

## Modernization of the network

During the past financial year, **Telefónica** has continued its efforts to further the development and modernization of its entire network and infrastructure, in the realization that this is an essential requirement for ensuring that customers' demands for modern and diversified services are successfully met.

**Telefónica** plans to deploy optical technologies such as **DWDM** (dense wavelength division multiplexing), a high-capacity broadband system, as a way to multiply the capacity of the network and, at the same time, reduce unit costs. Initially, these systems will be incorporated into the **Long-Distance Network**.

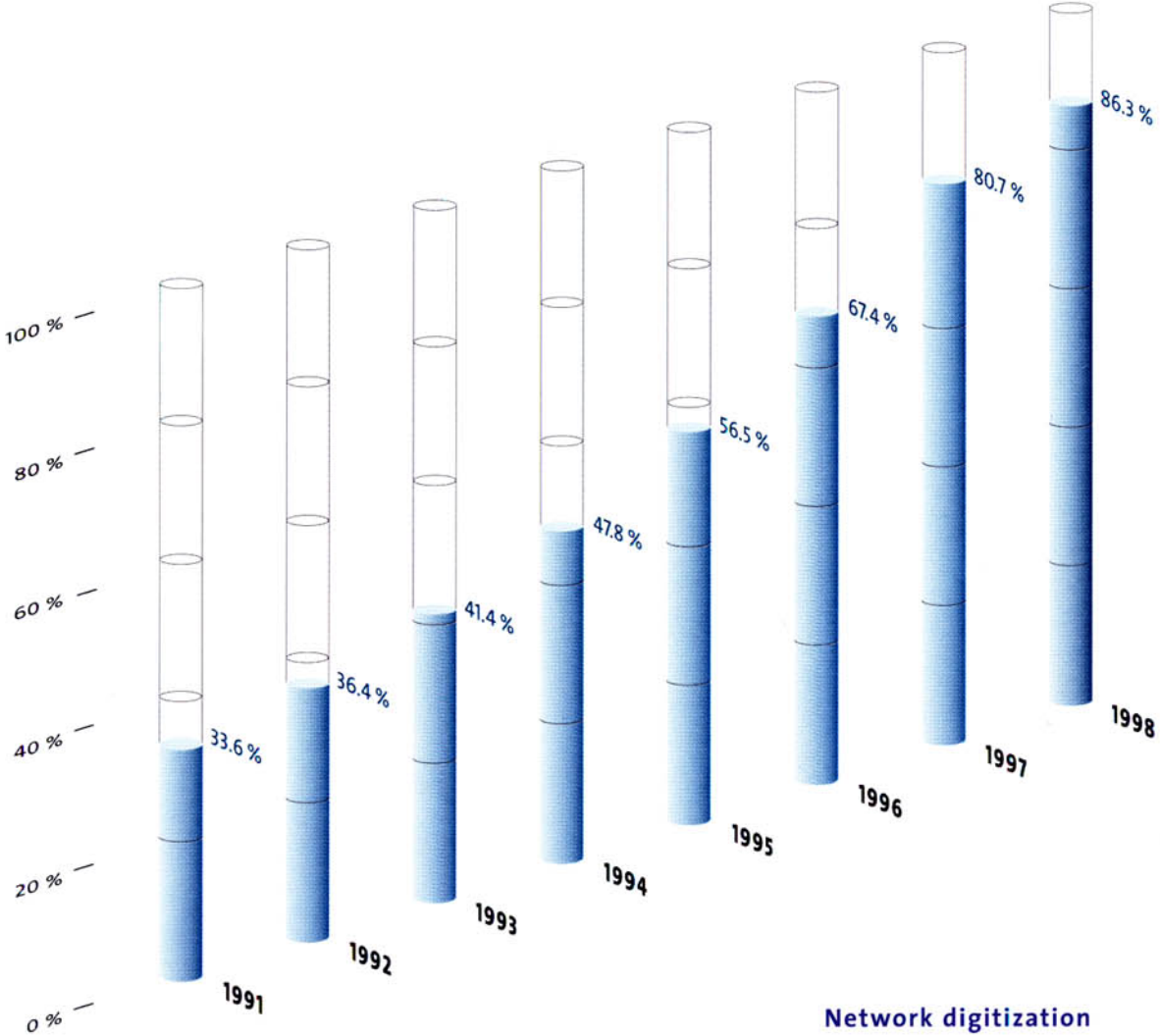
**Telefónica's** dedicated **Video Network** was extended for studio-quality circuits and an expanded **Ibermic Network** of dedicated circuits was relaunched with improved coverage to support new services such as **Frame Relay** and microcellular connections for mobile telephony.

The fixed network has been modernized with the intensive introduction of optical-fiber technology, with a view to providing a high-quality, efficient, and low-cost infrastructure capable of meeting the telecommunications demands and service availability requirements of end users.

A nine-digit numbering plan came into effect in 1998, and technical changes were introduced in network intelligence to make possible the implementation



During 1998, more than 1,200,000 digital lines were installed in metropolitan areas, bringing the installed plant to 16,776,553 lines.



of number portability and carrier pre-selection in the Access Networks, in compliance with the stipulations set by the Spanish Regulatory Authority.

As a consequence of the new regulatory framework, **Telefónica** has supplied numerous points of interconnection with the networks of competing operators, both for mobile and fixed-line telephone services.

Other important developments in the field of access networks were the design of the network structure for **InfoVía Plus**, and the deployment of the initial «fiber in the loop» (FITL) components, as well as of systems capable of efficiently multiplexing both narrowband and broadband traffic. Asymmetrical digital subscriber line (ADSL) technology, which allows high speeds and permanent connectivity, was also brought into use.

**Telefónica's International Network** benefitted from important international agreements signed in 1998, for the development of submarine cable systems **MAYA**,



which will improve the connectivity between North and South America; and **TAT 14**, linking Europe and North America. Work has also continued on the deployment of the **Atlantis 2** and **Columbus 3** undersea cables.

#### Network building

During 1998, 1,222,424 urban digital lines were installed in Spain. Of these, 379,186 meet demand requirements and the remaining 843,238 went to replace analog and digital lines in telephone exchanges.

Thus, installed plant totals 16,776,553 lines, 86.25% of which is digitized.

The installation of **ISDN** equipment rose considerably for a total of 285,349 **Basic Access** lines and 9,296 **Primary Access** lines.

The transit network has seen a significant increase in the volume of trunk lines in service, with the incorporation of an additional 32,790 circuits, thus providing complete support for the signalling of the **Integrated Services Digital Network**.

In 1998, agreements were signed for the development of the new **Maya** and **TAT 14** undersea cables.