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## Consumers and the Internet

### The Internet: What is it?

Despite its high media profile, most people have only a vague understanding of the Internet — what it is, what it has to offer and the questions it raises for consumers. This edition of the *Consumer Quarterly* looks at these issues.

Physically, the Internet is nothing more than an unregulated network of computers mostly linked by telephone lines. Messages sent over the Internet are broken into small pieces (called packets) that are directed separately to their destination, often by different routes. Once all the packets arrive, the message is reassembled, all in a matter of a few seconds.

### How many Canadian users?

There are few reliable figures for growth in Internet use among Canadians, but in 1996

- 3.6 million households (31.6%) had a home computer, triple the number in 1986
- 7.4% of households had home Internet access
- only half of the 1.8 million households with a modem-equipped computer had used the Internet

(Source: Statistics Canada)

At the present time, the key features of the Internet are electronic mail (E-mail), the World Wide Web, which lets users access text, images, sounds and video, and File Transfer Protocol (FTP), which allows users to load software and other documents on to their own computers from others on the Net. Available, but still developing, are security features that open up the prospect of safe, large-scale payment for goods and services from around the world by credit or debit card.

From the consumers' perspective, some special characteristics of the Internet, rather than its technical wizardry, make it a potentially powerful agent of change. First, the Internet is geographically insensitive: it is no harder and no more expensive to reach a person on the other side of the planet than it is to reach someone in the same city. Second, the Internet is quick, far quicker than conventional mail. Third, the Internet combines the characteristics of both mass and personal communications media: with a few keystrokes it can provide access to one or two users or to millions. Finally, information on the Internet is available 24 hours a day — you can access it at your convenience.

### Netspeak

**Bandwidth:** the size of the "pipe" needed to carry electronic documents

**Byte:** a unit of information made up of eight bits; bits are the smallest unit for describing electronic information

**Encryption:** the coding or "scrambling" of a message to prevent anyone but the intended recipient from reading the message

**Flaming:** extremely aggressive replies to articles posted in discussion groups

**Hypertext Mark-up Language (HTML):** a method of coding documents on the Internet so that they can be linked to other documents

**Search engine:** software that lets you search for information on the Internet using keywords

**Server:** a computer that provides some service (usually the storage of files) for other computers connected to it via a network

**Spamming:** a large scale E-mailing of unsolicited material, which is usually sent to as many Usenet discussion groups as possible

**Usenet:** a bulletin board system composed of discussion groups; the discussion groups are organized by topic

# What's in it for consumers?

The Internet offers some intriguing possibilities for both vendors and consumers. The Net is fast and, because it costs no more to send a message to Singapore than to Saskatoon, a vendor can communicate quickly and cheaply with consumers around the world. Conversely, consumers can interact directly with sellers, asking for more detailed specifications or bargaining for better prices.

Access to a global marketplace clearly means more choice for consumers and more competition among sellers. It may also allow niche markets to develop more efficiently. Geographically scattered consumers of specialized products have, until now, been expensive targets for marketers to reach. The Internet will make it possible to aggregate this demand, reducing costs for both suppliers and consumers.

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No one quite knows how much buying will shift to the Internet. Goods such as compact discs and books are likely to be popular with Internet shoppers because they are fairly standard (in the sense that a copy of the latest best seller is essentially the same regardless of where it is purchased). As well, because of its speed, the Internet is an efficient delivery mechanism for time-sensitive information products such as electronic newspapers.

## The ultimate Yellow Pages?

The Internet brings the world to consumers' fingertips, and makes information easier and cheaper to obtain. Comparison

shopping through many Web sites is much more efficient than visiting the equivalent number of stores, banks or libraries. Search engines, such as Lycos and Yahoo, can be of tremendous help when looking for information on any topic. Using the Net, the hardest part of finding a good hotel in Guadalajara is probably knowing how to spell Guadalajara!

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More significantly perhaps, the Internet could reduce the imbalance in information that now characterizes relationships between consumers and sellers, particularly with regard to specialized products and services. In addition to information from suppliers, the Net provides easy access to data from independent sources as well as feedback from other users. Armed with this additional information, consumers could become more demanding of the goods and services they purchase. This seems especially likely in complex areas such as medicine in which individuals have typically been passive recipients of professional expertise.

## Shop 'til your fingers drop

Internet shopping malls already exist. A new Canadian destination will be MIX (the ManGlobe International Exchange), a virtual mall based in Manitoba.

Many of the payment mechanisms for electronic shopping are already in place. Some are based on electronic money, while others use disguised credit card numbers. For example, DigiCash users buy electronic tokens from banks, load them onto their computers and exchange them for goods and services with merchants. Transactions are untraceable and anonymous. With CyberCash, a user's credit card number is encrypted and can be decoded

only by authorized users such as card issuers. Merchants receive notification of an approved sale but do not get the card number.

## Virtual banking: The hours, they are a'changing

Canada may soon have its first completely virtual trust company if Amsterdam-based ING receives necessary federal permission. Home banking services for customers of Canada's major banks and trust companies are currently more common. Customers can electronically pay bills, view account balances, transfer money, and download transaction history. The fees for these services are currently being set. Some institutions are likely to charge flat fees, while others are expected to charge a fee per transaction.

## Reach out and bite someone

The Internet can also be used as a telephone. The technology is still primitive but it offers one important advantage that regular telephone service cannot: there are no long-distance charges. Beyond the cost of an Internet connection from a service provider and the purchase of the calling software, conversations are free. This is possible because of the way the Internet routes information. There are concerns that, as these types of calls grow in popularity, the Net will become very congested. In addition, because Internet telephony competes directly with traditional telephone service, some are suggesting that it be regulated in the same manner.

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# Holes in the Net: Potential consumer hazards

## Cheaper isn't always better

Even the most promising Internet information features have their downsides, and there may be benefits in keeping some information costs high. Consider the case of Victoria, British Columbia, where market prices for privately owned real estate were made available on-line. This information has always been publicly available, but at a cost, which included travelling to City Hall, filling out forms and paying a fee. On the Internet, accessing the information was easy and almost costless. For those who might decide to find out how much co-workers paid for their homes, prying became cheap entertainment. For many homeowners, this constituted an invasion of personal privacy. After much public

outrage, municipal officials stopped offering the information on-line.

## Policing the unpoliceable?

With every crackdown on illegal electronic pornography or fraud, there are calls for new legislation to control the Internet. Some argue that because of its global nature, it is impossible to regulate the Net. Still others claim that the Internet's strength lies in the fact that no one controls it and that illegal activities are an unfortunate, but inevitable, consequence of that freedom.

The Internet does not operate in a vacuum, though. For example, Canadian law already prohibits misrepresentation, copyright

infringement and the production of child pornography. These laws apply regardless of the medium, whether it is the mail, the telephone or the Internet. Police have already taken action in certain cases.

However, structurally and culturally the Internet is inherently anarchic—so, quite apart from criminal activity, private misunderstandings can sometimes arise. In response, there have been attempts to set up alternative ways to resolve Net disputes, whether commercial or otherwise. The Virtual Magistrate (<http://vmag.law.vill.edu:8080/>), run by the Villanova Law School near Philadelphia, renders free decisions in cases in which both parties agree to submit to its arbitration.

## CAIP's voluntary code of conduct

Concerns about the availability of offensive content on the Internet have led the Canadian Association of Internet Providers (CAIP) to create a voluntary code of conduct. The code offers CAIP members guidance on dealing with any illegal content that may reside on or be carried through their servers.

The code directs Internet service providers to comply with all applicable laws, to educate the public about Internet issues and to share information about illegal content with other providers. CAIP members may not knowingly store illegal content and are to make reasonable efforts to investigate and act on complaints of illegal content or other types of network abuse. The code outlines a process for complaint handling and contains a privacy statement.

For further information, see the CAIP Web site at <http://www.caip.ca>

## Cavenet emptor!!

Here are some things a consumer should be careful about when using the Internet:

**Security and fraud** — Many security systems on the Internet are not yet fully operational or well-tested. When considering making payments through the Net, it is essential that consumers be clear about the security standards and protocols the seller applies. Con artists can easily set up and shut down a Web site, so it is important to ensure that the seller is legitimate.

**Password protection** — Passwords should not be obvious (such as names and birthdays) and should remain private, be memorized rather than written down, and be changed at irregular intervals.

**Tracking** — Users may unknowingly be leaving behind electronic fingerprints on their "cookie file" in their computer hard drive. This file keeps a record of the Web sites users visit. It can be used by site managers to track movements within their site, profile users' interests and target them for specific information in the future. The information can also be sold to others without users' knowledge or consent.

**E-mail** — E-mail is not necessarily private. Think of an E-mail message as a postcard, rather than a letter in a sealed envelope: it can be read by anyone who picks it up along the way.

**Children and the Internet** — Increasingly, there are software products available to block access to Web sites that contain objectionable material. However, these are not a substitute for an informed and attentive parent.

## Mending the Net — security solutions

Various approaches are used to counter security problems with transmitting data over a network designed to be accessible to anyone with a computer and telephone link.

### Encryption

Information coding or data encryption is the basis of most Internet security measures. Unfortunately, the growing power of computers makes cracking codes easier. Data can be made more secure by increasing the complexity of the encryption, but this also increases demands on data transmission capacity and computer memories. Security experts, therefore, aim to devise encryption systems appropriate to the worth of the information being transmitted.

Visa, MasterCard and American Express, in conjunction with IBM, Netscape and

Microsoft, are currently developing a secure encryption protocol for Internet payments called SET (Secure Electronic Transactions) that is intended to be compatible with as broad a range of systems as possible. SET ensures information confidentiality and payment integrity and authenticates the identities of both merchants and cardholders.

### Public key infrastructure (PKI)

Whereas conventional cryptography is designed to protect secrets held by a very few people, the Internet requires a capacity for secure communication among thousands of users. Public key cryptography meets this challenge. PKI uses two encryption "keys," a private key and a public key, to encode data, to authenticate the identity of the sender, and to verify

that the message has not been tampered with en route. Only a message encoded with a private key can be decoded by the corresponding public key and vice versa. If the entire contents of a message are secret, the sender uses the recipient's public key (available from a public bulletin board) to encode the data. Only the intended recipient can then decode the message. If the message content is not secret but the recipient must be sure of the sender's identity and that the message has not been tampered with, the sender "signs" the message with his or her private key and at the same time uses it to encrypt essential portions of the message. The sender's identity and message validity are verified using his or her public key. Meanwhile, computer memory and transmission capacity are saved by not encrypting the entire message.

## For further information

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## Internet commerce — building consumer confidence

Survey data suggest consumers will be enthusiastic about Internet commerce once underlying concerns about security are addressed. Indeed a recent U.S. study found consumers are apparently readier than suppliers to do business on the Net.

A study, conducted for AT&T by the San Francisco-based Odyssey consulting group, suggests U.S. consumers are ahead of merchants in their interest in Internet commerce. The survey of 2 000 consumers and 500 business executives found 39% of the consumer group expecting to use an on-line service for electronic commerce in 1997 and 55% expecting to do so within the next five years. By contrast, only 6% of consumer-oriented business executives said the Internet would be an important way to communicate with consumers in 1997 and only 17% said it would be important within five years.

Meanwhile, responses to Industry Canada questions in a recent ACNielsen poll provide insights into security measures that

Canadians believe are necessary to build consumer confidence in electronic commerce. The ACNielsen 1996 Canadian Internet Survey polled 13 000 individuals and found that 23% of Canadians aged 12 and older use the Net. Of these, 11% have already made a purchase via the Net and another 37% plan to do so soon. However, 75% of those surveyed said they would be reluctant to shop for goods and services on the Net for security and other reasons. Concerns included the possibility of unsatisfactory recourse in the event of problems with transactions or merchandise (60%), the inability to confirm the identity of the supplier (58%), and concern that transaction information might be accessed by third parties (57%). Significantly, a substantial proportion of consumers said they would shop via the Internet if there were an Internet industry code of conduct (34%) or Internet transaction legislation (33%), or if transmission of credit card and other financial information was secured by a well-known financial institution (58%).