved optional offer „AktivPlus xxl"on a provisional basis until 30 June 2004. The new optional tariff enables customers to make city and long-distance calls on weekends without extra charge simply by paying an additional monthly surcharge of € 9.22 (incl. VAT). Unlike the previous „AktivPlus xxl" tariff, calls to online services with geographic numbers are not covered by the „weekend flatrate".

RegTP does to some extent share the concerns voiced by the competitors within the Ruling Chamber procedure that the attraction of the new offer could possibly exert a not insignificant suction effect. However, after weighing the interests of the parties concerned on the basis of the test criteria already applied in the approval of earlier AktivPlus tariffs RegTP came to the conclusion that the new offer cannot be classified as abusive, at least not at the present time. As such it must be borne in mind that the new offer does not comprise any unpermitted discounts. Moreover, after the introduction of carrier selection in the local area and DT's increase of its subscriber rates the competitors basically have the chance to emulate the offer. Furthermore, the risk of possible competitive restrictions for alternative long-distance carriers is also relativised by the fact that already today especially on weekends extremely attractive call-by-call and preselection tariffs are on offer so that even in the case of parties using the telephone to a high degree the question arises whether DT's offer with a monthly surcharge of € 9.22 (incl. VAT.) is worth his while in view of his call volumes. As in the case of the previous tariff „AktivPlus xxl" the approval of the „AktivPlus (neu)" tariff was linked to the condition that DT inform RegTP on a monthly basis of the development of customer numbers and actual user behaviour. The decision taken is hence in line with RegTP's former approval approach and as such especially ensures planning and legal security for the market.

Also on 2 September 2003 RegTP approved the optional tariff „AktivPlus basis calltime 120" applied for by DT on a provisional basis until 31 March 2005. This tariff allows customers to use a contingent of 120 free minutes for city and long-distance calls against payment of a monthly surcharge of € 4.22 (incl. VAT).

Furthermore, with its Determination BK 2a 03/018, on 10 October 2003 RegTP approved the new optional offer „AktivPlus Mobilfunk und Ausland". With this tariff customers are offered the same cheaper rates for wireless and international calls as for „AktivPlus" against payment of a monthly surcharge of € 2.20.

Finally, with its Determination BK 2a 03/022, on 19 November 2003 RegTP approved the lowering of the international tariffs for calls to a total of 23 destination countries for the optional tariffs „AktivPlus", „AktivPlus xxl", „AktivPlus xxl (neu)" and „AktivPlus basis Mobilfunk und Ausland". To the extent that the approval concerned the optional offer „AktivPlus xxl (neu)", approval has been given on a provisional basis until 30 June 2004. For the remaining elements it will remain valid until 30 September 2004.

Extension of the approval of the rates for the optional offers „BusinessCall 300, 500, 550 and 700“
In the Determination BK 2a 03/005 of 28 April 2003 the rates and elements of the General Terms and Conditions as are relevant to tariffs of DT's optional offers „BusinessCall 300, 500, 550 and 700“ were approved until 31 March 2005. Furthermore, in Determination BK 2a 03/014 of 12 September 2003 an increase in the provision, installation and takeover charges for the analogue telephone station and the ISDN multi-terminal configuration contained in the optional offers „BusinessCall 300, 500, 550 and 700“ and scheduled for 1 December 2003 and a reduction of the international tariffs for calls to a total of 51 destination countries were approved.

Also on 12 September 2003 with Determination BK 2a 03/015 the rates and rate-relevant elements of the General Terms and Conditions of the optional offers „BusinessCall 301, 501, 551 and 701“ were approved which also came into effect on 1 December 2003. The new offers basically differ from the previous BusinessCall offers in that a distinction is no longer made between peak and off-peak hours and in the case of „BusinessCall 301, 501 and 551“ minimum revenues will be introduced. To preclude the possibility of a factually not justifiable restriction of the competitive opportunities of other providers which could arise from the introduction of minimum revenues, approval was granted on the resolutory condition that the previous optional tariffs „BusinessCall 300, 500 and 550“ are still offered by DT in parallel to the approved optional tariffs „BusinessCall 301, 501, 551 and 701“. This ensures that especially long-distance carriers continue to be able to link own offers with the more sophisticated „BusinessCall“ accesses of DT.

Approval of a rate for the permanent preselection of another long-distance carrier (preselection local) and (preselection long-haul)
In a letter dated 28 March 2003 DT applied for the approval of rates in the amount of € 14.91 (net) for the services „Preselection Fern“, „Preselection Ort“ and „Preselection Ort/Fern“. In view of the submitted cost documentation, approval was denied. Furthermore, also the international tariff comparison carried out yielded no criteria which could have justified approval. On the contrary, the tariff comparison tends to support the approval issued on 31 March 2003 (cf. BK 2c 03/003) of a preselection rate in the amount of € 4.40 (net). Admittedly, this price is slighhly lower than the average in the countries surveyed. But it is definitely well above the mean value of the best three countries to be taken into account under the EU's comparative market concept in the amount of just over one €. Therefore, in its Notice BK 2a 03/008 of 4 June 2003 RegTP approved the rate of € 4.40 (net) which had hitherto only been approved for the service „Preselection Fern“ also for the cost-wise comparable services „Preselection Ort“ and „Preselection Ort/Fern“ on a provisional basis until 31 December 2004.

Approval of a rate for guaranteeing number portability
In its Determination BK 2a 03/007 of 5 Juni 2003 RegTP partially approved the rates for ensuring number portability. The partial approval remains valid until 31 December 2004.

Decision on the modification of the existing price cap regulation telephone service
In Communication No. 80/2003 in RegTP Official Gazette No. 7 of 2 April 2003 a consultation on the intended modification of the current price cap regulation of the voice telephony service was launched. Following the consultation on 16 May 2003 DT was informed of the formal commencement of an associated procedure with reference

number BK 2a 03/010. Envisaged is the lowering of the X factor for the access basket (basket A) to a value „-5%“. If the resulting scope for price increases in the years 2003 and 2004 is exploited, it is possible to completely eliminate the average access cost deficit of a subscriber access in the amount of € 1.41 per month as ascertained in Determination BK 4a-03-009 / E 19. Februar 2003 of 29 April 2003. As such DT should be given the chance to react, especially as regards the price squeeze in the case of analogue accesses identified by the EU Commission. In Determination BK 2a 03/010 of 22 July 2003 the existing price cap regulation for the voice telephony service was modified accordingly. The increase in the monthly subscriber rates and one-off provision and takeover charges subsequently applied for by DT on 23 July 2003 in accordance with § 25(1) of the Telecommunications Act in conjunction with § 27(1) subpara 2 of the Telecommunications Act within the framework of the modified price cap regulation was approved by RegTP in its Determination BK 2a 03/016 of 28 July 2003. The associated elimination of the price squeeze in the access area will as such create another major prerequisite for the establishment of competitive structures, in the local network as well.

Declaratory proceeding on approval obligation
Apart from the actual rates regulation procedures, during the period under review Ruling Chamber 2 carried out three declaratory proceedings which concerned matters relating to the definition of the product and geographical markets and the existence of a dominant position on the market. In Determinations (BK 2c 01/016 of 26 March 2003, BK 2c 01/017 and BK 2e 03/021 of 15 April 2003) RegTP decided that DT’s rates and elements of the General Terms and Conditions as are relevant to tariffs for the offer of voice telephony connections from Germany to Japan, Australia, the Russian Federation, Belarus, Kasachstan and the Ukraine continue to require approval under § 25(1) of the Telecommunications Act since DT still has a dominant position in accordance with § 19 of the Restraints of Competition Act. As such these decisions also have administrative finality.

Ruling Chamber 3
Ex post rates regulation
During the period under review, Ruling Chamber 3 which is responsible for ex post rates regulation, was called upon to initiate such a procedure in connection with the rates in DT’s resale offer. The resale of telecommunications services especially in the access and local area constitutes another option for encouraging competition which in this sector is still lagging. This type of service distribution is well-established in mobile communications. Not without reason the corresponding requirements are set forth in the GSM licences and have also been transferred to UMTS. Service providers without their own network have in this way become a driving force behind the dynamic development in the German mobile telephone market.

The ex post rates regulation procedure had to be dropped as DT was ordered in a parallel procedure relating to the special control of abusive practices under § 33 of the Telecommunications Act to modify important elements of its current resale offer. However, the rates still applied to the former version of the offer and were hence not applicable as regards a decision. New examinations will only be possible when the restructuring of a contractual offer demanded within the anti-competitive proceedings has been completed.

Special abuse monitoring
In parallel to the ex post rates regulation procedure Ruling Chamber 3 carried out a procedure relating to the special control of abusive practices under § 33 of the Telecommunications Act which dealt with certain contractual conditions in DT's resale offer which could not be solved in a rates procedure. Among the significant conditions examined in the course of the procedure were the unspecified period for the implementation of resale in DT's network, i.e. an unknown length of time prior to initiation of operation under realistic conditions, and arrangements under which the reseller was obliged to give three months' advance notice of binding orders. The resale offer submitted by DT was deemed abusive with regard to the bundling of products, the ordering procedure, the securities required, and the lack of an implementation period. To eliminate this abuse, in the Determination of 18 July 2003 DT was given a two month deadline to revise its offer in accordance with the summons decision. Prior to expiry of the deadline DT announced to RegTP that it would not submit an offer in line with the determination. Moreover, DT intended to seek legal redress. Thereupon on 15 August 2003 Ruling Chamber 3 issued a instruction decision setting forth the same requirements as in the summons decision.

After DT failed to obtain provisional court protection from the regulatory decisions in two instances, a modified offer of a resale contract was submitted by 1 December 2003. The parties concerned managed to meet in December 2003 for an informative talk and initial discussion.

In preparation for further negotiations the interested company has analysed the current resale offer. From a company's viewpoint, DT's current offer is unacceptable and requires substantial modification. This applies to the price fixing, where no system is discernible but which seems to pursue the retail minus approach to a minor extent and which is primarily strategic. But also other major conditions cannot be consented to. It will now be up to the companies to take advantage of the chance of a solution through negotiation. In view of the basic significance of the controversial elements of the offer, the margin between the contradictory positions seems to indicate that the chances of success are fairly low. In such a case further regulatory steps would need to be considered.

There is no particular reason to decide upon a particular alternative mode of action whilst the parties concerned have not yet fully exploited their scope for negotiation. However, it is already inevitable that further months of delay will pass before competition can be encouraged through resale and the resale issue nears the realms of the amended Telecommunications Act.

Antenna connection cable
A special problem in the access network occupied the Ruling Chamber in spring 2003. In the course of the massive roll-out of the German mobile communications network the question arose regarding suitable products for the connection of antenna locations. Although fixed lines from the wholesale product portfolio are technically suitable for the envisaged purpose, the actual contractual conditions regarding provison and prices were not necessarily in line with demand. The connection of antenna locations needed by the mobile sector is not permitted within the framework of a contract for access to the local loop since the subscriber line may be used exclusively for the connection of end customers. Wireless antennas did not meet requirements. To identify a suitable wholesale product the Ruling Chamber launched a procedure relating to the special control of abusive practices, in the course of which DT finally submitted a contractual

offer. Thereupon the Ruling Chamber suspended the procedure to enable the parties concerned to discuss the offer outside the procedure. These negotiations were successful and resulted in a contract supplementary to the current contract on the access to the local loop. The Ruling Chamber discontinued the procedure.

Other proceedings
In connection with the issues concerning prices for customer data, decisive and supportive investigations were carried out in conjunction with the Federal Cartel Office. Under § 12 of the Telecommunications Act the customer data at the disposal of voice telephony service licensees must be made available to other licensees and directory providers and other enquiry services. However, RegTP is not entitled to intervene in the price regulation of customer data. The regulation of this service hence takes place on the basis of the Law against Restraints of Competition. The responsibility for associated procedures lies with the Federal Cartel Office.

Concurrently with RegTP, the Federal Cartel Office had come to the conclusion that the prices demanded by DT from, for example, alternative directory providers for customer data were too high. The procedure subsequently initiated against DT by the Cartel Office on 9 October 2002 in accordance with §§ 19, 32 of the Law against Restraints of Competition in conjunction with § 12 of the Telecommunications Act was carried out in close cooperation with RegTP within the framework of mutual assistance due to the proximity of the service customer data to certain telecommunications services such as information over the telephone and in view of RegTP's experience with price regulation. To be examined were DT's costs accruing in connection with the provision of customer data. Ruling Chamber 3 was primarily active on RegTP's behalf. After a thorough examination of the documentation supplied by DT, in March 2003 the Ruling Chamber supported the Federal Cartel Office by providing a comprehensive report. Primarily on the basis of this report and additional investigations a trade-off between interests was achieved in the course of a meeting between the Federal Cartel Office, Ruling Chamber and DT on 15 August 2003. Under the agreement, beginning on 1 January 2003, the company will only be able to ask just over half the costs it had originally claimed from parties having a demand for customer data. It was hence possible to conclude the procedure without the need for an official reprimand. The mode of cooperation between the Federal Cartel Office and RegTP and ensuing result are deemed highly target oriented and extremely successful.

Ruling Chamber 4
Special network accesses, including interconnection
Rates regulation for special network accesses under § 39 of the Telecommunications Act
During the period under review, a total of 144 interconnection and rates procedures were pending with Ruling Chamber 4 – as many as never before since its inception. Reason for the numerous procedures was the introduction of carrier (pre)selection in the local network, competitors' demand for access to DT's T-DSL access network, the expiry of rate approvals for important DT wholesale products such as all rates for access to the subscriber line and the call charges for network interconnection, and the demand by access network operators for the introduction of non-reciprocal call charges for their call termination services. In view of the significance of many procedures as a result of the issues raised in connection with the future development of competition on the telecommunications market, in the 42 rates procedures and 102 interconnection

procedures a total of 1.255 (!) summons applications from rival operators had to be answered. Accordingly, the individual procedures turned out to be fairly complex affairs.

Interconnection proceedings
Tele 2 Telecommunication Services GmbH ./. DT
In a ruling of 21 February 2003 (BK 4c-02-045/Z 13. Dezember 2002) Ruling Chamber 4 determined the key technical interconnection parameters between DT and its competitors for the introduction of call-by-call or permanent („preselection“) carrier selection in the local network. In the proceeding, which had been instituted by Tele 2 Telecommunication Services GmbH, the main issue revolved around the question about the number of interconnection points between DT and the alternative network operators that would need to be implemented for a nationwide offer of carrier (pre)selection in the local network. In the decision it was specified that a competitor must open up all local service areas of a local network to be able to offer carrier (pre)selection in this network and that hence the opening up of all 475 interconnection locations are needed for a nationwide offer.

With this decision, a fundamental demand by the legislature was met. Under the amended version of § 43(6) of the Telecommunications Act, in its regulatory decisions concerning long-distance carrier selection Reg TP has to ensure efficient use of the available network through local termination. In a decision of 5 July 2002 supplementing the draft legislation the Deutsche Bundestag had voiced the opinion that the term “local termination” presupposes that companies desiring interconnection to offer call by call or preselection in the local network establish an interconnection point in the relevant local service areas. The purpose of this rule is to create incentives for efficient investments in network infrastructure which ensure a more sustained and intensive competition in the interests of consumers and to avoid the devaluation of investments in infrastructure already made by access network operators by forcing long-distance carriers to reach out and invest on a broader scale. These aspects are taken into account in the decision that all local service areas of a local network need to be opened up in order to offer call by call and/or preselection in the local network. The same decision was taken in the case of interconnection applications subsequently submitted by other competitors and which possibly also referred to the question of „local terminatIon“.

Interconnection proceedings
Telefonica Deutschland GmbH ./. DT because of T-DSL-ZISP Basic
and subsequent rates regulation proceedings
In its decision of 26 February 2003 (BK 4c-02-047/Z 19. Dezember 2002) Ruling Chamber 4 ordered the interconnection of the broadband network of Telefónica Deutschland GmbH (formerly mediaWays GmbH) with DT’s T-DSL access network at DT’s 74 broadband PoP. During the 10-week interconnection proceeding the main issue that needed to be clarified concerned the question whether the access service desired, i.e. „T-DSL-ZISP Basic“, is at all considered to be a special network access.

After a thorough investigation of the technical aspects Ruling Chamber 4 came to the conclusion that the product „T-DSL-ZISP“ is a (special) access which is not provided to all users. Decisive for this determination was especially the fact that the party demanding „T-DSL-ZISP“ can affect call set-up and call clearing by means of the technical modalities of traffic transfer at the interface (handover in the so-called „L2TP tunnel“). For example, he can establish the connection and allocate an IP address to the end user or he can switch the call request through to another network. The „T-DSL-ZISP

Basic“ access therefore differs technically and functionally from the „general“ T-DSL access and other DT DSL wholesale products. As a result of this decision, on 4 April 2003 DT submitted an application for approval of the rates for the requested T-DSL-ZISP product (rate approval for the execution of an ordered interconnection under § 39 2. Alt. of the Telecommunications Act).

Determination BK 4c-03-017/E 4. April 2003 of 13 June 2003 only partially complied with the rate request. Due to missing cost documentation the fixed installation and provision fees applied for for the access T-DSL-ZISP basic could only be approved in the amount approved in the case of carrier fixed lines. The rates for the actual access were not approved.

The tariff applied for by DT – for the first time a usage-dependent one – of € 1.40 per 10 kbit/s or parts thereof was not approved since it was not based on the cost of efficient service provision in accordance with § 24(1) of the Telecommunications Act and as these rate components were to cover the costs of those network elements which are included as part of the service in the access rates for T-DSL and as such are already covered. Moreover, the cost documentation submitted was incomplete as regards key input parameters such as usage share, simultaneous traffic and distance specifications and hence not obvious. DT reapplied for the rates not approved on 9 July 2003. The application was decided upon in a determination of 19 September 2003 (BK 4c-03-075/E 9. Juli 2003). For the installation of a T-DSL-ZISP basic access in the variant with transmission line a one-off rate of € 304.5 per access and for the provision an annual rate of € 152.13 per access were approved. For use of the access a rate of € 0.6325 per 10 kbit/s was approved. To ensure consistency with other wholesale products in the broadband IP range DT was requested in the decision to prove to RegTP by 10 November 2003 that it had changed its contracts for the products OC and ISP-Gate with effect from 1 December 2003 in such a way that the use of the concentrator network in the case of these two products does not lead to a lower rate than in the case of the use of the service T-DSL-ZISP basic. At the same time, DT was ordered to carry out various measurements in its broadband IP network to be able to verify the usage rate in the light of actual traffic flows.

Interconnection proceedings with regard to reciprocity

After DT had cancelled all existing interconnection contracts by 30 June 2003 in view of the introduction of carrier (pre)selection in the local network on 1 July 2003 to be able to agree on an access cost contribution in accordance with § 43(6) p. 4 of the Telecommunications Act as a surcharge on all call charges, in April, May and June the access network operators Versatel, KomTel, tesion and NetCologne each submitted an application for requested interconnection of their telecommunications networks with that of DT on 1 July 2003. Amongst other things, the four access network operators requested that for call origination in their networks and call termination in their networks the rates applicable to the origination and the termination service of DT should no longer apply. Instead, rates individually specified for them in a subsequent rates regulation procedure should be applicable. These companies were the first access network operators to question in a formal regulatory procedure the principle of „reciprocal interconnection rates“ practised on the basis of contractual arrangements between DT and its competitors in the fixed network field since market opening at the beginning of 1998. In its Decisions of 26 June 2003 and 9 July 2003 Ruling Chamber 4 ordered interconnection and decided that DT would have to pay its competitors the rates approved in a subsequent rates regulation procedure in accordance with § 39 2. Alt. of

the Telecommunications Act. However, the rates themselves were not yet specified. On the same day on which the interconnection decisions were taken, the four access network operators submitted rate requests for their origination and termination services.

DT's interconnection applications summer 2003
At the end of June 2003 DT submitted a total of 41 interconnection applications in which DT applied for network interconnection with those network operators after 1 July 2003 with whom no contractual arrangements had been made on network interconnection in time before entry into force of the contract cancellation effective 30 June 2003 (see above). Of the 41 procedures, 27 were solved by withdrawal of the application since interconnection contracts were signed during the administrative procedure. In the majority of the remaining cases the rival operators requested – as in the case of KomTel, Versatel, tesion and NetCologne before them – that for their interconnection services no longer DT's reciprocal rates but rates determined individually for them in a subsequent rates approval procedure should be payable. As in the case of the applications by the Versatel Group and NetCologne, these applications were granted as well. At the beginning of September 2003 another eleven access network operators submitted applications for their origination and termination services ICP-B.1 and ICP-B.2. At the end of July 2003 DT submitted another 30 interconnection applications. The reason for these applications was that DT had summarily cancelled the service Telekom-O.2 (transit via DT's fixed network to the national fixed networks) by 31 July 2003 offered to those competitors with which it had signed an interconnection contract - in some cases only shortly before – with effect from 1 July 2003. With this summary cancellation DT attempted to put itself in a position where it would be able to agree on new rates for this interconnection service starting on 1 August 2003 to be able to forward the (higher) rate possibly approved in a rates procedure concerning competitors' termination service to the operators of the originating networks.

During the ongoing decision period, DT withdrew 17 applications because meanwhile contractual arrangements had been made. The remaining 13 applications were rejected due to the priority of contractual arrangements. The cancellation of these contracts announced at the end of July 2003 were already invalid for the simple reason that DT had failed to conduct the negotiations about an adaptation of the contracts which in accordance with contractual and legal conditions in such cases needed to precede an extraordinary contract cancellation.

Rates for line sharing
After the rate approval issued for this service for the first time in March 2002 was extended until the end of August by a decision of 11 June 2003 (BK 4d-03-022 /E 25. April 2003), at the beginning of July 2003 DT submitted a new application for approval of the line sharing rates to become effective on 1 September 2003. Ruling Chamber 4 decided on this application on 10 September 2003 (BK 4a-03-073 /E 4. Juli 2003). The monthly provision rate was approved unchanged from the formerly approved rate of € 4.77. The installation cahrge for takeover and cancellation and the rates for advance inquiry were lowered by two to eight per cent.

Approval of an access cost contribution
under § 39 1. Alt. of the Telecommunications Act in conjunction with § 43(6) of the Telecommunications Act
On 29 April 2003 Ruling Chamber 4 decided on DT's application of 19 February 2003 for approval of a so-called "access cost contribution". DT had applied for surcharges on

all origination and termination rates subject to rates approval. However, the Ruling Chamber merely approved a surcharge (in the amount of € 0.004/call minute) starting on 1 July 2003 on the rates for call conveyance required for carrier selection in the local network, viz. the service „Telekom-B.2 [Ort]“. The decision was based on § 39 1. Alt. of the Telecommunications Act in conjunction with § 43(6) of the Telecommunications Act. The latter regulation was amended within the framework of the „First Act amending the Telecommunications Act“ of 21 October 2002. Under this regulation, market dominating companies are obliged, inter alia, to introduce a carrier (pre)selection in the local network but the regulation also specifies that within the framework of network interconnection it must be ensured that the incentives for efficient investments in infrastructure facilities guaranteeing stronger competition in the long term continue to be made. Especially it must be ensured that the network operator selected by the user is appropriately involved in the costs of the subscriber access made available to the user.

The decision was only valid until 30 November 2003 and had been issued under the condition of withdrawal should DT increase the one-off or monthly rates payable for the installation and provision of the subscriber accesses during the approval period. By these means it was to be prevented that – possibly within the framework of the reopened price cap procedure – DT made the individual analogue subscriber access more expensive, hence resulting in double payment of the access costs. In view of the increase in the rate for the monthly provision of the analogue access and in the rates for the installation and takeover of analogue accesses, ISDN multi-terminals and basic facility accesses approved in the decision of 28 July 2003 (BK 2a 03/016) which resulted in the elimination of the access cost deficit identified, Ruling Chamber 4 took advantage of this right to withdrawal in its decision of 20 September 2003 and withdrew its decision of 29 April 2003.

Rates for access to the subscriber line
Monthly provision rates
With its decision of 29 April 2003 (BK 4a-03-010 /E 19. Februar 2003) Ruling Chamber 4 approved new monthly provision charges for access to the subscriber line which DT offers to its rivals in 17 variants, with effect from 1 May 2003.

For the most frequent access variant, the copper pair (CuDA 2Dr) DT had applied for approval of a monthly rental in the amount of € 17.40. However, the said decision only approved a rate of € 11.80/month. Compared with the previous tariff of € 12.48, the price hence decreased by 5.45 per cent and by a total of 9.16 per cent compared with the first definitive price fixing dating back to 1999. The prices approved for the other access variants also dropped on average. As in previous decisions, the Ruling Chamber resorted to a cost model by WIK, Bad Honnef. With the help of this cost model, an access network optimised in accordance with efficiency criteria was modelled and based on the investment calculations for a subscriber line. In addition, RegTP carried out an international tariff comparison which confirmed the results obtained with the WIK model. Contrary to the last decision of March 2001, the rate of return for the capital used by DT was based on a slightly lower real interest rate of eight per cent. The approval is valid until 31 March 2005.

One-off installation and disconnection charges
As the previous ruling on a price of April 2002 was valid for one year only so as to be able to verify efficiency gains in a shorter period of time, in mid-2003 Ruling Chamber 4 again had to deal with the installation and disconnection charges for access to the subscriber line. The rates valid from 1 July 2003 were approved in a decision dated 27 June 2003. For the most frequent variant, the simple takeover of a copper pair two-wire without work on end customer premises, an installation charge of € 56.60 was approved. This price ist nearly 20 per cent below the previously approved rate and even 23.5 per cent lower than the rate applied for by DT.

Also the disconnection charges for most of the access variants were decreased in comparison with the previous tariffs. In the case of disconnection of a simple copper pair two-wire where the end customer simultaneously switches to another competitor or returns to DT, with the new rates decision the competitors must now pay ten per cent less, viz. € 31.21 instead of hitherto € 34.94. In those cases where a simultaneous switch by the end customer does not take place, the disconnection charge was decreased by 7.15 per cent from € 50.71 to € 47.09. The price reductions were primarily possible due to the fact that the introduction of electronic order processing between DT and its rivals has led to more efficient work processes involving the installation and return of a subscriber line. The validity of the approved one-off installation and disconnection charges has again been restricted to a period of one year until the end of June 2004.

Interconnection rates
Rates for interconnection accesses (ICAs) and associated services
On 23 July 2003 DT submitted a new application for approval of the rates for configuration measures at ICAs and the so-called „automatic overflow routing“. The Ruling Chamber had also restricted the period of validity of these rates in its previous decision to a relatively short period of time to be able to take into consideration further possible efficiency gains resulting from the technical implementation of these services, especially automatic overflow routing, in a subsequent decision. In Determination BK 4f-03-097/E 23. Juli 2003 of 29 September 2003 the individual rate items were mostly approved as applied for by DT. In the case of automatic overflow routing some of the rates could not be approved as the submitted cost documentation was unsuitable. Any rates approved were approved for the duration of a year.

Approval of new interconnection rates from 1 December 2004
In its Determination of 28 November 2004 Ruling Chamber 4 approved new DT call charges which DT may levy from its competitors within the framework of network interconnections. This resulted in a decrease of the rates compared with the previous ones of about 9.5 per cent on average.

For the most important services „origination“ and „termination“ the following rates apply since 1 Dezember 2003 as a result of this Determination:

	peak tariff	cheap tariff
	working days (Monday - Friday) 09.00 hrs – 18.00 hrs	working days 18.00 – 09.00 hrs; and on Saturday, Sunday and nationwide public holidays 00.00 hrs – 24.00 hrs
	€/min	€/min
Tariff zone I	0.0059	0.0040
Tariff zone II	0.0096	0.0064
Tariff zone III	0.0152	0.0099

In line with the application, this decision is based on a rate structure consisting of three rate bands (local, single transit and double transit). As such, in this procedure the structure for network interconnection which in the preceding procedure in autumn 2001 had been the subject of controversial discussions, was no longer contested. It consists of two interconnection levels with 475 local service areas at the lower and a total of 23 basic service areas at the upper level. The Determination is valid for a period of 30 months, i.e. until 31 Mai 2006, and was based on a European tariff comparison.

Termination rates for alternative access network operators
In a total of 15 rates regulation procedures Ruling Chamber 4 on 5 December 2003 decided on the so-called „termination rates“ which city carriers may claim from DT for the termination of calls to customers in their networks. Within the framework of the decision, for the use of their networks the 15 city carriers which had applied for specification of their rates in summer (see above) may demand cent 0.5 per minute more than DT for the corresponding service. Originally, the 15 competitors, among them NetCologne, HanseNet, KomTel, tesion, Versatel and the ten companies belonging to the TROPOLYS Group, had requested different rates well beyond those of DT’s price level. Until the very last, DT had rejected higher rates for the city carriers.

In its decision the Ruling Chamber took the new European legal specifications on rates regulation into account which admittedly have not yet been transposed into German law. According to these specifications, rates approval based on the rigid criterion of the costs of efficient service provision was no longer possible. On the contrary, an appropriate price had to be determined bearing in mind the interests of end customers on the one hand and the diverging interests of the city carriers and DT on the other. Furthermore, very simple handling, especially as regards billing, had to be ensured. Following a thorough investigation of the complicated facts and legal position, Ruling Chamber 4 came to the conclusion that a surcharge of cent 0.5 per minute on DT’s rates is appropriate. The fact was also taken into account that in the nearly six years after market opening during which the rates between DT and its competitors were levied on a reciprocal basis, i.e. identical level, the decisions were not to result in unforeseeable changes for the parties involved but should be reasonable, implementable from a planning point of view, and economically justifiable.

The rates decision taken manages this precarious balancing act by a fair compromise which takes the conflicting interests of the applicants and DT into consideration as best possible. With the uniformly – and hence diverging from the original applications - higher rates on the part of the city carriers, the consumers' need for transparency is met. At the same time the tariff chaos due to a range of different rates feared by experts has been precluded. The decisions apply until 31 October 2004. In the decisions' justification it is pointed out that in connection with the specified surcharge it should be remembered that alternative network operators must increase their efficiency as well. From an economic viewpoint across networks permanently different efficiency criteria are not acceptable. If transparency and workable competition existed, inefficient providers woud suffer and would not be able to remain on the market in the long term. Surcharges such as those now approved can only be considered a temporary phenomenon to take into account the initial problems of new market players and to ensure more competition on the market in the long term.

It will therefore be up to a future arrangement to define this transitional measure in greater detail and to describe an approach for achieving the goal of a reciprocal rates structure and a uniform efficiency criterion applicable to all network operators. After the decisions of 5 December 2003 other access network operators have submitted interconnection applications in a first step in accordance with § 37 of the Telecommunications Act to likewise secure non-reciprocal termination rates for themselves in a subsequent rates regulation procedure. A decision on these applications is still pending.

Ruling Chamber 5
(rates regulation and special abuse monitoring postal markets)
In 2003, at DP's request, Ruling Chamber 5 had to decide on the rates for access to address changes in accordance with § 29(2) of the Postal Act within the framework of the black box procedure newly developed by DP which envisages the conveyance of mail forwarding addresses in encrypted form. Approval was given on the condition that the advantages of the new method as described by the applicant had to emerge in operation under realistic conditions so that the new procedure can indeed replace the previously unencrypted access methods „Alt gegen Neu" and „Durchreichen offen". In connection with these access procedures several complaints from competitors were received by the Ruling Chamber in the course of the year in which they complained about the functionality and manageability of the black box procedure.

To obtain a more precise view, in 2003 the Ruling Chamber installed and operated the black box procedure as a test application under realistic conditions. Furthermore, targeted research was carried out and numerous discussions held with competitors using or purposely not using the black box procedure in order to obtain information about the practical strengths and weaknesses and the complaints received in connection with the black box procedure. The procedure's performance was examined and the modification requests submitted evaluated to the extent covered by the Postal Act. The findings obtained by the Ruling Chamber will be borne in mind accordingly in the forthcoming rates approval.

In the course of the year 2003, Ruling Chamber 5 again had to decide on the access to P.O. Box facilities. The application related to access to P.O. Box facilities for postal items fulfilling the criterion items tracing. Already in the Determination relating to rates

approval of 6 February 2002 the Ruling Chamber had stated that it considered the restriction in DP's General Terms and Conditions to such items delivered on the same day as abusive. Hence on 4 October 2003 the Ruling Chamber ordered access to P.O. Box facilities for items meeting the criterion items tracing under mainly the same conditions as those in the rates approval of 6 February 2002.

In autumn 2003 again a decision had to be taken on the approval applied for by DP with regard to the rates for all the postal services combined in a basket within the so-called price cap procedure. The Ruling Chamber checked whether the basket contents, price decreases and collateral conditions specified in the preceding procedure on the combination of services and the determination of benchmarks for the price cap regulation of letter items up to 1,000 g and addressed catalogues were adhered to. As this was the case, it was possible on 24 September 2003 to approve the rates applied for within the legally specified period of two weeks for the second price cap period from 1 January 2004 to 31 December 2004. The decision was again taken on the condition that it is not permitted to combine monopoly and competitive products in certain rates rebates.

The modifications announced within the price cap procedure regarding the product DP cash-on-delivery items were not approved within the price cap procedure but in a separate rates procedure under § 27 of the Postal Act. The corresponding application in which a modified production process was aplied for whilst retaining the former rates was submitted by DP after the price cap procedure and subsequently approved by the Ruling Chamber in line with the application.

Owing to several complaints by DP's competitors the Ruling Chamber initiated preliminary inquiries regarding the possible abuse by DP in relation to the refusal of acceptance of postal items which according to the provisions of the Rules of Procedure and laws governing the service in administrative procedures need to be officially delivered. According to the allegations made, DP refuses to accept such documents although DP is obliged to deliver them and the documents are also adequately stamped. After an initial evaluation and intervention by the the Ruling Chamber, in a first step a status was reached with DP in which DP accepts and correctly delivers all documents from competitors which have to be officially delivered according to the provisions of the Rules of Procedure and laws governing the service in administrative procedures and which the competitors have to deliver beyond their authorised area. A later survey among the various parties who had complained led to the initial result that the other complaints about abusive behaviour were no longer relevant and that further intervention on the part of the Ruling Chamber was no longer necessary.

An investigation still outstanding within the framework of preliminary inquiries concerning a philatelic products complaint about the free provision of uncancelled stamps as promotional gift from DP and hence possibly the avoidance of rates approval for prices for postal services was discontinued after DP had stated that this type of promotional gift was no longer being distributed.

The approval of the rates for the delivery of documents in accordance with the provisions of the Rules of Procedure and laws governing the service in administrative procedures (formal delivery) constitutes a special type of regulation. Here, under § 34 of the Postal Act the criteria for rates regulation in § 20(1) and (2) of the Postal Act are applied to all providers of such qualified conveyance services. Normally, these

regulations merely affect market dominating companies. Admittedly the legal extension of the regulation has not resulted in any difficulties in administrative activities and practical application. The rates level regularly applied for and usually approved meanwhile averages about € 3.91 excluding VAT. In this context it should be noted that the competitors have both extended their areas of activity and coupled this with a decrease in prices. In contrast, since the beginning of 2003 DP levies an approved charge of € 5.60. It should be borne in mind that the approvals apply to a number of licensees who tend to be active on a regional basis only but on the other hand licensees active on a nationwide basis are also covered. In total, in 111 cases rates for formal delivery were approved in 2003.

Ruling Chamber proceedings in 2003

Ruling Chamber	Rates regulation		Abusive practices		Licensing		Frequency award	Inter-connection arrangements		Other proceedings dispute settle-ment, complaints approval		Total no. of procedures	Number of summons
	T	P	T	P	T	P		T	P*)	T	P	T und P	T and P
1													
2	**24**									**4**		**28**	**182**
3	**1**		**2**							**13**			**69**
B4	**42**							**102**				**144**	**1,255**
5		**117**		**3**					**2**				
Total	**67**	**117**	**2**	**3**				**102**	**2**	**17**		**172**	**1,506**

*) Access to P.O. Box facilities and address changes and access to incidental service offers

The Regulatory Authority

Status, function and structure

RegTP was established in accordance with § 66(1) of the Telecommunications Act with effect from 1 January 1998 as higher federal authority within the scope of business of the Federal Ministry of Economics and Labour. It emerged from the transfer of tasks from the former Federal Ministry for Posts and Telecommunications and the former Federal Office for Posts and Telecommunications.

RegTP key responsibility is by regulation in the telecommunicatoions and postal sector to encourage competition and ensure nationwide appropriate and adequate services and to lay down a frequency regulation. These RegTP tasks are defined in detail the Telecommunications Act and the Postal Act of 22 December 1997 and are supplemented in ordinances and other implementing provisions. Further RegTP tasks are set out in various specific acts such as the Radio and Telecommunications Terminal Equipment Act, Amateur Radio Act, Electromagnetic Compatibility Act, Digital Signature Act and the Act on Countering the Abuse of (0)190/(0)900 Value-added Service Numbers of 15 August 2003 plus the associated ordinances having the force of law.

Like the procedural methods, RegTP's tasks are complex and wide in scope. They range from highly specialised procedures with processes comparable to court proceedings in core regulation to the requirement for nationwide presence to deal with technical faults. A task-oriented organisational structure enables RegTP to work efficiently. This organisational structure is as follows:

The **Ruling Chambers** decide in the telecommunications sector on ex ante and ex post rates approvals, abusive practices and special network accesses including interconnections. In the postal sector decisions are primarily made on the definition of basic coverage obligations, competitive bidding in relation to services, rates approvals and modifications of rate-related General Terms and Conditions. The President's Chamber decides in particular in award proceedings in relation to limited licences and in the case of universal service requirements. The number of Ruling Chamber proceedings (about 1,030 just in the period 1999 - 2002) of RegTP illustrates the need for regulatory activity on a monopoly-focused market which needs to be opened up to competition.

The **departments** deal with central administrative matters and specialised tasks, including those related to economic and legal aspects of regulation and licensing in the telecommunications and postal sectors, technical questions relating to frequencies, standardisation and numbering. As regards the development of new generation networks and new wireless systems RegTP participates in international bodies compiling relevant standards. This standardisation leads to a uniform distribution and hence associated uniform use of networks and radio systems. This concerns areas such as mobile communications, broadcasting, numbering or telecommunications networks. An important function of the departments is to provide the Ruling Chambers with expert support.

A major challenge are RegTP’s tasks. With the entry into force of the Act on Countering the Abuse of (0)190/(0)900 Value-added Service Numbers on 15 August 2003 RegTP has presented a comprehensive action package to strengthen consumers’ rights. Other new areas relate to a location database for transmitting installations with a certain power level. Among the services of considerable importance and having a direct impact on citizens, the arbitration proceedings under § 35 of the Telecommunications Customer Protection Ordinance and consumer protection should be mentioned. RegTP’s ability to deal with these new tasks is reflected by its flexible internal structure.

To place greater emphasis on the uniform character of the authority, the regional offices, of which there are currently 39 and through which RegTP maintains its contact to consumers and industry on a nationwide basis, are guided and coordinated by a separate department.

The tasks of the **regional offices** mainly focus on technical matters. They offer counselling, for example on the regulations in the Telecommunications Act, the provisions for electromagnetic compatibility and on the electromagnetic compatibility of equipment. Included in their range of tasks are frequency assignments, e.g. for mobile communications facilities and private mobile radio (PMR) sets. Another important area concerns the processing and clearing of radio interference with highly sophisticated measuring devices, monitoring of the adherence to regulations and the execution of radio monitoring and inspection tasks. Their scope of responsibility extends to the verification of licence conditions and licensing terms, e.g. the verification of postal licences. The meaningful transfer of tasks to the regional offices (medical financial aid processing for the entire scope of business, call centre) frees headquarters for basic tasks and at the same time usefully exploits staff capacity in the regional offices.

By introducing a leaner organisational structure (after March 2004 there will only be ten sectors with a continuously decreasing number of regional offices), an endeavour is made to achieve more efficient working processes and service provision. In the

decisions on the closure or combination of regional offices important aspects such as infrastructure data, customer and market proximity, nationwide presence and costs need to be borne in mind. In the adaptation of staffing levels to requirements due consideration will be given to social acceptability.

Staff management

High priority is given by RegTP to modern staff management. Especially at times of a tight established posts structure the need to optimally deploy personnel resources becomes vital. This can only be achieved if staff planning adequately takes into account both business requirements and the abilities and inclinations of its staff. Because only if these two modules – active deployment planning in line with requirements on the one hand, and motivation of employees on the other – can be combined, the tasks delegated to RegTP can be executed at low cost and efficiently even in times of restricted financial resources.

In this connection RegTP strives whenever possible to bring the work to the people. As such it has been possible by a planned transfer of tasks involving the the regional offices to successfully structure the initial phase of the Act on Countering the Abuse of (0)190/(0)900 Value-added Service Numbers which came into effect in August 2003 with a minimum staff increase.

For its strongly interdisciplinary tasks RegTP employs specialists covering a wide range of fields, such as legal experts, economists, engineers, mathematicians, IT specialists, administrative experts, etc. The approximately 2,250 RegTP employees belong to four service grades (D grade, C grade, B grade and A grade). This classification is derived from civil service law but also applies mutatis mutandis to salaried employees.

RegTP provided traineeships in 2003 as well. In total, 25 young people were trained as experts in office communication or electronic experts for equipment and systems in 2003.

Details:

<u>D-grades (about 210 employees, of which about 60 engineers)</u>

Apart from legal experts, this group includes economists with different fields of specialisation. The engineers mostly with a degree in communications engineering constitute another large part of the group. There are also a small number of employees with a degree required in other fields of specialisation.

<u>C-grades (about 800 employees, of which about 660 engineers)</u>

At this hierarchical level mainly Diplom-Verwaltungswirte and Betriebswirte/FH are employed in the non-technical sector. The technical sector is characterised mainly by communications engineers.

<u>B-grades (about 1.150 employees, of which about 480 engineers)</u>

The non-technical sector basically employs civil servants with civil service-related administrative training. The technical sector comprises engineers who have trained as skilled telecommunication workers or electronic communications experts.

A-grades (about 65 employees, of which 15 engineers)
A-grade staff as a rule have completed a traineeship. They are deployed in various sectors such as in interoffice mail and facility management.

Budget

RegTP income and expenditure is booked in the federal budget (Individual Plan 09, Chapter 0910). This Chapter is mainly included in the flexible budget management system. The fiscal years 2003 and 2004 with the incomes and expenditures as determined and planned are shown in the table below.

Since the Budget Act has not yet been promulgated for fiscal year 2004, the target figures for 2004 relate to estimates dating back to the third reading of the budget by the Deutsche Bundestag.

Income:

Type of income	Target 2003 € 1,000	Per-formance 2003 € 1,000	Target 2004 € 1,000
Administrative income	227,786	101,178	75,492
of which fees and contributions under the Telecommunications Act	161,000	66,268	20,100
other fees and contributions	66,000	33,778	54,500
other administrative income	786	1,132	892
Other income	25	10	19
Total income	**227,811**	**101,188**	**75,511**

Owing to fee and contribution increases in past periods higher incomes were calculated for fiscal year 2003.

However, the actual income failed to fully meet expectations since rulings in administrative courts annulled certain legal bases on which fees and contributions were based. It was not possible to issue new legal bases with the requisite application guidelines in time to allow the income still to be booked in fiscal year 2003.

Expenditures:

Type of expenditure	Target 2003 € 1,000	Performance 2003 € 1,000	Comparison Target/per-formance 2003 in %	Target 2004 € 1,000
Personnel expenditure	86,318	89,116	103.24	87,438
General administrative expenditure, allocations	34,446	27,249	79.10	32,864
Investments	18,050	11,995	66.45	14,075
Total expenditure	**138,814**	**128,360**	**92.47**	**134,377**

In view of the provisional budget management valid until end of April 2003 which only allowed restricted financial outlays, the performance figures remained below the possible budgetary target.

RegTP goals 2004

Telecommunications

In 2004 tasks of exceeding importance on the telecommunications markets will have to be dealt with. Since the year 2003 was marked by participation in the compilation of draft bills and the transposition of new Acts the new Telecommunications Act – completion of the legislation and practical application – will also play a major role in 2004. A number of goals of vital importance to the market will have to be pursued. The following should be mentioned:

Primary goals

a) Transposition of the new Telecommunications Act into practical reality will be the task of supreme significance which will involve nearly all organisational units of the Regulatory Authority.

The transposition will commence with a review and possible adaptation of the Authority's organisational structure to the new regulatory procedures and empowerments.

In parallel, at the earliest possible point in time the procedures for demarcating the market and for market analysis under Art. 14 to 16 of the Framework Directive will be initiated. This includes collection of the necessary data and market delimitation as much in line as possible with the Commission's recommendations and the examination of dominant positions and significant market power (SMP) on the basis of current market developments.

After completion of the market analyses the basic decisions need to be made on the basis of the market relationships determined about the necessary and appropriate regulatory tools.

Harmonisation becoming more important as a goal in the new regulatory legal framework, the tasks in the field of cooperation of the European regulatory authorities within the ERG and the IRG considerably increase in importance. Also the working relationship with the European Commission will intensify considerably owing to the consultation and consolidation process (Art. 7 of the Framework Directive; Notifications).

Moreover, the standard offer to be defined by the market dominating telecommunications network operator must be examined.

b) Also of supreme importance is the further implementation of the UMTS decision. Competitive independence of the licensees must be ensured, the necessary installation and roll-out of the infrastructure must be enabled through the provision of frequencies and – highly important – the adherence to the coverage obligation must be verified.

c) In addition, further processing of competitors' complaints with respect to DT's resale offer in 2004 will be of prime importance. Since the administrative courts have principally confirmed DT's obligation to provide resale services it will be necessary to ensure fair terms of the offer within the framework of special abuse surveillance. If need be, an ex post rates regulation proceeding will be initiated to guarantee rates corresponding to legal criteria and thereby to ensure that all business models have a fair competitive chance.

d) Less noted by the public but nevertheless of outstanding importance are the tasks of RegTP as competent authority under the Digital Signature Act. The development of secure, user-friendly and cheap electronic legal relations is of great importance for the business location Germany. With the root Certification Authority RegTP provides the legally prescribed technical and administrative basis for qualified electronic signatures. In 2004 it is very important to monitor and subsequently implement the planned adaptation of the Digital Signature Act. Moreover, the adaptation of RegTP's trust centre to state-of-the-art technology, which has already begun, needs to be continued.

e) The changes to the European Directives forming the basis of the Electromagnetic Compatibility Act and Radio and Telecommunications Terminal Equipment Act envisaged for 2004 need to be transposed into national regulations and to be applied. The amendments pose new challenges, especially to RegTP's market surveillance and interference processing. The current electromagnetic compatibility level in Germany must be maintained in the consumers' interest.

Other tasks of special significance
Apart from the aforementioned primary goals, a number of particularly important separate tasks need to be dealt with in 2004. To avoid misunderstandings, it is pointed out that the order in which they are listed below does not imply any priority.

a) Award proceedings will be necessary for frequencies in the range 450 to 470 MHz (CDMA/PAMR). This is due to the reallocation of the spectrum of DT's former C network. In this connection special attention must be paid to the interests of users, the guarantee of fair and workable competition, efficient and interference-free frequency use, European harmonisation, technical developments and the compatibility of frequency use.

b) After passage of the new Telecommunications Act, proposals will be needed on operationalisations for the regulatory practice with respect to certain key provisions. Examples are the consistency requirement, the imposition of obligations according to Articles 9 to 13 of the Access Directive, and operationalisation and delimitation of different rates regulation criteria.

c) In vew of the increasing importance of broadband networks and accesses for the ongoing expansion of the Internet and other innovative services, the development of regulatory concepts for wholesale products in the broadband sector is one of RegTP's important tasks. Needed will be the elaboration and and enforcement of a consistent regulatory concept for bit stream access.

d) As regards the universal service RegTP will continue to accompany the pilot project „Basic Telephone" in cooperation with DT and the local leading associations to ensure the nationwide provision of public telephones. This involves meeting the changed demand for public telephones by taking the full household penetration of the fixed network and the high roll-out level of the mobile networks as a starting point and to tread new paths within the framework of a new structural concept for ensuring nationwide provision, also at economically less attractive locations.

e) The implementation of the Act on Countering the Abuse of (0)190/(0)900 Value-added Service Numbers will also constitute a high-priority task in 2004. Since 14 December 2003 only the subrange (0)9009 is available for priced diallers. During the sampling of the completed registrations attention will therefore need to be given in 2004 on the adherence by these diallers to the minimum requirements. Since it is assumed that diallers are still illegally being operated in the number ranges (0)190 and (0)900, RegTP will also strictly implement the Act in future and initiate steps – even number withdrawal if need be. Furthermore, there are indications that consumer complaints about fax spam etc. will not abate so that major attention will need to be given to combatting spam. From 1 August 2004 the price announcement obligation in § 43b(2) of the Telecommunications Act (in future in the Numbering Ordinance) will also apply to the mobile sector. It will therefore also be necessary to monitor adherence to the Act in this sector and to punish violations.

f) With the entry into force of the new Telecommunications Act it is very likely that ex post control of retail rates will become the norm. Focal point will be the examination of, for example, package offers in relation to dumping and

obstacles to competition. Against this background RegTP will in future examine more thoroughly whether DT's competitors are given wholesale products needed for competitive products at contractual terms in the competitors' interest.

Selected tasks illustrating RegTP's sphere of activity

Without claiming to be comprehensive, the following list sets out some of the tasks which need to be dealt with in 2004 which illustrate RegTP's broad sphere of activity:

a) Conceptual regulatory considerations need to be elaborated on the interoperability of mobile radio apllications (catchword: walled gardens). For next generation networks, especially with a view to the convergence of networks and applications (fixed network, mobile communications, broadcasting), a regulatory framework needs to be discussed and established in cooperation with all parties concerned. The results of concurrent RegTP studies on the trends and developments of next generation networks will need to be considered.

b) The following needs to be done within the framework of frequency regulation:

- o preparations for the ITU-R planning conference on digital broadcasting,
- o updating of the frequency usage plan after amendment of the Frequency Band Allocation Ordinance,
- o execution of frequency assignment proceedings for DVB-T in at least six federal states,
- o organisation and execution of the notification of the European satellite system GALILEO to the ITU.

c) Furthermore, even now RegTP needs to carry out tasks of which the public will only become aware in the far future.
Examples are the radio compatibility studies in preparation for the world radiocommunication conference (WRC) in 2007 and the elaboration of a concept for frequency allocation for the World Football Championship in 2006.

d) As a result of court rulings and increasing scarcity, new number allocation rules have to be developed for the local network sector. To ensure appropriate application processing, the new rules must be mapped in corresponding databases.

In addition to the conventional local network numbers, it is envisaged to provide geographically independent subscriber numbers. With this, RegTP wishes to establish a suitable number range especially for those subscribers who are connected to the public telephone network via the Internet or IP-based access networks.

e) A decision needs to be taken on the mode of continuation of non-reciprocal rates.

f) To ensure that the relevant safety organisation can fulfill their tasks, RegTP needs to ensure that the operators of telecommunications installations adhere to the TKÜV Ordinance. In 2004 a new technical directive will need to be compiled.

g) For the automated information requests (names and addresses of the number holders can be retrieved by safety organisations) a new technical directive needs to be compiled to comply with changed legal conditions.

h) The provisions of frequency regulation for the protection of especially the safety-related radiocommunication services against radiations from telecommunications systems and networks need to be converted into suitable limits. Furthermore, EMC requirements applicable to IT and communications systems and equipment must be either elaborated or updated for frequency ranges not yet adequately protected (e.g. UMTS or WLAN ranges). RegTP is also involved in the definition of internationally valid interference limits.

i) It is envisaged to establish an interface between public networks and emergency centres in cooperation with fixed and mobile network operators, emergency organisations and the manufacturers to provide a uniform national emergency call. This is linked to the international standardisation of telecommunications in emergencies (signalling of priority switches for decision-takers and emergency organisations; local information in the case of emergency calls 112).

j) Preparations for the World Standardisation Conference 2004 (WTSA). Special attention needs to be given to the product neutrality of technical recommendations and their fair and non-discriminatory application.

k) Within the framework of the federal govenment's e-government initiative, the entire work process inter alia in number management (call numbers for value-added services) from the filing of the application to number assignment to documentation of the use of the call numbers is to be dealt with electronically without media disruption.

l) Consumer protection for end customers in the liberalised telecommunications market, especially the provision of information and help with questions in the field of telecommunications, continue to be given top priority. In the meantime the consumer service which can be addressed by telephone or in writing has evolved into a heavily used liaison point for consumers. The expansion of this area and increased proximity to citizens through the further development of the partial project dispute settlement within the framework of the federal government's project „BundOnline 2005" are focal points of RegTP's activities in this field in 2004.

The justified claims of the users of telecommunications services vis-à-vis their contractual parties will need to be given greater attention. The draft of the new Telecommunications Customer Protection Ordinance envisages that contracts should contain certain minimum deliverables and guarantees. Suitable quality parameters and measurement methods may need to be defined.

m) RegTP will carefully observe the leased lines market in 2004 as well and derive the necessary regulatory measures from the analysis of the market conditions. Of special significance will be, inter alia, the relationship between rental price and bit rate. Furthermore, DT's Metrolink offers and their interrelationship with the standard long-haul circuit offers and local network access will need to be acknowledged.

Posts

Among the tasks to be undertaken by RegTP in the year 2004 in connection with the regulation of the postal markets are the following:

Primary goals

a) Definition of a consistent regulatory approach for access to incidental services in the postal sector with due consideration being given to amendments of European and national legislation.

b) Verification of the performance of the access for competitors to information about address changes in accordance with § 29(2) of the Postal Act and examination of the conditions for P.O. Box access for competitors in accordance with § 29(1) of the Postal Act in addition to the associated rates approval.

Other tasks of special significance

a) Further development of a methodology for economically verifying adherence to the provisions of the Postal Act and associated ordinances, also in the case of an asymmetrical information status (RegTP ⇔ DP).

b) Optimisation of the methods for verifying adherence to the universal service obligations with due consideration being given to changes in the Ordinance concerning Universal Services for the Postal Sector.

c) Continuation of the licence and quality controls in the postal area while optimising current procedures.

d) Organisation of a forum for postal licensees to encourage the exchange of information between RegTP and licence holders and thereby to encourage competition.

e) Preparation of the Universal Postal Union Congress 2004; furthermore, RegTP will place its findings and experience with regulation of the postal markets at the disposal of the regulatory authorities of the acceeding countries.

f) Examination of DP price changes in the sector „Schalterpaket“ within the framework of ex post rates regulation under § 25 of the Postal Act.

g) Execution of a rates approval procedure for formal delivery. Examination of the compatibility of innovative rate models for formal delivery with the Postal Act.

Energy markets

One of the biggest, if not the biggest challenge facing RegTP in 2004, will be the regulation of the gas and electricity markets to be implemented in the EU from 1 July 2004.

RegTP will make available its experience with the network-oriented telecommunications and postal markets from the viewpoint of enforceable and practicable standardisation. Depending on the anticipatory political decisions, it will gradually establish structures to be able to implement the new legal regulations with the least delay as they come into force.

In preparation for taking over the regulatory tasks in the field of the gas and electricity markets which is currently still being supported by an internal working group, an organisational team will be established at the beginning of 2004. This team is to ensure that the requisite structures are available upon entry into force of the new Energy Industry Act. The acquisition and training of the requisite qualified staff will take place in parallel so as to be able to embark on the actual regulatory tasks more or less without delay.

Organisation, staff

RegTP considers it its special duty to ensure by means of an appropriate organisational structure and efficient, flexible staff deployment that the acknowledged expertise of the authority functions smoothly without at any time losing sight of the available and often modest budgetary means.

The biggest challenge in this area in 2004 should be the taking over by RegTP of the tasks under the new Energy Industry Act. Not only the establishment but particularly also the smooth integration of the new organisational units in existing structures will focus on the principles of efficiency and a strong orientation towards the purposeful execution of tasks. This will to a large extent depend on the correct deployment at the right place of both new and already available staff. Here also, the correct deployment of motivated staff will open up resources ensuring the best possible execution of duties at the lowest possible cost.

But also in its current sphere of activity RegTP will question existing structures in 2004 as well and adapt them as closely as possible to changed task profiles. In this connection especially the changes brought about by the new Telecommunications Act should be mentioned. Another aspect worth mentioning is the further reduction of the number of regional offices. Also on the agenda is the expansion of the tasks taken up in 2003 in connection with the Act on Countering the Abuse of (0)190/(0)900 Value-added Service Numbers and with which RegTP makes a significant contribution to practical consumer protection.

It should also be mentioned that RegTP is also involved in helping young people to obtain future-oriented training. Apart from the well-established training as a specialist in office communications, RegTP has also set a standard in technical training by creating four additional traineeships as electronic expert for equipment and systems at a new training location. The training is offered by qualified and highly motivated trainers with the support of excellent equipment.

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