

TRANSCRIPT

ELECTORAL MATTERS COMMITTEE

Inquiry into electronic voting

Melbourne — 24 August 2016

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Dr Christopher John Culnane.

**Necessary corrections to be notified to
executive officer of committee**

The CHAIR — Thank you everyone for being here for the afternoon session of the Electoral Matters Committee inquiry into electronic voting. There are just two witnesses this afternoon. Thank you, Dr Culnane, for your submission and indeed for your willingness to be present here. Can I please check that you have received the guide to giving evidence at a public hearing and read it?

Dr CULNANE — Yes.

The CHAIR — And you understand the issue of parliamentary privilege attaching to this and that Hansard are recording your every utterance. Could you please state your full name and your business address — I do not need to know your address, so if you do not have a business one, you do not have to give your address — and, if you could, tell the committee whether you are attending in a private capacity or whether you are representing an organisation. Then you might want to make a couple of preliminary comments.

Dr CULNANE — Okay. My name is Christopher John Culnane. My business address is the University of Melbourne, Parkville, and I am appearing in a private capacity.

I will just give a small amount of background. Prior to working at the University of Melbourne I was a research fellow at the University of Surrey and acted as the technical lead for them on the vVote project, so I am very happy to answer any technical questions you have regarding vVote, but it is not the primary subject of my submission. My submission focused on three main issues: the security challenges associated with remote voting, in particular internet voting; the risks of coercion in remote voting; and the deployment of electronic voting solutions.

When evaluating changes to an election system there is one question above all that must be asked, and that is: what impact would the change have on democracy? All too often lesser properties are prioritised, in spite of elections having one sole purpose, which is to serve the democratic process. For some time now there has been a push from certain quarters for internet voting. The arguments for internet voting are often centred on convenience, familiarity, speed or reduced costs. None of these are acceptable trade-offs for a weaker democracy. Internet voting is another form of remote voting and encompasses all of the coercion and identity problems associated with postal voting, with an added problem of information security.

Even if we were to solve all the technical challenges associated with internet voting — which may not even be feasible — there is still a fundamental democratic reason why we should not be deploying large-scale internet or postal voting. Democracy should be a right that is conferred onto people; it is not something that should require individual assertion. Remote voting in any form fundamentally undermines this right. Attendance voting ensures that a minimum level of security and secrecy are enforced for all cast ballots. Remote voting delegates this responsibility to the voter themselves. In postal voting the voter is expected to enforce the secrecy of their ballot while simultaneously complying with a witness requirement. With internet voting the same burden applies, with the addition that the voter must also ensure that their device — whether it be a laptop, a tablet or a mobile phone — is secured to a level that makes it safe from which to cast a ballot. There is a constant flow of new and ever more sophisticated attacks being perpetrated online. The average voter is not well equipped to successfully secure and maintain their own devices.

What is more, to even try to do so comes at a cost of time and resources to them. Even if we assume there were no viruses, key loggers, Trojans or any other malicious software, there is a further compelling reason to avoid remote voting, and that is coercion. The issue of coercion is often misconstrued as being something that is orchestrated on a large scale by cultural/religious hierarchies. Whilst such examples of coercion do exist, it is not the only form of coercion we should be concerned with. All too often it manifests itself far closer to home in the form of a spouse. The disturbing figures on domestic abuse in Australia and of course most of the developed world indicate that, sadly, for far too many people the home is not a safe place. We have no way of distinguishing a remote voting application from a safe or an unsafe household, and as such the continuing increase in numbers undertaking remote voting presents a very real threat to the quality of our democracy.

Coercion is often dismissed as a purely theoretical problem due to low reporting rates and even lower prosecution rates. This signals a fundamental tenet of informal logic, which is that the absence of proof is not proof of absence. Detecting and quantifying coercion is an extremely challenging task, in large part because someone facing coercion is, by definition, unable to report it. In a situation where great abuse is being perpetrated, the sanctity of someone's vote is quite likely not the most important issue.

Various methods have been proposed for countering the coercion risk. It is often suggested that providing attendance voting as well as remote voting will somehow mitigate the problem. However, it is difficult to see how someone being coerced will have the freedom to choose their voting method but not their vote. It is far more likely that the person will be coerced into using the least secure method.

It has also been suggested that the risks associated with internet voting can be mitigated by a limited rollout, where it is only available to a few select categories of voters. This fails to appreciate that a weaker election for even a small percentage of the vote could impact on the election as a whole.

What is even more concerning is that internet voting is considered as an alternative to electronically assisted attendance voting. In such circumstances there will be a category of voter — for example, blind or visually impaired — who, if they wish to vote independently, will have no choice but to vote over the internet and face the associated security risks.

The argument appears to be that the cost and complexity of providing electronically assisted voting is too great. I would suggest that it is our responsibility as a society to bear the cost in order to ensure everyone is treated equally and is able to vote with the same level of security and secrecy.

Rather than a step forward, the provision of internet voting instead of electronically assisted voting seems like a backward step. It requires the voter to provide and maintain their own equipment, places the onus on them to secure the vote and forces them to use a second-class election system that is known to have high risks associated with it. The fundamental point should be that an election system that is not secure for everyone to use is not secure for anyone to use.

A limited rollout is also almost impossible to restrict. The rate of postal voting is climbing at an unprecedented rate. There should be concern that an increasing number of people within the state are choosing to vote via post instead of in person. It is likely any deployment in internet voting will see a further uptake in applications for remote voting.

Whilst it is clear that internet voting is more convenient, we should remember that we vote in person not because it is cheap, quick or convenient but because it offers the highest level of security to the maximum number of people. Even if the majority of people could vote online secretly, our responsibility as a society is to ensure that everyone is afforded the opportunity of a secure and secret ballot, even if that comes at the cost of inconvenience for the majority.

If the trend of increased remote voting, be it post or internet, is not checked, there is a very real risk that remote voting will become the norm rather than the exception. Once that occurs, reversing the situation will be a far greater challenge, which may prove to be insurmountable.

Finally, whatever approach is selected, the electoral commission must have sufficient knowledge and expertise on staff to understand, evaluate and manage the electronic systems they deploy. If they do not possess the necessary skills to maintain, modify and run the election independently, they are tacitly privatising part of the election. Such a situation would be untenable in a paper-based election and should be equally untenable in electronic systems.

The CHAIR — Thank you very much, and again thank you very much for your willingness to lend your expertise to our deliberations.

Mr DIXON — Just first a comment: that first principle of democracy as being the overriding principle, I think that is something I will keep in mind with our deliberations, rather than convenience and all these other reasons, and I thank you for reminding me of that. In a nutshell you are saying attendance voting is the way to go. You did not mention much about early voting and seeing the growth in there. Could you just talk about your views on that early voting and just confirm the fact that it is about attendance voting, on the day or over a period of time, whatever that might be.

Dr CULNANE — Yes, absolutely. You are correct; my belief is that attendance voting should be the primary way of voting for the majority. That is not to say that remote voting should be completely excluded. I think we have to recognise that there are certain categories of people who have to have remote voting in order to not disenfranchise them, but that should be carefully controlled and restricted.

I am in favour of early voting. I think it is something which is a great asset to the Victorian and the Australian system. It does allow you to provide far more convenience than polling-day voting without sacrificing the security, and I would like to see it expanded. I think electronic voting in early voting centres would allow easier expansion of that potentially to more places, say, smaller locations, where it could be easily set up without, say, the full overhead of a large early voting centre.

Mr DIXON — And the period of time; is two weeks quite reasonable?

Dr CULNANE — If you were to move it to longer than that, you would start affecting the rest of the election system, because the point where the nominations close basically determines when you can open early voting.

Ms PATTEN — Thank you for your contribution. Just following on from that comment, you are suggesting that we could expand the vVote or the kiosk voting, and you were part of that. Would we be right in thinking that every election would require new kiosks, that given, I guess, the change in operating systems, the change in hardware and software of all sorts, that they would be one-off devices for the election?

Dr CULNANE — I do not think they would. I think it depends on the equipment you initially pick. So the vVote went with tablets, and the lifetime in terms of OS support on tablets is very short. I think if they had gone, for example, for kind of all-in-one-style touch screen PCs, they would last a long time. The additional overhead you might need through larger keys, as security becomes a bigger issue, is not going to exceed the capacity you have on that machine. If you imagine that it is running on a tablet now and a desktop PC is considerably more powerful than a tablet, you would get many years of use out of a desktop-style solution.

Ms PATTEN — One of the comments that we heard — I think it was the VEC — was that apart from the fact that they reduced the number of kiosks that they had in the 2014 election, they said that the electronic voting actually took an awful lot longer than the paper voting.

Dr CULNANE — I think it very much depends on which part of the survey you kind of look at because, for example, the use of vVote within the state was restricted to disabled groups. They naturally take longer to vote because the interface is longer. If we look at London, where it was open to everyone, you see in fact that it did not take a particularly long time. If you look at it as a whole, then that shifts the average somewhat to kind of skew it, because it is not an equal comparison.

Ms BLANDTHORN — I am particularly concerned about coercion. If we were to move towards some kind of a remote system, have you thought about ways and means by which you would minimise coercion, or are you simply warning against it on the basis of coercion?

Dr CULNANE — The reality is that if you are ever voting in a non-secure environment, you are going to be open to coercion. You cannot stop someone standing over you. You can add all the cryptography you want, but nothing is going to stop someone standing there and telling you which button to press or which person to vote for. The bigger risk is that you make coercion easier, so you do it on a larger scale. If you have something which allows you to prove how you voted and you can do that remotely, that makes coercion easier, and that is a bigger concern. But even if you had something which did not do that, there is still the concern that you should not be voting from home.

Ms BLANDTHORN — And some people would argue that the ability to resubmit a vote up until election day is a safeguard against coercion. Would you agree with that?

Dr CULNANE — No. Fundamentally there was a particular cryptographic system which provided that, but it was extremely complicated and it did not sail. Primarily revoting is used if you do not trust the device. So if you submit and then you decide that it was not honest, you can revote. The trouble is that if you entered your credentials into that device, it now has them, so even if you were believed that it was under coercion, if your credentials are compromised, they could then use that to revote at a later point, and you would not be able to prove that it was not you that revoted. So not only does it not solve the coercion problem; it actually introduces a new security problem. My advice would be to avoid revoting. It is not something which I think is a positive to the process.

The CHAIR — Can I ask a question in relation to people who are voting overseas, and again the committee has been briefed by New South Wales, coming out of the parliamentary library, where we have seen that the bulk of the postal votes from people overseas do not ever make into the count. So there are people who are overseas for work reasons, holiday reasons or whatever, and the bulk of them basically are losing their vote at the moment. If you are telling us to avoid this electronic solution, what would be the best way of trying to cater for the numbers of people who are overseas or interstate on voting day?

Dr CULNANE — For example, the VEC already run overseas polling locations at the embassies. That is still something which is the most advisable route to go. I think you have to be careful. People who have gone overseas, they have gone overseas by choice. They are not being disenfranchised by the electoral commission. Their disenfranchisement comes from an individual choice they made to not be in the country when the election took place. Now, that might not be their choice, because it might be for work, and you can do things like postal voting for that and improve those services. For example, electronic delivery of the ballots to then post back is one way to halve the time. But I would be reluctant to suggest introducing a weaker system in order to try and solve the enfranchisement problem, because you run the risk of undermining the whole election, and that is worse than some people not being able to vote because they were overseas.

The CHAIR — So you are completely relaxed with the information the VEC provided us this morning that, in some cases of people who are overseas and remote from the voting centres, these papers were delivered electronically; you are not worried about the security of that?

Dr CULNANE — The delivery of the papers does not really have a security aspect to it. The only issue you have to worry about is when they are coming back, because the blank ballot really could be published online. There is nothing secret in it, so applying a security model to that delivery does not actually help anyway. I would want them being sent back via the post. So you could actually have a very simple system of deploying electronic ballots which people print out and then send back without too much complexity, because there really is not a security angle on the delivery of a blank ballot.

The CHAIR — But under your system you could print off 10 ballot papers. I know my neighbour is overseas, so you would just do a postal for her.

Dr CULNANE — You would still have the eligibility requirements you would have in a standard postal vote.

The CHAIR — With a little signature on it as a double check?

Dr CULNANE — Yes, a signature and a witness statement. So, yes, it would not be that you would just accept any ballot that came through the post. You would have the same restrictions you already have.

The CHAIR — Thank you very much for lending your expertise to this very difficult process. You will receive the Hansard transcript in two weeks. You are free to amend on factual grounds alone. Again, thank you.

Dr CULNANE — Thank you.

The CHAIR — I can advise that three attempts have been made to connect with Mr Anthony van der Craats, one slightly after the appointed time that was arranged, and that was unsuccessful. As Chair I will see if the staff can facilitate another time for him, given the difficulty, but under the circumstances people, including Hansard, need not hang around and wait. Thank you for your interest in these public hearings over two days. For those who are interested enough to sit in the gallery, the committee staff will advise those people who have been long-term attendees throughout these hearings of the next public hearings, which are on 24 October in this building. Thank you very much for your cooperation and attendance.

Committee adjourned.