



Key Statistics on ICT Infrastructure, Use and Content

September 2000

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Inquiries and Information

This publication provides information on the latest trends in the information and communications technologies (ICT) sector, in Internet access and use, and in new applications and content including electronic commerce, on-line courses, telehealth and the environment.

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The data in this statistical compendium were current as of August 2000. Readers are encouraged to check throughout the year for more up-to-date information at **<http://strategis.gc.ca>**

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Information and Communications Technologies (ICT) Sector Definition

ICT Manufacturing

Consumer Electronics	Comm. & Other Electronic Equipment	Computer Equipment	Comm. & Energy Wire & Cable	Instrumentation
SIC 3341	SIC 335	SIC 336	SIC 338	SIC 3911 & 3912

Record Players, Radio & TV Receivers SIC 3341	Telecom. Equipment SIC 3351 Electronic Parts & Components SIC 3352 Other Comm. & Electronic Equipment SIC 3359	Electronic Computing & Peripheral Equipment SIC 3361 Other Office, Store & Business Machines SIC 3368	Comm. & Energy Wire & Cable SIC 3381	Indicating, Recording & Controlling Instruments SIC 3911 Other Instruments & Related Products SIC 3912
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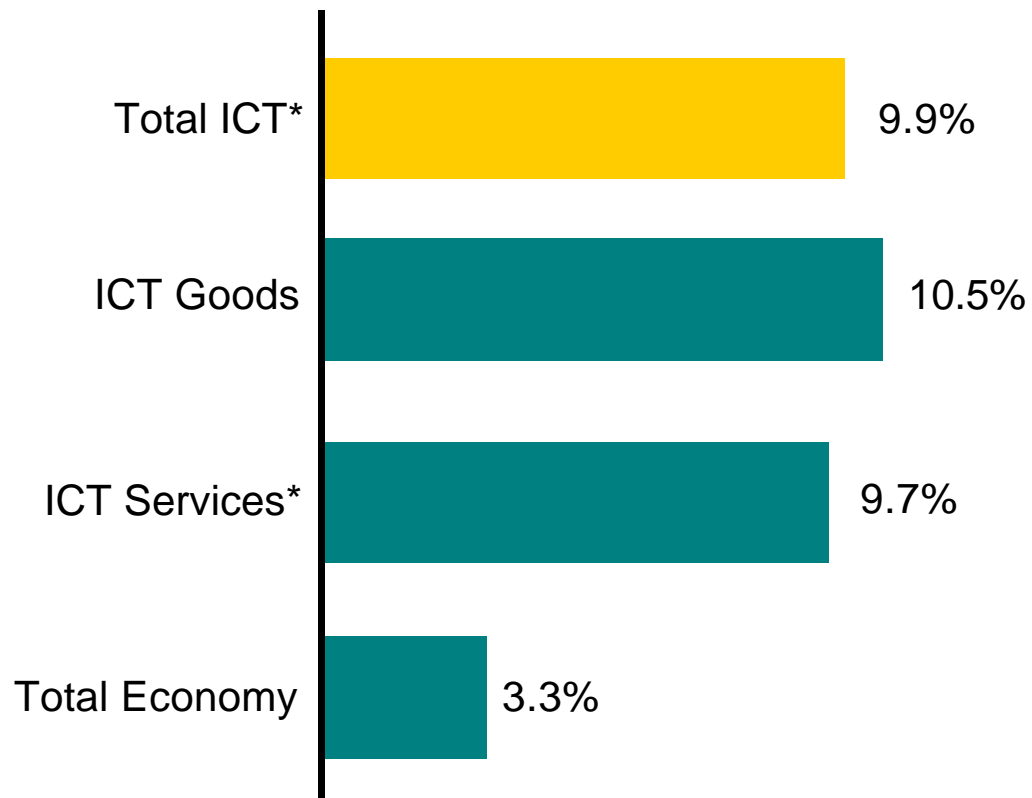
ICT Services

Comm. Services	ICT Wholesaling	Software & Computer Services	Machinery & Equipment Rental & Leasing Services
SIC 4814, 482 & 483	SIC 5743, 5744 & 5791	SIC 772	SIC 9913

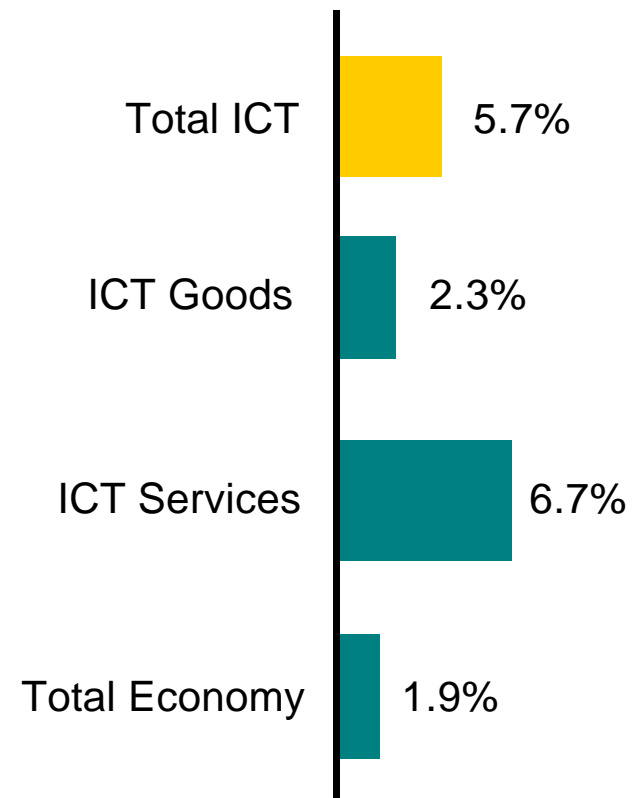
Cable Television SIC 4814 Telecom. Services SIC 4821 & SIC 4839	Computers, Packaged Software & Other Electronic Machinery SIC 5743 & SIC 5744 Office & Store Mach., Equip. & Supplies Wholesaling SIC 5791	Computer & Related Services SIC 7721 & SIC 7722	Office Furniture & Mach. Rental & Leasing SIC 9913
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The ICT Sector Is Growing Faster than the Canadian Economy, 1993–99

**Growth of Real GDP, 1993–99
Compound Annual Growth Rate**



**Employment Growth, 1993–99
Compound Annual Growth Rate**

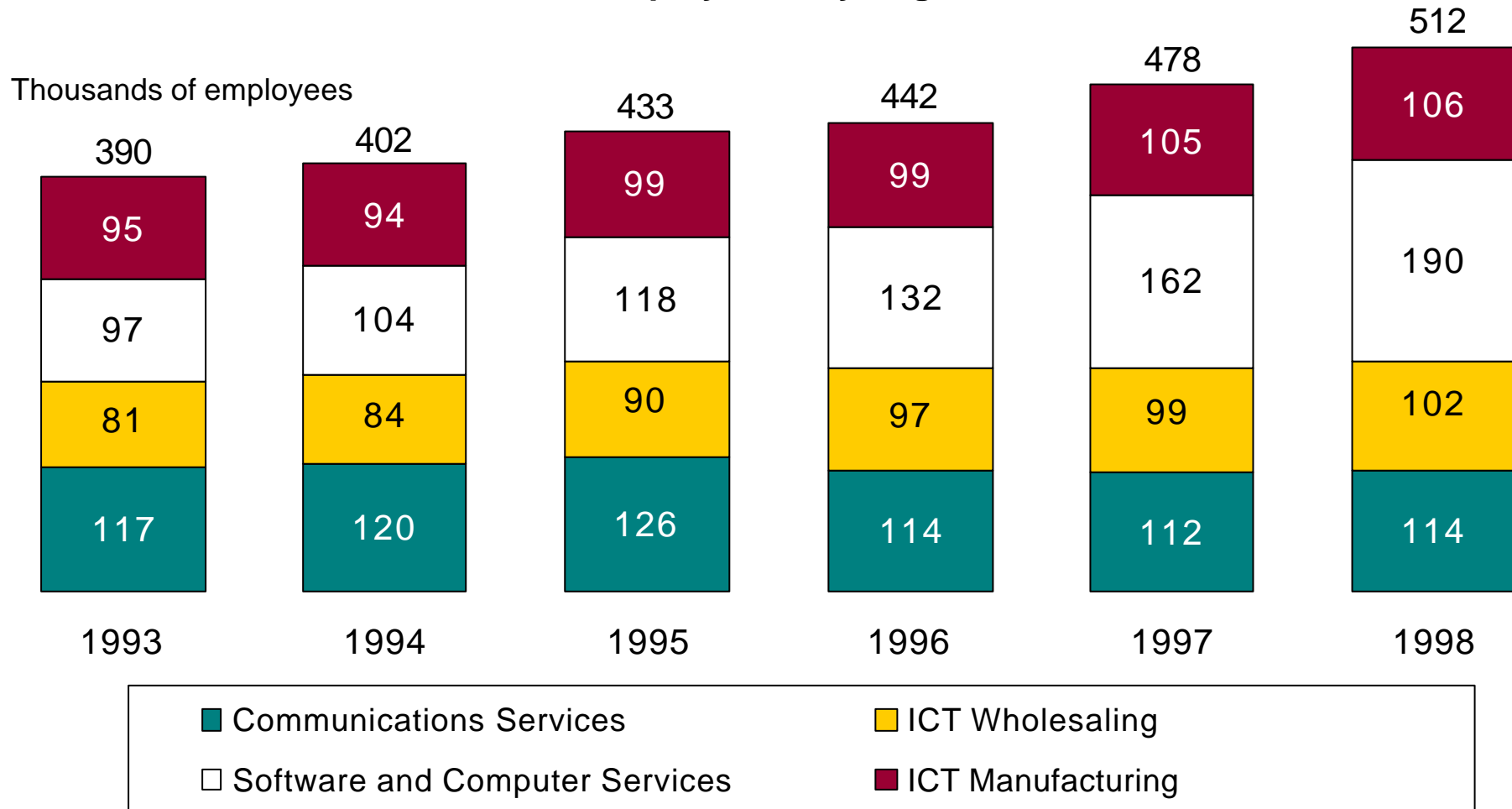


*Does not include ICT wholesaling.

Source: Industry Canada, *Information and Communications Technologies Statistical Review: 1993–1999*.

Employment Growth Is Strong, Particularly for Software and Computer Services

ICT Employment by Segment

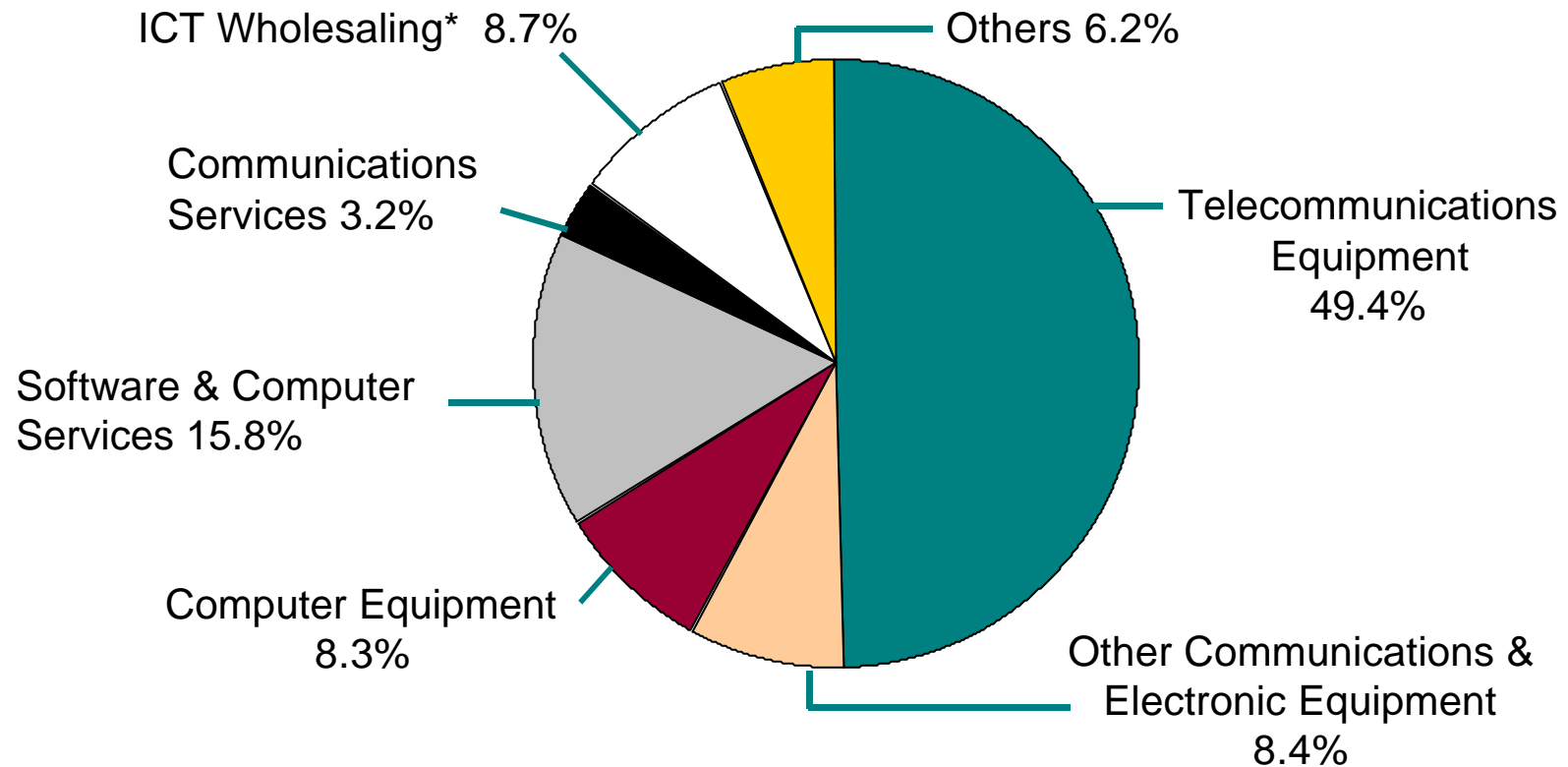


Note: Figures may not add up due to rounding.

Source: Industry Canada, *Information and Communications Technologies Statistical Review: 1993–1999*.

ICT Is One of Canada's Largest R&D Performers

R&D Expenditure by ICT Segment, 1999
(\$4.4 Billion Total)



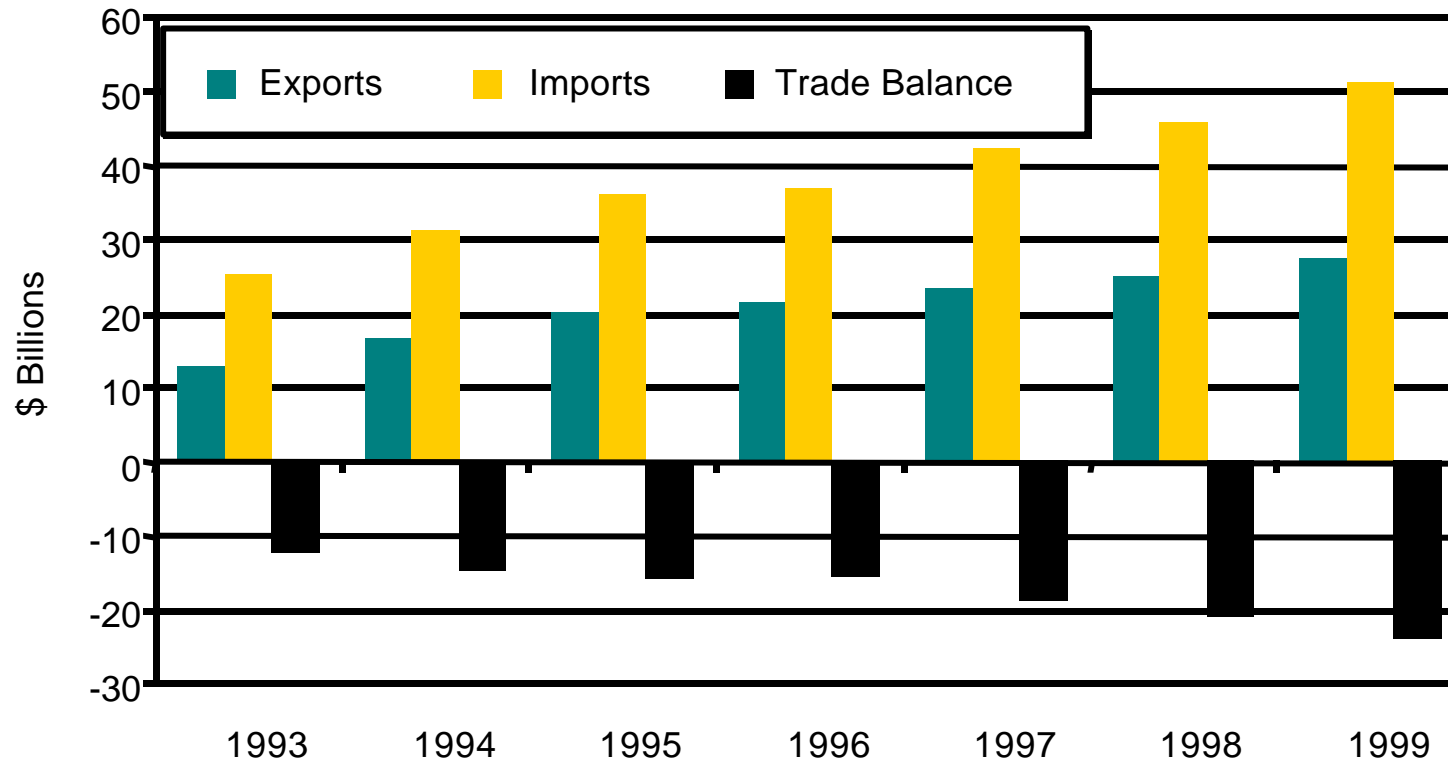
The ICT sector represents 45.9% of total Canadian private sector R&D.

*Data are collected at enterprise level, and firms are classified according to their major source of revenue. Thus, R&D may occur in the manufacturing arm of a large wholesaler.

Source: Statistics Canada, *Research & Development in Canadian Industry* (RDCI) survey results (intentions for 1999), 1997.

Despite Strong ICT Manufacturing Export Growth, a Large ICT Trade Deficit Exists

ICT Manufacturing Trade, 1993 to 1999

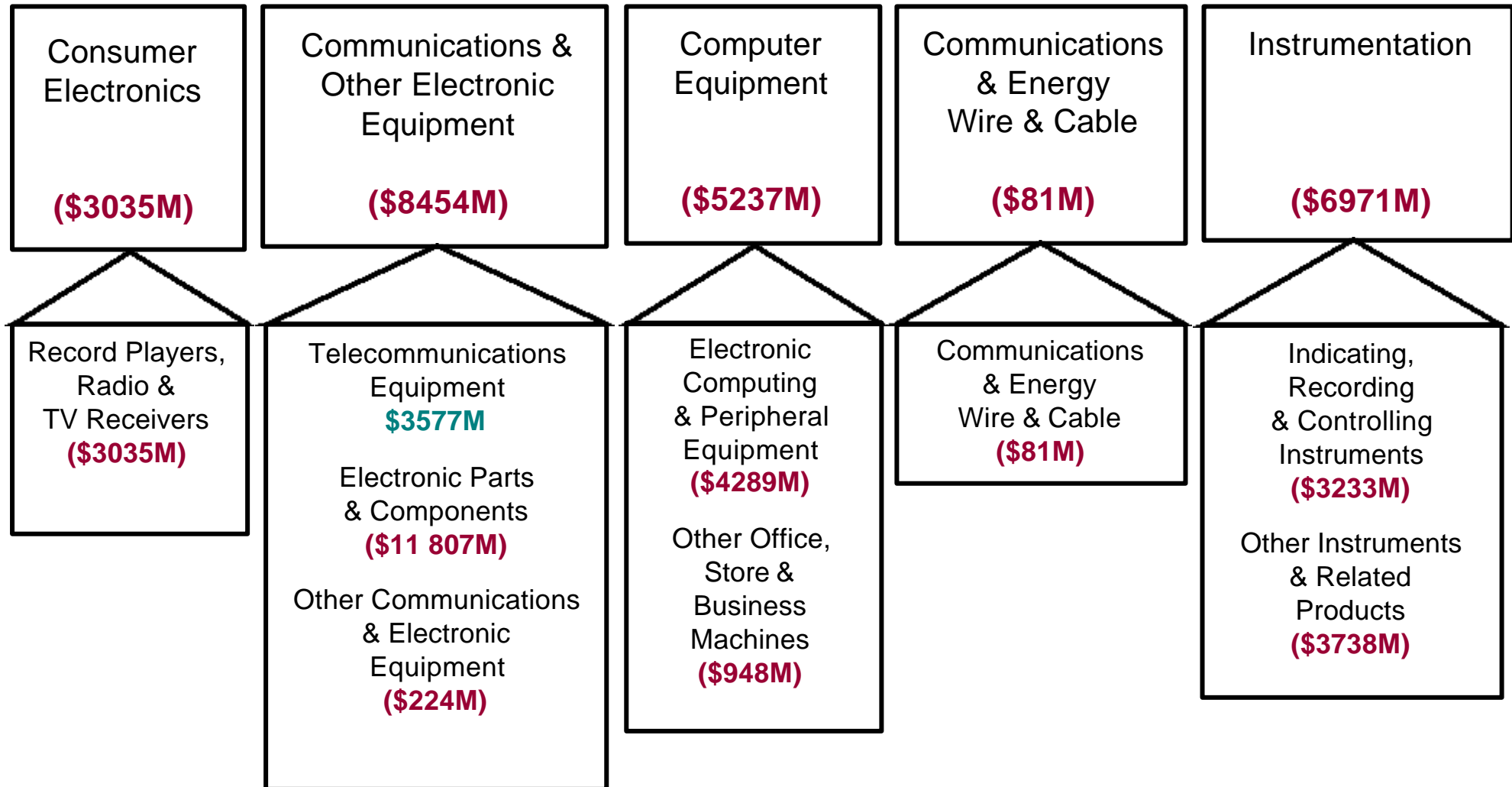


Total ICT manufacturing exports reached \$27.2 billion in 1999 (7.7% of total Canadian manufacturing exports) and imports reached \$51.2 billion in 1999 (16.0% of total Canadian manufacturing imports).

Source: Industry Canada compilation based on Statistics Canada data.

ICT Manufacturing Trade Balance, 1999

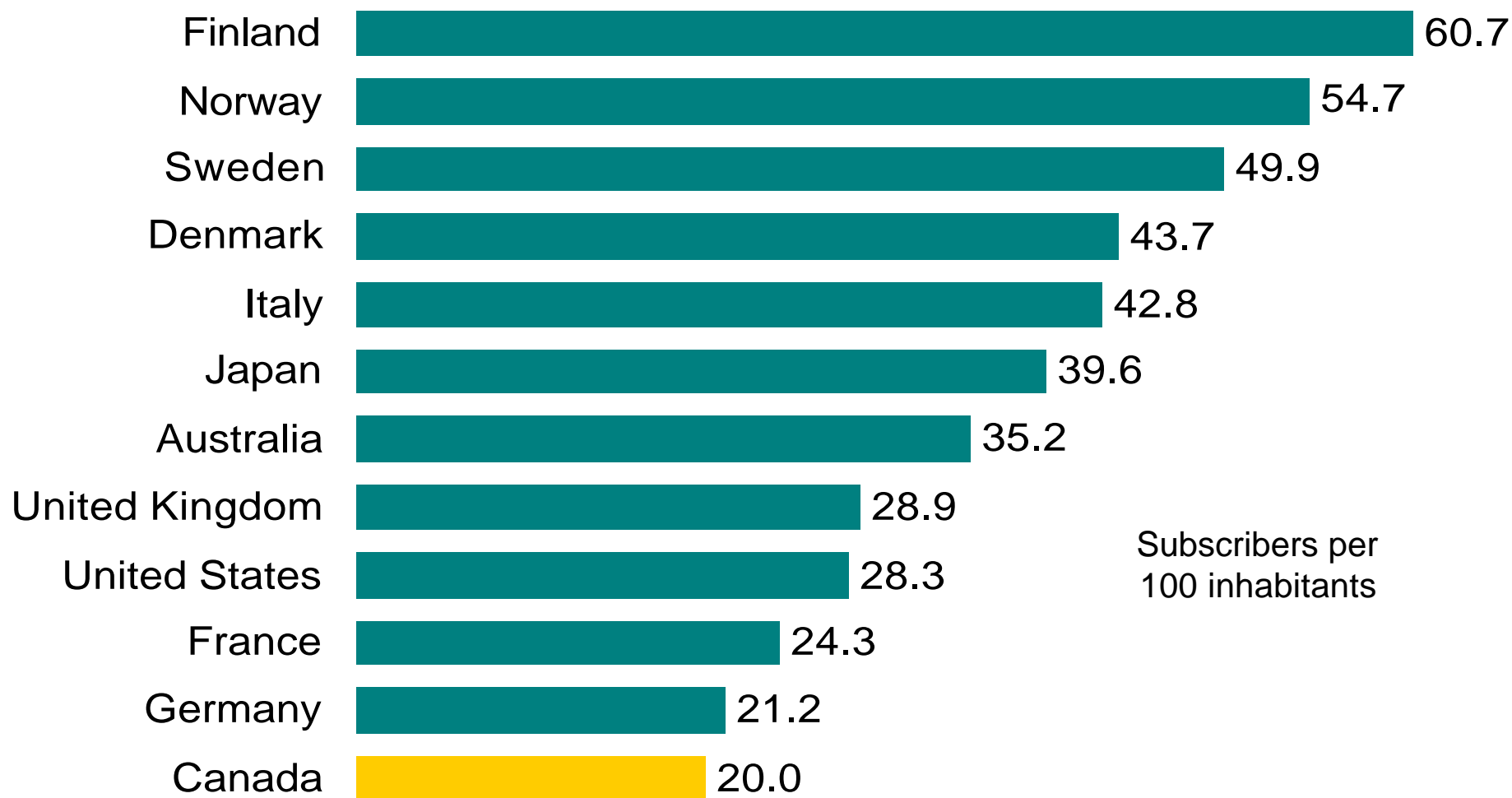
\$23.8-Billion Deficit



Note: (\$M) indicates deficit in millions of dollars.

Source: Industry Canada, *Information and Communications Technologies Statistical Review: 1990–1999*.

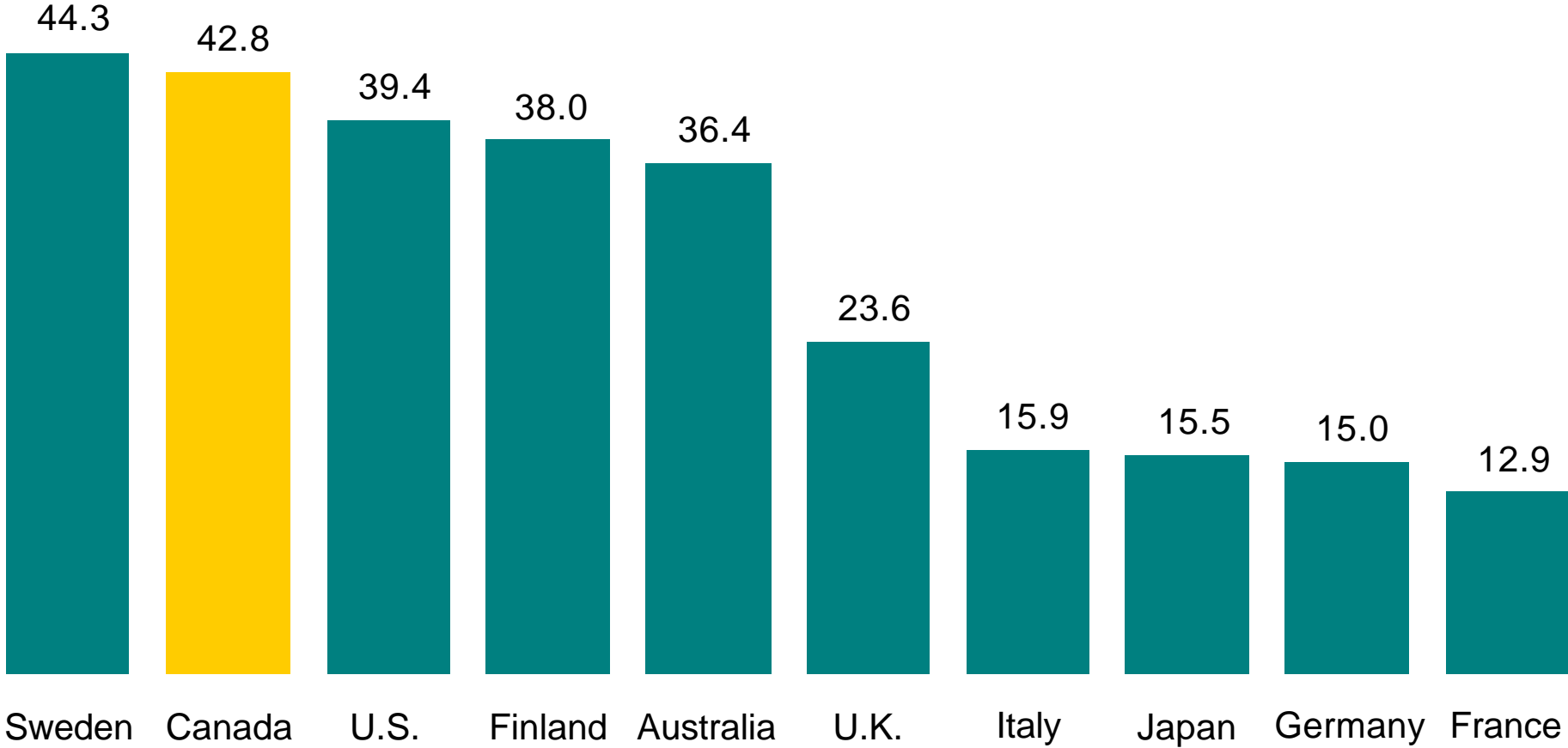
International Comparison of Cellular Mobile Subscribers, 1999



Source: Organisation for Economic Co-operation and Development, *Cellular Mobile Pricing Structures and Trends*, June 1999, http://www.oecd.org/dsti/sti/it/cm/prod/e_99-11.htm

Canada Is Well Connected Relative to Other Countries

Percentage of Population On-Line

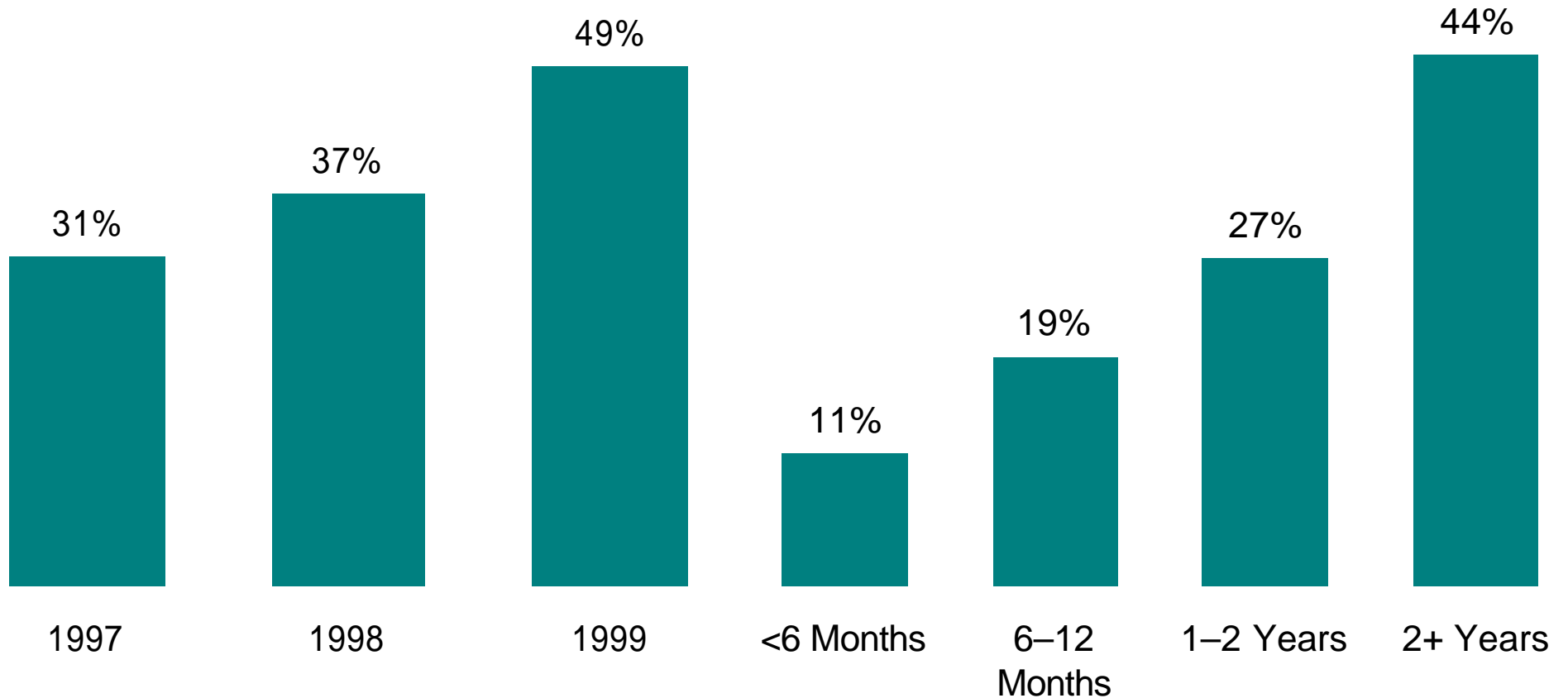


Source: Nua Internet Surveys, 2000; dates vary from November to December 1999, with the exception of France (July 1999).

Internet Penetration in Canada

**Population Age 12+
Who Used the Internet
in the Last 12 Months**

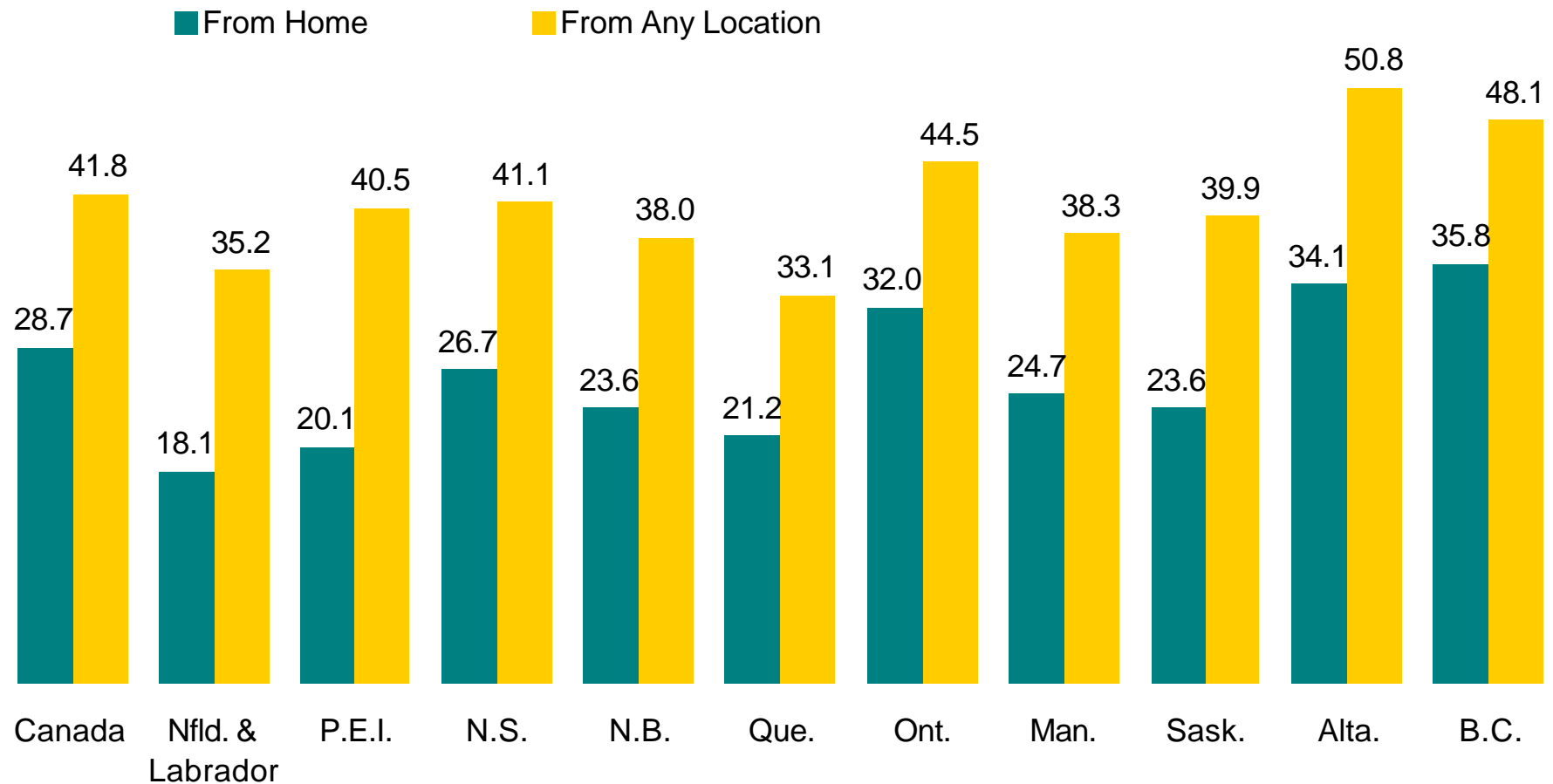
**Majority of Internet Users Have
Over One Year of Experience**



Source: ACNielsen, *ACNielsen Canadian Internet Planner 2000*.

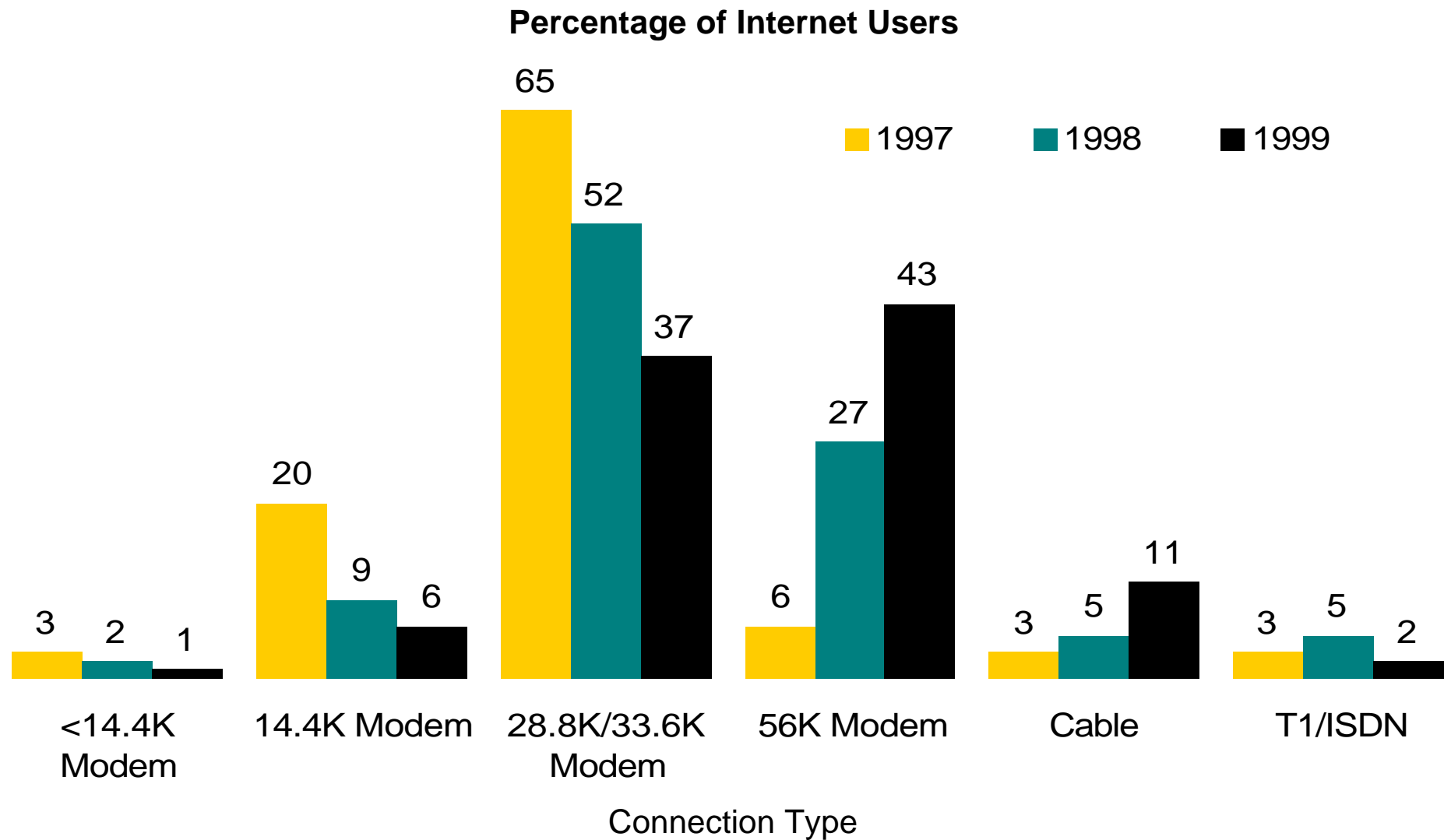
Percentage Breakdown of Internet Penetration by Province, 1999

Households with at Least One Regular User



Source: Statistics Canada, *The Daily*, May 19, 2000.

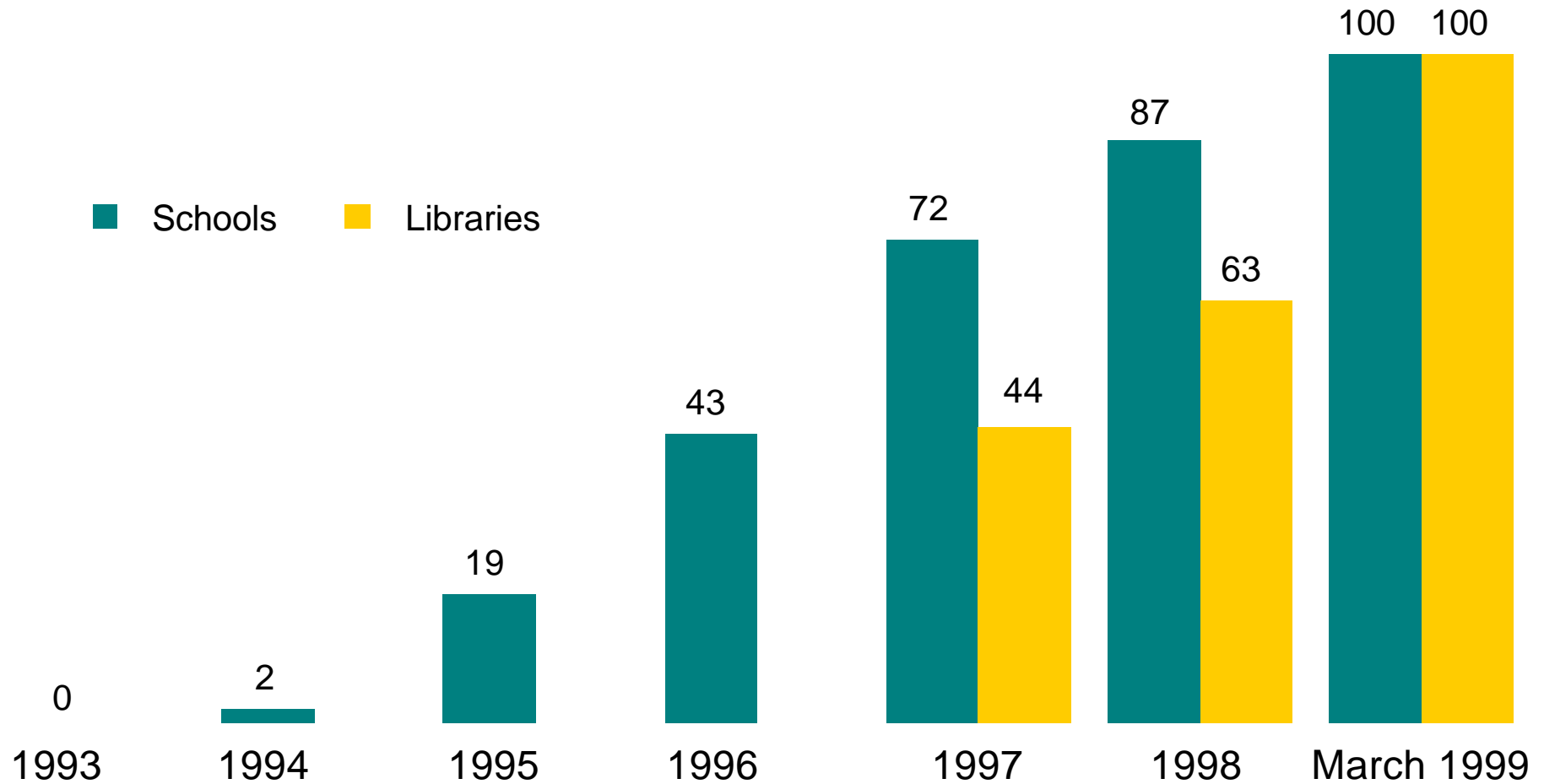
Home Internet Connections Are Moving Toward Faster Access



Source: ACNielsen, *ACNielsen Canadian Internet Planner 2000*.

Canada Is the First Country to Connect Its Schools and Public Libraries to the Internet

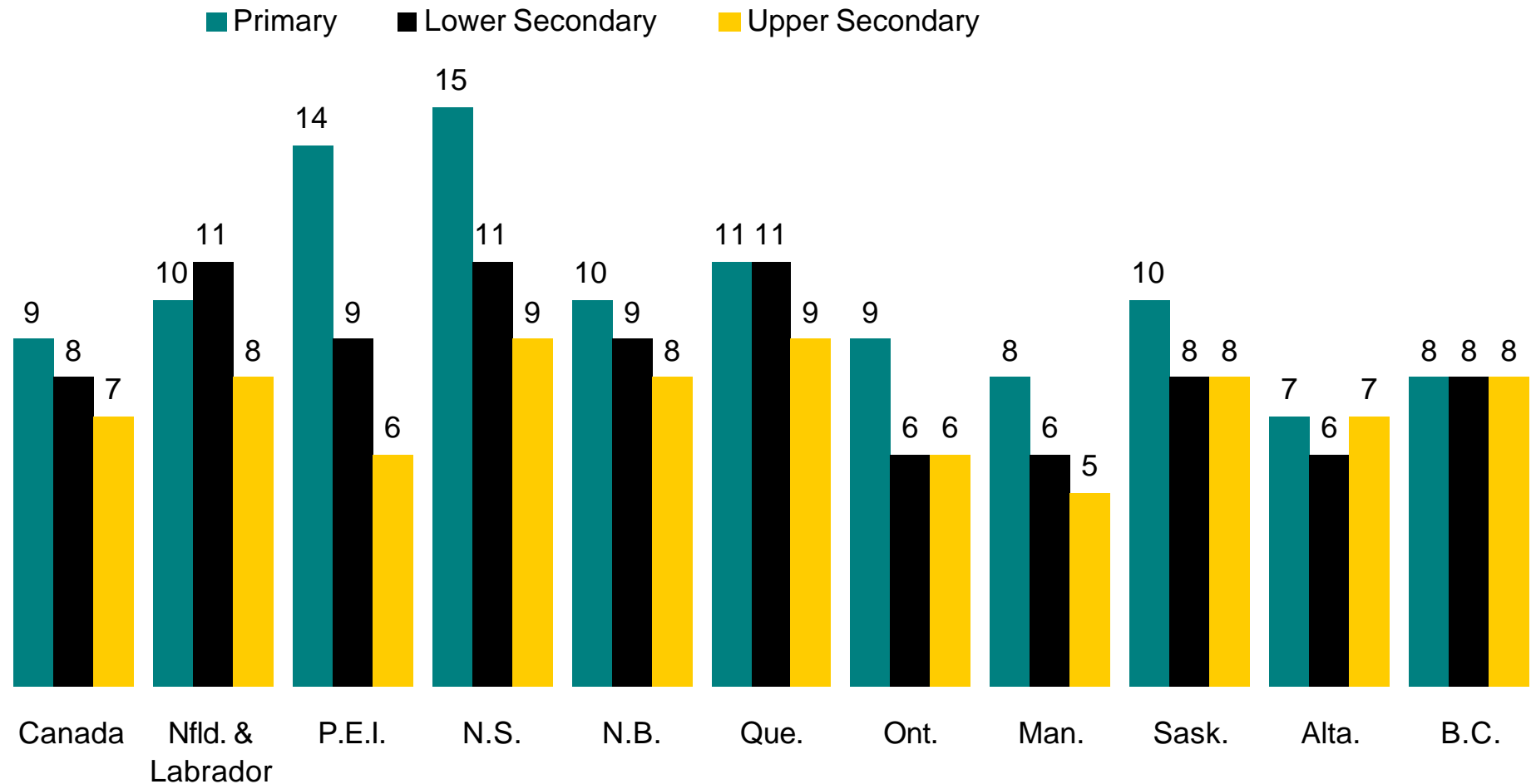
Percentage of Schools and Libraries Connected*



*Out of those libraries and schools that wanted to be connected.

Source: Industry Canada, based on numbers provided by provincial governments and provincial education networking organizations.

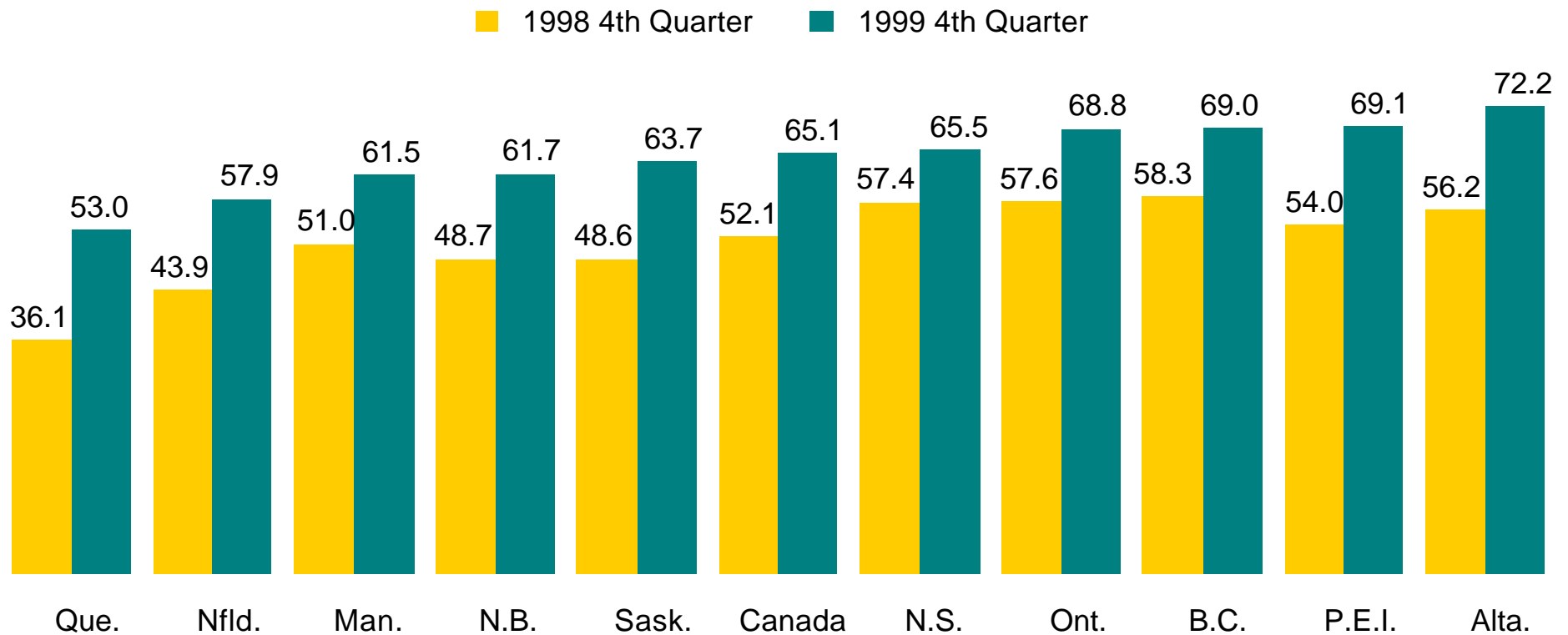
Student/Computer Ratios, Canada and Provinces, 1999



Source: *Second Information Technology in Education Study (SITES)*, as cited in: Statistics Canada and Council of Ministers of Education, Canada, *Education Indicators in Canada*, 1999, <http://www.cmec.ca>

Small and Medium-Sized Enterprises (SMEs) Are Getting Connected to the Internet, 1998 and 1999

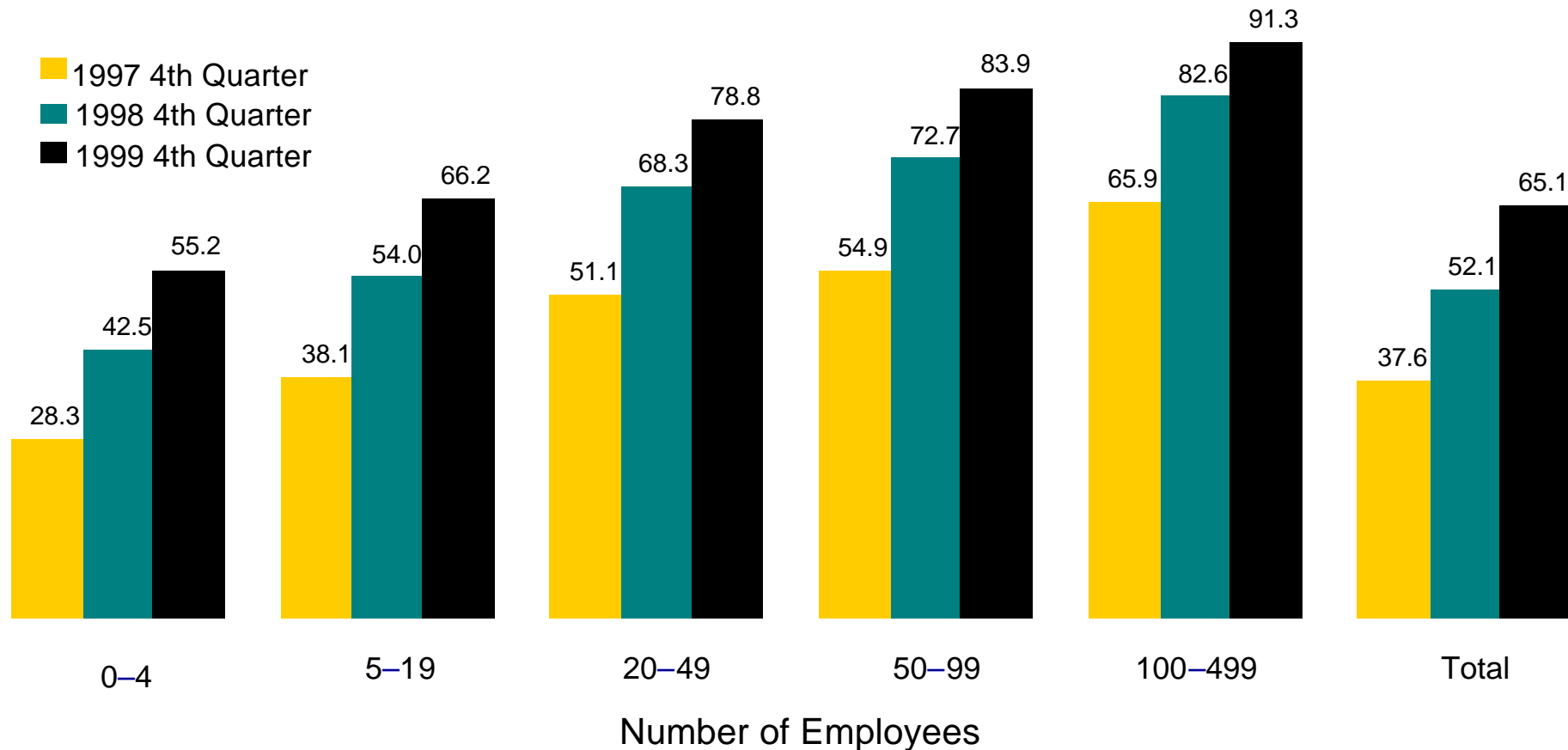
Percentage of Firms Using the Internet



Source: Canadian Federation of Independent Business, *Our Members' Opinions* survey, #43 (July to December 1998) and #45 (July to December 1999).

Changes in SME Internet Use by Size of Business, 1997 to 1999

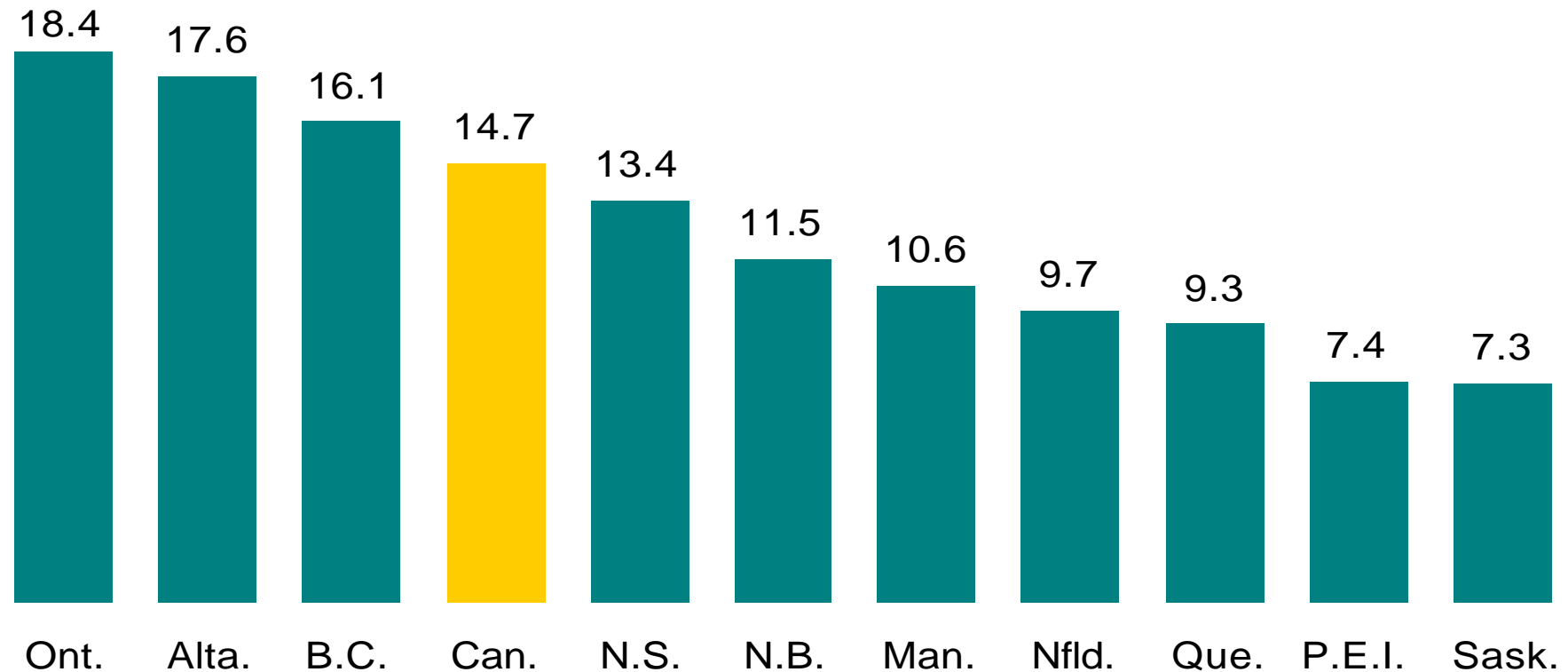
Percentage of Firms Using the Internet



Source: Canadian Federation of Independent Business, *Our Members' Opinions* survey, #41 (July to December 1997), #43 (July to December 1998) and #45 (July to December 1999).

Provincial Breakdown of SME Use of E-Commerce, 1999

Percentage of Firms Using E-Commerce, 4th Quarter 1999



Source: Canadian Federation of Independent Business, *Our Members' Opinions* survey, #44 (January to June 1999).

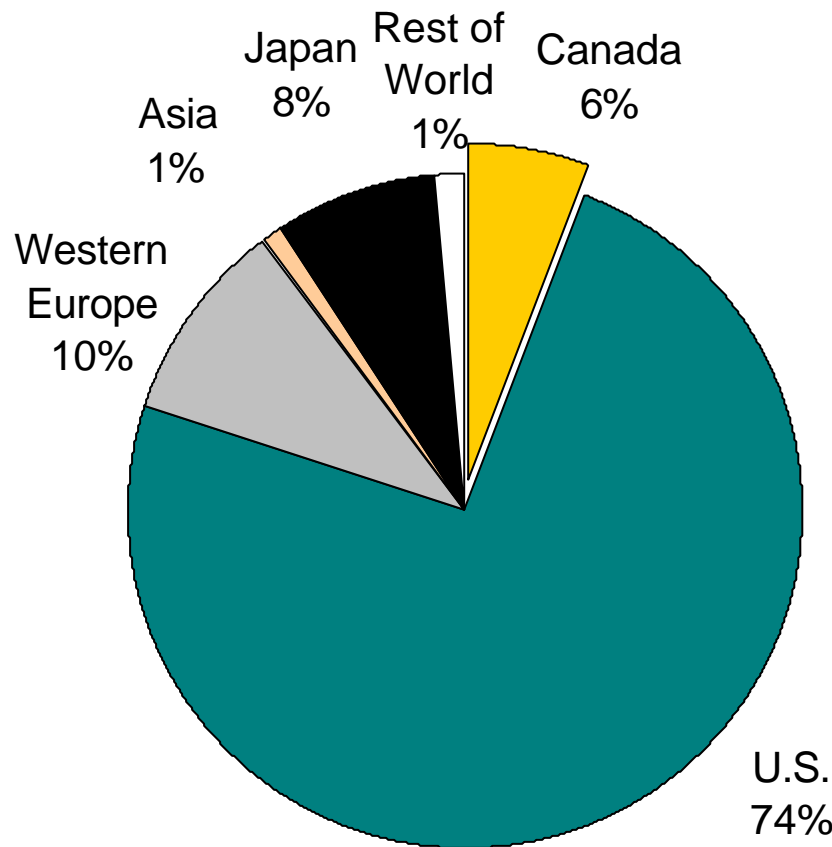
Estimates of Worldwide E-Commerce Growth, 1998 to 2003 (US\$ Billions)

Source	1998	1999	2000	2001	2002	2003
eMarketer	\$37.6	\$98.4	\$233.4	\$443.89	\$805.08	\$1442.8
Forrester Research (High)	\$80	\$170	\$657	\$1233	\$2231	\$3979
Forrester Research (Low)	\$35	\$70	\$170	\$410	\$860	\$1800
IDC	\$60.4	\$130.6	\$268.6	\$515.2	\$930.8	\$1640

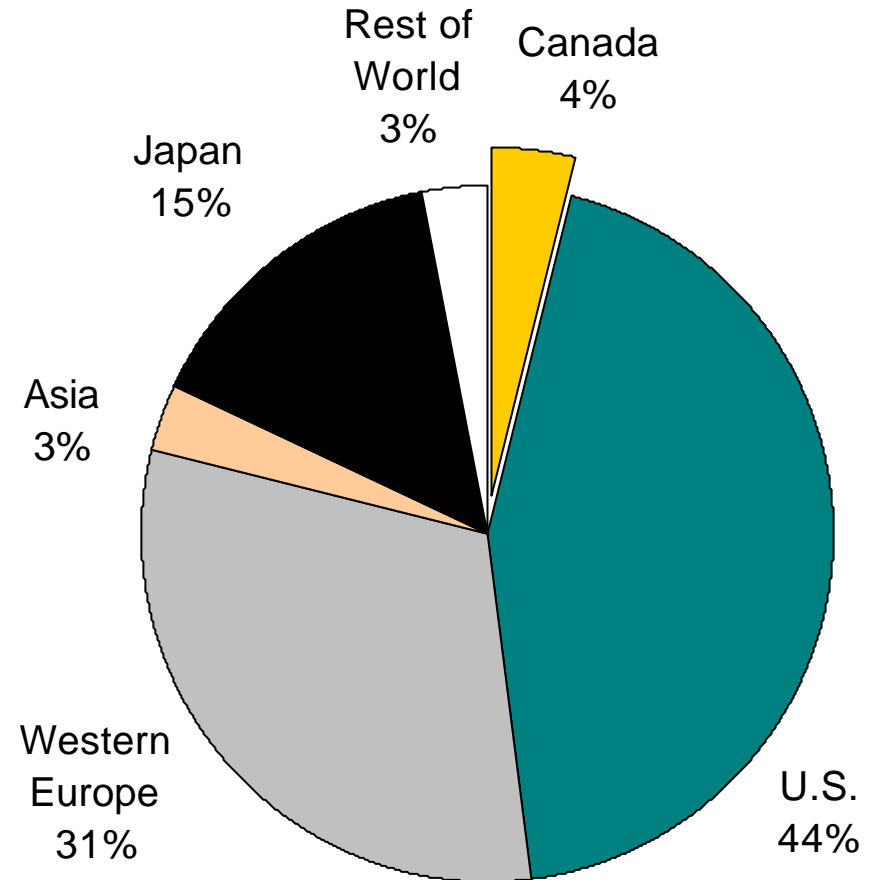
Source: eMarketer, 2000; Forrester Research, April 2000; International Data Corporation (IDC), 1999.

Canada's Current and Projected Share of World E-Commerce

1998 US\$60.4B



2003 US\$1.64T



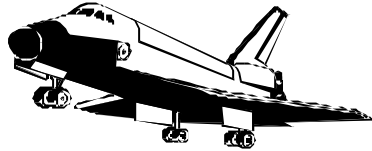
Note: Charts reflect Internet commerce, a subset of electronic commerce that includes the purchase or trade of goods and services via the Internet/World Wide Web, but excludes financial services transactions.

Source: International Data Corporation, 1999.

Estimated Savings of Business-to-Business (B2B) E-Commerce by Sector Over a One-Year Period

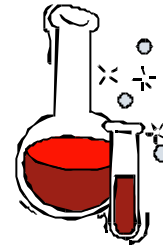
Aerospace Machining

11%



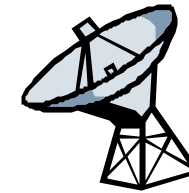
Chemicals

10%



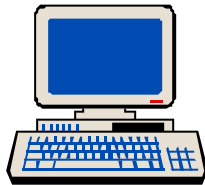
Communications

5–15%



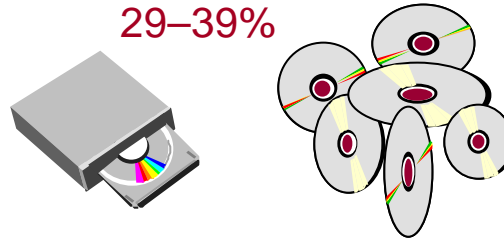
Computing

11–20%

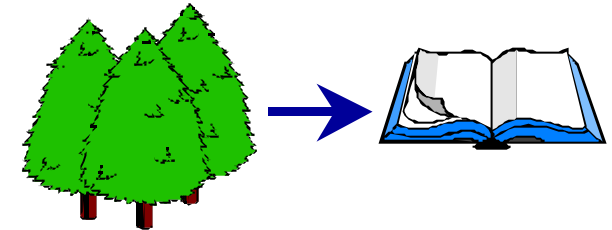


Electronic Components

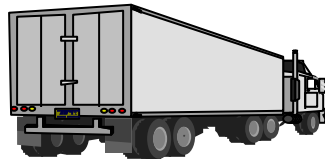
29–39%



Forest Products 15–25%

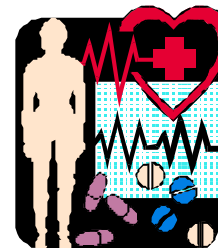


Freight Transport 15–20%



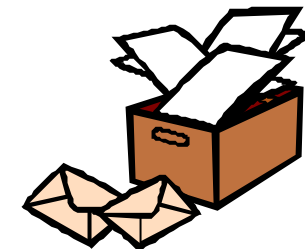
Life Sciences

12–19%



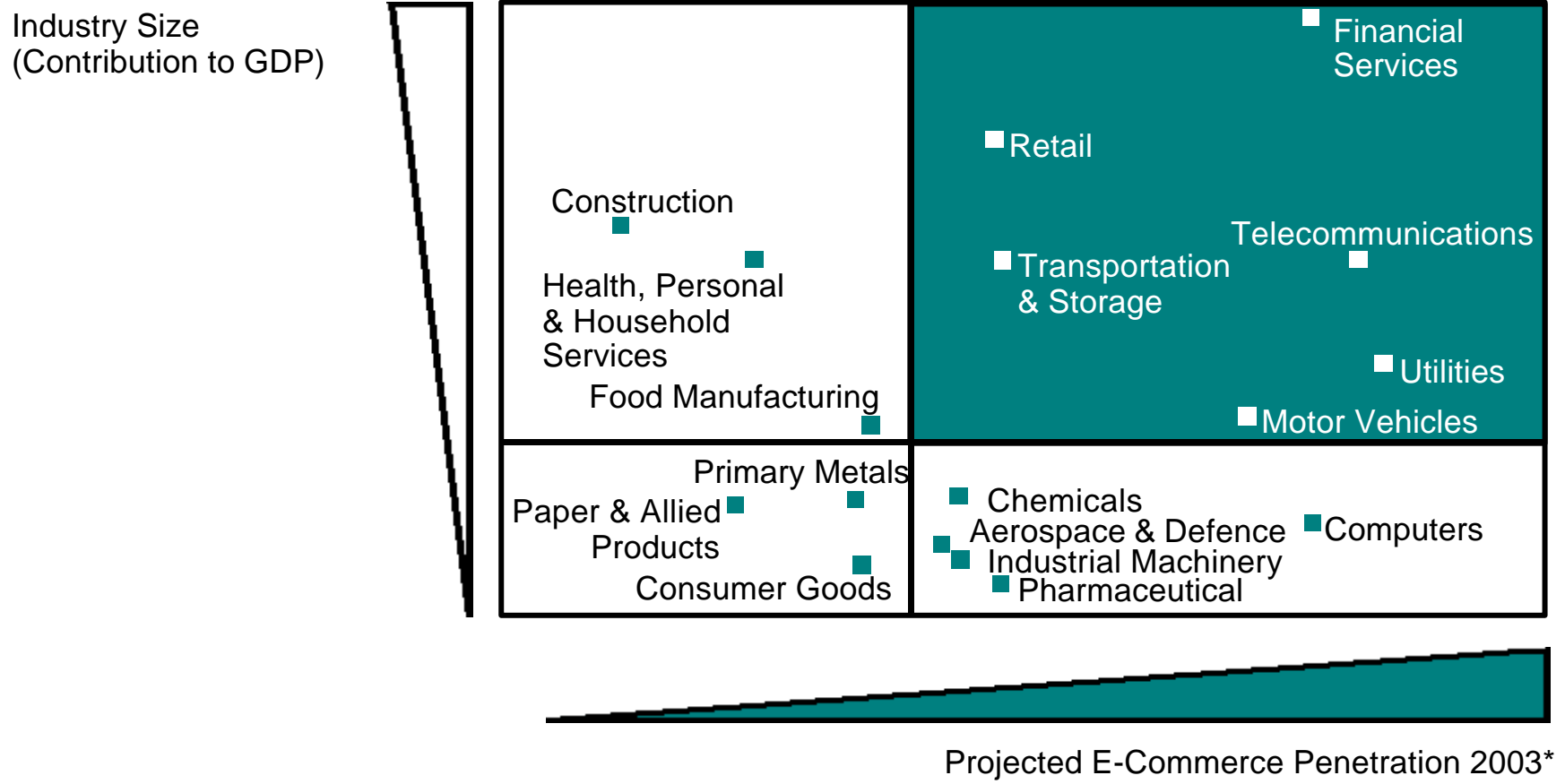
Paper

10%



Analysis compared U.S. traditional business methods (telephone, fax and courier) with new B2B Internet techniques.

E-Commerce Is Projected to Have a Major Impact in Key Sectors

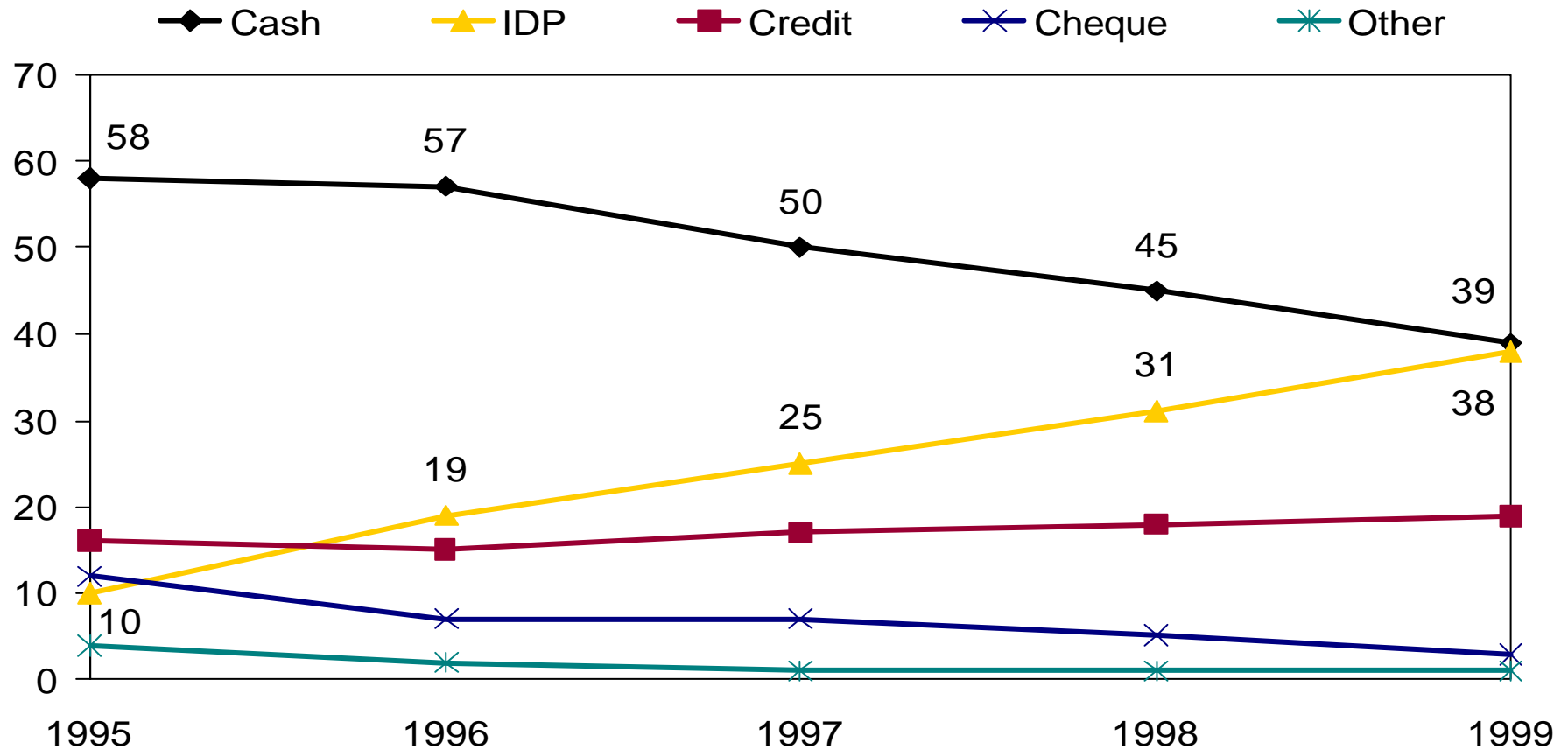


*Based on Boston Consulting Group (BCG) projections of U.S. e-commerce purchases as a percentage of total purchases in 2003 in each sector.
 Source: Statistics Canada for GDP; BCG for e-commerce penetration.

Interac Direct Payment (IDP) Is as Popular as Cash

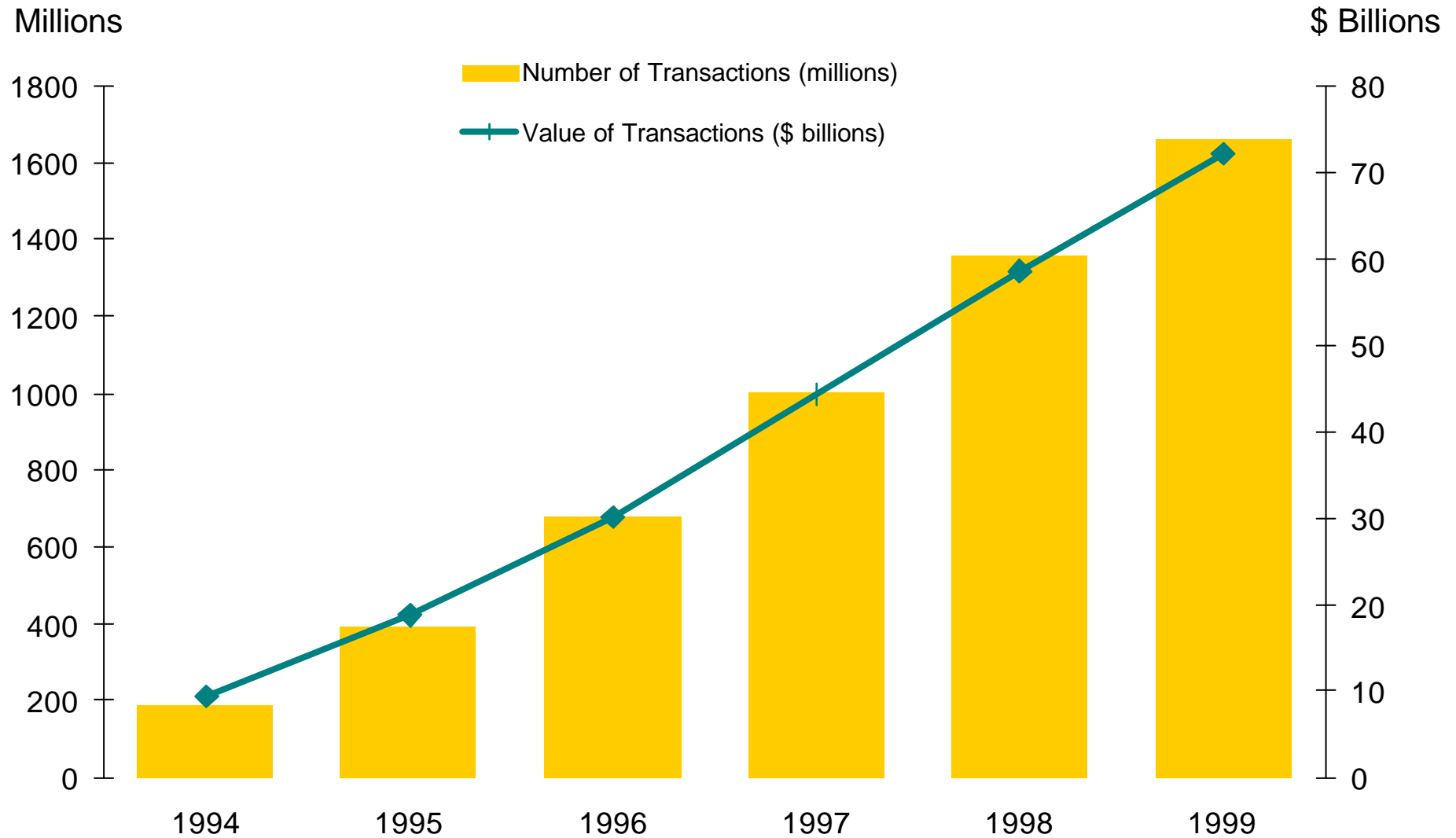
How We Prefer to Pay Our Way

Percentage Breakdown



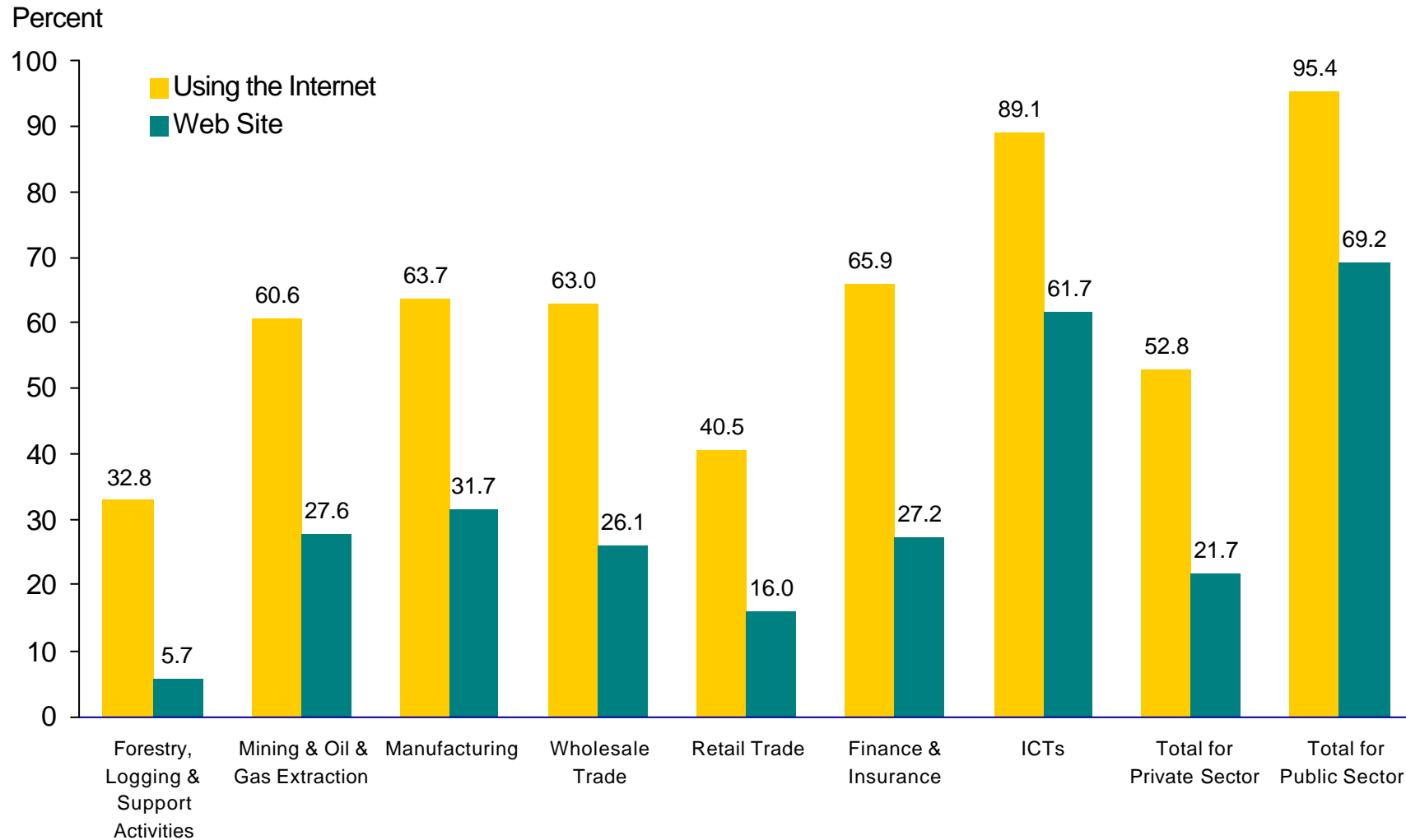
Source: Interac Association, *Tracking Research Report*, 1999.

Canada's Interac Direct Payment Continues Unprecedented Growth



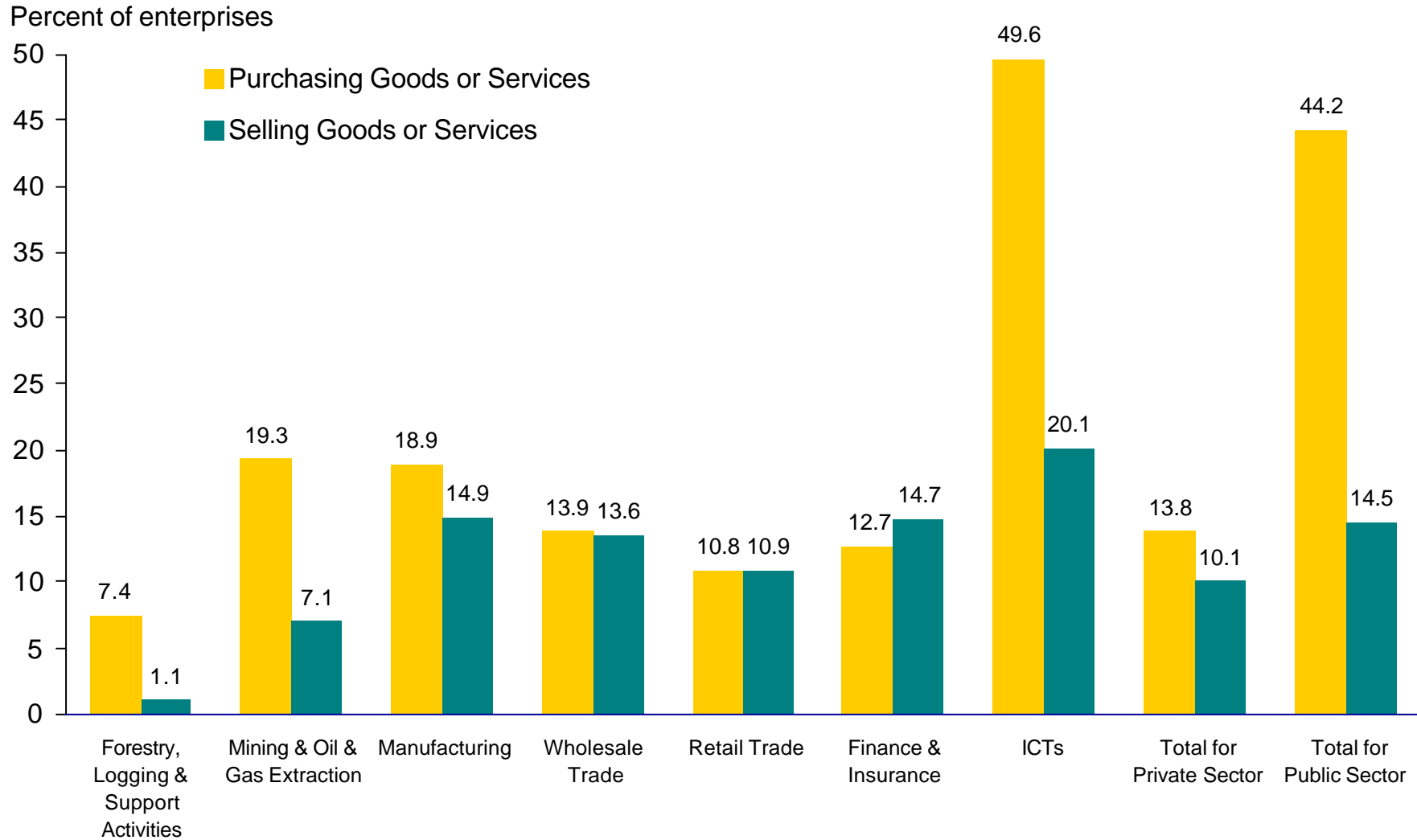
Source: Interac Statistics, 1999, <http://www.interac.ca>

Canadian Businesses at E-Readiness Stage



Source: Statistics Canada, *Information and Communications Technologies and Electronic Commerce Survey*, August 2000.

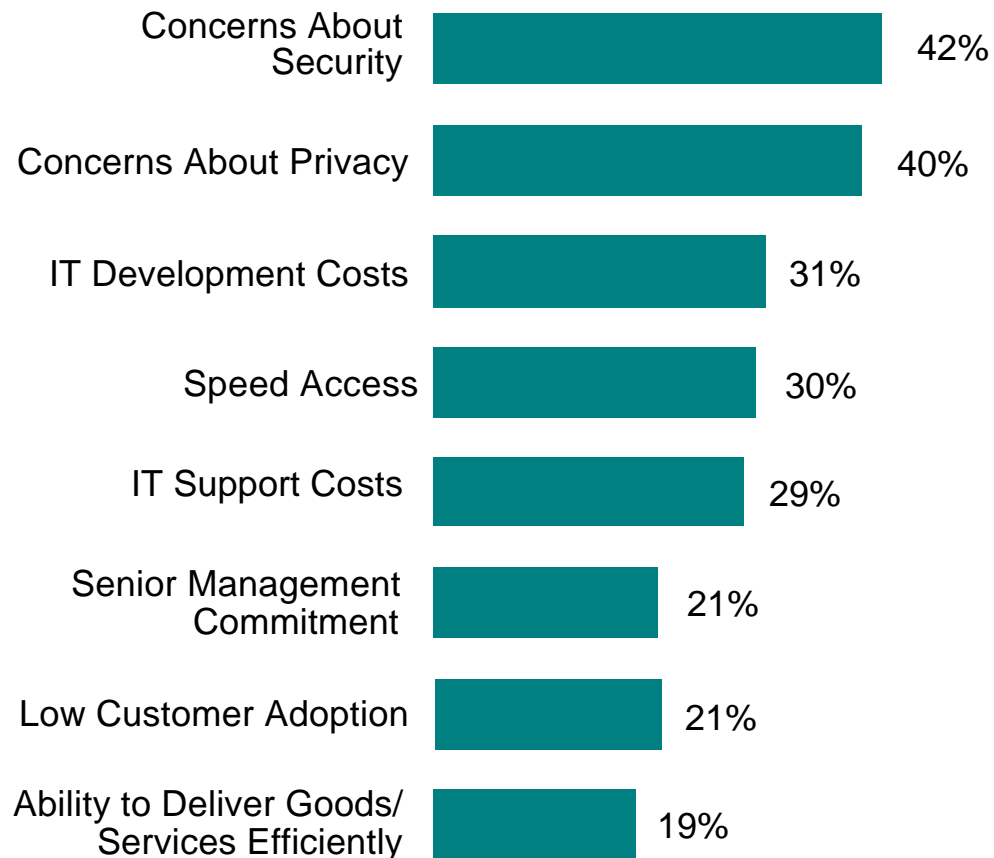
Still Early Days for E-Commerce



Source: Statistics Canada, *Information and Communications Technologies and Electronic Commerce Survey*, August 2000.

Barriers to E-Commerce Development and Use

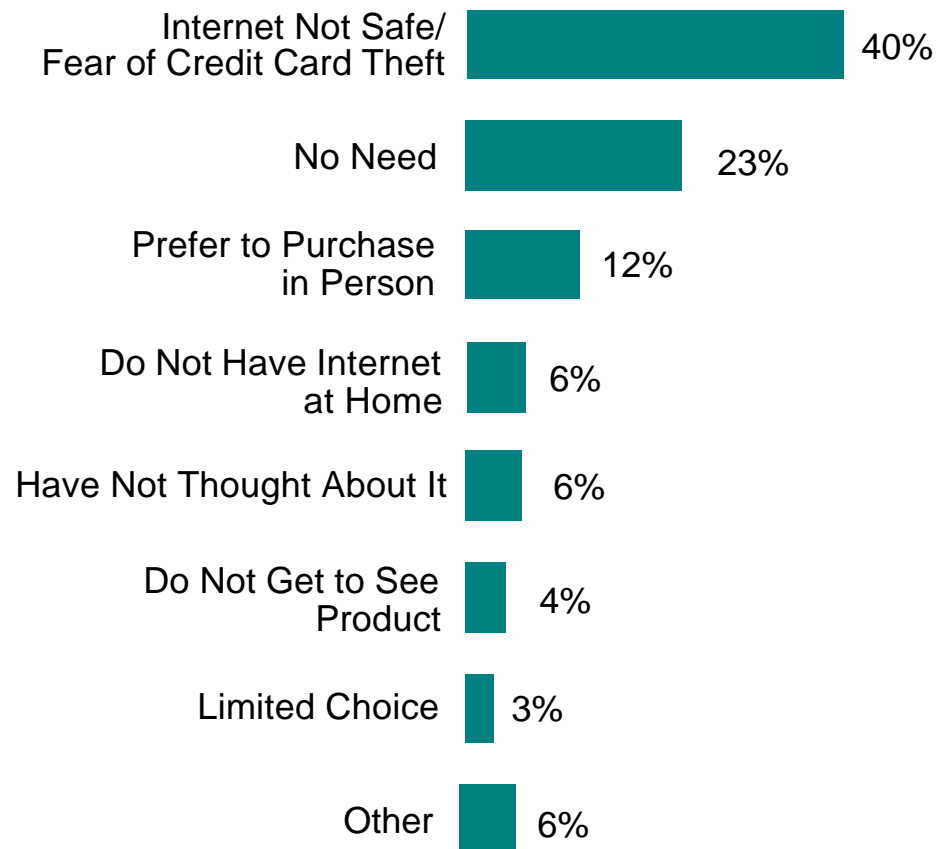
Major Business Obstacles



N=899 Internet users

Source: Deloitte & Touche, *E-Business Readiness Survey*, February 2000.

Consumer Barriers






N=1927 Internet users

Source: Ekos Research Associates, *Information Highway & the Canadian Communications Household Study*, 1999.

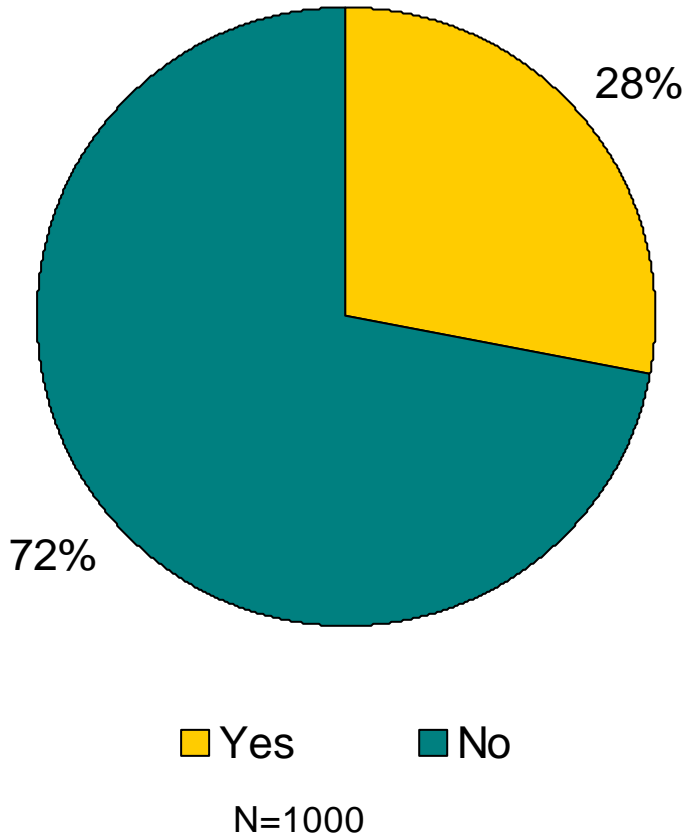
E-Commerce Is Not a Priority for Canadian CEOs

Percentage of CEOs Agreeing

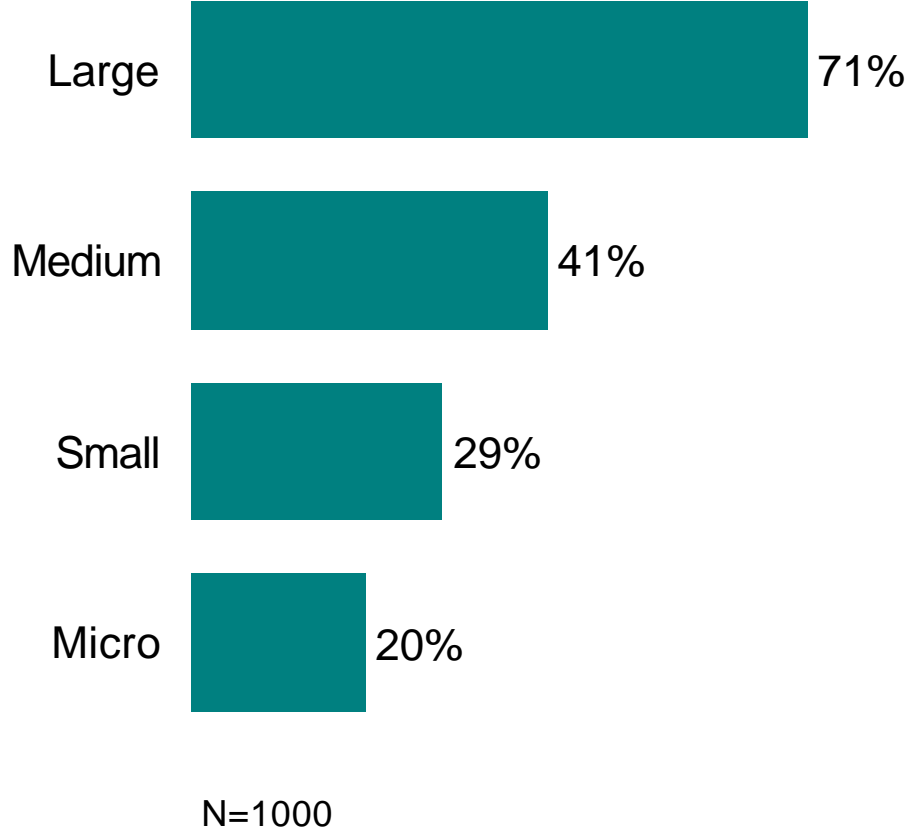
			
Plans for exploring future opportunities in e-commerce	72	83	70
E-commerce offers a real competitive advantage to my company	55	77	51
E-commerce represents a serious threat to my company	21	30	18
E-commerce forms a significant part of the way we do business	20	77	39

One in Three Canadian Businesses Has Its Own Web Site, 1999

Does Your Company Have Its Own Web Site?



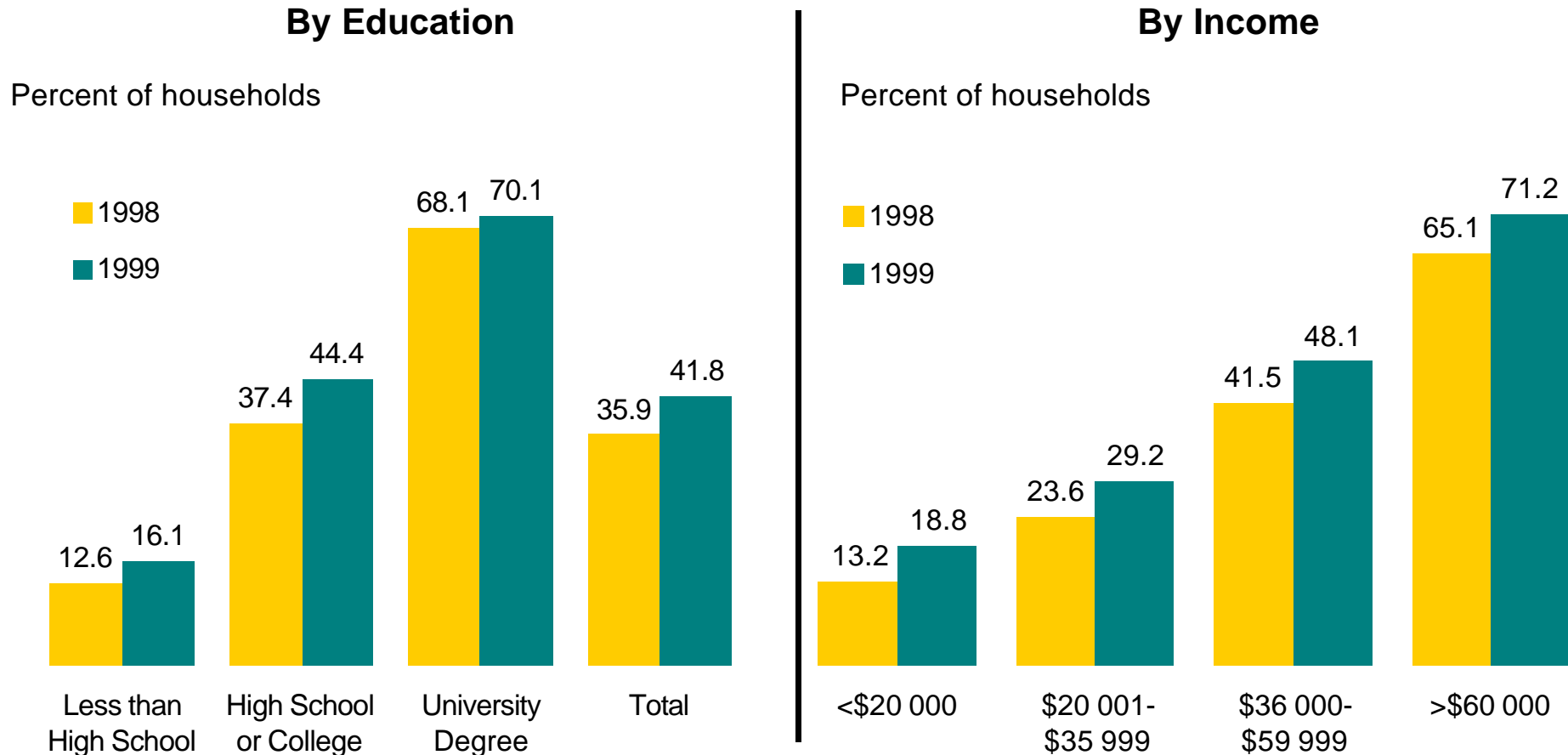
Size of Business



Source: Ekos Research Associates, January 2000.

Information Haves and Have-Nots, 1998 and 1999

Internet Use* from Any Location**



Usage rates are nearly four times higher for higher income and university educated households.

*In 1998, "Internet use" was defined as computer communications including e-mail, electronic banking and Internet use. In 1999, this definition referred to Internet use only.

**"Any location" includes home, work, school or other place.

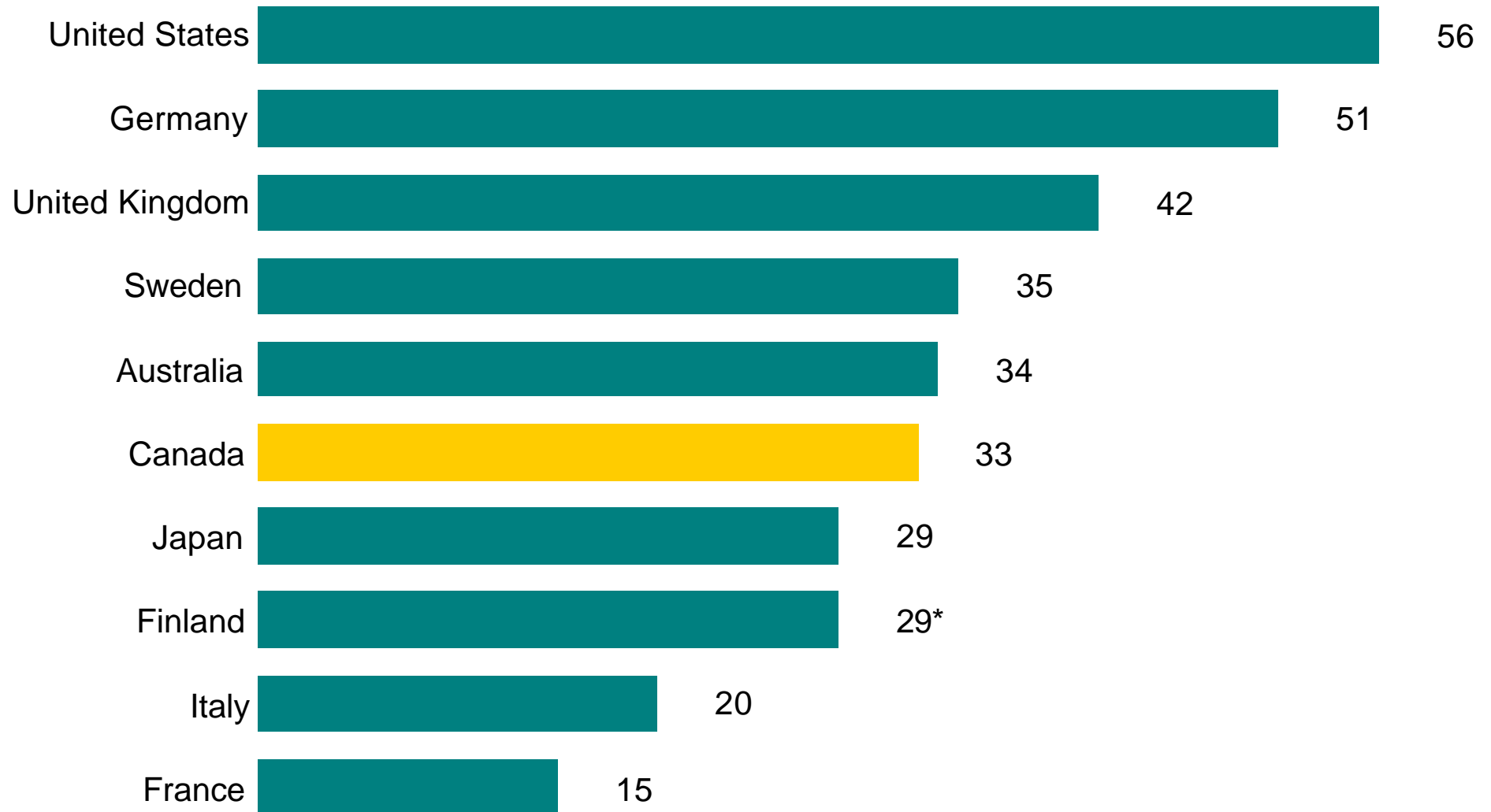
Source: Statistics Canada, *Household Internet Use Survey*, 1998 and 1999.

Canadian E-tailing Is Not as Mature as American

	Canada	U.S.
Households buying items on-line	9%	17%
Annual average consumer spending on-line	\$770	\$1200
On-line shoppers making 10 or more purchases in past 12 months	22%	47%
Total shopping spent via on-line shopping	6%	15%
Projected on-line shopping in 2002	24%	36%

Source: Ernst & Young, *Global Internet Retail Report*, January 2000.

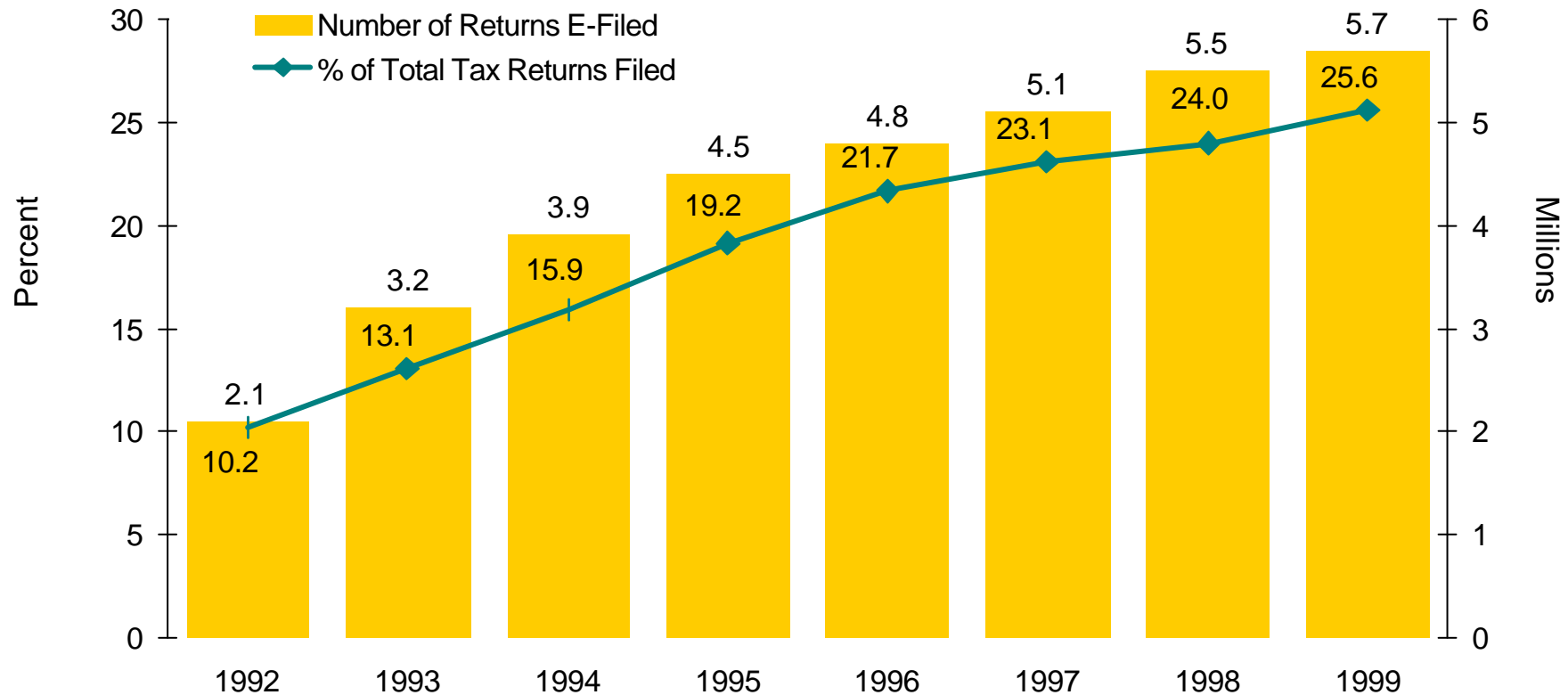
Percentage of Internet Users Who Have Purchased a Product or Service Directly On-Line



Source: Angus Reid Interactive, "The Face of the Web, Wave One," User Survey, March 2000; *"The Face of the Web, Wave One," Prevalence Survey, November 1999, for Finland.

Canadians Are Receptive to Government On-Line Services

E-Filed Tax Returns in Canada

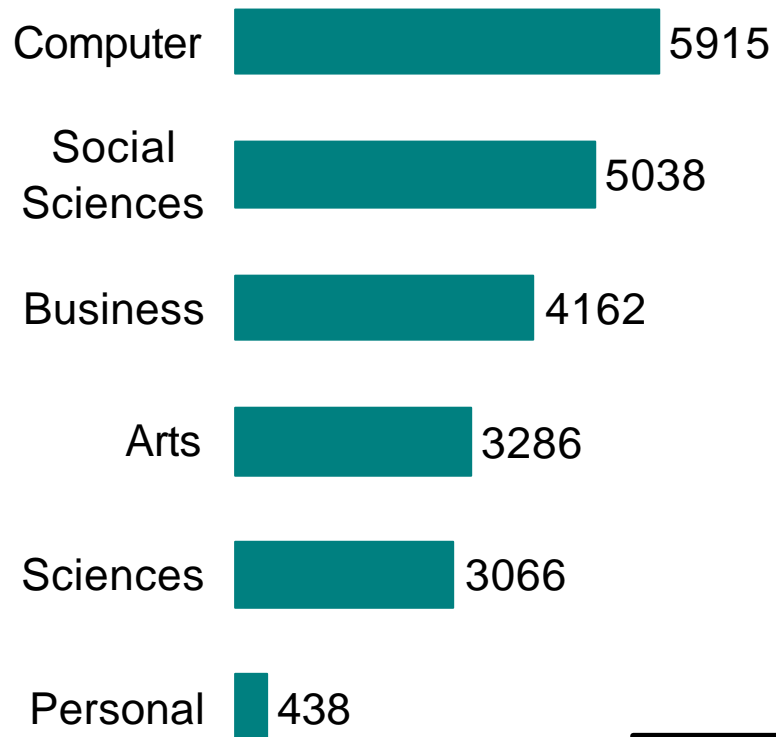


In 1999, the number of Canadians who e-filed increased to one in four.

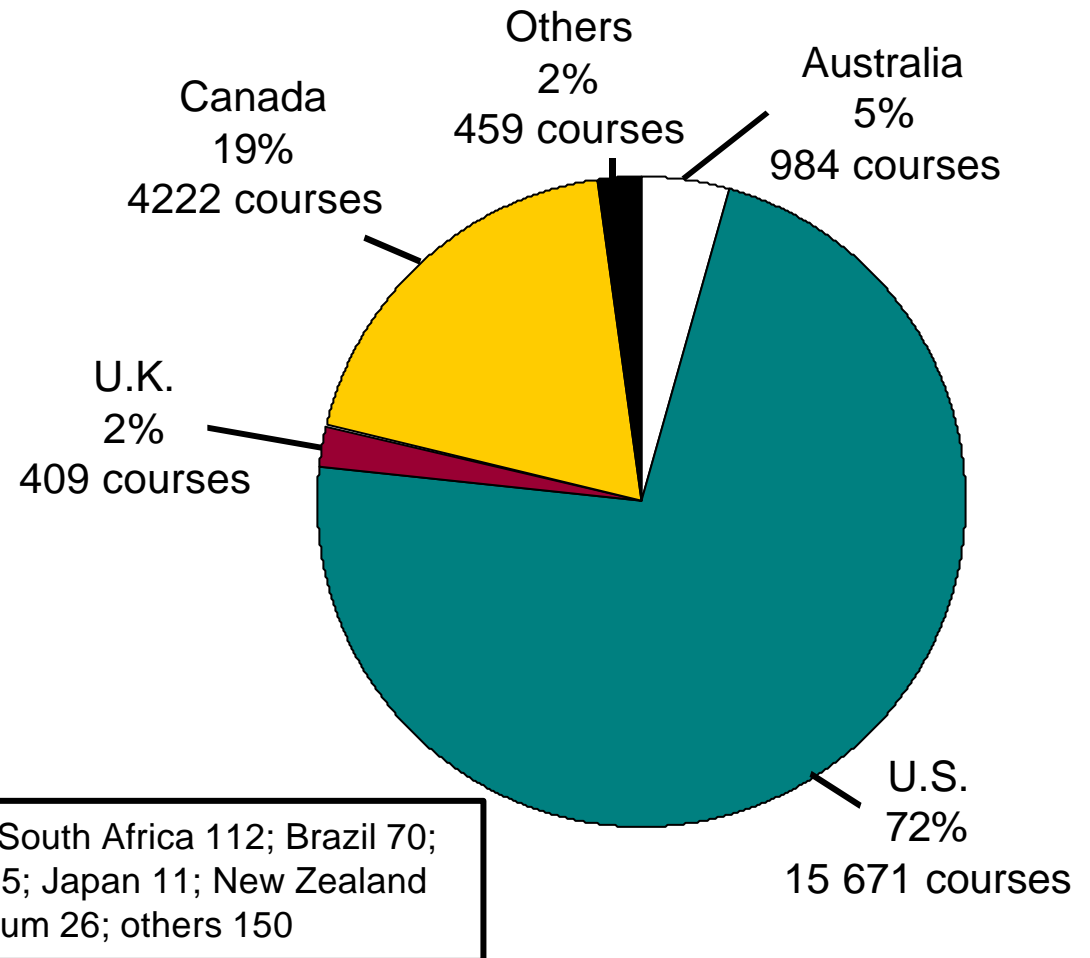
Source: Canada Customs and Revenue Agency, August 4, 2000.

On-Line Courses Are Growing in Popularity

**On-Line Courses by Subject Area
Worldwide, July 1999**

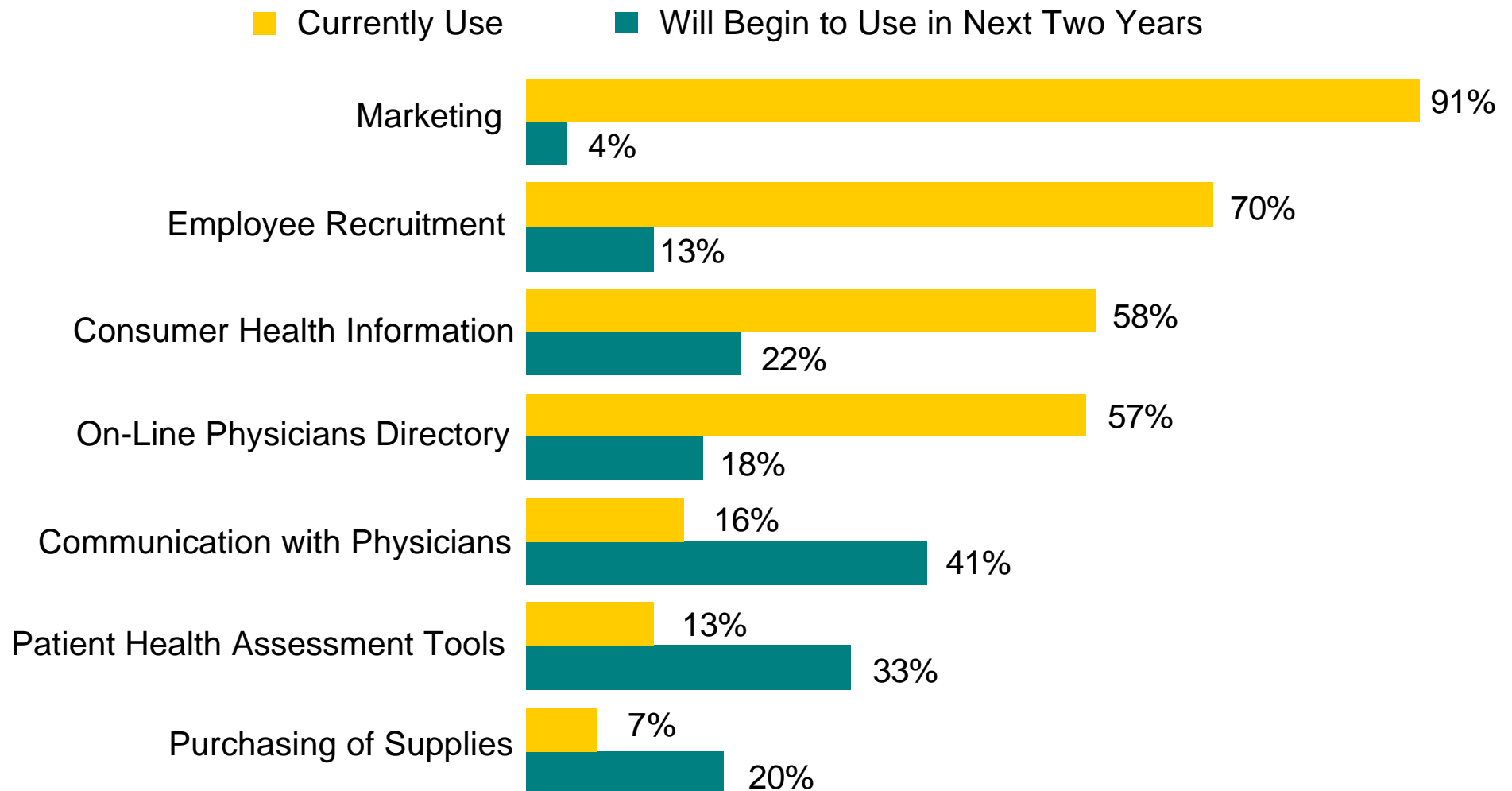


**Canada Ranks 2nd for On-Line Courses
Worldwide, March 2000**



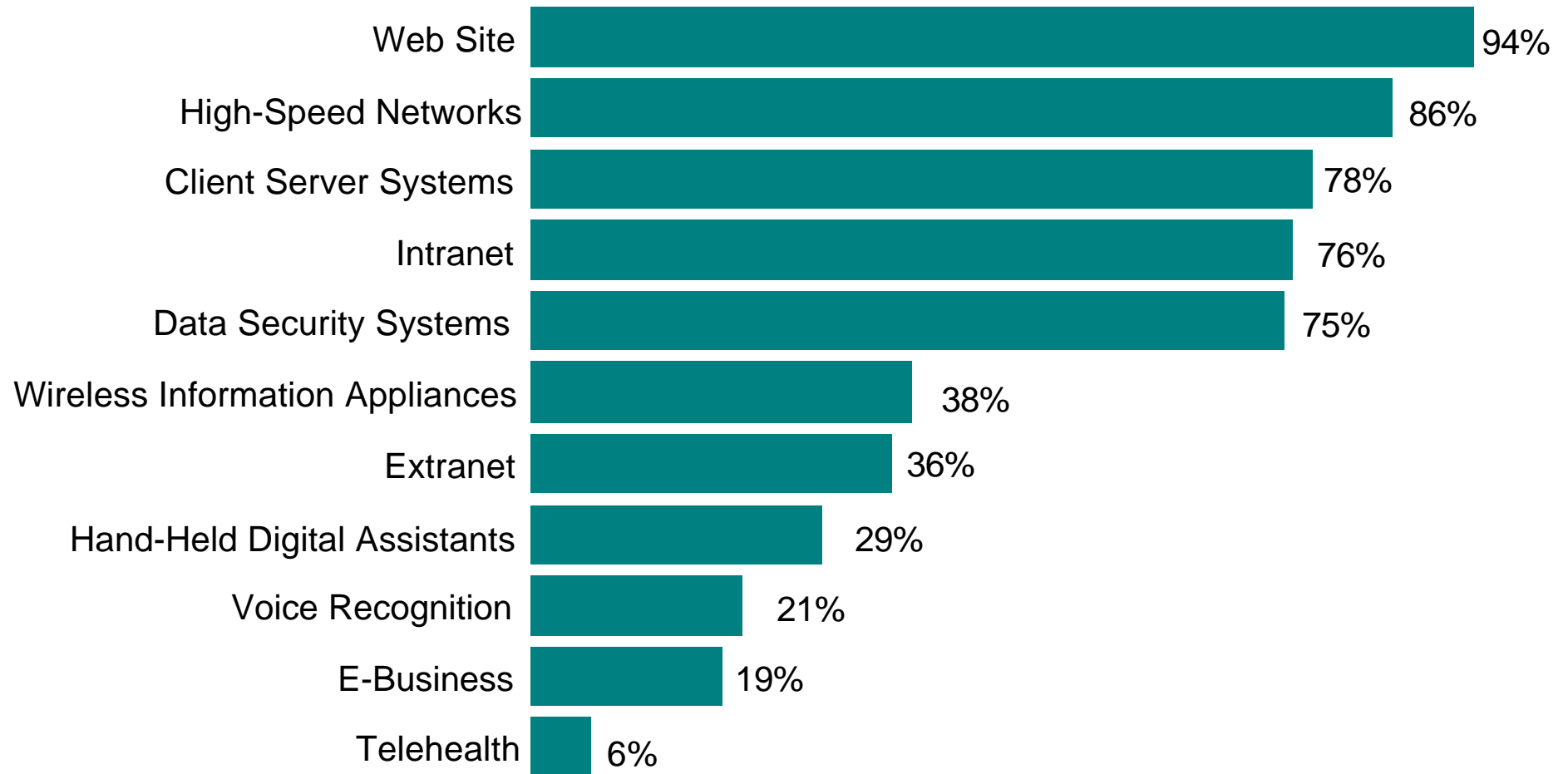
Source: TeleCampus of TeleEducation NB, <http://telecampus.edu>

Top IT Priorities for North American Hospitals, 2000



Source: 11th annual Healthcare Information Management Systems Society survey, spring 2000, sponsored by IBM, <http://www.himss.org>

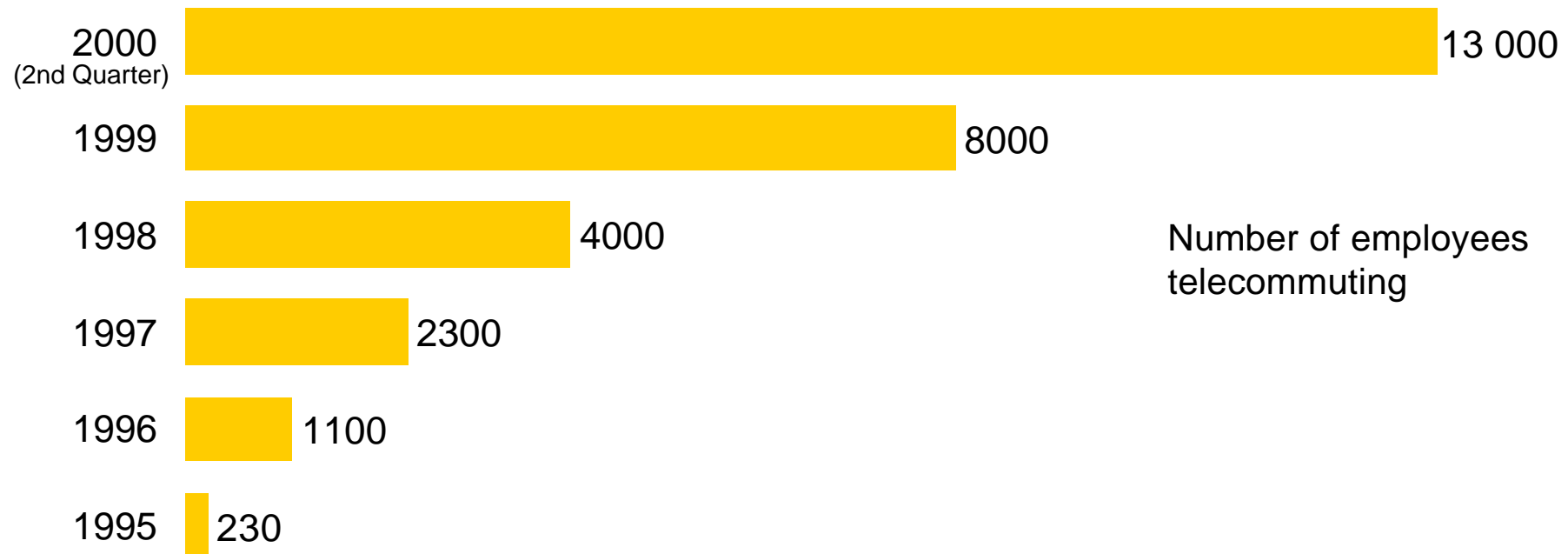
Technology Adoption in North American Hospitals, 1999



Source: 11th annual Healthcare Information Management Systems Society survey, spring 2000, sponsored by IBM, <http://www.himss.org>

Impact of Information and Communications Technologies on the Environment

Nortel Networks Telecommuting



Approximately 13 000 Nortel Networks employees worldwide telecommute a portion of the week. ICTs enable employees to work from home effectively.

Conservative calculations estimate:

- On average, Nortel’s telecommuters avoid emitting 16 000 tons of air pollutants annually.**
- Nortel Networks has decreased the need for office space equivalent to two 20-storey buildings with floor plates of 40 000 square feet each.**

Source: Nortel Networks, 1998 EHS Performance Report, 1999; unpublished data, 2000.