Private wire teletype systems. Although private wire services are still significant in the telecommunications industry, the prime communications users are replacing their private wire systems with computer-controlled store-and-forward systems, or by Telex and TWX.

16.1.1.3 Data communications

The availability of information of all kinds is vital to the management of a modern industrial country. Member companies of the Trans-Canada Telephone System and CNCP Telecommunications offer a wide selection of data communications services.

In business, industry, government and education, information systems have become a basic tool. In most cases, the heart of the system is a computer, required to handle the vast amounts of information involved. And the nerve system is the telecommunications links that make the computer's stored information available anywhere in Canada. Typically a computer communications system consists of a central computer, a number of terminals to access the computer and transmission facilities to link the computer and the terminals. The telecommunications carriers provide terminals, communications processing and communications facilities. A wide range of terminals is provided by many of the carriers: teletype terminals that can be used for computer access, cathode ray tube terminals that display information on a screen and a variety of more specialized machines. Customers may also use their own terminal equipment.

To transmit the data, a number of different systems may be used. Many customers have private-line networks linking their scattered locations. Others employ pay-as-you-use data transmission services. A wide range of transmission speeds is available from less than 100 words a minute up to the equivalent of 50,000 words a minute.

A significant development in data communications was the introduction of digital transmission networks in early 1973, the first nation-wide commercial digital systems in the world. Digital transmission permits reduced costs, since it uses existing circuits much more efficiently, and greatly improved accuracy — vital in high-speed data transfer.

The provision of data communications in Canada is undertaken competitively, by the two major national carriers, CNCP Telecommunications and the Trans-Canada Telephone System. Data communication between Canada and overseas points is provided through the facilities of Teleglobe Canada.

16.1.1.4 The network

Three microwave routes and a satellite system form the backbone of Canada's telecommunications network. Two of the routes belong to the Trans-Canada Telephone System, the third to CNCP Telecommunications. Canada's first coast-to-coast microwave system, completed in 1958 by TCTS, is still the longest single microwave route in the world, almost 4,000 mi, and carries the bulk of network traffic. Telesat Canada provides additional facilities throughout Canada over satellite communications, and Teleglobe Canada uses Intelsat satellites, as well as undersea cables.

Telesat Canada launched Anik I, the world's first domestic geostationary commercial communications satellite on November 9, 1972 and a back-up satellite, Anik II, was launched in 1973.

Initial commercial service to Telesat customers began during January 1973 through a network of earth stations strategically located across Canada. Basically, satellite communication is a long microwave link; transmission is comparable to that of existing microwave systems with the added advantage of the capability to transmit virtually all forms of telecommunications to those areas which had not previously been well served by more conventional means.

The Anik series provides television distribution to all parts of Canada, improved telephone communications to the north and supplements existing microwave systems. The Anik generation of satellites has a projected seven-year life cycle.

The satellites used by Telesat and Teleglobe Canada are stationed about 22,300 miles above the earth. Although Anik is exclusively a Canadian domestic system, other satellites in the Intelsat international system and the vast network of undersea cables make it possible for Canadians to communicate with virtually all countries in the world.

Satellite transmission made its debut with the launching of Telstar in 1962, 10 years after the first long distance telephone and multi-purpose submarine cable in the world (TAT I) was