

# A working paper on online voting (internet voting, eVoting) in New Zealand

DRAFT – FEEDBACK WELCOME

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## Introduction

A trial of online voting is proposed for the 2019 New Zealand local body elections. At present much of the discussion about whether and how to proceed is being held in local government circles. Nine councils initially indicated a willingness to be involved; the Department of Internal Affairs has organised two invite-only consultations on regulations; and legislation, the Local Electoral Matters Bill, is before Parliament to allow the trial to take place in sub-sections of local territories, such as wards rather than the whole district. Online voting is already permissible under the law.

An online voting trial was planned for the 2016 local government elections. This was cancelled after 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.<sup>1</sup> A number of councils that had been interested in the trial withdrew because of cost or security concerns.<sup>2</sup>

This background paper is designed to provide some information on issues related to online voting in New Zealand. It 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?

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<sup>1</sup> 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>

<sup>2</sup> Radio New Zealand news. (2015, September 21). Dunedin withdraws from online voting trial.

<https://www.radionz.co.nz/news/regional/284835/dunedin-withdraws-from-online-voting-trial>

## What is online voting (it is not US-style machine 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. Crucially, for the security arguments referred to later, when compared to general elections, it involves the distribution of voting from centralised voting booths supervised by election staff to individual electors' homes or workplaces, and a decentralisation of security to the devices and machines owned or accessed by voters.

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.

## 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. 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).<sup>3</sup> The 1989 turnout boost was short-lived though, and it began to fall again.

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).<sup>4</sup> Fewer New Zealanders conduct regular activities using post, 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. The Postal Workers Union of Aotearoa say 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).<sup>5</sup> Christine Cheyne describes the postal system as 'anachronistic' (p.11), 'antiquated' (p. 11) and vulnerable to problems such as 'papers being undelivered' (p. 12).<sup>6</sup>

New Zealand Post defends its service.<sup>7</sup> 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.

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<sup>3</sup> Charles Crothers. (2015). Using the internet in New Zealand elections and support for e-voting. *Political Science* 67(2) pp. 127-142.

<sup>4</sup> 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](https://www.solgm.org.nz/Attachment?Action=Download&Attachment_id=1399)

<sup>5</sup> 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](https://www.parliament.nz/resource/en-NZ/51SCJE_EVI_00DBSCH_INQ_71386_1_A547619/821a3c43e49d39d3950bc2f21f5b6209bf5e6a49)

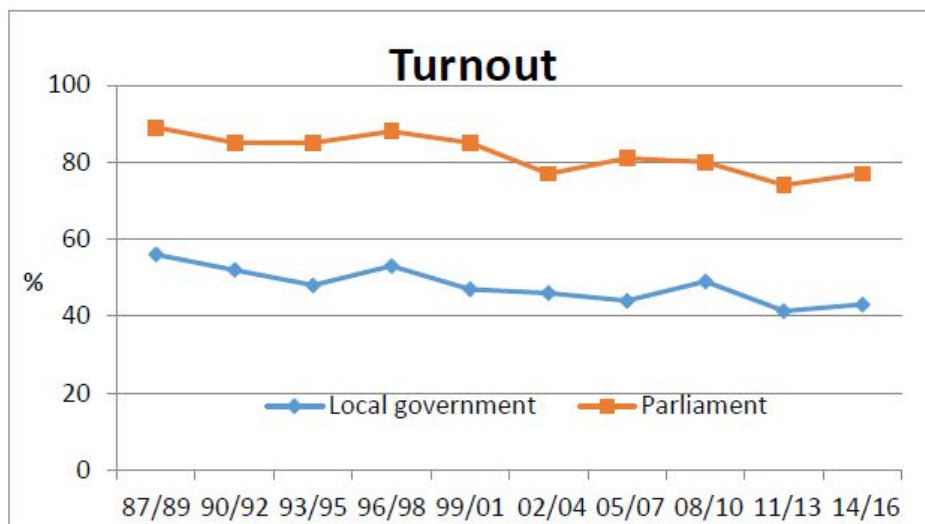
<sup>6</sup> Christine Cheyne. (2016, November). E-voting eventually? Online voting in (local) elections. *Policy Quarterly* 12(4), pp. 10-16) and <https://www.stuff.co.nz/business/84781212/wellington-postie-dumps-up-to-3000-items-of-mail-and-300-voting-ballots>

<sup>7</sup> 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>

## 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 for a reduction.<sup>8</sup> 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.<sup>9</sup> Generally, rural councils have a higher turnout than provincial ones, which in turn have a higher turnout than metropolitan councils.<sup>10</sup> Jean Drage reports that turnout is higher for areas with more elected representatives per capita (p.6).<sup>11</sup>

**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. 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).<sup>12</sup> In a post-election survey conducted for Local Government New

<sup>8</sup> 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>

<sup>9</sup> Local Government New Zealand. (2016). Final voter turnout 2016. <http://www.lgnz.co.nz/nzs-local-government/vote2016/final-voter-turnout-2016/>

<sup>10</sup> Local Government New Zealand. (2016). Final voter turnout 2016. <http://www.lgnz.co.nz/nzs-local-government/vote2016/final-voter-turnout-2016/>

<sup>11</sup> Jean Drage. (2018). *Strengthening local voices*. Auckland: The Policy Observatory.

<https://thepolicyobservatory.aut.ac.nz/publications/strengthening-local-voices>

<sup>12</sup> 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>

Zealand following the 2016 elections, 68% of respondents said online voting was their preferred option (p. 24).<sup>13</sup>

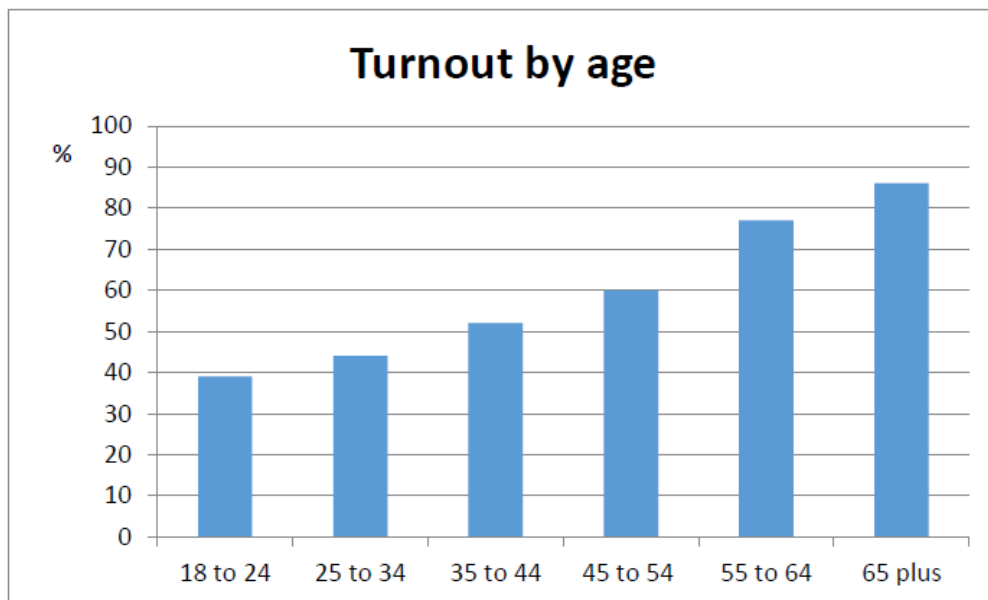
### Youth turnout

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'.<sup>14</sup> With turnout falling, arresting the decline in voting among young people will have a ripple effect to elections in the future.

In surveys young people consistently say they want an option to cast their votes online.<sup>15</sup>

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

**Figure 10 - The relation between turnout and age**



*(Macaulay and Wenhold 2016)*

Source: Local Government New Zealand. (2017). Local elections 2016: Voters' choices and reasons. p.14

<sup>13</sup> Local Government New Zealand. (2017). Local elections 2016: Voters' choices and reasons.

<sup>14</sup> Mark Franklin. (1994). *Voter turnout and the dynamics of electoral competition in established democracies since 1945*. Cambridge: Cambridge University Press.

<sup>15</sup> 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:

- 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, and adopting this 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.<sup>16</sup>

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.<sup>17</sup> The telephone dictation service for the blind and others who cannot mark a paper ballot without assistance, requires pre-registration.<sup>18</sup> I do not know how well this service works.

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 of people in this situation to vote. (Although note the earlier point that at present rural districts have higher turnout than metropolitan ones.)

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.<sup>19</sup>

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<sup>16</sup> 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](https://www.parliament.nz/resource/en-nz/50DBSCH_SCR5837_1/095840b4b75b7b58a13ef77629e118aec6036439)

<sup>17</sup> Electoral Commission. (2018). Voters with a disability. <https://www.elections.org.nz/resources-learning/voters-disability>

<sup>18</sup> 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/>

<sup>19</sup> 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>

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](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 (Arseneau and Roberts, forthcoming).

### Technological determinism/inevitability

This is the argument that says technology dictates society's direction; because a technology exists, it is inevitable that we 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.<sup>20</sup>

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.<sup>21</sup>

<sup>20</sup> Online Voting Working Party. (n.d.). Online voting in New Zealand: Feasibility and options for local elections. Retrieved from <https://www.dia.govt.nz/online-voting>

<sup>21</sup> Steve Kilpatrick. (2018, September 20). Online voting for local council elections 'crazy' – expert. Radio New Zealand: Morning Report.

There is, of course, a question about whether technological change is inevitable, or a choice.

## Solutions

### Does online voting solve these problems?

#### 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 code that would be used when voting online. By relying on the post system for aspects of voting, 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 are still being worked through, with a code being posted to electors one options among three possible voter authentication methods.<sup>22</sup>

Online voting will still be 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 will need to happen. 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 upkeep 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'.<sup>23</sup>

#### 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

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<https://www.radionz.co.nz/national/programmes/morningreport/audio/2018663331/online-voting-for-local-council-elections-crazy-expert>

<sup>22</sup> 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)

<sup>23</sup> 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>



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.<sup>24</sup>

There is general agreement that online voting is a good option for the disabled and for overseas voting.<sup>25</sup> (Although as discussed later, France has rules 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 turnout when online voting is introduced?

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.

Goodman and Stokes' 2017 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, and some districts dropping paper ballot while others retain them.<sup>26</sup> 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 advance voting period, reduces the uptake of online voting.<sup>27</sup>

The other 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.<sup>28</sup> 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:

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<sup>24</sup> For example, Susan Henry (2003). Can remote internet voting increase turnout? *Aslib Proceedings*, 55 (4), pp. 193-202; Norbert Kersting & Harald Baldersheim (eds). (2004). *Electronic voting and democracy: A comparative analysis*. Palgrave Macmillan. There are many more.

<sup>25</sup> 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.

<sup>26</sup> Nicole Goodman and Leah Stokes. (2017, August 24). Reducing the cost of voting: An evaluation of internet voting's effect on turnout. Working paper.

<sup>27</sup> Nicole Goodman. (2016, August 23). Addressing the Canadian House of Commons Special Committee on Electoral Reform. [https://www.youtube.com/watch?v=IsC\\_8HMv3xA](https://www.youtube.com/watch?v=IsC_8HMv3xA)

<sup>28</sup> 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](https://ssir.org/increasing_voter_turnout/entry/making_voting_easier_doesnt_increase_turnout)

<b>Reasons for not voting in the 2016 local body elections</b>	
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). <i>Local elections 2016: Voters' choices and reasons</i> . p. 20.	

<b>Reasons for not voting in the 2017 general election (n=164)</b>	
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). <i>Report into the 2017 general election</i> . <a href="https://www.elections.org.nz/sites/default/files/plain-page/attachments/voter_and_non-voter_satisfaction_survey_2017.pdf">https://www.elections.org.nz/sites/default/files/plain-page/attachments/voter_and_non-voter_satisfaction_survey_2017.pdf</a>	

<b>% of Non-voters who agree with the following statements, 2011 general election:</b>	
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). <i>Voter and non-voter satisfaction survey 2011</i> . <a href="https://www.elections.org.nz/events/past-events-0/2011-general-election/reports-and-surveys-2011-general-election/voter-and-non">https://www.elections.org.nz/events/past-events-0/2011-general-election/reports-and-surveys-2011-general-election/voter-and-non</a>	

Goodman and Stokes<sup>29</sup> 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. 11). 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. 11).

Young people do not appear to prefer online voting over a paper ballot, when given the choice. 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 next election. Online voting does not appear to be the answer to young people's engagement.<sup>30</sup>

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.<sup>31</sup> 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.<sup>32</sup>

### 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 trouble shoot 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).<sup>33</sup> This is not the same as just access to the internet, which at 93% covers most New Zealanders (p. 4).<sup>34</sup> People

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<sup>29</sup> Nicole Goodman and Leah Stokes. (2017, August 24). Reducing the cost of voting: An evaluation of internet voting's effect on turnout. Working paper.

<sup>30</sup> Nicole Goodman. (2016, August 23). Addressing the Canadian House of Commons Special Committee on Electoral Reform. [https://www.youtube.com/watch?v=IsC\\_8HMv3xA](https://www.youtube.com/watch?v=IsC_8HMv3xA)

<sup>31</sup> 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.

<sup>32</sup> Micha Germann and Uwe Serdült. (2017). Internet voting and turnout: Evidence from Switzerland. *Electoral Studies*, 47, pp. 1-12.

<sup>33</sup> 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>

<sup>34</sup> 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>

who are digitally disadvantaged are often those who are experiencing other social and economic disadvantage.<sup>35</sup>

Adam Berinsky (2005, 2016)<sup>36</sup> 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<sup>37</sup> 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.

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.<sup>38</sup> 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).<sup>39</sup>

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<sup>35</sup> Marianne Elliott. (2018, November). *Out of the maze: Building digitally inclusive communities*.

<https://static1.squarespace.com/static/5bd0d99e16b6404fe9018538/t/5bdf7f9b575d1f0d19337766/1541373904877/OutOfTheMaze.pdf>

<sup>36</sup> 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](https://ssir.org/increasing_voter_turnout/entry/making_voting_easier_doesnt_increase_turnout)

<sup>37</sup> Nicole Goodman and Leah Stokes. (2017, August 24). Reducing the cost of voting: An evaluation of internet voting's effect on turnout. Working paper.

<sup>38</sup> 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.

<sup>39</sup> 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.

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	
<a href="http://m.stats.govt.nz/browse_for_stats/people_and_communities/Well-being/civic-human-rights/non-voters-2008-2011-gen-elections.aspx">http://m.stats.govt.nz/browse_for_stats/people_and_communities/Well-being/civic-human-rights/non-voters-2008-2011-gen-elections.aspx</a>	
<a href="https://www.stats.govt.nz/reports/voting-and-political-participation">https://www.stats.govt.nz/reports/voting-and-political-participation</a>	

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 most likely to already vote in New Zealand. Does online voting privilege 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 of an online voting option. Census 2018 saw 82% of forms filled in online, but participation overall fell.<sup>40</sup>

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).<sup>41</sup> Estonia has been running online elections since 2005, at municipal (local),

<sup>40</sup> Statistics New Zealand. (2018, June 1). 2018 Census update. <https://www.stats.govt.nz/news/2018-census-update>

<sup>41</sup> Micha Germann and Uwe Serdült. (2017). Internet voting and turnout: Evidence from Switzerland. *Electoral Studies*, 47, pp. 1-12.

general (parliamentary) and European levels of government. Estonia also runs a paper ballot alongside online voting, and most people (almost 70% in 2014 European elections, 2015 parliamentary elections and 2017 local elections) still cast paper ballots. Having an online voting option has not stopped a slide in turnout in local and European elections this period, while Parliamentary election turnout has risen slightly.<sup>42</sup>

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.

## 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: 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.<sup>43</sup> 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?

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<sup>42</sup> 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>

<sup>43</sup> Uri Friedman. (2016, October 17). Democracy depends on the consent of the losers. *The Atlantic*. <https://www.theatlantic.com/international/archive/2016/10/trump-election-rigged-democracy/504338/>

- No voting system is 100% secure<sup>44</sup>
- Security risks can be overstated<sup>45</sup>
- It's about balancing security risks against the benefits<sup>46</sup>
- That's the point of the trial, to iron out problems<sup>47</sup>

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. The statement is misleading because it is used to minimise and dismiss the challenges and concerns around online 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? Academic computer security experts found a weakness in the 2015 online New South Wales state elections;<sup>48</sup> 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.<sup>49</sup>

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 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: 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. The proposed voting trial in 2019 does not put transparency around the trial design and implantation at its centre: the contract for election services will go to a private company which may have an interest in keeping its design secret, both as a security measure, and to protect its intellectual property. (One of the companies likely to tender,

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<sup>44</sup>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>

<sup>45</sup> 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> p. 12.

<sup>46</sup> 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'>

<sup>47</sup> Louise Upston. (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'>

<sup>48</sup> Vanessa Teague & 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>

<sup>49</sup> The NSW Electoral Commission. (2015, October 22). Response from the NSW Electoral Commission to iVote security allegations. <http://www.elections.nsw.gov.au/about-us/plans-and-reports/ivote-reports/response-from-the-nsw-electoral-commission-to-ivote-security-allegations>

Scytl, 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).<sup>50</sup> Such secrecy will undermine 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. While a trial will 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); 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.<sup>51</sup>

### What is the security problem?

In short, most IT security experts believe secure online voting cannot be achieved.<sup>52</sup> 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.<sup>53</sup> 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.<sup>54</sup> 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 voter's entire history of activity online and of their devices that creates security weaknesses, not just their actions at the time the vote is cast.

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<sup>50</sup> 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/Administratio%20of%20the%202015%20NSW%20Election%20and%20Related%20Matters.pdf>

<sup>51</sup> 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>

<sup>52</sup> For example, 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](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>

<sup>53</sup> 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>

<sup>54</sup> 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>



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 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 (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.)<sup>55</sup>

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.<sup>56</sup> Some voters will feel uneasy about trusting an online voting system, following report after report of database hacking,<sup>57</sup> platform companies behaving badly,<sup>58</sup> the use of social media to influence politics,<sup>59</sup> or even the prospect that intelligence services are tracking our activities online<sup>60</sup> – with the possibility this could lead to spying on voting behaviour one day.

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

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<sup>55</sup> 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>

<sup>56</sup> 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>

<sup>57</sup> 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](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)

<sup>58</sup> 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/> ;

<sup>59</sup> 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>

<sup>60</sup> 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>

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.

## 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 need addressing, too.<sup>61</sup>

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,<sup>62</sup> does not help with public confidence. Secrecy is not the answer; robustness and being honest about the scale of the challenge is.

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.<sup>63</sup> While the census autopsy is still being undertaken, what can be observed was that the parallel paper census had a barrier erected (people had to register to complete the census on paper), and resources – particularly the door to door census workers – were removed from it, presumably to fund the online option. Running two parallel systems for voting – an online option and a paper option – 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 groups, changing the mix of who votes. That the Auckland Council is finding the cost of postal voting a problem does not give cause for encouragement that a parallel paper voting system, providing an option for those who cannot or do not want to vote online, will be adequately run, or at least not for long.

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<sup>61</sup> Jean Drage. (2018). *Strengthening local voices*. Auckland: The Policy Observatory.

<https://thepolicyobservatory.aut.ac.nz/publications/strengthening-local-voices>

<sup>62</sup> Robin Gauld & Shaun Goldfinch. (2006). *Dangerous enthusiasms: E-government, computer failure and information system development*. Dunedin: Otago University Press.

<sup>63</sup> 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>