

Sales and service:

# Customer orientation and service to the customer.

Today, our customers expect a higher quality of telecommunications services than they did a few years ago. New applications such as multimedia and the Internet have changed people's communication habits and hence their expectations of us. Awareness of the concept of service has also grown. Business customers in particular want rapid, reliable customer service, as their telecommunications services can have an impact on their sales figures. As a full-service provider, we are able to offer customers a high level of reliability for their communications, thanks to our technical know-how and nationwide coverage.

# Quality much improved

Deutsche Telekom has set itself the goal of becoming one of Germany's most customer-friendly companies. To this end, since the separation of the telecommunications and postal services in 1990, we have engaged in an ongoing process of improvement across the company and at all organizational levels. This has enabled us to make substantial improvements in some key measures of quality. Noticeable progress in availability, and installation and maintenance response times has been confirmed by our customers by the better ratings they have given us in our regular customer satisfaction surveys. For example, availability of the sales force, that is, the average number of calls answered personally, increased from 77 percent at the beginning of 1997 to 90 percent at year end. Marked improvements in our service for business customers were also recorded from 1996 to 1997. The percentage of phone lines installed, as agreed at the time with the customer, increased from the 1996 figure of 97.7 percent to 99.0 percent in the first half of 1997.

Many of the company's divisions have also been certified under the DIN EN ISO 9000ff industrial quality standards. These standards reflect trust in a supplier's ability to fulfill the requirements of a quality management system.

### Organizational and IT measures brings results

In our support systems we have also improved our organizational and information technology (IT) systems considerably. These enhancements include new hardware and software for IT support in residential customer sales. We have reorganized our order management system for business customers nationwide. Above all, this has reduced installation times and improved our record for installations at the promised time. We have accelerated customer service response times and are currently introducing a uniform guide for product and innovation management.

#### Dialog with the customer Telekom Direkt – complaints management

At the end of 1996, we set up a special unit with a professional and well-organized complaints management team to provide targeted customer service. Customers' inquiries relating to sales, service and billing are addressed on an integrated basis. Incoming complaints are analyzed promptly in order to eliminate the sources of problems early.

### Advantage - benefits for major customers

Deutsche Telekom's Advantage program was started in November 1996. Advantage provides a wide range of special services for our large residential customers in matters related to installation, maintenance and complaints handling. By the end of 1997, it had been gradually extended to approximately 1.6 million residential customers. Additionally, we have an ongoing dialog with approximately 250 business customers in our "Telekom-Forum", which was introduced in March 1996. This allows the exchange of views with our customers, giving them a say in the development and shaping of our products and services.

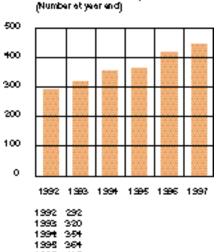
Deutsche Telekom seminars - courses for the experienced customer Since 1993, Deutsche Telekom has held its own seminars for business customers. Through these seminars, customers can keep abreast of technical developments, for example, in the areas of ISDN, the Internet, online services, etc.

# Sales

A considerable part of our resources is devoted to marketing and selling our products and services. Our marketing programs and extensive sales network have enhanced Deutsche Telekom's image and enabled us to respond rapidly to customers' needs. To provide our customers with improved levels of service, we have in recent years established a sophisticated nationwide marketing and sales organization for our different customer groups, staffed by approximately 27,000 employees.

#### Servicing the special needs of our business customer

We provide customer service in Germany for approximately two million business customers, as at the end of 1997, ranging from small businesses to large multinationals. Because their requirements vary by industry, we have created sector-specific sales units for the approximately 4,500 largest companies in the market segments of trade, service companies, industry, public facilities and services. Regional customer service representatives have been assigned to a further 80,000 medium-sized companies. The remaining business customers are serviced through our 24-hour call centers, which allow the company to register customers' wishes in a timely fashion and deal with them efficiently.



T-Punkt shope in Germany

1996 416 1997. 455

## Residential customer sales division serves 33 million customers

Our residential customer sales division attends to more than 33 million residential customers and an additional approximately two million smaller business customers in Germany. For sales to the mass market, we rely on the four pillars of our marketing: fixed-location trade, indirect sales, the Deutsche Telekom mail order service, T-Versand, and telemarketing.

#### Fixed-location trade - T-Punkt shops for personal service

The most lucrative sales channel for residential customers is direct sales. In our 455 T-Punkt shops (as at the end of 1997) - some with an integrated T-Mobil shop or as a shop-in-shop option in department stores - as well as in another 250 direct sales outlets, we offer our residential customers the whole range of our products, from extension cords for telephones and T-Mobil's mobile telephone products to multimedia PCs with Internet access.

# Indirect sales to be expanded

Alongside the expansion of direct selling at fixed points, we are planning to establish a broad-based indirect sales network with selected trading partners. A successful trial was completed in late 1997. Starting from some 2,000 distribution points at the end of the pilot project, we plan to continue increasing substantially the number of our distribution points in Germany through further cooperative arrangements with important trading partners until nationwide coverage is achieved.

#### T-Versand - shopping at home the easy way

In past years, we have expanded our delivery service for terminal equipment, making it one of the largest mail order operations for telecommunications equipment and services. Twice a year we issue a catalog, primarily for residential customers, to inform customers of our products and services and allowing them to order equipment by phone or fax.

#### Telemarketing - hotline to the customer

We also place great confidence in our relatively new sales channel, telemarketing, as we enter the competitive marketplace. Approximately 3.500 (as at the end of 1997) members of our residential customer sales staff sell our products over our customer hotline (0800 33 01000) - free of charge, 24 hours a day, seven days a week. In 1997, we improved the immediate availability of this hotline to callers from approximately 65 percent at the beginning of the year to more than 90 percent at year end. In the context of the Advantage program, we also actively service customers while telemarketing. In addition to greater customer satisfaction and loyalty, we have created an efficient sales channel with our brand of telemarketing.

#### New services for selected target groups

In the spirit of our customer-orientation, we have in recent years introduced a number of new services for specific target groups, notably for the housing industry, schools and universities, large population centers, selected population groups and customers moving or relocating.

#### Service Nationwide, faster, better

Complex support requirements must be met so that our networks can be available to our customers at all times and terminal equipment is always in working order.

On account of digitization of all the technical components and the increasing convergence of terminal equipment and communications networks (e.g. ISDN), a high degree of harmonization between components is increasingly important. If something malfunctions, there must be a technician on site as promptly as possible to eliminate the problem.

Deutsche Telekom provides nationwide customer service, from the taking of maintenance requests to the management of customer networks. Depending on customers' wishes, we offer different levels of quality and presence for our customer service.



The percentage of new lines installed within five working days of receiving an order rose from 88 percent in 1996 to 99 percent in 1997. Marked improvements in maintenance response times for telephone connections have also been recorded in the last few years. In

1996, 74.2 percent of repairs were carried out within 24 hours. We were able to boost this figure further in 1997, to 87.2 percent.

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Nationwide sales network: With more than 450 outlets throughout Germany, our chain of T-Punkt shops is the best sales channel for our residential customers. Whether for a single telephone, a whole telecommunications system or one of the many support services – every customer receives individual advice. The number of T-Punkt shops is to be increased consid erably.



Interconnectin branch offices and head office is very comolex. With a Telekom **Designed Network** we can make best use of the synergy effects."

Thomas Koopmann, Head of IT, Ludwig Görtz GmbH, Hamburg

In 1998, we hope to achieve further service and quality enhancements, by linking our sales force in the field by means of laptops and radio together with improved procedures.

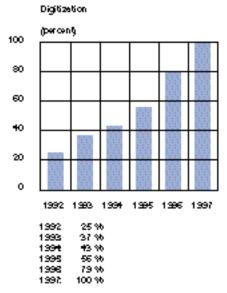
Network and information technology:

# Local access, global quality.

Deutsche Telekom considers the quality, performance and efficiency of its network to be one of the most important aspects of our evolution towards the information society.

In 1997, Deutsche Telekom invested DM 8.7 bn in its networks to further the development of the T-Net and improve network productivity. In the process, Deutsche Telekom completed two of the largest investment programs in its history in 1997: the "Telekom 2000" development program for eastern Germany and the network digitization program.

"Telekom 2000" program completed Between 1990 and the end of 1997. we invested more than DM 48 bn in eastern Germany as part of the "Telekom 2000" program. Thanks to significant cost savings, we were able to remain far below the DM 60 bn originally budgeted for this project. Since



1990, we have been bringing the penetration rate in eastern Germany up to western German levels. A total of 4.7 million eastern German households have cable TV. Data connections and the entire range of mobile communications services are available throughout the region.

#### Network fully digitized

In this information age, telecommunications, information technology and media are increasingly converging. One of the central technical prerequisites for this development is the digitization of telecommunications networks. Digitization increases the number of services that can be offered, expands capacity, enhances the ability to respond when monitoring the network and improves efficiency of network operations. Full digitization is also a prerequisite for the introduction of competition: without digitization, subscribers would not have phone number portability and could not select their network operators.

We reached full digitization in the longdistance sector in 1994. By the end of 1997, we completed the digitization of the approximately 5,200 local networks connected to a total of approximately 8,000 local exchanges. In the past three years, we invested approximately DM 12 bn in our digitization campaign.

#### Network management center went into operation

In 1997, Deutsche Telekom began operations at its Network Management Center in Bamberg, All long-distance calls in the national telephone and ISDN networks will be monitored and managed at this high-tech center, to which all 750 exchanges in our longdistance network will eventually be connected. The center's continually updated data on traffic flow will also provide a basis for planning additional network expansion and show how subscribers are responding to special rates and calling plans. The center will also monitor and manage the ATM network and traffic relationships with competitors.

Our international Network Management Center in Frankfurt has taken on similar tasks for international networks. The two centers will be closely linked for purposes of mutual back-up.

#### Rapid growth of the Internet transport platform

The constantly growing "on-line community" is generating exponentially growing data traffic in Germany. Online sessions in 1997 numbered approximately half a billion, some 60 percent more than in the previous year. Such a rapid increase in traffic creates enormous demands for expansion of the Internet transport platform. This Internet-protocol-based platform now has 74 backbone nodes and offers dial-in access at 180 locations. The links between the nodes have transport speeds of up to 34 Mbit/s. It is planned to convert ten of the main links to 155 Mbit/s in the spring of 1998. Via this network our customers can dial into the Internet and T-Online at a speed of 33.6 kbit/s using an analog line and at 64 kbit/s using an ISDN line. Any standard Internet access software can be used.

"Every emergency phone can save lives. Our network that covers all of Germany and over 20,000 km of roads helps save lives."

Siegfried Steiger, Chairman of the Rescue Service Björn Steiger e.V., Winnenden

### Intelligent Network expanded

Many modern telecommunications applications are impossible without Intelligent Network (IN) technology. Included in these applications are the Servicenumbers (0130/0800, 0180 and 0190) and the so-called Virtual Private Networks (VPN), which enable private operators to use their own numbering plans within the public network. From 1996 to 1997, the volume of calls handled through IN technology increased by approximately 80 percent. At the same time, network availability was enhanced through the introduction of new technology and a new network concept. The technical plat form for IN-based combined services, such as the "Personal Communication Service" (PCS), was installed and, in some cases, refined. This platform is needed for integrated services that use both the fixed and mobile communications networks.

#### International network with a verv high network availability

Deutsche Telekom's international network consists of six gateway exchange nodes (1996: 8), 19 network gateways to neighboring countries, four landing points for submarine cables and three major satellite earth stations. Deutsche Telekom maintains traffic relationships with approximately 300 telecommunications companies, in 220 countries.

At the end of last year, we began operations with a flexible transport network for international traffic (ITN-D). This network employs state-of-the-art ring technology and has a transmission capacity of 2.5 gigabits per second. It enables us to offer our customers very high network availability: if there is any disruption, all traffic is shifted to a second, fault-free ring direction within milliseconds. To ensure that the increased protection all the way to the customer can also be provided for international

Glass instead of copper: A thin fiber of glass can carry at least as many calls as an entire bundle of copper cables. And the transmission quality is better, with significantly lower signal attenuation and distortion than via copper cables. At the end o 1997, Deutsche Telekom was operating almost 150,000 kilometers of fiber optic cable.



leased lines, the expansion concept also calls for direct links to Deutsche Telekom's City Networks in Germany's most important cities.

Because of the related cost advantage es, we use submarine cables to transmit most international traffic. The growing volume of data transmission necessitated expansion of the submarine cable network to the US, the UK and the Far East, which are all important network centers. To achieve this, we invested in three new submarine cable projects with landing points in Germany. Beginning in 1999, the SEA-ME-WE 3 (Southeast Asia - Middle East - Western Europe) cable, with a total length of 38,000 kilometers, is expected to link 34 countries directly and be able to transport 300,000 telephone calls simultaneously. Additionally, in December 1997, we signed a contract with the private owner of the Atlantic Crossing 1 submarine cable

# Using resources wisely, avoiding waste.

that covers the provision of support and services for this cable as well as the purchase of capacity between the U.S. and Europe. Finally, in mid-1997, Deutsche Telekom, in close cooperation with France Telecom and Sprint. signed a Memorandum of Understanding (MoU) for installation of a new transatlantic ring (TAT-14) with direct landing points for each of the three alliance partners.

We also cooperate internationally in the area of satellite communications. Deutsche Telekom is a member of the most important international satellite organizations, Intelsat, Inmarsat and Eutelsat. We also hold interests in the private satellite operator SES (Société Européenne des Satellites) and - via our involvement in Satelindo in Indonesia)-Palapa-C.

We have expanded our international product portfolio through our investments in ICO, a provider of global mobile communications via satellite. In June 1997, we received a DM 60 million contract for the operation of the only European earth station for this global satellite communications svstem.

# First digital cable TV programs

Our cable TV network consists of a coaxial-cable broadband network. supplemented with fiber optic lines, and is currently being used exclusively for the transmission of television and radio signals. We began broadcasting the first digital television programs as soon as the digitization of the cable network was completed. Digital programs of the DF1 and Premiere networks were broadcast through the network in most Federal States on the basis of provisional media regulations. In early 1998, the digital programs of the ARD and ZDF public broadcasters were added, and the content of other providers is to follow. Our cable TV network currently has capacity for 33 analog TV channels, 36 radio channels and up to 130 digital channels in the hyperband.

# Access network permits broadband ADSL applications

1998 marked the start of Deutsche Telekom's pilot project for broadband ADSL. In a project in cooperation with the state of North Rhine-Westphalia. several hundred residential and business customers will be provided with the new "Asymmetric Digital Subscriber Line" access technology (see Research and development). It enables high-speed data-transfer rates of up to 8 Mbit/s over standard copper telephone lines.

#### IT boosts cost-effectiveness significantly

The significance of information technology for Deutsche Telekom has grown considerably in recent years. The area met extremely demanding requirements for the provision of internal services in 1997, such as:

- the administration of approximately 37 million customer data records,

- the preparation of about 500 million invoices over the course of the year, and

- the processing of some 60 billion call-data records.

These services require state-of-the-art information technology. Deutsche Telekom's infrastructure for these applications includes a high-speed intranet with approximately 150,000 computerized work stations; advanced call-center technology; nearly 20,000 MIPS of CPU power: approximately 2,700 Unix servers of various size classes and 54 Terabytes of memory capacity in large computer systems.

The organizational basis for these services consists of our Group IT Service Center with

- six ISO 9001-certified internal software development centers, with approximately 2,000 specialists, and
- six very modern service and computer centers of DeTeCSM, one of Europe's largest operators of information technology systems.

This covers the entire spectrum of IT consulting, development, operations and service.

In 1997, IT services were also marketed externally on occasion via the Systems Solutions business area. This marketing is expected to be expanded in future.

Deutsche Telekom and its subsidiaries are working at high speed to prepare for the year 2000: our approach to ensure "year 2000 compliance" in our products and systems is based on a three-step model practiced worldwide. In the first step, all of Deutsche Telekom's products and systems are checked for potentially problematic two-digit year figures in dates. The second step is systems conversion; the third is testing. As part of these measures, we will do everything possible to prevent disruptions and inconvenience for our customers.

servation and actively promotes forwardlooking environmental protection. By developing and marketing products and services that contribute directly or indirectly to environmental preservation, such as telebanking or traffic management, for example, we are helping to promote careful use of resources. At the same time, we are continuing to reduce the level of environmental pollution by rigorously and critically reviewing our corporate processes.

Deutsche Telekom is aware of its

responsibility for environmental con-

#### Terminal equipment recycling a common procedure

For some time now, Deutsche Telekom has implemented a policy of taking back obsolete and damaged terminal equipment. We collect approximately five million devices each year and either repair, sell or recycle them. In 1997, for example, we produced telephone cards which contain 90 percent recycled plastic, for which we were awarded the environmental label "Blauer Engel" (Blue Angel).

As part of the campaign to reduce the increasing level of CO<sub>2</sub> emissions, we have set ourselves the target of reducing our energy consumption by 15 percent by the year 2000. We are concentrating our efforts, in particular, on electrical power. With the complete digitization of our telecommunications networks, energy savings of up to 70 percent have been achieved thanks to new devices used in the air-conditioning systems required for heat dissipation.

We are also currently testing alternative energy sources such as solar energy. One of our subsidiaries, DeTe Immobilien, operates 75 mainly small photovoltaic systems and three solar collector systems with approximately 400 square meters of collection surface.

### Vehicle fleet reduced

The Deutsche Telekom AG vehicle fleet has been further reduced in size: from over 52,000 (at the end of 1996) to fewer than 50,000 vehicles (at the end of 1997). When purchasing new vehicles, we give preference to vehicles with the lowest pollutant emission levels in their classes. To combat the emission of carbon dioxide, we have examined the possibility - taking ecological effects into account – of using regenerable fuels (biodiesel) and are currently testing their suitability in actual operation.

The waste database system Information System Abfallwirtschaft Telekom (ISAT) developed by Deutsche Telekom allows us to monitor not only the actual costs and quantities of waste but also the entire disposal procedure and to discover wasteful use of resources. ISAT was brought into alignment with the Recycling and Waste Management Act at the beginning of the year. We can now produce the annual waste report required by the Act.

#### Local environmental affairs representatives

In August 1997, an environmental collective agreement was agreed with the German post and telecommunications trade union. The agreement took effect on January 1, 1998. It is the first agreement of its kind for a large corporation in Germany. Pursuant to the agreement, we have pledged to nominate full-time central and regional environmental affairs representatives. Their designated tasks are to ensure compliance with environmental regulations, to provide information regarding company policy on environmental protection and to develop proposals for new environmental protection targets. At the end of 1997, approximately 100 employees were engaged in our regional departments and headquarters for environmental protection.

- goals in environmental protect
- reduce our energy consumption by reduce the pollutant emissions of et by 20 percent compared to 1992 double the quantity of recycled ma oducts we use and produce

- oducts we use and produce reduce the levels of waste for dispo

Environmental protection goals of Deutsche Telekom AG by the year 2000, as of 1995

#### Internationally involved

The commitment of Deutsche Telekom to environmental protection is also reflected in our international collaborative activities: in January 1997, the ETNO Environment working group commenced its activities. The group includes representatives of the European telecommunications network operators who signed the Environmental Charter of European Network Operators in November 1996. Deutsche Telekom is one of the operators represented in the group. Its tasks include the preparation of an ETNO annual environmental report (expected to be published for the first time in May 1998) and the drafting of a joint European purchasing guideline for the procurement of environment-friendly products.

# Environmental report planned

The first environmental report by Deutsche Telekom AG is expected to be published in the third quarter of 1998

