

Technologies in the Voting Process: An Overview of Emerging Trends and Initiatives

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This document presents technological innovations in the voting process, specifically Internet voting, while exploring Canadians' attitudes and perceptions towards them. It first deals with trends in technology use by Canadians, followed by sections on Canadians' attitudes and innovations in Canada and abroad.

Technological Profile of Canadians

Over the past few years, there has clearly been a trend toward rapid expansion of the use of Internet and online technologies by Canadians. This is expected to continue for the next decade(s).

According to the 2010 Canadian Internet Use Survey (Statistics Canada):

- 80 percent of individuals 16 years and older used the Internet for personal use.
- Individuals under the age of 45 had the highest rate of use, at 94 percent, while 80 percent of those aged 45 to 64 used the Internet. Among seniors, about one half (51 percent) of those aged 65 to 74 used the Internet, compared with 27 percent of those aged 75 and older.
- Overall, Canadians are experienced Internet users, with almost one half of users (47 percent) having been online for 10 years or more. About three quarters (76 percent) used the Internet at least once a day in a typical month.
- Among Internet users, one third (33 percent) went online with a wireless handheld device. These users tended to be younger and more experienced Internet users. The majority (59 percent) were under the age of 35, and most (60 percent) had 10 or more years of online experience.
- Seniors accounted for about one half (51 percent) of non-users. Nearly four in ten non-users (39 percent) came from households reporting low income.
- A majority of non-users (62 percent) said they did not use the Internet because they had no need or interest, did not find it useful or did not have time. Over one fifth (22 percent) mentioned a lack of skills or training or that they found the Internet or computers too difficult to use. Limited access to a computer (12 percent), cost of service or equipment (9 percent) and age (9 percent) were other reasons cited for not going online.
- A majority of Internet users went online to bank (68 percent) or to read or watch the news (68 percent). Many users obtained travel information or made travel arrangements online (65 percent), visited or interacted with government websites (65 percent) or searched for medical or health-related information (64 percent).
- Nearly two thirds (63 percent) of users reported having experienced a computer virus at some point in the past. Of those who had experienced a virus, almost one half (49 percent) said that the virus (or viruses) resulted in the loss of information or damage to software.
- About 7 percent of Internet users reported that they had experienced misuse of personal information online (for example, misuse of pictures, videos or personal information uploaded to public websites). Over one third (37 percent) said they had received e-mails requesting personal information (such as bank

account numbers or passwords) from a fraudulent source.

- To protect their computer or the other devices they use to access the Internet, most Internet users (85 percent) indicated that they used security software.

As shown in the 2011 Elections Canada Survey of Electors, the majority of eligible electors (86 percent) have access to the Internet in their home. This is an increase of 5 percentage points since 2008 and 22 percentage points since 2003.¹ The 2011 survey also shows that Aboriginals were less likely to say they have Internet at home (68 percent), while youth were more likely to have it (94 percent). Overall, the general trend of increasing access to the Internet has been confirmed by Statistics Canada since 2005.²

Canadians' Attitudes Regarding On-line Voting

Technology is often cited as offering an opportunity to improve ease and accessibility of the electoral process. Research shows that technology can remove some administrative barriers to the electoral process, especially for some groups of electors, including those with accessibility challenges and potentially youth.

According to the 2011 Elections Canada Survey of Electors, a majority of non-voters (57 percent), primarily those with Internet access at home, said they would have voted had it been possible to do so over the Internet using the Elections Canada website. The proportion was 10 percentage points higher among 18-to-24-year-olds. Of interest, the likelihood of non-voters saying that they would have voted online was higher among users of Facebook (68 percent vs. 37 percent), smartphones (35 percent vs. 20 percent) and instant messaging (44 percent vs. 27 percent).

The 2011 *Canadian Election Study* sheds additional light on electors' attitudes about Internet voting.

¹ [Explaining the Turnout Decline in Canadian Federal Elections: A New Survey of Non-voters.](#)

² [Canadian Internet Use Survey.](#)

Just under half of electors (49.1 percent) agree, somewhat (31.5 percent) or strongly (17.6 percent), that "Canadians should have the option to vote over the Internet in federal elections". This compares to 39.4 percent who disagree. A majority of electors (58.8 percent) said they would be likely, either somewhat (17.0 percent) or very (41.8 percent), to vote over the Internet if they could do so; 37.5 percent say they would not be likely to do so. Finally, 50.3 percent of electors think voting over the Internet is "risky" while 29.7 percent think it is not.

Candidates are also seemingly embracing some new technologies in the electoral process. For example, according to the 2011 Elections Canada Survey of Candidates, 74 percent of respondents think that electors should be able to register online – unchanged from 2008. Even if they remain less favourable to Internet voting, the proportion expressing support for this method went from 46 percent in 2008 to 50 percent in 2011. Interestingly, support for Internet voting decreased among respondents who have run for election multiple times (38 percent vs. 58 percent of first-time candidates), and this does not seem to be related to age. Support for Internet voting was also higher among non-elected candidates – 54 percent – vs. 37 percent of those elected.

Innovations in Canada and Abroad

A number of electronic (or online) voting options aimed at addressing concerns about the convenience and accessibility of the voting process have been tested and adopted – and sometimes abandoned – both internationally and in Canada, at the provincial and municipal levels. These options have included voting at a terminal (e.g. the US), computer voting (e.g. Brazil), telephone voting (e.g. Canadian municipalities, UK local, the Netherlands overseas), voting by fax (e.g. some American states), voting by e-mail (e.g. US military) and Internet voting (e.g. Canadian municipalities and provinces, Norwegian municipalities, Australian military, UK local, US military).

Electronic voting machines are both heralded and shunned as part of electoral processes worldwide. Many established democracies are testing the technology – e.g., India and Mexico – in order, among other claims, to assist disabled voters and/or

reduce expenses, while other jurisdictions have abandoned their use – e.g., the Netherlands, Germany, Ireland and some American states – for a number of reasons, including the lack of an audit mechanism and/or a verifiable paper trail.

Internet voting, including kiosk Internet voting, polling place Internet voting, polling station Internet voting and remote Internet, has been piloted over the last decade in over a half dozen multi-level governmental jurisdictions internationally and implemented in over 45 municipalities in Canada. Only Estonia uses Internet voting for national elections. A few elements account for this: Estonia is the only country in the world to have legislated Internet access as a social right, it is one of the most electronically enabled countries in Europe and it has a long history of distrust of government institutions. A few trials – such as those in Australia and New Zealand – were geared to special groups of electors only and were not repeated; in the case of New Zealand, the trial never left the ground, due to financial constraints. Many of the other trials resulted in the discontinuation of online voting for key reasons, including the large initial investment; lack of transparency of the process and/or results; concerns about the security of the vote and other logistical challenges; poor planning by the EMB, including short time frames; and lofty expectations.

Controversies over voting machines and negative experiences with electronic voting machine trials in the US have tarnished the reputation of voting machines in general and Internet kiosks by association. The UK, Ireland, the Netherlands and Finland are four countries that have conducted, or attempted to commence, remote kiosk voting trials. In all instances, the projects were terminated, in large part due to the fallibilities of the process.

Internet Voting in Canada

As of 2011, six provinces have passed legislation allowing for various forms of electronic voting (Alberta, BC, New Brunswick, Nova Scotia, Ontario and Quebec), including Internet voting. Several Canadian municipalities have implemented Internet voting for municipal and school board elections for various reasons, including addressing the changing lifestyles of electors, increasing turnout, enhancing accessibility, offering additional voting opportunities, appealing to young electors and establishing the viability and reliability of electronic

voting. These are the regional municipality of Halifax (uncontrolled), Nova Scotia and 44 municipalities in Ontario, including Markham (uncontrolled) and Peterborough (uncontrolled). In many cases, Internet voting was included in a package of innovative alternative voting methods, such as telephone voting, and in some instances, voting online was permitted only during advance polls.

Across the board, positive impact on participation turned out to be negligible. On the other hand, in all cases, electors took advantage of the option, and the Internet voting option has been retained for future elections. Elections Ontario is exploring alternative (non-paper) voting channels as well as other automated processes, including piloting an Internet voting experience, to modernize the electoral process and remove barriers that impede some voters.

To address citizen expectations of convenience and access to government services, Elections BC recently released a *Discussion Paper: Internet Voting* to provide input into a future government committee or task force that may be created to further examine the topic.

Following the 2010 election in Markham, the town hired Delvinia Interactive Corp. to compare and analyze Markham's voter behaviour and attitudes toward Internet voting from 2003, 2006 and 2010 using survey data and research panel feedback. According to *eDemocracy and Citizen Engagement: The Delvinia Report of Internet Voting in the Town of Markham*:

- The extension of Internet voting is about convenience.
- 91 percent of online voters chose to vote from home, indicating that is the preferred voting location when it comes to Internet ballots.
- 99 percent of online voters would be likely to vote online in a federal election if it were available.
- Middle-aged electors (45 to 55 years old) are the most likely group to make use of Internet voting.
- Internet voters report voting in most elections at all levels of government.
- In terms of social values, online voters are less concerned about their personal information being gathered by databases and are not overly

worried about the impact of technology on their autonomy and/or privacy.

- Evidence suggests online voting may be a useful way to make the electoral process easier for students away at college or university.
- The likelihood of voting online because of a “positive past experience with it” increases with age.
- 78 percent of candidates report that the option of Internet voting has a significant impact on the campaign – namely, on campaign strategies, mobilization tactics and voter turnout.
- 92 percent of candidates indicate that they are either “completely” or “mostly” in favour of the implementation of Internet voting in the 2010 Markham municipal election.

Electronic Voting Machines (EVMs) in Canada

Some municipalities in Alberta are using touch-screen voting machines for advance voting. Some Ontario municipalities, in addition to using touch-screen voting machines, are deploying optical scans. Optical scans are also used in New Brunswick. Quebec used EVMs in the 2005 municipal elections. However, the EVMs were subsequently shelved because, according to the Directeur général des élections du Québec, there was an imprecise legislative and administrative framework; absence of technical specifications, norms and standards; and poor management of voting systems (especially lack of security measures).

Assistive Voting Devices (AVDs) in Canada

Across Canadian jurisdictions, electronic AVDs have been used at the municipal level in Ontario and both municipally and provincially in New Brunswick. Elections Canada tested a prototype in the 2010 by-elections, and it proved to be inconclusive.

Conclusion

What could all of this tell us?

- Changes in society, especially those that are incited by new technologies and increasing online use are influencing the expectations of Canadians.
- Other jurisdictions in Canada, at both the municipal and the provincial levels, and abroad are making advances and leading the way in the use of electronic and online electoral processes.
- Electronic voting trials have been geared to addressing voter accessibility and convenience issues and, in some cases, participation rates; research shows that the latter objective is realised far less often than the former two.