
DIGITAL EVOLUTION

THE POTENTIAL FOR enhanced speed and reliability of digital transmission coupled with reduced costs has resulted in a major thrust by Canada's communications planners to create an all-digital communications network across Canada. The evolution started as early as 1965 with the introduction of digital transmission systems in the metropolitan inter-office networks. In the early 1970s digital radio made its appearance on the long-haul network. Now Telecom Canada has an advanced digital radio system operating across the country.

Issues which many telecommunications administrations around the world are facing as they approach the digital transition were faced by Bell Canada several years ago when that company embarked on the transitional course. In 1975, the company undertook a study on the advisability of introducing digital switching into its network. Following the study, the company decided that all new local and long distance switching would be digital. Its first digital switch went into service in January 1979.

Experience since then has proved that the forecast of 30 percent savings was indeed conservative in that building space requirements alone have improved 32 percent through subsequent improvements in technology.

In setting its course toward a completely digital network, the company recognized that the conversion process needed to be managed and co-ordinated to minimize costs and avoid service disruptions. It proceeded to restudy the fundamental network architecture, and launched a program to change operational and managerial methods and develop training programs to update and upgrade the work force.

Digital systems have met or exceeded initial expectations in terms of flexibility, economy, performance, capacity, and above all, in service to users. The expertise that Bell Canada has developed has been made available to countries around the world by Bell Canada International (BCI), the consulting and management services company which has assisted in digital projects in 23 countries.

The reader will also find in the consulting section of this brochure a description of other firms which can share digitalization expertise gained by their parent operating organizations, such as TSI of the British Columbia Telephone family of enterprises.

Digital switching has vaulted Canada into the digital world. Northern Telecom Limited (NTL) became the first company in the world to announce and bring forth a complete family of fully digital switching and transmission systems. Their DMS family of central office switching systems and their Meridian SL family of integrated services networks enable organizations to develop their information systems over time without having to discard existing equipment or without being locked into a single supplier. This translates into their concept, OPEN World (open protocol enhanced networks). Northern Telecom has in service or on order more lines of fully digital systems than any other manufacturer in the world (26 million lines at the end of 1985).

Other Canadian manufacturers also offer state-of-the-art digital PBXs, business communications systems and packet switching systems. Digital switching capability is gradually being extended into rural areas through the employment of remote line modules homing onto a parent switch perhaps 80 km (50 miles) away. SR Telecom specializes in point-to-multipoint digital radio systems in the 1.5, 1.8 and 2.4 GHz Bands which are now also in service in some 30 other countries.

There seems no doubt that the Canadian objective of an all-digital network adapted to the concept of the ISDN will be a reality by the 1990s.



Digital Microwave . . . One of the towers in TELECOM CANADA's dual transcontinental chain of microwave radio routes. A substantial portion of this network operates using digital transmission techniques.

FIBRE OPTICS

FIBRE OPTIC SYSTEMS are well recognized for high-capacity transmission with increasing applications throughout the world. Canadian field trials started in 1976 and include applications as an urban fibre loop facility in a residential area (Toronto); an integrated services customer loop system in a rural environment linking some 150 rural homes with telephone, television, radio and data communications (Elie, Manitoba); and a high-capacity entrance link some 50 km in length between Calgary and a connecting point on the backbone digital radio route. In Saskatchewan all cities and some 40 major towns are now linked by fibre