R & D activities in electronics are also being undertaken by ITI, HAL, BEL, ECIL, as well as by educational institutions such as the Indian Institute of Technology (IIT), the Centre for Artificial Intelligence and Robotics, the Centre for Information Research, the National Centre for Software Technology, the Centre for Development of Advanced Computing (CDAC) and various universities. The R & D needs of the Indian Armed Forces is the responsibility of the Defence Research and Development Organization (DRDO), which is a part of the Ministry of Defence. R & D activity in the field of medical electronics is mainly being carried out by the Central Scientific Instrument Organization (CSIO), the Defence Bio-Engineering and Electromedical Laboratory (DEBEL), the Bhabha Atomic Research Centre (BARC), the Indian Institute of Technology (IIT), and the Indian Institute of Science (IISC).

Government Institutions and End Users

The operation and maintenance of public telecommunications services is the responsibility of the DoT. In the last few years, however, some of the bulk users of telecommunication services, have built up their own networks. As a policy, they are not linked to the public network. The largest amongst such networks are those being used by Indian Railways. Others include: POWERNET - the network for the power sector operated by the Central Electricity Authority (CEA); OILNET - the network for the oil sector commissioned by the Oil and Natural Gas Commission (ONGC); and SAILNET - the network for the steel sector run by the Steel Authority of India Ltd (SAIL). An autonomous corporation called the Mahanagar Telephone Nigam Ltd. (MTNL) was carved out of the DoT a few years ago to provide telecommunication services for Delhi and Bombay. Other major metropolitan centres will eventually be covered under MTNL.

The public sector accounts for the bulk of the purchasing requirements in India for telecommunication, electronics, process control and instrumentation equipment. While core sectors - including defence, petroleum and petrochemicals, railways, civil aviation, energy (both thermal and hydro-electric), and heavy engineering - still constitute 80 percent of the demand, a small but nevertheless very strong private sector is emerging as a potential buyer.

Entering the Market and Competition

Major suppliers of telecommunication equipment are NEC, OKI, Fujitsu, Mitsubishi, CIT-Alcatel, STC, Farinon and Ericsson. Communication equipment suppliers have traditionally been Marconi, Motorola, NEC, Radifon, REPCO, and Racal. Communication system equipment suppliers have been GTE, CSF, Thompson, Olivetti, Nexdorf and Racal Milgo. The role of foreign companies in this sector falls within the following areas: