



Business communications and new services.

Iberpac.

The IBERPAC packet-switching data transmission network continued to grow rapidly in 1991. There were 55 new centres and a 9.3% growth in the number of new applications attended. A 14.7% 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.

During the year, direct access connections went up by 11.7%. At the same time, international access was extended from the Iberpac network to 140 public networks in 74 countries.

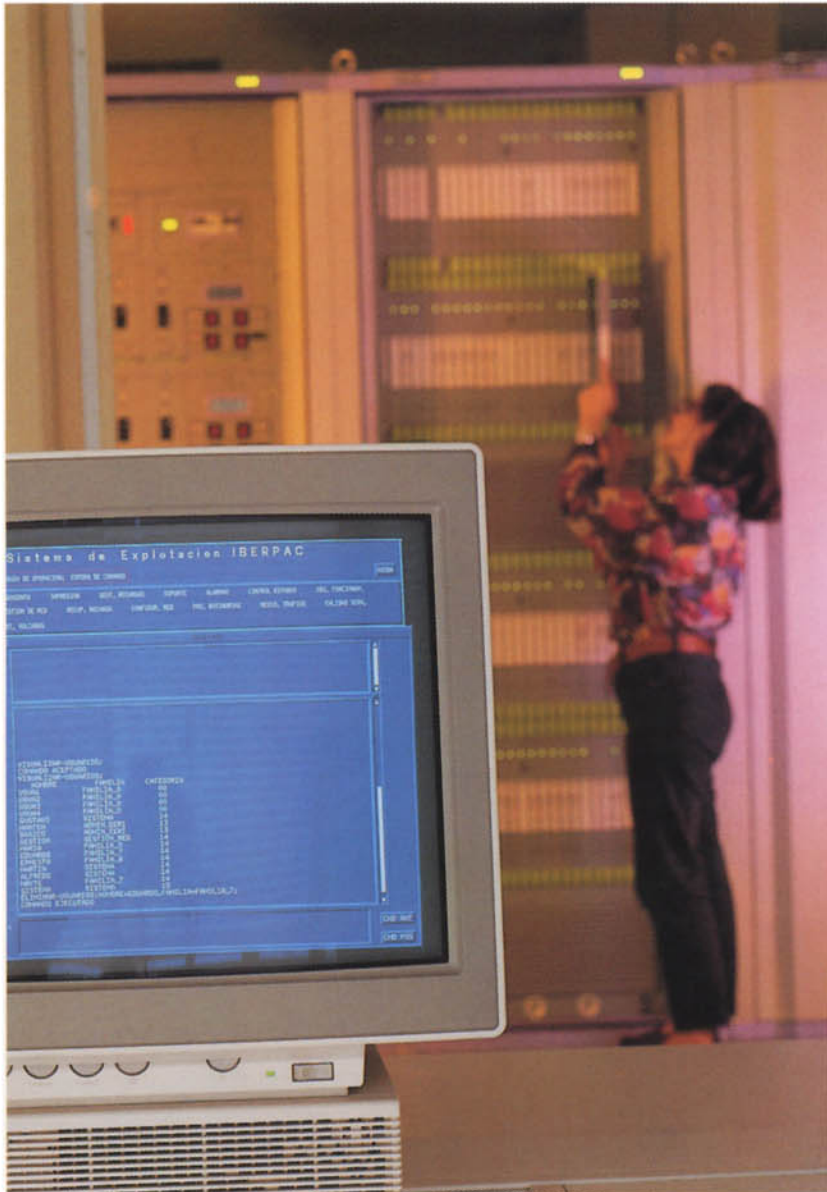
Iberpac also serves as back up for a variety of data communications services, such as the X.28 and X.32 services, and the Electronic Transfer of Funds and Ibertex services.

During the year we brought into service Iberpac UNO, with which we seek to meet the Virtual Private Data Network needs of our corporate clients.

Another significant development in 1991 was the incorporation of new technology into the Iberpac network, such as the Tesys-A in container and point-to-point access modems for Iberpac-UNO with switched telephone network option.

Ibercom.

In 1991 the number of lines in service grew by 45%. Line capacity went up by 35%, and the number of front-end centres increased by 89%.



Iberpac Network equipment installed in the North Exchange in Madrid.



The growth in the Automatic Mobile Telephony Service was one of the highlights of the year.





Outstanding among the technological improvements introduced were the HOTEL version of the MD-110 exchange and the operating console for the visually handicapped. We also put into service the Ibercom in-building distributor, piloted the support system for an International Virtual Private Network service, and carried out the work necessary to offer the Ibercom Plus service (provincial-national intrasubscribed flat rate). Also worthy of mention was the installation of an MD-110 exchange with a pre-market ISDN connection to the ISDN-1240 public exchange at Sevilla-Cartuja.

Ibermic.

With the aim of improving the quality and cutting the costs of Ibermic services, we installed 64 Kbit/s multiplex distributors which provide access to dedicated digital circuits, and widen the range of facilities available to subscribers. We also introduced the 4x2 and 16x2 Mbit/s optical fibre systems which combine the multiplexing and line equipment functions in one piece of equipment.

Mobile communications.

During 1991 mobile services continued to expand, especially the Automatic Mobile Telephony service (TMA), which consolidated its position as one of the fastest growing areas.

At the end of 1991 the TMA service had 108,451 subscribers, representing a 98% growth over the previous year. Particularly outstanding was the performance of the 900A system, which extended its coverage to 28 provinces.

Work also continued on the new Pan-European cellular digital mobile communications system (GSM).

Ibertex.

The Ibertex service continued to grow rapidly in 1991, doubling its 1990 performance. Significant figures were the 7.5 million calls and the 1.2 million consulting hours recorded.

The "kiosko" system came into service, with access to the Service Centres through levels 032 and 033. We also put onto the market the "acceso amigo" facility (mnemonics), which allows the user to have access to the service by "calling things by their name".

In 1991 the interconnection between the Ibertex service and the French Télétel service came into operation. We also considerably increased the information available in the different Service



Centres, with numerous private and public institutions joining the service.

International business communications.

In this area, the most significant event was Telefónica's joining of the JNI (Joint Network Initiatives) consortium, which comprises ATT of the United States, BT of the United Kingdom, France Télécom of France and KDD of Japan. The aim of this consortium is the provision of specific, individualized global network services for large multinational corporations.

During the year we collaborated with various overseas operators in the creation of International Virtual Private Networks, using the structure of the Ibercom service as support.

In 1991 we consolidated the network based on International Ibermic Nodes installed in the International Centres in Madrid, Barcelona, Valencia and Seville, thus allowing the creation of digital circuits at any speed. An important part of this service is One-stop Shopping, implanted with telecommunications operators from the major countries.

Intelligent network services.

At the end of 1991 the "Line 900" Automatic Reverse Charge service was incorporated into the intelligent network infrastructure. This meant that service users had access to a wide range of facilities such as multidestination and alternative destination according to origin, day or hour, limited access and area selection, processing of waiting calls, alternative destinations, personalized announcements etc.

Supplementary telephone services (STS).

The Remote Call Charge Meter and Line Hunting services, which are widely available all over Spain, increased their contracts to nearly 350,000, a 70% increase over the year before.

The other services, namely Abbreviated Dialling, Conference Calls, Call Waiting, Call Rerouting, Detailed Information Services and Pre-programmed Dialling, whose potential market is limited to digital exchange subscribers, increased their number of contracts considerably, reaching a total of 107,000.

Electronic funds transfer.

By the end of the year there were 170,000 terminals for business transactions with credit cards (dataphone) connected to the network, representing a 5% increase over the year before.

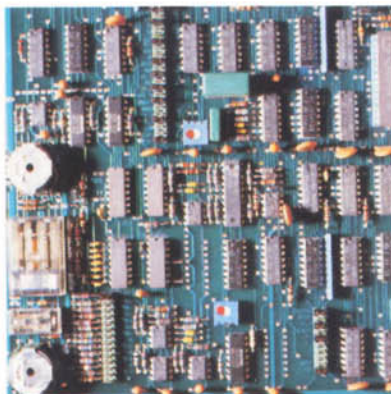


Detail of the mobile telephony installations in the Cartuja-Sevilla Exchange.





Telecommunications control room at Campsa headquarters, Madrid.





Videoconferencing.

During 1991 we continued to expand the videoconferencing network, meeting the demands of new users, and creating the infrastructure necessary to guarantee a top quality service. Eleven new Conference Rooms came into operation, bringing the total number to 26.

Traffic was 89% up on the previous year, indicating an upward trend in the use of this service.

At the end of 1991 Automatic Digital Distributors came into operation, thus allowing connections between 2 Mb/s flows to be carried out automatically from the Videoconferencing Control Centre in Madrid. This made the service easier to operate, and improved the quality and reliability of the connections.

Value added services.

Value added services are offered mainly through the companies Telefónica Servicios (TS-1), Cetesa and Estratel. During 1991 these were joined by Servicios Telefónicas de Audiotex (in which TS-1 has a 51% holding).

The Mensatel service had 34,000 subscribers at the end of 1991, thus confirming its position as the leading Radiomessage service in the extremely competitive Spanish market. Also worthy of mention were the performances of services such as EDI (Electronic Data Interchange), especially for its firm hold in the distribution sector, and Infonet.

Cetesa considerably expanded its Electronic Pages market. As well as the original Yellow Pages, users now have access, through Ibertex, to Blue Pages and Sectorials. The Telemarketing company, Estratel, consolidated its major technical capacity and growing presence in the market.

The value added services market is constantly developing, with major technological advances bringing new business opportunities in fields such as personal communications, satellite data transmission for mobile telephones, teleaction services applied to telealarms, telecontrol, teleassistance, telemeasuring, etc., all of which will be added to the catalogue of services provided by Telefónica in the coming years.

Audio-visual communications.

In 1991 there was a marked increase both in the number of radio and television broadcasts and in broadcasting minutes.

A particularly active area was TV signal transmission with transportable aerials, with over 300 different operations carried



out. The great effort made by Telefónica on the occasion of the Middle East Peace Conference held in Madrid deserves special mention. Under extreme pressure, we put into service 12 permanent international TV channels, requiring the use of 5 transportable stations and the temporary calling into service of the Barcelona Centre.

Integrated services digital network (ISDN).

During 1991 preparation continued for the introduction of the ISDN Business Services in Spain, with the incorporation of collaborating clients in a pre-market pilot scheme as the final step before the launching of the service.

Work was finished on the ISDN infrastructure planned for the important events which will take place in Spain during 1992.

Research and development.

The company's research and development activity, carried out by the subsidiaries Telefónica I+D and Telefónica Sistemas, enabled us to make up for the shortcomings of some of our suppliers and, in certain strategic areas, to rely less on them. It also contributed to international standardization and generated industrial and intellectual property.

The most outstanding areas of activity were the development of operating aids (Operations and Maintenance Structure, Ibercom Control System), Packet-switching (Tesy-B, New Iberpac network Operating Structure), Broadband ISDN (RECIBA project), Plant Modernization (New Electronic Registers), Public Telephony (Modular Telephone Management System), Speech Technology (Audiotex System) and European projects (RACE, ESPRIT, EURESCOM).