Terminals

During 1990 we established our strategies for dealing with the liberalization of the main telephone set market, which will come into effect on July 1, 1991, completing the liberalization of the subscriber equipment market. At the same time, we widened the range of supplementary and complementary telephone equipment on offer and updated the multiline switchboard catalogue.

BUSINESS COMMUNICATIONS AND NEW SERVICES

Iberpac

The IBERPAC packet-switching data transmission network continued to develop at a remarkable rate. The number of centres went up by 34 and a 16.6% increase in network capacity for all types of user connections was achieved. All the extensions were carried out on the IBERPAC X.25 network, which carries internationally standardized protocols.

At the same time, international access was extended from the IBERPAC network to 124 public networks in 67 countries. IBERPAC also supports a variety of new data communications services, such as the X.28 service, the X.32 top quality, high capacity service, and the Electronic Transfer of Funds and IBERTEX services.

During the year we also defined the technical specifications and began development work on the new IBERPAC-UNO service. This aims to meet the virtual private data network needs of our corporate clients.

Ibercom

The IBERCOM service continued its upward trend, registering a 75% growth in the number of lines in service. As for its penetration in the market, IBERCOM is present in practically all our business clients' areas of activity. This is borne out by the fact that the number of IBERCOM clients at the end of 1990 was nearly double that of the previous year. Capacity also virtually doubled in 1990, both in lines and in front-end centres.

Ibermic

Progress towards the implementation of a modern, efficient and fully digital infrastructure enabled us to double the number of IBERMIC centres in 1990. As a result, circuit installation capacity was boosted considerably, especially in the high-speed range (from 64Kbit/s upwards). We are thus able to meet the heavy demand on Telefónica for point-to-point rented circuits.

In the interests of achieving greater protection and flexibility of the transmission structure, we have installed some 2 Mbit/s multiplex distributors. Their introduction represents a significant boost in IBERMIC's capacity, which has been improved in areas such as the setting up of circuits and the supervision and automation of operating procedures.

Mobile communications

At the end of 1990, the Automatic Mobile Telephony service had 54,700 users, 83.6% more than the previous year.

To meet the growing demand we have widened the range of mobile telephony products on offer with the introduction of the 900Mhz automatic analog mobile system (TMA-900A). The first support centre for this service based on the TACS system was set up in Madrid-Osuna.

This growing demand for mobile communications has encouraged Telefónica to prepare for a new generation of services, one of which is Telepoint. The technical specifications of this service were laid down in 1990.

We also continued to work on the implementation of new mobile communications systems in the Pan-European field. In particular, the cellular GSM system is expected to be put into trial service in Seville and Barcelona by 1992. The ERMES radiomessage system is also expected to be piloted in 1992.

Ibertex

In terms of real capacity supplied by IBERPAC, the IBERTEX service increased by 52.4%. During the year access levels 032 and 033 came into operation, along with the already existing 031. We continued our efforts to put new facilities at the users' disposal, in order to encourage greater service expansion. In 1990 development of the Conversion Unit which will allow interconnection of France and Spain's videotex services was completed.

It is now possible to select an IBERTEX Service Centre through an associated name. This avoids the need for the user to memorize the nine-figure IBERPAC network number. Access to the IBERTEX Guide Centre is now also possible through a shorter number.

We also signed agreements with large corporations for the development of their services and information centres.

Telefax

During 1990, the number of subscribers to the Telefax service rose by 50% over the previous year. Telefax has become a basic tool in the business and professional world.

Videoconferencing

This service came into operation at the end of 1989. In 1990 we extended its domestic and international coverage to eight of Spain's major cities, with international connections to 15 countries (All EEC countries except Ireland and Luxembourg, the USA, Finland, Sweden, Switzerland, Austria and Norway). Agreements were also signed with the Chambers of Commerce for the installation of videoconferencing facilities in a good many of Spain's major provincial capitals.

Intelligent network services

Throughout the year the "Line 900" Automatic Reverse Charge service once again proved itself to be a very effective tool for telemarketing and promotion campaigns. The service was in demand from a wide variety of business and institutional clients. At the end of the year there were 1,496 service users, over 96% up on the previous year. The service continued to expand its international coverage, and agreements were signed to this end with other Administrations. As a result service coverage was extended to Belgium, Denmark, Finland, Chile and the United States.

Suplementary telephone services (STS)

In 1990 major steps were taken to upgrade many of our digital switching exchanges in order to extend the basic telephone service facilities and thus expand the Multiservice Line market. Although still far from being in wide public use, at the end of 1990 there were more than 100,000 subscribers to the different supplementary telephone services available: Call Rerouting, Call Waiting, Conference Calls, Pre-programmed Dialling, Detailed Information Services, Abbreviated Dialling and Remote Call Charge Meters. Work was also carried out to extend the range of this type of service from the second half of 1991 with the following facilities: Advanced Automatic Reverse Charge Calling, Additional Charging, Shared Payment, Televoting, etc.

Electronic funds transfer

By the end of the year there were 163,100 terminals for business transactions with credit cards (dataphone) connected to the network, representing an increase of 25.8% over 1989.

Value added services

During 1990 the Telefónica Group continued to make progress in the development and coordination of Value Added Services, mainly through its affiliated companies

New technology enhances customer services

Telefónica Servicios (TSI), CETESA and ESTRATEL, a new company active in the field of Telemarketing which was launched during the year. Special mention should be made of the major success achieved by TSI's Mensatel Service, which, with 20,000 subscribers was Spain's leading Radiomessage Service in a fiercely competitive market. TSI continued to set the pace in the Data Processing Value Added Services market by setting up Spain's first Electronic Data Interchange centre (EDI). EDI is set to become an extremely important business area in the future, given that it enables companies to simplify and rationalize the flow of information with their clients, suppliers and distributors. In the field of electronic publishing and distribution of information, CETESA's Electronic Yellow Pages service continued to make progress, reaching 3,071 subscribers by the end of 1990.

The first steps taken in 1989 and 1990 have convinced us that business prospects in the area of Value Added Services are extremely healthy. Consequently we anticipate stepping up our activity in this field over the next few years.

Audio-visual communications

In 1990 we increased the number of VSAT networks providing coverage both in Spain and abroad. Of particular significance in the international area was the extension of the networks assigned to the SER radio broadcasting company and the EFE press agency.

We put three satellite TV channels at the disposal of Retevisión for the transmission of the new private TV channels, along with 14 earth stations using digital optical fibre technology. We also provided the Federation of Regional Television Companies with a contribution-distribution system transmitted by an earth network and a permanent satellite channel.

As in 1989, Telefónica took special interest in the television coverage of major sporting events both in Spain and abroad, providing the Spanish state television company RTVE with the necessary satellite facilities.

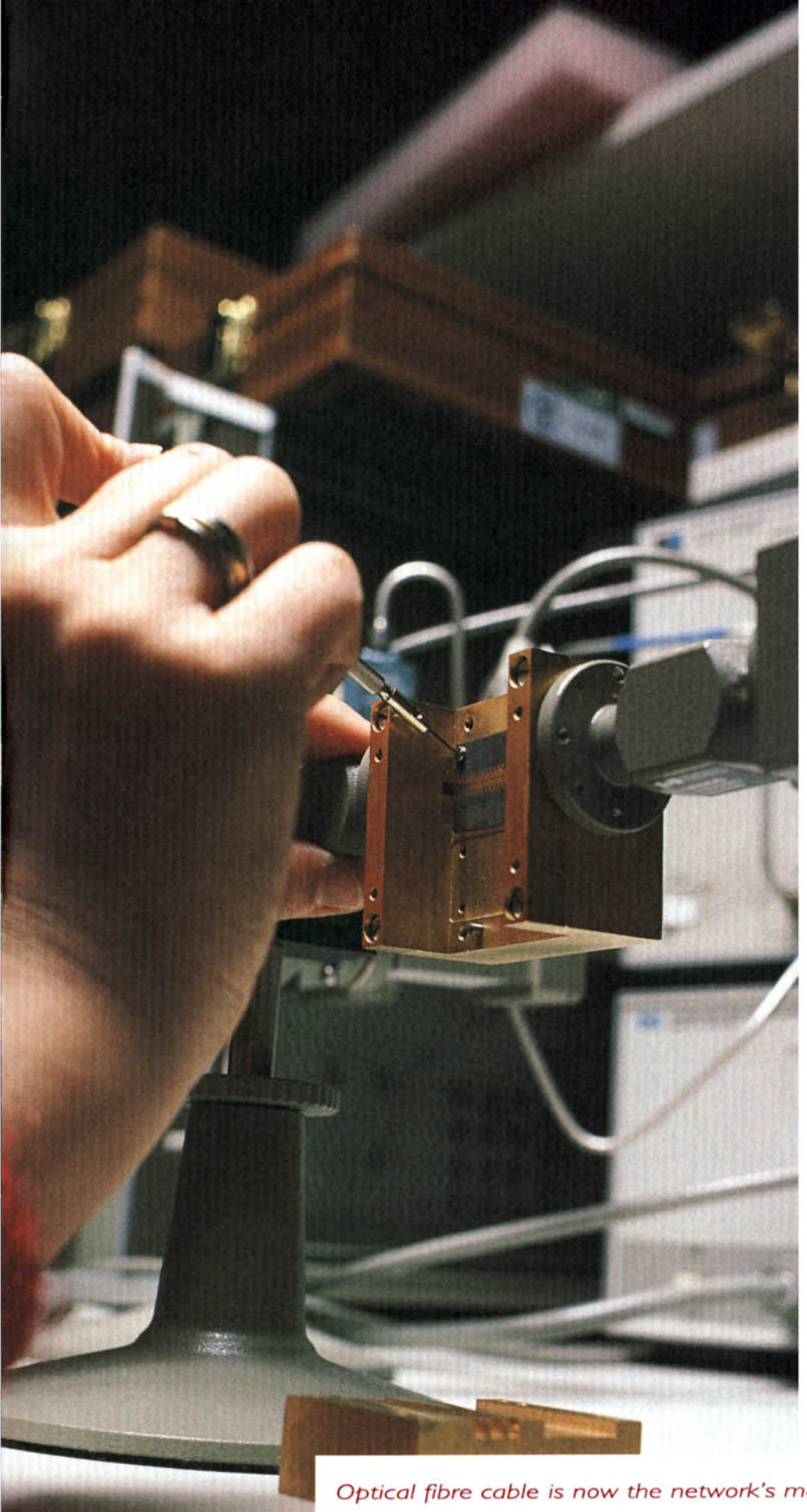
Also of special significance was the strengthening of Telefónica's presence in the international TV market, as witnessed by our participation in new satellite projects, especially the new INTELSAT-K.

Telefónica is also taking steps to provide the technical facilities necessary for the broadcasting of the special events to be held in Spain in 1992.

Integrated services digital network (ISDN)

During 1990 preparation continued for the introduction of the ISDN in Spain, with working installations being shown to the press and presented at various forums.

We also completed the definition of the structure which, in 1992, will support the first phase of the expansion of the ISDN (coinciding with the World Fair in Seville, the Olympic



Optical fibre cable is now the network's main medium

Games in Barcelona and Madrid's becoming the European Capital of Culture) which will connect Spain's major cities.

RESEARCH AND DEVELOPMENT

Throughout 1990, the activity of our subsidiary company Telefónica I+D was directed towards responding to Telefónica's needs, and providing profitable technological openings for the Company.

Of particular note was the construction of several prototypes of the Tesys-B packet switching system. We also made progress on the development of the new IBERPAC operating system, which will allow the integrated operating of the Tesys-A and B systems.

As for the Operations and Maintenance Structure (EOC), which is a systems package for telephone network management and operations, we continued to develop new ways of reducing operating costs and improving service quality. In this respect, we started work on a new Control System for IBERCOM and a Transmission Equipment Supervision System, both of which should have the first installations in service in 1991.

Telefónica I+D also carried on its research in the field of speech technology, with one application being the Audiotex service, and in the development of the Broadband Communications Experimental Network.

HUMAN RESOURCES DEVELOPMENT

The aim of Telefónica's human resources strategy is to involve the employees in the company's goals, increase motivation and improve workforce qualification levels in the face of technological change. Telefónica is operating in an environment of constant technological innovation and growing liberalization, and its ability to adapt its human resources to this reality will be a decisive factor for the company's competitive performance. In response to this need, last year saw a major boost in training and development programmes for managers and staff.

By the end of the year, Telefónica had a total workforce of 75,350 employees, an increase of 5.9% over 1989. This increase was accounted for by a net growth of 719 temporary staff and 3,476 permanent staff, 818 of whom were university degree holders. These figures confirm Telefónica's position as the Spanish company with the largest workforce, and as one of the country's leading job creators. In addition, over four million hours of training were given, with training policy supported by an increase