

Solving and creating problems: Online voting in New Zealand

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About this report

This report is part of an ongoing series on urgent contemporary policy issues in Aotearoa New Zealand. This series is action-oriented and solutions-focused, with an objective of bringing academic research to bear on the economic, social and environmental challenges facing us today.

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Author's Note

This is the second edition of this paper incorporating updates and additional information, and responding to feedback. If you are interested in a comparison between the editions, the first edition, called *A working paper on online voting*, is available here: <https://thepolicyobservatory.aut.ac.nz/publications/online-voting-working-paper>

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Introduction

Online voting is used by many organisations in New Zealand, including by some iwi for rūnanga elections,¹ unions, and clubs. While online voting has not yet been used in local or general elections, steps have been taken to trial it for local government elections.²

This paper was written to provide background material and references on some of the issues raised in discussions around online voting for government elections; it is not an analysis of any specific policy, document or model of online voting.

The paper is structured around problems and solutions: what problems do proponents hope online voting will solve? What do we know about whether it would actually solve these problems? And what new problems might online voting create?

The 2016 and 2019 proposed online voting trials

Trials of online voting were proposed for the 2016 and 2019 New Zealand local body elections. While called a 'trial', the votes cast would be real votes contributing to actual election results. The trial aspect relates to the scale of the proposal - that it would only involve some councils and some voters across the country. It has not been proposed as a dummy run, with a 'real' election only taking place if the trial was declared successful. The rationale is to introduce online voting in a gradual manner.³ While it is only being discussed at this stage for local government elections, officials are aware that a failure of online voting for local elections would hamper public acceptance of the introduction of online voting for general elections, should they ever be considered.⁴

The 2016 trial was cancelled because the Department of Internal Affairs was not satisfied that there was time to develop the trial and check it met with regulations, before the elections were due.⁵ A number of councils that had been interested in the trial withdrew before this, because of cost or security concerns.⁶

The 2019 trial involved nine councils. The Department of Internal Affairs organised two invite-only consultations on regulations; and legislation, the Local Electoral

¹ Maria Bargh. (2016). Opportunities and complexities for Māori and *mana whenua* representation in local government. *Political Science* 68(2), pp.143-160.

² New Zealand Parliament. (n.d.). Local Electoral Matters Bill. https://www.parliament.nz/en/pb/bills-and-laws/bills-proposed-laws/document/BILL_77942/local-electoral-matters-bill; Department of Internal Affairs. (n.d.). Consultation - Framework for online voting trials at local authority elections. <https://www.dia.govt.nz/online-voting-trials-consultation>

³ Matamata Piako District Council. (2018, September 27). Online voting: Frequently asked questions: 8. Why can't we just do online voting without a trial? <https://www.mpdc.govt.nz/elections/online-voting>

⁴ For example, Email from [redacted] to [redacted]. 13 July 2018. RE: Draft Cabinet paper for departmental comment - online voting trials. Made available under the Official Information Act, file available here: https://thepolicyobservatory.aut.ac.nz/_data/assets/pdf_file/0006/268908/OIA-request-DIA-input-into-2019-online-voting-trial.pdf

⁵ Louise Upston. (2016, March 11). Cabinet paper: Policy briefing: Advice on councils' compliance with online voting requirements. <https://fyi.org.nz/request/3937/response/13144/attach/2/26052016155745%200001.pdf>

⁶ RNZ News. (2015, September 21). Dunedin withdraws from online voting trial. Radio New Zealand. <https://www.radionz.co.nz/news/regional/284835/dunedin-withdraws-from-online-voting-trial>

Matters Bill,⁷ went before Parliament to allow the trial to take place in sub-sections of local territories, such as wards rather than the whole district. Auckland Council would participate in a partial way only, for example across two or three wards, and for overseas and/or disabled voters across the whole city. As with the 2016 trial, the timetable was extremely tight, with a final go/no-go date in January 2019, less than a year before the actual election period.⁸ The trial was cancelled in December 2018 as the tenders for the software came in above the budgets of participating councils.⁹

The company that won the tender for the 2019 trial was Smartmatic, a company with a track record of providing voting technology in a number of countries.¹⁰

Following the cancellation of the 2019 trial, local body advocates for online voting have stated a new strategy for the 2022 election, which is to ask central government to fund the initiative.¹¹

What is online voting?

In New Zealand, people calling for online voting (also referred to as internet voting or e-Voting) don't always explain what they mean. But what is implied is the remote casting of votes by individuals on their own devices such as phones or desktop computers, in their own homes (or elsewhere such as work), at a time that suits them (but during the election period). The vote, cast on a device or computer, is transmitted over the internet to a ballot box that generates a tally. This is different to the use of voting machines, whereby voters go to a polling booth and cast their ballot directly on a machine, or onto paper which is then fed into a machine for counting. A key to the campaign in New Zealand is the convenience of voting anywhere, anytime, and the use of the internet for transmission. When compared to general elections, online voting involves the distribution of voting from centralised voting booths supervised by election staff to individual elector's homes or workplaces, and a decentralisation of security to the devices and machines owned or accessed by voters. This shift is important for the security arguments detailed later.

In this paper, the terms online voting and internet voting refer to the model above. Shorthand for electronic voting, e-Voting is a less clear term as it can include voting on electronic machines in polling booths. I use the term 'machine voting' to refer to the voting practise of voting on machines in polling booths on election day that is common in many jurisdictions in the United States.

⁷ New Zealand Parliament. (n.d.). Local matters Electoral Bill. https://www.parliament.nz/en/pb/bills-and-laws/bills-proposed-laws/document/BILL_77942/local-electoral-matters-bill

⁸ Auckland Council. (2018, November 19). Trial of online voting at the 2019 local elections. Report to Howick Local Board. File no. CP2018/20744, http://infocouncil.aucklandcouncil.govt.nz/Open/2018/11/HW_20181119_AGN_7299_AT.htm#PDF2_ReportName_63544

⁹ Local Government New Zealand. (2018, December 12). Councils halt online voting trial for local body elections. Press release. <http://www.scoop.co.nz/stories/AK1812/S00290/councils-halt-online-voting-trial-for-local-body-elections.htm>

¹⁰ Smartmatic. <https://www.smartmatic.com/>

¹¹ Dave Cull. (2019, February 18). Moving local voting online will help Govt too. *New Zealand Herald*. https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12204654

Problems: What problems is online voting designed to solve?

Concerns with the postal system

Postal voting has been used in a piecemeal fashion for local body elections since the 1960s, but it was adopted across the board in 1989. There was a significant jump in turnout at the 1989 elections, which also saw massive restructuring of local bodies and changes to boundaries. A reason for adopting postal voting in 1989 was concern about turnout: those municipalities that used a postal vote prior to this had higher turnouts than those that did not, with a gap of around twenty percentage points (p.128).¹² The 1989 turnout boost was short-lived though, and it began to fall again; the boost was possibly partly attributable to the publicity and sentiment around that election's sweeping local government reforms.

Once considered a convenient method for casting a vote, concerns are now being raised about whether the postal system is fit for purpose (p. 18).¹³ New Zealanders post significantly fewer letters than previously,¹⁴ and consequently New Zealand Post has reduced delivery days and the number of post boxes. It is now harder for people to find somewhere to post their completed ballots, and the reduction in delivery days has resulted in some ballots not arriving in time to be counted. In 2017 the Postal Workers Union of Aotearoa said that 'around 1500 post boxes have been removed' in the past few years, with the removal of post boxes taking place just before the 2016 local elections (Ngaio and Khandallah) and even during the ballot (Rangiora).¹⁵ Christine Cheyne describes the postal system as 'anachronistic' (p.11), 'antiquated' (p. 11) and vulnerable to problems such as 'papers being undelivered' (p. 12).¹⁶

New Zealand Post defends its service.¹⁷ I am not sure if there is a systematic study into the logistics of the postal system and local government elections, for example, whether the anecdotal stories about mail not being delivered or being stolen represents a widespread problem or not. The Electoral Commission, responsible for voter enrolment, has had to factor into their planning new postal delivery times. They have not received

¹² Charles Crothers. (2015). Using the internet in New Zealand elections and support for e-voting. *Political Science* 67(2) pp. 127-142.

¹³ Society of Local Government Managers. (n.d.). Submission of the Society of Local Government Managers on the Justice and Electoral Inquiry into the 2016 local elections. https://www.solgm.org.nz/Attachment?Action=Download&Attachment_id=1399

¹⁴ New Zealand Post.(2018, August 24). NZ Post annual results - impacted by continual letter decline. Media Release. <https://www.nzpost.co.nz/about-us/media-centre/media-release/nz-post-annual-results-impacted-by-continual-letter-decline>

¹⁵ Postal Workers Union of Aotearoa. (2017). Submission to the Justice and Electoral Select Committee on the Inquiry into the 2016 local authority elections. https://www.parliament.nz/resource/en-NZ/51SCJE_EVI_00DBSCH_INQ_71386_1_A547619/821a3c43e49d39d3950bc2f21f5b6209bf5e6a49

¹⁶ Christine Cheyne. (2016, November). E-voting eventually? Online voting in (local) elections. *Policy Quarterly* 12(4), pp. 10-16) and <https://www.stuff.co.nz/business/84781212/wellington-postie-dumps-up-to-3000-items-of-mail-and-300-voting-ballots>

¹⁷ Tom Pullar-Strecker. (2018, September 30). Councils warned electronic voting will not be secure. *Stuff*. <https://www.stuff.co.nz/technology/107317453/councils-warned-electronic-voting-will-not-be-secure>

'significant concerns' about the theft of mail.¹⁸ There were complaints about delays in delivering voting papers for the 2019 School Board of Trustee elections, with 55 schools asking the Ministry of Education for an extension to the voting deadline.¹⁹ This number was 4.8% per cent of all schools holding elections.²⁰ The week local government election ballot papers are posted out they represent 30% of New Zealand Post mail volumes;²¹ as an important customer one would hope New Zealand Post is open to prioritising the needs of territorial authorities at election time.

Turnout

At 79.8% of enrolled electors in 2017, turnout for general elections in New Zealand is still reasonably healthy by international standards, but the long term trend is downward.²² Turnout in local body elections is lower still – an average of 43% in 2016, but the range was wide, from 71.9% in the Chatham Islands to a low of 25.1% in Otorohanga District.²³ Generally, rural councils have a higher turnout than provincial ones, which in turn have a higher turnout than metropolitan councils.²⁴ Jean Drage reports that turnout is higher for areas with more elected representatives per capita (p.6).²⁵

¹⁸ Electoral Commission. (2019, August). Correspondence with the author.

¹⁹ Simon Collins. (2019, June 9). Schools fear legal challenges over 'unjust' delays in school trustee voting. *New Zealand Herald*. https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12238807; Ministry of Education. (2019, June 5). Extension of school trustee voting deadlines. <https://www.education.govt.nz/news/extension-of-school-trustee-voting-deadlines/> and <https://www.odt.co.nz/news/education/schools-given-voting-extension>

²⁰ Ministry of Education. (2019, August 9). Information provided to the author in response to an Official Information Act request. Notes: not all schools experiencing short turnaround times would have requested an extension; parents also had the opportunity to return ballots directly to the school, so the post system is not the only – or even main – way of returning voting papers. No data is collected by the Ministry on how many voting forms are returned via post or directly to schools.

²¹ Office of the Minister of Local Government. (July 2018). Draft Cabinet Paper: A regulatory approach to enable local government online voting trials in 2019. Made available under the Official Information Act, file available here: https://thepolicyobservatory.aut.ac.nz/_data/assets/pdf_file/0006/268908/OIA-request-DIA-input-into-2019-online-voting-trial.pdf

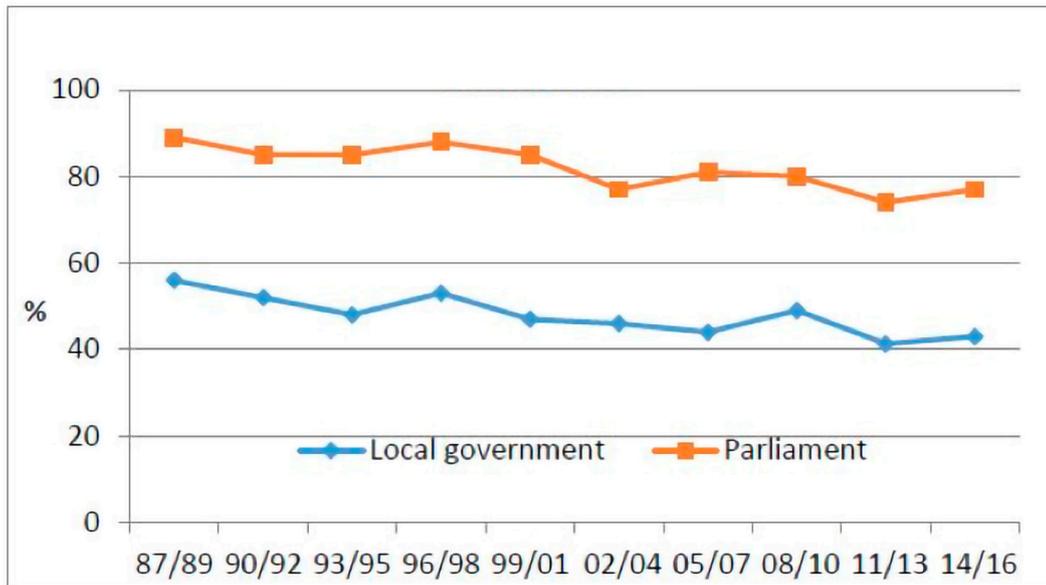
²² Electoral Commission, (2017). General Elections 1853-2017 – dates and turnout. <https://www.elections.org.nz/events/past-events/general-elections-1853-2017-dates-and-turnout>

²³ Local Government New Zealand. (2016). Final voter turnout 2016. <http://www.lgnz.co.nz/nzs-local-government/vote2016/final-voter-turnout-2016/>

²⁴ Local Government New Zealand. (2016). Final voter turnout 2016. <http://www.lgnz.co.nz/nzs-local-government/vote2016/final-voter-turnout-2016/>

²⁵ Jean Drage. (2018). *Strengthening local voices*. Auckland: The Policy Observatory. <https://thepolicyobservatory.aut.ac.nz/publications/strengthening-local-voices>

Figure 1 - Central and local government turnout



Source: Local Government New Zealand. (2017). Local elections 2016: Voters' choices and reasons. p.4

Overall, there are more than 35 percentage points of enrolled voters for whom it is worthwhile voting in a general election, but not a local body one; it should be noted that this gap is not new.²⁶ Some in local government circles hope that online voting will assist with turnout, either by stopping the decline, or actually leading to a higher turnout, or by appealing to current low-vote groups such as young people. A poll by Auckland Council following the 2016 local authority elections asked people for their preferred method of voting. 74% said online voting, with stronger support among the 18-24 year olds, non-voters and non-ratepayers (pp. 33-34).²⁷ A survey of Aucklanders who did not vote in 2016 showed 21 percentage points increase in intended turnout for 2019 if online voting was an option (p. 28).²⁸ In a post-election survey conducted for Local Government New Zealand following the 2016 elections, 68% of respondents said online voting was their preferred option (p. 24).²⁹

²⁶ Graham Bush. (1980). *Local government and politics in New Zealand*. Auckland: George Allen & Unwin. For example, the turnout gap between general election 1946 and local elections 1947 was a staggering 56.5% (Bush p. 39 for local turnout figure and Electoral Commission for general election figure).

²⁷ Jeremy Todd. (2017). Awareness of an attitudes towards online voting in the 2016 Auckland Council elections. Technical report TR2017/013. <http://knowledgeauckland.org.nz/assets/publications/TR2017-013-Awareness-attitudes-voting-in-2016-Auckland.pdf>

²⁸ Smith Business Consulting. (2019, May). *Understanding opportunities for increasing voter participation in the Auckland local elections*. A report prepared for Auckland Council. <http://www.knowledgeauckland.org.nz/assets/publications/Understanding-opportunities-increasing-voter-participation-Auckland-local-elections-May-2019.pdf>. Note, this survey was conducted online, a methodology that may prejudice the outcomes in favour of online options. Note also, the research on the tendency of people to over-report voting, which presumably also applies to voting intention. Jeffrey A. Karp and David Brockington. (2005, August). Social desirability and response validity: A comparative analysis of overreporting voter turnout in five countries. *The Journal of Politics*, 67(3), pp. 825-840. <https://www.journals.uchicago.edu/doi/10.1111/j.1468-2508.2005.00341.x>

²⁹ Local Government New Zealand. (2017). Local elections 2016: Voters' choices and reasons.

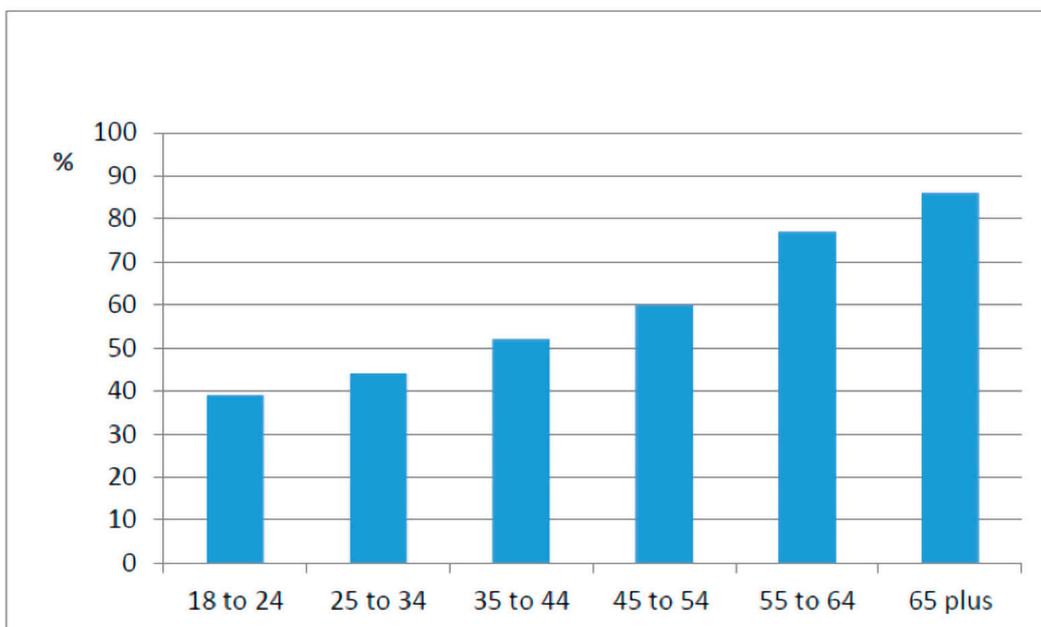
Youth turnout

It is hoped that online voting will appeal more to young voters, especially when compared to postal voting. Given the low turnout among young voters, helping them feel comfortable with the process should not be lightly dismissed. The younger a person is when they cast their first vote, the more likely they are to develop a voting 'habit'.³⁰ With turnout falling, arresting the decline in voting among young people will have a ripple effect to elections in the future.³¹

In surveys young people consistently say they want an option to cast their votes online.³²

Turnout by age for 2016 local body elections shows a marked difference across age groups:

Figure 2 - The relation between turnout and age



(Macaulay and Wenhold 2016)

Source: Local Government New Zealand. (2017). Local elections 2016: Voters' choices and reasons. p.1.

³⁰ Mark Franklin. (1994). *Voter turnout and the dynamics of electoral competition in established democracies since 1945*. Cambridge: Cambridge University Press.

³¹ Jack Vowles. (2015). Voter Turnout. In Janine Hayward (Ed.), *New Zealand government and politics* (sixth edition) (pp. 287-299). South Melbourne, Victoria, Australia: Oxford University Press. Pp. 292-293, on youth turnout trends in New Zealand.

³² See for example, Charles Crothers (2015), Jeremy Todd (2017).

Convenience

Convenience is not a trivial issue. Convenience is part of encouraging as wide a turnout as possible. Making it easy to vote is one reason we don't have to show up with photo ID to cast a vote in our general elections. It's why we have lots of polling places and we can cast votes early.

Online voting will, in particular, provide more convenience for some specific groups, including:

- Overseas voters
- Rural voters with good internet
- Some disabled voters, including the blind, and people who have mobility issues would benefit from the choice to cast their vote using the internet.

Adopting online voting would be in line with the New Zealand Disability Strategy and our obligations under the United Nations Convention on the Rights of Persons with Disabilities and the International Covenant on Civil and Political Rights.³³

Online voting would enable the visually impaired to vote independently. At present they require the assistance of another person to mark their ballot and they have no way of knowing if this is done accurately; furthermore, they have to reveal their vote to another person removing secrecy of the ballot. A telephone dictation service which enables independent and secret voting has been available since the 2014 general election, for general elections.³⁴ The telephone dictation service for the blind and others who cannot mark a paper ballot without assistance requires pre-registration.³⁵ It was used by 714 voters in 2014 and 586 voters in the 2017 general election. The Electoral Commission has received an award from the Association of Blind Citizens for their work on this project.³⁶

Remote voters: as postal boxes are being removed finding a post box to return local authority voting papers becomes harder. People in rural communities without a post box are likely to find postal voting increasingly hard. Assuming they have good enough internet, online voting would enable more people in this situation to vote. (Although note the earlier point that at present rural districts have higher turnout than metropolitan ones.)

³³ Justice and Electoral Committee. (2013, April). Inquiry into the 2011 general election: Report of the Justice and Electoral Committee. Pages 28-29, 30. https://www.parliament.nz/resource/en-nz/50DBSCH_SCR5837_1/095840b4b75b7b58a13ef77629e118aec6036439

³⁴ Electoral Commission. (2018). Voters with a disability. <https://www.elections.org.nz/resources-learning/voters-disability>

³⁵ Kristina Temel, Electoral Commission. (2018, September 10). Justice Select Committee hearing on Local Electoral Matters Bill & Administration of Justice (Reform of Contempt of Court) Bill. Broadcast on Facebook <https://www.facebook.com/JUSCNZ/videos/316760045569919/>

³⁶ Electoral Commission. (2019, August). Correspondence with the author.

Online voting means overseas voters no longer have to go to an embassy to vote or use outdated technology such as fax machines. In a *Kiwiblog* post David Farrar wrote that allowing online voting for the 2014 and 2017 general elections had led to an increase in overseas votes cast, although his comparison year of 2011 was a lower point than the previous election of 2008. Certainly, overseas votes as a percent of overall turnout increased from about 1.4% in 2008 to about 2.4% by 2017.³⁷

Number of overseas votes cast in general election and method of voting				
	2008	2011	2014	2017
Total votes cast	33,278	21,496	40,132	61,524
Overseas Voting place (e.g. an embassy)	37%	48%	33%	30%
Fax	53%	42%	6%	1%
Post	10%	10%	5%	3%
Internet	-	-	56%	65%

Source: Electoral Commission. (2018) Response to an OIA request by David Farrar. <https://fyi.org.nz/request/8873-international-voting-mechanisms#incoming-29049>

David Farrar. (2018, October 29). Huge increase in overseas votes because of e-voting. *Kiwiblog*. https://www.kiwiblog.co.nz/2018/10/huge_increase_in_overseas_votes_because_of_e-voting.html

However, it should be noted that overseas votes are special votes, and casting them is a more complex affair than the online voting method described near the start of this paper. It should also be noted that the Electoral Commission has eased the rules about special votes in recent elections which may have contributed to the rise in overseas voting; indeed there has been a rise in all types of special votes in this period.³⁸

³⁷ David Farrar. (2018, October 29). Huge increase in overseas votes because of e-voting. *Kiwiblog*. https://www.kiwiblog.co.nz/2018/10/huge_increase_in_overseas_votes_because_of_e-voting.html

³⁸ Arseneau and Roberts, forthcoming.

Technological inevitability

This is the argument that says technology dictates society's direction: because a technology exists, we are compelled to adopt it. The Online Voting Working Party, set up by the Department of Internal Affairs in 2013 to look into the feasibility of online voting, commented:

As the internet becomes a part of everyday life, online voting is a natural progression – as systems adapt to technology, democratic processes can also be expected to change. The Government needs to make sure that the New Zealand voting system is relevant for voters in the 21st century.³⁹

Steve Kilpatrick of elections.com, a voting vendor, said people who oppose online voting are afraid of progress:

When automobiles were first introduced, some people didn't like that. They forced people to walk in front of the cars with a flag. We've got to advance haven't we? We've got to keep moving forward.⁴⁰

There is, of course, a question about whether technological change is inevitable, or a choice. And, if it is a choice, whether it is the right one or not.

Solutions: Does online voting solve these problems?

Concerns with the postal system

Online voting does not fix any of the reported problems with the postal system. It avoids some of them, in particular the need to find a post box to return the completed ballot. But the 2016 trial proposed using the postal system for some aspects of online voting: voter registration (via the Electoral Commission), and to send out a verification code that would be used when voting online. By relying on the post system for these crucial parts of the voting system, people who move frequently or who do not regularly check their mail boxes will still be inconvenienced. Likewise, reports of voting papers not arriving or being stolen from letter boxes could still apply to the posting of online voting codes. Regulations for the 2019 trial suggested three possible voter authentication methods, including a code being posted to electors.⁴¹

³⁹ Online Voting Working Party. (n.d.). Online voting in New Zealand: Feasibility and options for local elections. <https://www.dia.govt.nz/online-voting>

⁴⁰ Steve Kilpatrick. (2018, September 20). Online voting for local council elections 'crazy' – expert. Radio New Zealand: Morning Report. <https://www.radionz.co.nz/national/programmes/morningreport/audio/2018663331/online-voting-for-local-council-elections-crazy-expert>

⁴¹ Department of Internal Affairs. (2018, October). Draft for consultation: Local electoral (online voting trial) amendment regulations 2019. [https://www.dia.govt.nz/diawebsite.nsf/Files/Online-Voting-Trial/%24file/Local-Electoral-\(Online-Voting-Trial\)-Amendment-Regulations-2019-v1.10-\(Consultation-Draft\).pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/Online-Voting-Trial/%24file/Local-Electoral-(Online-Voting-Trial)-Amendment-Regulations-2019-v1.10-(Consultation-Draft).pdf)

Online voting would still have been run alongside postal ballots for those areas in the trial, and for areas outside the trial, so working with New Zealand Post to ensure adequate services would have been necessary if voters were not to be disenfranchised. If the postal ballot is not resourced, with online voting being favoured as the default voting option, turnout could be *negatively* affected (see the section on turnout below).

The cost of running two systems side by side will be a disincentive for local councils to maintain both systems and resource both systems in tandem. Marguerite Delbet, Democracy Services Manager for Auckland Council, says that one reason the postal system needs replacing is not just unreliability - it is that postal voting is becoming 'more and more expensive'.⁴² Following the cancellation of the 2019 trial, Ms Delbet called on central government to help fund the next trial.⁴³

Turnout; youth turnout

Answering the question, "does online voting raise turnout?", whether across the board or for previous-low turnout groups such as young people, is not easy. Firstly, because the effects do not appear to be large, secondly, because results are inconsistent (what happens when online voting is adopted depends on a range of design issues), and thirdly, because people's internet use changes over time: a study of a previous election may understate access to or confidence with technology in a future election. For example, many of the early papers on online voting were written about elections where voters were less likely to have personal computers or even broadband.⁴⁴ An additional complication is knowing whether internet voting - while not increasing turnout - is slowing its decline.⁴⁵

There is general agreement that online voting is a good option for the disabled and for overseas voting.⁴⁶ (Although France has ruled that online voting even for overseas electors is too much of a security risk and Britain has ruled the same with regards to disabled voters.) But what about more widespread adoption? What happens to overall turnout when online voting is introduced?

⁴² Marguerite Delbet. (2018, September 21). Auckland Council backs online voting. Radio New Zealand: Morning Report. <https://www.radionz.co.nz/national/programmes/morningreport/audio/2018663492/auckland-council-backs-online-voting-plan>

⁴³ Margaret Delbet. (2018, December 13). Councils halt online voting trial for local body elections. Radio New Zealand: Morning Report. <https://www.radionz.co.nz/national/programmes/morningreport/audio/2018675410/councils-halt-online-voting-trial-for-local-body-elections>

⁴⁴ For example, Susan Henry (2003). Can remote internet voting increase turnout? *Aslib Proceedings*, 55(4), pp. 193-202; Norbert Kersting and Harald Baldersheim (eds). (2004). *Electronic voting and democracy: A comparative analysis*. Palgrave Macmillan. There are many more.

⁴⁵ Mihkel Solvak and Kristjan Vassil. (2017). Could internet voting halt declining turnout? New evidence that e-voting is habit forming. *Policy and Internet* 10(1), pages 4-21. <https://onlinelibrary.wiley.com/doi/pdf/10.1002/poi3.160>. On the contrary, an older study of voters in Switzerland found internet voters were more likely to be occasional than habitual voters. Michel Chevallier, (2009). Internet voting, turnout and deliberation: A study. *Electronic Journal of e-Government*, 7(1), pages 29-44. https://issuu.com/academic-conferences.org/docs/ejeg-volume7-issue1-article177?mode=a_p

⁴⁶ Nicole Goodman, Michael McGregor, Jérôme Couture and Sandra Breux. (2018). Another digital divide? Evidence that elimination of paper voting could lead to digital disenfranchisement. *Policy and Internet*, 10(2), page 165.

The results are inconsistent, and it appears that the impact on turnout depends, in part, on the convenience of the online voting system relative to the convenience of the previous voting system, and the convenience of the paper or postal ballot that is being maintained alongside online voting, where that happens. There is no increase in youth turnout when online voting is adopted (this is discussed further below).

Goodman and Stokes' 2018 paper on online voting in the Canadian province of Ontario is interesting because it compares voting in provincial elections by municipality, and different municipalities have adopted online voting at different times, with some districts dropping paper ballot while others retain them.⁴⁷ The staggered adoption over time and space enables comparisons of the same district over time, and comparisons between municipalities with different voting methods but voting in the same election period. While Goodman and Stokes' results show an increase of voter turnout of 3.5 percentage points when there is an online voting option, they say online voting is not a panacea to falling or low turnout: even after online voting was adopted, more than half of electors on Ontario opted not to cast a ballot. System design issues are also important, mainly, what are the barriers to voting and is the previous (paper or postal) ballot option being run alongside online voting? For example, requiring a separate registration to vote online or offering it only during the advance voting period reduces the uptake of online voting.⁴⁸

The other major issue is that the cost of voting is not merely the casting of the vote - it is becoming informed about the elections, the candidates, the parties, the policies and so forth.⁴⁹ Witness the reasons New Zealanders give for not voting; barriers to voting because of the voting method accounts for only a small amount of non-voting:

Reasons for not voting in the 2016 local body elections	
Lack of interest (Can't be bothered, not interested, my vote won't make a difference)	23.4%
Not enough information (don't know who to vote for, don't know about policies or people)	32.6%
Too busy/other commitments/ forgot	23.3%

Source: Local Government New Zealand. (2017). *Local elections 2016: Voters' choices and reasons*. p. 20.

⁴⁷ Nicole Goodman and Leah Stokes. (2018). Reducing the cost of voting: An evaluation of internet voting's effect on turnout. *British Journal of Political Science* <https://doi.org/10.1017/S0007123417000849>

⁴⁸ Nicole Goodman. (2016, August 23). Addressing the Canadian House of Commons Special Committee on Electoral Reform. https://www.youtube.com/watch?v=IsC_8HMv3xA

⁴⁹ Adam Berinsky. (2005). The perverse consequences of electoral reform in the United States. *American Politics Research*, 33(4) pages 471-491 <http://journals.sagepub.com/doi/abs/10.1177/1532673X04269419>;
Berinsky, A. (2016, February 8). Making voting easier doesn't increase turnout. *Stanford Social Innovation Review*. https://ssir.org/increasing_voter_turnout/entry/making_voting_easier_doesnt_increase_turnout

Reasons for not voting in the Auckland Council local government elections 2016 n=400 non-voters surveyed online during March and April 2019	
Entrenched non-voters: "It's a waste of time, it wouldn't make any difference"	18%
Apathetic: "I'm just not interested in politics or politicians" "I just couldn't be bothered voting, it's too much effort", "No one I know votes so I didn't either"	29%
Lack of awareness: "I didn't know enough about the local elections or how to vote"	29%
Meant to: "I wanted to vote last time but didn't"	24%

Smith Business Consulting. (2019, May). *Understanding opportunities for increasing voter participation in the Auckland local elections*. A report prepared for Auckland Council. <http://www.knowledgeauckland.org.nz/assets/publications/Understanding-opportunities-increasing-voter-participation-Auckland-local-elections-May-2019.pdf> (p. 17).

Reasons for not voting in the 2017 general election (n=164)	
Can't be bothered/not interested	24%
Personal barriers (e.g. religion) /other commitments	19%
Didn't know who to vote for	18%
Practical access barriers (eg away from home/overseas/polling booth too far away)	9%
Voting process (wasn't enrolled, didn't know how, when or where to vote)	9%
Other	22%

Source: Electoral Commission. (2018). *Report into the 2017 general election*. https://www.elections.org.nz/sites/default/files/plain-page/attachments/voter_and_non-voter_satisfaction_survey_2017.pdf

% of Non-voters who agree with the following statements, 2011 general election:	
I don't trust politicians	33%
It was obvious who would win so why bother	31%
I'm just not interested in politics	29%

Source: Electoral Commission. (2014). *Voter and non-voter satisfaction survey 2011*. <https://www.elections.org.nz/events/past-events-0/2011-general-election/reports-and-surveys-2011-general-election/voter-and-non>

Goodman and Stokes⁵⁰ concluded that their Ontario study was consistent with other studies: making voting more convenient (for example, advance voting, longer poll opening hours, postal voting or online voting) has a small but statistically significant increase in voting (2-4%) but boosting turnout further will require something more (p. 10). They conclude that where convenience is already high, adopting online voting will have a lesser impact: 'There is likely a ceiling on how much convenience can increase turnout and layering on additional convenience reforms likely boosts turnout by smaller additional margins' (p. 10).

Some studies show that when given a choice of voting modality in an election (rather than stating an intention or preference in a survey), young people do not prefer online voting over a paper ballot. The youngest voters (18-25) in Ontario and Norway are more likely to choose a paper ballot over an online voting option. Research in Switzerland shows that older voters are 'sticky' online voters - if they use this option once they use it the next election, but this does not hold for young voters, who are more likely to abstain or choose a paper ballot the election after casting an online vote. Online voting does not appear to be the answer to young people's engagement.⁵¹ A study of young people (aged 18-25) in Estonia shows the availability of internet voting has not increased civic engagement and has not increased turnout (p.341).⁵² In Ontario, most internet voters are middle aged or older with 74 per cent being over the age of 45, and an average age of 53 in the 2014 municipal elections. There is not a high use of internet voting by young voters (pp. 28-9).⁵³ When the New Zealand census moved to a digital-first strategy, the participation rate for 15-29 year olds fell by over 13 per cent.⁵⁴

⁵⁰ Nicole Goodman and Leah Stokes. (2018). Reducing the cost of voting: An evaluation of internet voting's effect on turnout. *British Journal of Political Science* <https://doi.org/10.1017/S0007123417000849>

⁵¹ Nicole Goodman. (2016, August 23). Addressing the Canadian House of Commons Special Committee on Electoral Reform. https://www.youtube.com/watch?v=IsC_8HMv3xA

⁵² Crystal Lagrone. (2016). Engaging youth voter participation with internet voting in Estonia (abstract). In *Electronic Voting Conference Proceedings*. E-Vote-ID 2016, (Eds.), K. Krimmer, M. Volkamer, J. Barrat, J. Benaloh, N. Goodman, P. Ryan and V. Teague. Bregenz, Austria: Springer, p. 341; and correspondence with the author.

⁵³ Nicole Goodman and Heather Pyman. (2016, August). Internet voting project report. Results from the 2014 Ontario Municipal Elections. Centre for eDemocracy, Toronto. http://www.centreforedemocracy.com/wp-content/uploads/2016/08/IVP_Report.pdf

⁵⁴ Murray Jack and Connie Graziadei. (2019, July). Report of the independent review of New Zealand's 2018

In Switzerland and Belgium, there appeared to be a novelty effect when online voting was adopted. Turnout initially went up, before dropping back at subsequent elections.⁵⁵ In the Swiss cantons of Zurich and Geneva, where postal ballots were still an option alongside online voting, the adoption of online voting led to no increase in turnout, including among young voters. The authors of this study concluded that people who like online voting were likely to have voted anyway.⁵⁶

Convenience: For whom?

At present, some population groups vote in higher numbers than others. The promise of greater convenience for voters with the adoption of online voting needs to be accompanied by the question: convenient for whom? Will online voting convenience some groups, and inconvenience others? And, if this is the case, will the make-up of who votes change once voting moves online?

Online voting is convenient assuming you are comfortable with technology, know how to troubleshoot should it not be straightforward, have up to date hardware and operating systems, good enough internet – and trust online services. This is not everyone in New Zealand; a digital divide exists. A report for the government on the digital capabilities of New Zealanders identified four elements that have to be in place for people to be considered ‘digitally included’: motivation to use the internet, access to the internet, core digital skills, and trust in online services (p. 5).⁵⁷ This is not the same as just access to the internet, which at 93% covers most New Zealanders (p. 4).⁵⁸ People who are digitally disadvantaged are often those who are experiencing other social and economic disadvantage.⁵⁹

An older study in the Swiss canton of Geneva (2003-8) observed that the voting online

...could almost be considered the indicator of a lifestyle in which information technologies play a pivotal part. Here, the divide is not between the ‘internet access have’ and ‘have not’, but between ‘computer feeling have’ and ‘have not’. This divide is not correlated to socio-demographic variables, but to the subjective sense of ease and trust with ICTs (p. 36).⁶⁰

Census. <https://www.stats.govt.nz/reports/report-of-the-independent-review-of-new-zealands-2018-census> p. 32.

⁵⁵ Nicole Goodman, Michael McGregor, Jérôme Couture and Sandra Breux. (2018). Another digital divide? Evidence that elimination of paper voting could lead to digital disenfranchisement. *Policy and Internet*, 10(2), pp. 167-8.

⁵⁶ Micha Germann and Uwe Serdült. (2017). Internet voting and turnout: Evidence from Switzerland. *Electoral Studies*, 47, pp. 1-12.

⁵⁷ Digital Inclusion Research Group. (2017, May). *Digital New Zealanders: The pulse of our nation*. A report to MBE and DIA. <https://www.mbie.govt.nz/info-services/digital-economy/documents-and-images/digital-new-zealanders-the-pulse-of-our-nation-may-2017.pdf>

⁵⁸ Internet New Zealand. (2017). State of the internet 2017: The state of the internet in New Zealand. <https://internetnz.nz/sites/default/files/SOTI%20FINAL.pdf>

⁵⁹ Marianne Elliott. (2018, November). *Out of the maze: Building digitally inclusive communities*. <https://static1.squarespace.com/static/5bd0d99e16b6404fe9018538/t/5bdf7f9b575d1f0d19337766/1541373904877/OutOfTheMaze.pdf>

⁶⁰ Michel Chevallier, (2009). Internet voting, turnout and deliberation: A study. *Electronic Journal of e-Government*, 7(1), pages 29-44. <https://issuu.com/academic-conferences.org/docs/ejeg-volume7-issue1->

Adam Berinsky (2005, 2016)⁶¹ argues that in the US efforts to make voting easier (not specific to digital technology) have made it easier for the already engaged to vote, but has done nothing to help people become engaged with politics. Waves of voting reform that made voting easier has skewed who votes, 'magnifying the existing socioeconomic biases in the composition of the electorate' (2016). In Ontario, Goodman and Stokes say internet voters were typically older, wealthier and better educated (p.4) and they agree that internet voting seems to make voting for the already engaged more convenient.⁶²

Another study in Ontario showed a shift to online voting, accompanied by dropping postal or in-person voting (because of cost), changed the make-up of those casting votes, in favour of voters with higher levels of digital literacy.⁶³ Whether turnout increases as a result of online voting or not, the composition of who votes may change:

A cursory analysis of the relationship between our digital literacy variables and a series of sociodemographic characteristics reveals that many of the groups who are already among the least likely to vote have low levels of Internet and digital literacy.... Relatedly, the elimination of paper ballots may have implications for the ideology of the electorate (at the aggregate level). If those being dropped from the voter pool are poorer and less educated, and municipal policy preferences change to reflect these shifting characteristics, the elimination of paper ballots may provide a systemic, institutional advantage to politicians of a certain ideology. Such disenfranchisement is difficult to defend.... It is ironic that changes to voting rules in the name of voter accessibility may be having the opposite effect (p.179).⁶⁴

Census 2018, conducted with a digital first strategy, saw a drop-off in responses from 93.2% to 87.5%, but the drop for Maori and Pasifika people was significantly higher resulting in over twenty percent of responses for these ethnic groups being supplied from administrative data elsewhere in government systems.⁶⁵

[article177?mode=a_p](#)

⁶¹ Adam Berinsky. (2005). The perverse consequences of electoral reform in the United States. *American Politics Research*, 33(4) pages 471-491 <http://journals.sagepub.com/doi/abs/10.1177/1532673X04269419>;

Berinsky, A. (2016, February 8). Making voting easier doesn't increase turnout. *Stanford Social Innovation Review*. https://ssir.org/increasing_voter_turnout/entry/making_voting_easier_doesnt_increase_turnout

⁶² Nicole Goodman and Leah Stokes. (2018). Reducing the cost of voting: An evaluation of internet voting's effect on turnout. *British Journal of Political Science* <https://doi.org/10.1017/S0007123417000849>

⁶³ Nicole Goodman, Michael McGregor, Jérôme Couture and Sandra Breux. (2018). Another digital divide? Evidence that elimination of paper voting could lead to digital disenfranchisement. *Policy and Internet*, 10(2), pp. 164-184.

⁶⁴ Nicole Goodman, Michael McGregor, Jérôme Couture and Sandra Breux. (2018). Another digital divide? Evidence that elimination of paper voting could lead to digital disenfranchisement. *Policy and Internet*, 10(2), pp. 164-184.

⁶⁵ Statistics New Zealand. (2019, July 17). 2018 Census: interim coverage rates, collection response rates, and data sources. <https://www.stats.govt.nz/reports/2018-census-interim-coverage-rates-collection-response-rates-and-data-sources>; Te Mana Raraunga Māori Data Sovereignty Network. (2019, July 18). Appalling Census collection response rates for Māori. Press release. <https://static1.squarespace.com/static/58e9b10f9de4bb8d1fb5ebbc/t/5d31596b61de0e000140307a/1563515244657/Te+Mana+Raraunga+-+Statement+on+2018+Census+-+Final.pdf>

Which population groups are more and less likely to vote in New Zealand?	
More likely	Less likely
Older people	Younger people (aged 18-24 years)
Partners; couple without children	Non-partnered or living on their own
Professional or managerial occupations	Blue collar jobs, not in paid employment
Higher incomes	Lower income
Higher education levels	Lower education levels
Living in least deprived neighbourhoods	Living in more deprived neighbourhoods
Migrant status: not a recent migrant	Asian ethnicity (related to being a recent migrant)
Strong sense of belonging to New Zealand	Weak sense of belonging to New Zealand

Source: Statistics New Zealand General Social Surveys 2010, 2012, 2016 measuring 2008, 2011 and 2014 general elections. http://m.stats.govt.nz/browse_for_stats/people_and_communities/Well-being/civic-human-rights/non-voters-2008-2011-gen-elections.aspx
<https://www.stats.govt.nz/reports/voting-and-political-participation>

Whose convenience are we privileging? The more educated, white collar workers, people on higher incomes, with the latest devices? These are the groups overseas examples suggest are more likely to engage in online voting; they are also the demographics more likely to already vote in New Zealand. Does online voting advance the convenience of population groups who are already relatively privileged and whose interests are already well-represented?

Choice

New Zealanders have a high uptake of new technology and in surveys they indicate a desire for an online voting option. Census 2018 saw 82% of forms filled in online (but participation overall fell).⁶⁶

How does choice between a digital and a paper ballot work in other countries? It is interesting to note that when both a paper and online voting option are available, online voting isn't always popular. In the Swiss cantons of Geneva and Zurich, a majority of voters choose postal ballots over internet voting (p.3).⁶⁷ Estonia has been running online elections since 2005, at municipal (local), general (parliamentary) and European levels of government. Estonia also runs a paper ballot alongside online voting. While the proportion of voters using the internet to cast their votes has risen over time, most people still cast paper ballots. Turnout figures have jumped around during this period with Parliamentary election turnout slightly up. Local election turnout rose then fell off again, and European election turnout is down.⁶⁸ Estonia is the only country offering online voting as an option for European elections, and its turnout is below the average across the EU.⁶⁹

For a trial to indicate the popularity of online voting versus paper ballots in New Zealand local elections, it would need to be trialled across the socio-demographic and digital divide, and not be concentrated in high income high-connectivity areas as this would paint an overly-optimistic portrait of its likely uptake across all electors.

⁶⁶ Statistics New Zealand. (2018, June 1). 2018 Census update.

<https://www.stats.govt.nz/news/2018-census-update>

⁶⁷ Micha Germann and Uwe Serdült. (2017). Internet voting and turnout: Evidence from Switzerland. *Electoral Studies*, 47, pp. 1-12.

⁶⁸ State Electoral Office of Estonia and Estonian National Electoral Committee. (n.d.). Statistics about internet voting in Estonia. <https://www.valimised.ee/en/archive/statistics-about-internet-voting-estonia>

⁶⁹ European Union. (2019, June 24). 2019 European election results: Turnout by year. <https://election-results.eu/turnout/>

New problems

New problems: Inequality

A potential problem is an increase in inequality among the population groups who are voting. See the sections above on turnout and convenience.

New problems: Increased cost

Councils are under pressure from their ratepayers to keep costs down, and running an election costs money. Apart from the cost of enrolling voters, which is paid for by the Electoral Commission, elections are an expense for each individual territorial authority. When discussing problems with the postal system, Auckland Council frequently mentions its costs. Prices have risen per envelope posted, and in Auckland, where there have been large population increases in recent years, the number of electors has risen too. In a briefing to Local Boards, Auckland Council said the postage costs for the 2019 election would be 77 per cent higher than in 2016.⁷⁰

The appeal of an online voting system, from a cost perspective, is that while upfront costs of developing and purchasing the online software are high (the fixed costs), the costs thereafter are low. For each new voter, the increase in costs (the variable costs) are minimal. Furthermore, a portion of the fixed costs could be spread between multiple councils, if they were using the same provider, thus reducing the cost to each territorial authority. The winning tender for the 2019 trial, Smartmatic, bid \$4.2m, but this was deemed too high by participating councils. \$4.2m for a software system is a drop in the bucket when compared to the \$1bn+ spending on IT services and systems (capital and operating systems) since the Auckland Council was formed in 2010 and new systems were built, or the more than \$20m spent on software for Auckland Council (excluding Watercare and Auckland Transport) in 2015 alone. Yet the trial was dropped ostensibly for cost reasons. Smaller councils such as Palmerston North City Council set aside a mere \$20,000 in their Long Term Plan for this trial,⁷¹ which raises questions about the naiveté of (at least some of the) participants.

To ensure everyone who wants to vote can easily vote means a paper-based voting system will need to run in parallel with online voting. *This will increase costs.* To embark on an online voting project in the hope of lowering costs is puzzling; the only way to reduce costs is to either ditch the paper-based voting option (which will disenfranchise some voters), or to not resource one or both of the options properly (for example by creating barriers to the postal voting option in the hope it forces more people to use the

⁷⁰ Auckland Council. (2018, 19 November). Trial of online voting at the 2019 local elections. Report to Howick Local Board. File no. CP2018/20744, http://infocouncil.aucklandcouncil.govt.nz/Open/2018/11/HW_20181119_AGN_7299_AT.htm#PDF2_ReportName_63544

⁷¹Palmerston North City Council. (2018, June). *Palmerston North 2028: 10 year plan 2018-2028*. p. 140 <https://www.pncc.govt.nz/media/3131028/10-year-plan-2018-28.pdf>

online vote option), or to reduce the budget elsewhere, such as for publicity. None of these options are sound, if the goal is to remove barriers to voting and ensure turnout is as high as possible.

New problems: Security

No voting system is 100% secure. Because we do not have photo ID cards in New Zealand, it is possible to impersonate people on the roll to cast multiple votes during general elections. Postal ballots can be stolen, and voters can be coerced or bribed to vote in a particular way. But it is hard to scale up voting fraud with in-person ballots and postal voting without getting caught. The potential scale and the difficulty in detecting whether votes were tampered with in an online voting system, and the intractability of the problems, make security such a focus of debates about whether it is appropriate for use in a democracy. The other issue with online voting versus a paper ballot is the difficulty of scrutineering an online ballot, which undermines trust in the results.

There are actual security challenges and perceived security weaknesses with online voting – both reality and perception matter. Security matters because democracy relies on the populace accepting the results of the election as fair.⁷² Even if your side loses, if you can accept they lost because they didn't get enough votes, then you have to accept the outcome, however unhappy that makes you. But what if you suspect vote tampering? What if there is a lack of independent scrutineering? What does this do to the acceptance of the outcome by the supporters of the losing side? Democracy requires people to accept they don't always get their way, but that the rules are (mostly) fair. Online voting could cause a crisis in legitimacy – even without specific evidence – because people know it is less secure and open to hacking or other manipulation. Once trust in the system is lost, it will be hard to repair.

Concern about security was one reason some councils withdrew from the 2016 online voting trial. What do online voting proponents say about security?

- No voting system is 100% secure⁷³
- Security risks can be overstated (p. 12)⁷⁴
- It's about balancing security risks against the benefits⁷⁵
- That's the point of the trial, to iron out problems⁷⁶

⁷² Shaun Bowler. (2016, October 14). I study democracies, and what I've learned is this: They collapse without graceful losers. Vox. <https://www.vox.com/the-big-idea/2016/10/14/13277626/losers-democratic-transition-sanders-trump>

⁷³ Marguerite Delbet. Quoted in Tom Pullar-Strecker. (2018, September 30). Councils warned electronic voting will not be secure. *Stuff*. <https://www.stuff.co.nz/technology/107317453/councils-warned-electronic-voting-will-not-be-secure>

⁷⁴ Christine Cheyne. (2016, November). E-voting eventually? Online voting in (local) elections. *Policy Quarterly* 12(4), pp. 10-16. <https://ojs.victoria.ac.nz/pq/article/view/4633/4120>

⁷⁵ Lawrence Yule. (2015, September 7). Online voting proposal 'seriously flawed'. Radio New Zealand: Checkpoint. <https://www.radionz.co.nz/news/national/283541/online-voting-proposal-'seriously-flawed'>

⁷⁶ Louise Upston. (2015, September 7). Online voting proposal 'seriously flawed'. Radio New Zealand:

Looking at these in turn, the claim that no voting system is 100% secure is a true statement, but a misleading one. The reason security is highlighted as a problem for online voting more than other forms of voting, is that a manipulation of results can be scaled to an extent that outcomes are changed, and such hacks can be hard to detect. This statement is used to minimise and dismiss the challenges and concerns around online voting, by creating a false equivalence between the security challenges of online voting, in-person voting and postal voting.

Security risks are overstated: this is another statement that seeks to minimise the advice and concerns raised by experts in IT security, the people who know this area most keenly. Whether these risks are over-stated depends, presumably, on your understanding of the scale of the security challenges, and the values at the heart of your decision-making on this issue. What level of proof about security flaws will be needed to stop an online vote, for the official who believes security concerns are overstated or whose understanding of the technical issues is superficial? Academic computer security experts found a weakness in the 2015 online New South Wales state elections;⁷⁷ the NSW Electoral Commission's official response focussed more on criticising the process used to report the problem, and on accusing the academics of being anti-online voting activists, than on the actual security risks and measures done to assuage them.⁷⁸

Balancing security against other benefits: when changing the voting system, the benefits and downsides need to be evaluated and weighted. Given turnout effects are likely to be low, it is hard to place a high value on that hoped-for benefit. Even if turnout goes up a few percent, local government democracy is still faced with a more fundamental issue to address – engagement. The need to solve the postal voting issue makes the case for online voting more compelling. The risks posed by online voting, on the other hand, are hard to quantify, which makes this equation difficult to evaluate.

The purpose of a trial is to iron out problems: this is difficult to achieve because there are known security weaknesses and there are the unknowns. A trial will only identify the issues that it identifies; we will never know the *extent* to which it is successful in identifying issues. A problem with contracting out election services to private companies is they may have an interest in keeping aspects of their design secret, both as a security measure and as a protection of its intellectual property. One of the companies that did not win the tender for the 2019 local elections, ScytI, has provided software for state elections in New South Wales. They have objected to making their source code publicly available, stating they provide their own review (para 3.37 p.13).⁷⁹ The

Checkpoint. <https://www.radionz.co.nz/news/national/283541/online-voting-proposal-'seriously-flawed'>

⁷⁷ Vanessa Teague and J. Alex Halderman. (2015, March 23). Thousands of NSW election online votes open to tampering. *The Conversation*. <https://theconversation.com/thousands-of-nsw-election-online-votes-open-to-tampering-39164>

⁷⁸ The NSW Electoral Commission. (2015, October 22). Response from the NSW Electoral Commission to iVote security allegations. <https://www.elections.nsw.gov.au/About-us/Public-interest-information/iVote-reports/Response-from-the-NSW-Electoral-Commission-to-iVote>

⁷⁹ Parliament of New South Wales Joint Standing Committee on Electoral Matters. (2016, November 17). Administration of the 2015 NSW election and related matters. Report 2/56. <https://www.parliament.nsw.gov.au/committees/DBAssets/InquiryReport/ReportAcrobat/6091/Administration%20of%20the%202015%20NSW%20Election%20and%20Related%20Matters.pdf>

winning tender for the 2019 New Zealand trial, Smartmatic, did agree that their system source code would be 'made available to academic scrutiny under appropriate [non-disclosure agreement] protection'.⁸⁰ While this sounds open, Smartmatic are choosing who has access, and then restricting what those accessing the code can say about their findings. This is understandable from a commercial standpoint; but is it acceptable level of openness and transparency for reassurance in a democracy? Such secrecy would have undermined the ability of independent computer experts to scrutineer the election. Further, an organised hack may wait until the trial is over and online voting is established as a voting system, or a compromise of the system may be designed to not show during trials, as witnessed with the Volkswagen emission scandal.⁸¹ While a trial would demonstrate some aspects of the new system, it is never possible to 'iron out' all security problems, let alone in a trial.

Local government is important and therefore local body elections are a potential target for interference: local government decides the nature of communities and how communities grow (or do not grow), and which resource consents are granted. Local government is crucial in infrastructure planning and the issuing of valuable contracts for infrastructure projects, and is also a major employer in many areas. There is a wide cast of actors who might want to interfere with an election, whether to find out who a specific voter voted for, to change votes to get a particular outcome, or just to undermine trust in the election or democracy generally.⁸²

Appearing in front of the Justice Select Committee in April 2019, the Government Communications Security Bureau (GCSB) reported concerns about online voting, as electronic systems are vulnerable to interference. The GCSB also conveyed a lack of confidence in the local election trials, commenting that the 'administrators of local elections do not have the experience or support that the Electoral Commission does, including from my agency.'⁸³

⁸⁰ Email from [redacted] to [redacted]. 11 December 2018 RE: FYR online party voting notes. Made available under the Official Information Act, file available here: https://thepolicyobservatory.aut.ac.nz/_data/assets/pdf_file/0006/268908/OIA-request-DIA-input-into-2019-online-voting-trial.pdf

⁸¹ Andrea Peterson and Brian Fung. (2015, September 22). The tech behind how Volkswagen tricked emissions tests. *The Washington Post*. <https://www.washingtonpost.com/news/the-switch/wp/2015/09/22/the-tech-behind-how-volkswagen-tricked-emissions-tests/>

⁸² Nigel McNie. (2018, October 25). Mind your surroundings: Security concerns with online voting, outside the system. *Medium*. <https://medium.com/@nigelmcnie/mind-your-surroundings-security-concerns-with-online-voting-outside-the-system-423f5a89b93a>

⁸³ Zane Small. (2019, April 11). GCSB boss Andrew Hampton warns against local election online voting. *Newshub*. <https://www.newshub.co.nz/home/politics/2019/04/gcsb-boss-andrew-hampton-warns-against-local-election-online-voting.html>

What is the security problem?

In short, most IT security experts believe secure online voting cannot be achieved.⁸⁴ Reasons include: all complex computer systems have flaws in their code that can be taken advantage of; the internet was never designed with security at its core; and the requirements of a good voting system pull against each other.⁸⁵ Efforts to make elections more secure, for example, risk compromising other important features of voting in a liberal democracy, such as convenience (by requiring stringent voter authentication) or the secret ballot (because of verification systems). Even if the voting software itself is well-designed, the distributed nature of online voting – individual voters using individual devices, on websites transmitting votes via the internet – means the election system is placed in a context that election officials cannot control.⁸⁶ Responsibility for a large portion of the security and the privacy of the vote is distributed to the 3m+ individual people on the electoral roll, many of whom will not necessarily value security and privacy above convenience; many of whom will not know what good internet hygiene involves. For it is individual voters' entire history of activity online and of their devices that creates security weaknesses, not just their actions at the time the vote is cast. People with low levels of digital literacy are especially vulnerable, they will be more likely to fall for a scam or inadvertently give out their details, or might need to ask others to help them cast their vote.

Security weaknesses are located at multiple sites: the election software, the voters' hardware, the voters' accounts and behaviour online generally, the web browser used, intranets or networks placed between the voter and the internet (such as a wifi network or a work intranet), the internet itself, and the potential for a corrupt insider in an election systems company who could manipulate outcomes. At the same time, levels of scrutineering will decline, with those able to observe good system design and implementation reducing from a large pool of ordinary citizens to a small handful of specialists.

One of the great strengths of in-person voting using paper ballots is the scrutineering of the system. Ordinary citizens can observe the issuing of ballots, the casting of votes

⁸⁴ For example, The National Academies of Sciences, Engineering and Medicine. (2018). *Securing the vote: Protecting American democracy*. Washington DC: The National Academies Press. <https://www.nap.edu/catalog/25120/securing-the-vote-protecting-american-democracy>; J. Alex Halderman. (2016). Practical attacks on real-world e-voting. In Feng Hao and Peter Y. A. Ryan (Eds.), *Real-world electronic voting: Design, analysis and deployment* (pp. 145-171). New York: Taylor & Francis. <https://jhalderm.com/pub/papers/ch7-evoting-attacks-2016.pdf>; Barbara Simons. (2013). Why can't we vote online? TEDat250 video. <https://www.youtube.com/watch?v=Wv3VuGZzdK8&feature=youtu.be>; Susmita Baral. (2016, October 20). This is why we still can't vote online. *Vice: Motherboard*. https://motherboard.vice.com/en_us/article/kb7py9/this-is-why-we-still-cant-vote-online; David Jefferson. (n.d.). If I can shop and bank online, why can't I vote online? Verified Voting. <https://www.verifiedvoting.org/resources/internet-voting/vote-online/>; Ian Chipman. (2016, June 3). David Dill: Why online voting is a danger to democracy. *Stanford Engineering Magazine*. <https://engineering.stanford.edu/magazine/article/david-dill-why-online-voting-danger-democracy>; Andrew Appel. (2016). Internet voting? Really? TEDxPrincetonU <https://www.youtube.com/watch?v=abQCqIbBBeM>

⁸⁵ Christine Kane. (2010). Voting and verifiability: Interview with Ron Rivest. *Vantage magazine*, 7(1) pp. 13-15. <https://people.csail.mit.edu/rivest/pubs/Kan10.pdf>

⁸⁶ Nigel McNie. (2018, October 25). Mind your surroundings: Security concerns with online voting, outside the system. *Medium*. <https://medium.com/@nigelmcnie/mind-your-surroundings-security-concerns-with-online-voting-outside-the-system-423f5a89b93a>

(while not compromising the secret ballot), the deposit of votes in the ballot box and the count of votes, to ensure processes are followed correctly and the result is accurate. Online voting does not enable this level of scrutiny or transparency. In 2009, the German Constitutional Court ruled against machine voting because the German constitution says that, 'elections are required to be public in nature and that all essential steps of an election are subject to the possibility of public scrutiny,' which machine voting, at that stage, did not allow. (It should be noted that voting machines or internet voting is permissible in Germany - if a high level of public scrutiny in the system and processes can be demonstrated.)⁸⁷

Private providers of voting software may not be incentivised to go looking for, or disclose, potential problems with their election systems. People who want to test the systems - ranging from IT academics to public-good hackers - tend not to be given access to systems and have to duplicate them in their efforts to test security. Some election organisers prefer not to disclose their code or discuss security in any detail for fear this could aid hackers; but their reluctance to open their processes to sunlight creates opportunities for doubt about their rigour.

An important element of people being prepared to conduct activities online is trust.⁸⁸ Some voters will feel uneasy about trusting an online voting system, following report after report of database hacking,⁸⁹ platform companies behaving badly,⁹⁰ the use of social media to influence politics,⁹¹ or even the prospect that intelligence services are tracking our activities online⁹² - with the possibility this could, one day, lead to spying on voting behaviour.

It is interesting to note that many Western democracies (such as [Canada](#), [Finland](#), [France](#), [Netherlands](#), [Norway](#), and the [United Kingdom](#)) have banned online voting from their national-level elections (while still allowing it in some cases for sub-national elections) because they consider the security risks are too high, or the benefits (such as possible turnout rises) do not outweigh the security threats. France does not allow online voting for citizens abroad and the UK decided the security risks were too great even to allow it as an option for disabled voters, a small segment of the population.

⁸⁷ National Democratic Institute. (n.d.). The constitutionality of electronic voting in Germany.

<https://www.ndi.org/e-voting-guide/examples/constitutionality-of-electronic-voting-germany>

⁸⁸ Digital Inclusion Research Group. (2017, May). *Digital New Zealanders: The pulse of our nation*. A report to MBIE and DIA. <https://www.mbie.govt.nz/info-services/digital-economy/documents-and-images/digital-new-zealanders-the-pulse-of-our-nation-may-2017.pdf>

⁸⁹ Lew Kai Ping. (2018, December 11). 52mil users affected by Google+'s second data breach.

<https://itbrief.co.nz/story/52mil-users-affected-by-google-s-second-data-breach>; James Cook. (2018,

November 30). Private data of 500 million Marriott guests exposed in massive breach. *The Telegraph*.

<https://www.telegraph.co.uk/technology/2018/11/30/private-data-500-million-marriott-guests-exposed-massive-breach/>; Caitlin Dewey. (2015, August 19). How to search the Ashley Madison leak. *The Washington Post*.

https://www.washingtonpost.com/news/the-intersect/wp/2015/08/19/how-to-see-if-you-or-your-spouse-appear-in-the-ashley-madison-leak/?utm_term=.90a9dd3cef26

⁹⁰ Rachel England. (2018, October 17). Facebook accused of lying about video stats error for over a year.

<https://www.engadget.com/2018/10/17/facebook-accused-lying-video-stats-year-lawsuit-metrics/>;

⁹¹ Patrick Greenfield. (2018, March 26). The Cambridge Analytica Files. <https://www.theguardian.com/news/2018/mar/26/the-cambridge-analytica-files-the-story-so-far>

⁹² Trevor Timm. (2016, February 9). The government just admitted it will use smart home devices for spying.

The Guardian. <https://www.theguardian.com/commentisfree/2016/feb/09/internet-of-things-smart-devices-spying-surveillance-us-government>

Conclusions

Online voting is not the silver bullet that will solve falling turnout for local government. Engagement issues and the role, power, structure and conduct of local government are the key issues that need addressing in order to encourage more people to vote.⁹³

Should it go ahead, the design of any new online system will need to be robust, and not done on the cheap. To win the trust of the local IT community it will require genuine consultation and openness about processes and design. That large scale IT projects routinely fail to meet their objectives or be on time or on budget,⁹⁴ does not help with public confidence. Secrecy is not the answer; robustness and being honest about the scale of the challenge is essential. Anyone in local government continuing to advocate for online voting will need to specify why they know more about security than the Government Communications Security Bureau.

Online voting is superficially attractive. It will probably be popular with many people – witness the 82% online participation in Census 2018. But also note that the overall turnout with the Census dropped to a level that undermines the results, particularly for Māori and Pasifika residents.⁹⁵ The census autopsy reveals a series of design problems, including an under-estimation of the number of people who wished to complete their forms on paper.⁹⁶ The online census was the default options and the parallel paper census had a barrier erected (people had to register to complete the census on paper). Resources – particularly the door to door census workers – were reduced both for cost-cutting purposes⁹⁷ and because the Census’ designers over-estimated the power of new technology to solve problems.⁹⁸ Running two parallel systems for voting – an online option and a paper option for those who cannot or do not want to vote online – will not be cheap, and the Ontario evidence is that not running both well can lead to falling turnout, or can lead to an under-representation of already low participation population

⁹³ Jean Drage. (2018). *Strengthening local voices*. Auckland: The Policy Observatory. <https://thepolicyobservatory.aut.ac.nz/publications/strengthening-local-voices>

⁹⁴ Robin Gauld and Shaun Goldfinch. (2006). *Dangerous enthusiasms: E-government, computer failure and information system development*. Dunedin: Otago University Press.

⁹⁵ Statistics New Zealand. (2019, July 17). 2018 Census: Interim coverage rates, collection response rates, and data sources. <https://www.stats.govt.nz/reports/2018-census-interim-coverage-rates-collection-response-rates-and-data-sources>; Bill Dashfield. (2018, July 12). Digital first Census 2018 – what went wrong? <https://2020.org.nz/blog/2018/07/12/census-2018-what-went-wrong/>; Andrew Sporle. (2018, July 25). Concern over the quality of Māori census data. <https://www.stat.auckland.ac.nz/en/about/news-and-events-5/news/news-2018/07/concern-over-quality-of-maori-census-data.html>; Statistics New Zealand. (2018, November 27). 2018 Census data release delayed. <https://www.stats.govt.nz/news/2018-census-data-release-delayed>; RNZ News. (2018, June 1). Fewer responses to online census than expected. <https://www.radionz.co.nz/news/national/358704/fewer-responses-to-online-census-than-expected>

⁹⁶ Murray Jack and Connie Graziadei. (2019, July). Report of the independent review of New Zealand’s 2018 Census. <https://www.stats.govt.nz/reports/report-of-the-independent-review-of-new-zealands-2018-census>

⁹⁷ David Williams. (2019, February 27). Bungled, costly census to produce less. *Newsroom*. <https://www.newsroom.co.nz/2019/02/26/461712/bungled-costly-census-to-produce-less#>; Bruce Munro. (2019, March 4). And then there were nine. *Otago Daily Times*. <https://www.odt.co.nz/lifestyle/magazine/and-then-there-were-nine>

⁹⁸ For example, then-Chief Statistician Liz MacPherson in this interview, explaining why door to door enumerators calling at every house are no longer necessary because of online responses. (2019, April 30). Government Statistician on Census 2018. Radio New Zealand: Nine to Noon Show. <https://www.rnz.co.nz/national/programmes/ninetonoon/audio/2018692884/government-statistician-on-census-2018>

groups, changing the mix of who votes. The fact that the Auckland Council is finding the cost of postal voting a problem raises the issue of whether our largest territorial authority can afford to run an effective paper voting system along with an online one, beyond the trial period. Any central government funding of a local government online voting trial will need to acknowledge the expense, as well as the complexity of designing two robust, accessible parallel voting systems.

References

- Appel, A. (2016). Internet voting? Really? TEDxPrincetonU <https://www.youtube.com/watch?v=abQCqIbBBeM>
- Auckland Council. (2018, November 19). Trial of online voting at the 2019 local elections. Report to Howick Local Board. File no. CP2018/20744. http://infocouncil.aucklandcouncil.govt.nz/Open/2018/11/HW_20181119_AGN_7299_AT.htm#PDF2_ReportName_63544
- Baral, S. (2016, October 20). This is why we still can't vote online. *Vice: Motherboard*. https://motherboard.vice.com/en_us/article/kb7py9/this-is-why-we-still-cant-vote-online
- Bargh, M. (2016). Opportunities and complexities for Māori and *mana whenua* representation in local government. *Political Science* 68 (2), pages.143-160.
- Berinsky, A. (2005). The perverse consequences of electoral reform in the United States. *American Politics Research*, 33 (4) pages 471-491. <http://journals.sagepub.com/doi/abs/10.1177/1532673X04269419>
- Berinsky, A. (2016, February 8). Making voting easier doesn't increase turnout. *Stanford Social Innovation Review*. https://ssir.org/increasing_voter_turnout/entry/making_voting_easier_doesnt_increase_turnout
- Bowler, S. (2016, October 14). I study democracies, and what I've learned is this: They collapse without graceful losers. *Vox*. <https://www.vox.com/the-big-idea/2016/10/14/13277626/losers-democratic-transition-sanders-trump>.
- Bush, G. (1980). *Local government and politics in New Zealand*. Auckland: George Allen & Unwin.
- Chevallier, M. (2009). Internet voting, turnout and deliberation: A study. *Electronic Journal of e-Government*, 7(1), pages 29-44. https://issuu.com/academic-conferences.org/docs/ejeg-volume7-issue1-article177?mode=a_p
- Cheyne, C. (2016, November). E-voting eventually? Online voting in (local) elections. *Policy Quarterly* 12 (4), pages 10-16. <https://ojs.victoria.ac.nz/pq/article/view/4633>
- Chipman, I. (2016, June 3). David Dill: Why online voting is a danger to democracy. *Stanford Engineering Magazine*. <https://engineering.stanford.edu/magazine/article/david-dill-why-online-voting-danger-democracy>

Collins, S. (2019, June 9). Schools fear legal challenges over 'unjust' delays in school trustee voting. *New Zealand Herald*. https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12238807

Cook, J. (2018, November 30). Private data of 500 million Marriott guests exposed in massive breach. *The Telegraph*. <https://www.telegraph.co.uk/technology/2018/11/30/private-data-500-million-marriott-guests-exposed-massive-breach/>

Crothers, C. (2015). Using the internet in New Zealand elections and support for e-voting. *Political Science* 67(2) pp. 127-142. <https://internetnz.nz/sites/default/files/OD-201402%20-%20AUT%20%28Charles%20Crothers%29%20-%20Research%20-%20Final%20Report%20-%20re%20Internet%20Voting.pdf>

Cull, D. (2019, February 18). Moving local voting online will help Govt too. *New Zealand Herald*. https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12204654

Dashfield, B. (2018, July 12). Digital first Census 2018 - what went wrong? <https://2020.org.nz/blog/2018/07/12/census-2018-what-went-wrong/>

Delbet, M. (2018, September 21). Auckland Council backs online voting. Radio New Zealand: Morning Report. <https://www.radionz.co.nz/national/programmes/morningreport/audio/2018663492/auckland-council-backs-online-voting-plan>

Delbet, M. (2018, December 13). Councils halt online voting trial for local body elections. Radio New Zealand: Morning Report. <https://www.radionz.co.nz/national/programmes/morningreport/audio/2018675410/councils-halt-online-voting-trial-for-local-body-elections>

Department of Internal Affairs. (n.d.). Consultation - Framework for online voting trials at local authority elections. <https://www.dia.govt.nz/online-voting-trials-consultation>

Department of Internal Affairs. (2018, October). Draft for consultation: Local electoral (online voting trial) amendment regulations 2019. [https://www.dia.govt.nz/diawebsite.nsf/Files/Online-Voting-Trial/%24file/Local-Electoral-\(Online-Voting-Trial\)-Amendment-Regulations-2019-v1.10-\(Consultation-Draft\).pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/Online-Voting-Trial/%24file/Local-Electoral-(Online-Voting-Trial)-Amendment-Regulations-2019-v1.10-(Consultation-Draft).pdf)

Dewey, C. (2015, August 19). How to search the Ashley Madison leak. *The Washington Post*. https://www.washingtonpost.com/news/the-intersect/wp/2015/08/19/how-to-see-if-you-or-your-spouse-appear-in-the-ashley-madison-leak/?utm_term=.90a9dd3cef26

Digital Inclusion Research Group. (2017, May). *Digital New Zealanders: The pulse of our nation*. A report to MBIE and DIA. <https://www.mbie.govt.nz/assets/218c439f72/digital-new-zealanders-the-pulse-of-our-nation.pdf>

Drage, J. (2018). *Strengthening local voices*. Auckland: The Policy Observatory. <https://thepolicyobservatory.aut.ac.nz/publications/strengthening-local-voices>

Electoral Commission. (2017). General Elections 1853-2017 – dates and turnout. <https://www.elections.org.nz/events/past-events/general-elections-1853-2017-dates-and-turnout>

Electoral Commission. (2018). Voters with a disability. <https://www.elections.org.nz/resources-learning/voters-disability>

Elliott, M. (2018, November). *Out of the maze: Building digitally inclusive communities*. <https://static1.squarespace.com/static/5bd0d99e16b6404fe9018538/t/5bdf7f9b575d1f0d19337766/1541373904877/OutOfTheMaze.pdf>

England, R. (2018, October 17). Facebook accused of lying about video stats error for over a year. <https://www.engadget.com/2018/10/17/facebook-accused-lying-video-stats-year-lawsuit-metrics/>

European Union. (2019, June 24). 2019 European election results: Turnout by year. <https://election-results.eu/turnout/>

Farrar, D. (2018, October 29). Huge increase in overseas votes because of e-voting. *Kiwiblog*. https://www.kiwiblog.co.nz/2018/10/huge_increase_in_overseas_votes_because_of_e-voting.html

Franklin, M. (1994). *Voter turnout and the dynamics of electoral competition in established democracies since 1945*. Cambridge: Cambridge University Press.

Gauld, R. and Shaun Goldfinch. (2006). *Dangerous enthusiasms: E-government, computer failure and information system development*. Dunedin: Otago University Press.

Germann, M. and Uwe Serdült. (2017). Internet voting and turnout: Evidence from Switzerland. *Electoral Studies*, 47, pages 1-12. <https://doi.org/10.1016/j.electstud.2017.03.001>

Goodman, N. and Heather Pyman. (2016, August). Internet voting project report. Results from the 2014 Ontario Municipal Elections. Centre for eDemocracy, Toronto. http://www.centreforedemocracy.com/wp-content/uploads/2016/08/IVP_Report.pdf

- Goodman, N. (2016, August 23). Addressing the Canadian House of Commons Special Committee on Electoral Reform. https://www.youtube.com/watch?v=IsC_8HMv3xA
- Goodman, N. and Leah Stokes. (2018). Reducing the cost of voting: An evaluation of internet voting's effect on turnout. *British Journal of Political Science*. <https://doi.org/10.1017/S0007123417000849>
- Goodman, N., Michael McGregor, Jérôme Couture and Sandra Breux. (2018). Another digital divide? Evidence that elimination of paper voting could lead to digital disenfranchisement. *Policy and Internet*, 10(2), pp. 164-184. <https://doi.org/10.1002/poi3.168>
- Greenfield, P. (2018, March 26). The Cambridge Analytica Files. <https://www.theguardian.com/news/2018/mar/26/the-cambridge-analytica-files-the-story-so-far>
- Halderman, J. A. (2016). Practical attacks on real-world e-voting. In Feng Hao and Peter Y. A. Ryan (Eds.), *Real-world electronic voting: Design, analysis and deployment* (pages 145-171). New York: Taylor & Francis. <https://jhalderm.com/pub/papers/ch7-evoting-attacks-2016.pdf>
- Henry, S. (2003). Can remote internet voting increase turnout? *Aslib Proceedings*, 55(4), pages 193-202. <https://doi.org/10.1108/00012530310486557>
- Internet New Zealand. (2017). State of the internet 2017: The state of the internet in New Zealand. <https://internetnz.nz/sites/default/files/SOTI%20FINAL.pdf>
- Jack, M. and Connie Graziadei. (2019, July). Report of the independent review of New Zealand's 2018 Census. <https://www.stats.govt.nz/reports/report-of-the-independent-review-of-new-zealands-2018-census>
- Jefferson, D. (n.d.). If I can shop and bank online, why can't I vote online? Verified Voting. <https://www.verifiedvoting.org/resources/internet-voting/vote-online/>
- Justice and Electoral Committee. (2013, April). Inquiry into the 2011 general election: Report of the Justice and Electoral Committee. https://www.parliament.nz/resource/en-nz/50DBSCH_SCR5837_1/095840b4b75b7b58a13ef77629e118aec6036439
- Kane, C. (2010). Voting and verifiability: Interview with Ron Rivest. *Vantage magazine*, 7(1) pages 13-15. <https://people.csail.mit.edu/rivest/pubs/Kan10.pdf>
- Karp, J. A. and David Brockington. (2005, August). Social desirability and response validity: A comparative analysis of overreporting voter turnout in five countries. *The Journal of Politics*, 67(3), pages 825-840. <https://www.journals.uchicago.edu/doi/10.1111/j.1468-2508.2005.00341.x>

Kersting, N. and Harald Baldersheim (eds). (2004). *Electronic voting and democracy: A comparative analysis*. Palgrave Macmillan.

Kilpatrick, S. (2018, September 20). Online voting for local council elections 'crazy' – expert. Radio New Zealand: Morning Report. <https://www.radionz.co.nz/national/programmes/morningreport/audio/2018663331/online-voting-for-local-council-elections-crazy-expert>

Lagrone, C. (2016). Engaging youth voter participation with internet voting in Estonia (abstract). In *Electronic Voting Conference Proceedings. E-Vote-ID 2016*, (Eds.), K. Krimmer, M. Volkamer, J. Barrat, J. Benaloh, N. Goodman, P. Ryan and V. Teague. Bregenz, Austria: Springer, p. 341.

Lewis, J. (2019, June 11). Schools given voting extension. *Otago Daily Times*. <https://www.odt.co.nz/news/education/schools-given-voting-extension>

Local Government New Zealand. (2016). Final voter turnout 2016. <http://www.lgnz.co.nz/nzs-local-government/vote2016/final-voter-turnout-2016/>

Local Government New Zealand. (2017). Local elections 2016: Voters' choices and reasons.

Local Government New Zealand. (2018, December 12). Councils halt online voting trial for local body elections. Press release. <http://www.scoop.co.nz/stories/AK1812/S00290/councils-halt-online-voting-trial-for-local-body-elections.htm>

MacPherson, L. (2019, April 30). Government Statistician on Census 2018. Radio New Zealand: Nine to Noon Show. <https://www.rnz.co.nz/national/programmes/ninetoon/audio/2018692884/government-statistician-on-census-2018>

Matamata Piako District Council. (2018, September 27). Online voting: Frequently asked questions: 8. Why can't we just do online voting without a trial? <https://www.mpdc.govt.nz/elections/online-voting>

McNie, N. (2018, October 25). Mind your surroundings: Security concerns with online voting, outside the system. *Medium*. <https://medium.com/@nigelmcnie/mind-your-surroundings-security-concerns-with-online-voting-outside-the-system-423f5a89b93a>

Ministry of Education. (2019, June 5). Extension of school trustee voting deadlines. <https://www.education.govt.nz/news/extension-of-school-trustee-voting-deadlines/>

Munro, B. (2019, March 4). And then there were nine. *Otago Daily Times*. <https://www.odt.co.nz/lifestyle/magazine/and-then-there-were-nine>

National Democratic Institute. (n.d.). The constitutionality of electronic voting in Germany. <https://www.ndi.org/e-voting-guide/examples/constitutionality-of-electronic-voting-germany>

New Zealand Parliament. (n.d.). Local Electoral Matters Bill. https://www.parliament.nz/en/pb/bills-and-laws/bills-proposed-laws/document/BILL_77942/local-electoral-matters-bill

New Zealand Post. (2018, August 24). NZ Post annual results - impacted by continual letter decline. Media Release. <https://www.nzpost.co.nz/about-us/media-centre/media-release/nz-post-annual-results-impacted-by-continual-letter-decline>

Online Voting Working Party. (n.d.). Online voting in New Zealand: Feasibility and options for local elections. <https://www.dia.govt.nz/online-voting>

Palmerston North City Council. (2018, June). *Palmerston North 2028: 10 year plan 2018-2028*. <https://www.pncc.govt.nz/media/3131028/10-year-plan-2018-28.pdf>

Parliament of New South Wales Joint Standing Committee on Electoral Matters. (2016, November 17). Administration of the 2015 NSW election and related matters. Report 2/56. <https://www.parliament.nsw.gov.au/committees/DBAssets/InquiryReport/ReportAcrobat/6091/Administration%20of%20the%202015%20NSW%20Election%20and%20Related%20Matters.pdf>

Peterson, A. and Brian Fung. (2015, September 22). The tech behind how Volkswagen tricked emissions tests. *The Washington Post*. <https://www.washingtonpost.com/news/the-switch/wp/2015/09/22/the-tech-behind-how-volkswagen-tricked-emissions-tests/>

Ping, Lew Kai. (2018, December 11). 52mil users affected by Google+'s second data breach. <https://itbrief.co.nz/story/52mil-users-affected-by-google-s-second-data-breach>

Postal Workers Union of Aotearoa. (2017). Submission to the Justice and Electoral Select Committee on the Inquiry into the 2016 local authority elections. https://www.parliament.nz/resource/en-NZ/51SCJE_EVI_00DBSCH_INQ_71386_1_A547619/821a3c43e49d39d3950bc2f21f5b6209bf5e6a49

Pullar-Strecker, T. (2018, September 30). Councils warned electronic voting will not be secure. *Stuff*. <https://www.stuff.co.nz/technology/107317453/councils-warned-electronic-voting-will-not-be-secure>

RNZ News. (2015, September 21). Dunedin withdraws from online voting trial. Radio New Zealand. <https://www.radionz.co.nz/news/regional/284835/dunedin-withdraws-from-online-voting-trial>

RNZ News. (2018, June 1). Fewer responses to online census than expected. Radio New Zealand. <https://www.radionz.co.nz/news/national/358704/fewer-responses-to-online-census-than-expected>

Simons, B. (2013). Why can't we vote online? TEDat250 video. <https://www.youtube.com/watch?v=Wv3VuGZzdK8&feature=youtu.be>

Small, Z. (2019, April 11). GCSB boss Andrew Hampton warns against local election online voting. *Newshub*. <https://www.newshub.co.nz/home/politics/2019/04/gcsb-boss-andrew-hampton-warns-against-local-election-online-voting.html>

Smartmatic. <https://www.smartmatic.com/>

Smith Business Consulting. (2019, May). *Understanding opportunities for increasing voter participation in the Auckland local elections*. A report prepared for Auckland Council. <http://www.knowledgeauckland.org.nz/assets/publications/Understanding-opportunities-increasing-voter-participation-Auckland-local-elections-May-2019.pdf>

Society of Local Government Managers. (n.d.). Submission of the Society of Local Government Managers on the Justice and Electoral Inquiry into the 2016 local elections. https://www.solgm.org.nz/Attachment?Action=Download&Attachment_id=1399

Solvak, M. and Kristjan Vassil. (2017). Could internet voting halt declining turnout? New evidence that e-voting is habit forming. *Policy and Internet* 10(1), pages 4-21. doi: [10.1002/poi3.160](https://doi.org/10.1002/poi3.160)

Sporle, A. (2018, July 25). Concern over the quality of Māori census data. <https://www.stat.auckland.ac.nz/en/about/news-and-events-5/news/news-2018/07/concern-over-quality-of-maori-census-data.html>

State Electoral Office of Estonia and Estonian National Electoral Committee. (n.d.). Statistics about internet voting in Estonia. <https://www.valimised.ee/en/archive/statistics-about-internet-voting-estonia>

Statistics New Zealand. (2018, June 1). 2018 Census update. <https://www.stats.govt.nz/news/2018-census-update>

Statistics New Zealand. (2018, November 27). 2018 Census data release delayed. <https://www.stats.govt.nz/news/2018-census-data-release-delayed>

Statistics New Zealand. (2019, July 17). 2018 Census: Interim coverage rates, collection response rates, and data sources. <https://www.stats.govt.nz/reports/2018-census-interim-coverage-rates-collection-response-rates-and-data-sources>

Stewart, M., Talia Shadwell and Jared Nicoll. (2016, September 29). Wellington postie dumps - or hoards - up to 3000 items of mail and 667 voting ballots. *Stuff*. <https://www.stuff.co.nz/business/84781212/wellington-postie-dumps-up-to-3000-items-of-mail-and-300-voting-ballots>

Te Mana Raraunga Māori Data Sovereignty Network. (2019, July 18). Appalling Census collection response rates for Māori. Press release. <https://static1.squarespace.com/static/58e9b10f9de4bb8d1fb5ebbc/t/5d31596b61de0e000140307a/1563515244657/Te+Mana+Raraunga+-+Statement+on+2018+Census+-+Final.pdf>

Teague, V. and J. Alex Halderman. (2015, March 23). Thousands of NSW election online votes open to tampering. *The Conversation*. <https://theconversation.com/thousands-of-nsw-election-online-votes-open-to-tampering-39164>

Temel, K. (2018, September 10). Justice Select Committee hearing on Local Electoral Matters Bill & Administration of Justice (Reform of Contempt of Court) Bill. Broadcast on Facebook <https://www.facebook.com/JUSCNZ/videos/316760045569919/>

The National Academies of Sciences, Engineering and Medicine. (2018). *Securing the vote: Protecting American democracy*. Washington DC: The National Academies Press. <https://www.nap.edu/catalog/25120/securing-the-vote-protecting-american-democracy>

The NSW Electoral Commission. (2015, October 22). Response from the NSW Electoral Commission to iVote security allegations. <https://www.elections.nsw.gov.au/About-us/Public-interest-information/iVote-reports/Response-from-the-NSW-Electoral-Commission-to-iVot>

Timm, T. (2016, February 9). The government just admitted it will use smart home devices for spying. *The Guardian*. <https://www.theguardian.com/commentisfree/2016/feb/09/internet-of-things-smart-devices-spying-surveillance-us-government>

Todd, J. (2017). Awareness of an attitudes towards online voting in the 2016 Auckland Council elections. Technical report TR2017/013. <http://knowledgeauckland.org.nz/assets/publications/TR2017-013-Awareness-attitudes-voting-in-2016-Auckland.pdf>

Upston, L. (2015, September 7). Online voting proposal 'seriously flawed'. Radio New Zealand: Checkpoint. <https://www.radionz.co.nz/news/national/283541/online-voting-proposal-'seriously-flawed'>

Upston, L. (2016, March 11). Cabinet paper: Policy briefing: Advice on councils' compliance with online voting requirements. <https://fyi.org.nz/request/3937/response/13144/attach/2/26052016155745%200001.pdf>

Vowles, J. (2015). Voter Turnout. In Janine Hayward (Ed.), *New Zealand government and politics* (sixth edition) (pp. 287-299). South Melbourne, Victoria, Australia: Oxford University Press.

Williams, D. (2019, February 27). Bungled, costly census to produce less. *Newsroom*. <https://www.newsroom.co.nz/2019/02/26/461712/bungled-costly-census-to-produce-less#>

Yule, L. (2015, September 7). Online voting proposal 'seriously flawed'. Radio New Zealand: Checkpoint. <https://www.radionz.co.nz/news/national/283541/online-voting-proposal-'seriously-flawed>

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Dr. Julienne Molineaux works at The Policy Observatory at Auckland University of Technology. A PhD in Political Studies, her interest in the online voting debate arose from research in the local government sphere. Julienne's primary research interests are around the health of New Zealand's democracy and its institutions, in particular the official government archives.

About The Policy Observatory

Based at Auckland University of Technology, The Policy Observatory provides a lens on public policy in Aotearoa New Zealand. We both conduct and commission research on economic, social and environmental policy issues, with the intention of publishing results in a form that is accessible to the general public. We work in a collaborative, networked way with researchers across institutions and in the private sector. Ultimately, we are concerned with how policy advances the common good.