Information and Communication Technologies (ICTs)

Canadians have been setting the pace in ICTs for more than a century, beginning with the invention of the telephone. Now our companies specialize in many areas of telecommunications, including switching systems, broadband and multimedia products and services, encryption, fibre-optic cabling, rural communications, submarine cable systems, satellite networking, computer telephony integration, and wireless communications. And they have helped upgrade information and communications systems around the world.

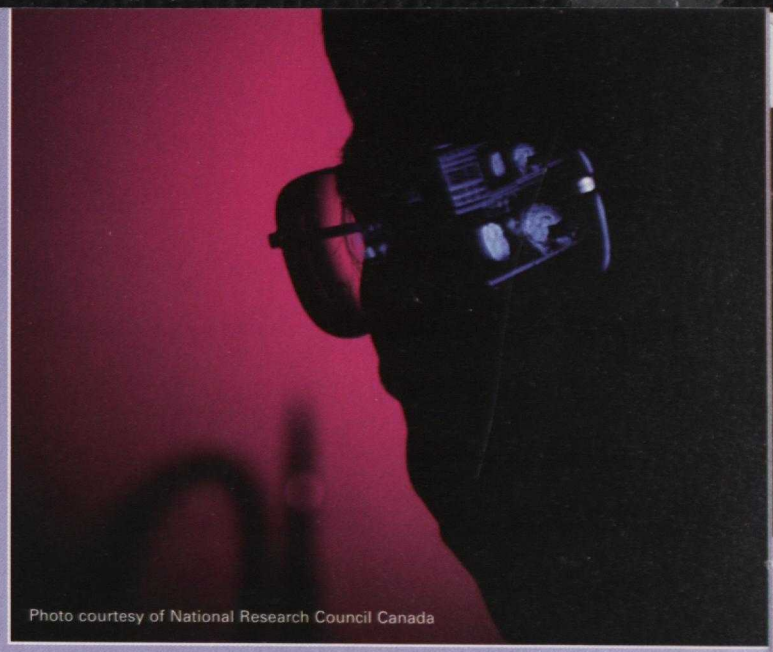

Photo courtesy of National Research Council Canada

Canada's R&D sectors

Ottawa, the National Capital, is the hub of Canada's information and communication technology sector. The city is home to Nortel Networks, Alcatel, Mitel Corporation and over 1,000 other ICT companies, as well as key ICT federal labs and two universities (Carleton University and the University of Ottawa). The high-tech sector employs approximately 72,000 people in Ottawa and attracts over 25 percent of Canada's venture capital. Together with Toronto and Montréal, Ottawa forms a vast pool of ICT resources composed of over 6,000 firms and 300,000 workers.

Toronto, with Nortel Networks, IBM, Celestica Inc. and Hummingbird Ltd., also has impressive strengths in multimedia, software and microelectronics. These companies are supported by the University of Toronto, whose electrical engineering program is ranked fourth and computer engineering program ranked fifth in North America.

In addition, just an hour away from Toronto is Kitchener–Waterloo, Ontario, home to the world-famous University of Waterloo, which alone graduates among the largest number of information technology professionals in North America. Drawing on this talent pool, the Toronto/Kitchener–Waterloo area has developed into a major information and communication technology centre, employing more than 100,000 people.

But other parts of Canada are equally dynamic in this sector. Vancouver, British Columbia, boasts a large number of high-tech firms, most of which are growing at a phenomenal rate. And Calgary, Alberta, is home to a fast-growing wireless communications industry.

Moving toward the east coast, Montréal is carving a niche market in multimedia and e-commerce; Québec City, has a concentration in photonics; Halifax, Nova Scotia, excels with Web applications and software development; while Moncton and Fredericton in New Brunswick aim to be powers in e-commerce.

Hail CSER, Canada's leader in software engineering research

The ability to develop, adopt and exploit technology is a must to gain competitive advantage in the knowledge economy—and the Consortium for Software Engineering Research (CSER) has that ability to spare. Created in 1996, CSER is a multi-party, industry-led research program, geared toward solving selected industrial problems in software engineering. Managed by NRC, the organization brings together six companies—industry giants IBM, Nortel Networks, Mitel, Sun Microsystems, Bell Canada and Object Technology International— nine universities and 16 principal investigators across Canada. Their idea is simple: industry partners help create technology opportunities and determine research directions, while graduate students benefit from access to the latest software engineering tools developed by industry and obtain exposure to industrial project management practices. And their results are clear: working together, they achieve more than would be possible through individual partnerships between companies and universities.

SchoolNet for the tech-savvy generation

In 1999, Canada became the first country in the world to connect its public schools and public libraries to the Internet. SchoolNet connects children and students of all ages to computers, to ready them for the knowledge-based society and promote lifelong learning. In a country as vast as Canada, SchoolNet also closes the digital divide by connecting remote, rural and urban regions, delivering more than 235,000 refurbished computers to schools, funding almost 7,000 public Internet access sites, and connecting over 5,000 voluntary organizations. Building on these achievements, SchoolNet is now working on providing high-speed access, as well as creating more and better learning content on-line. SchoolNet is the result of partnerships between federal, provincial and territorial governments, as well as education associations and the private sector. **Web site: www.schoolnet.ca**