TRANSCRIPT

ELECTORAL MATTERS COMMITTEE

Inquiry into electronic voting

Melbourne — 22 August, 2016

<u>Members</u>

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<u>Witness</u>

Mr Ian Brightwell.

Necessary corrections to be notified to executive officer of committee

The CHAIR — The Electoral Matters Committee resumes hearings for the afternoon of its first day. I welcome Mr Brightwell, who has been in the room when I have introduced members of the committee, so I think that renders that procedure superfluous as you have heard it six times already. Again, can I please check with you that you have received the guide to giving evidence at a public hearing and are fully cognisant of the rules of parliamentary privilege?

Mr BRIGHTWELL — I have.

The CHAIR — Could you please state your full name and a business address — I note the comment on your submission — and if you do not have a business address, you are under no obligation to tell us a private address. Also, if you are representing yourself, could you please state that, and if you are representing an organisation could you please state that. Could you then move on to your opening remarks, and members of the committee will ask questions. The time allocated is 20 minutes.

Mr BRIGHTWELL — My name is Ian William Brightwell. I am appearing in a private capacity. I do not have a specific business address other than my personal address. I would like to thank the committee for the opportunity to present at this hearing. I am appearing before the committee in a private capacity; however my testimony today is informed by my experience working with the New South Wales Electoral Commission between 1999 and April this year. During most of that period I was the New South Wales Electoral Commission's chief information officer and managed the commission's internet voting system iVote for both the 2011 and 2015 state elections and the intervening by-elections.

Before making any opening remarks on e-voting I would like to acknowledge that this committee has a very difficult task, and I believe we are just beginning the public debate on e-voting in Australia. I would now like to clearly state my position on the use of technology for return of ballots electronically. I advocate that a limited use of electronic voting, both over the internet and in venue, should be adopted by Australian electoral commissions, where it is economic or assists enfranchisement. I believe the adoption of e-voting is necessary to overcome the inevitable demise of postal voting, to maintain participation levels, particularly for young voters, to provide independent voting for the blind and to enfranchise voters who are unable to attend voting venues.

I am of the view that the current iVote system will be suitable for all Australian jurisdictions as it offers acceptable verification and security for the remote voters. iVote could also be used for attendance voting if extended to use paper-based vote verification, thus allowing integrity checking using post-election random audits. However, I firmly believe that in-district attendance voting should continue to be paper based and, most importantly, be scrutinised in the polling place on election night. I agree with Professor Orr that the intrinsic trust generated from attendance voting through the community and ritual aspects of voting are the foundation of our electoral process and should not be lost.

I would, however, recommend that the more complex and expensive alternative voting channels such as absent and postal are in part or fully replaced by e-voting. I will not dwell on the pro side of the e-voting argument more than to say that the committee would be aware the most prevalent question asked of election officials is: 'When will I be able to vote over the internet?' The committee would also be aware of the high satisfaction levels achieved by iVote and the benefit it offers to sections of the electorate who are either unable to vote unassisted or unable to access a voting centre. Most people in this room now understand that the arguments against e-voting are substantially about the perceived increase of security risks of e-voting compared to the alternate paper voting channels. This committee will be presented with evidence from experts about e-voting security, which will be either highly technical or anecdotal.

The committee has been told that remote voting is a difficult problem which is yet to be solved. My view is that it is not a problem for academics to solve. Rather, it is an administrative process with all the attendant risks of such a process. Also, it is my view that cybersecurity is an arm's race rather than a solvable problem. The question the committee must answer is whether the current risk associated with e-voting is justified by its benefits. You have also been told about the increased prevalence of cyber attacks and how easy they have been to execute by virtually anyone with some knowledge of computers. It is suggested

attacks from anywhere in the world could change the outcome of a Victorian election undetected, even if e-voting only comprises a small percentage of votes issued.

It is also suggested that this would be a greater risk than the mishandling of and tampering with ballot papers for the vast majority of votes. These are difficult risks to compare. and the committee will be unable to effectively test this evidence with the independent experts because typically only experts motivated by strongly held views against e-voting attend these hearings. Also, paper voting risks are not commonly known.

I know as a manager of technology I have always found it interesting that expert advice on many aspects of cybersecurity is often conflicting. I have suspected that the cause of this conflict is more a reflection on the experts' experience and ability to deal with risk than the topic being examined. Some experts cannot recommend the use of any system if it has a known vulnerability or potential vulnerability. However, security practitioners that draw upon relevant experience and are knowledgeable of real-world threats are able to provide a more tempered view on the actual probability of failure for a given vulnerability. This is assuming the system in question is properly implemented. Dr Wen, who is providing evidence next, will address the issue of proper implementation.

The security risks associated with current paper voting channels is an area which is not well researched or documented. Electoral commissions around Australia are very reluctant to provide data or discuss any aspect of electoral processes which potentially could bring the current process into disrepute. This self-censorship has created a public perception that the current paper process is perfect and any alternative will be of a lower quality or have higher risks.

Although I am not suggesting that incorrect candidates have been elected, it has been my experience that paper-based electoral processes are far from perfect. Typically during the course of the seven general elections in which I have been involved, at least one major anomaly has occurred with ballot paper handling or reporting which only through good luck was not found to be electorally significant. Additionally I have found it impossible to reconcile votes counted with other electoral data to a level which would correspond with current public expectations.

The scrutiny of election technology has quite different needs of the current paper-based election process. It is self-evident that the effective scrutiny of electronic election process requires some knowledge of underlying technology. This is not knowledge that current party or candidate-appointed scrutineers typically possess. Also commissions are highly reluctant to provide scrutineers with the information necessary to fully understand the operation of these electronic systems. They often use administrative practices supported by current legislation to justify this approach.

To address this issue, I believe the committee needs to recommend that legislation be created to provide a specialist board to scrutinise systems used to return or process ballots electronically. It should be noted that Norway implemented an internet election committee to scrutinise their internet voting election trials in 2013. The committee had oversight of the trials and access to all system-related information with a particular focus on security.

Finally, the expanding use of technology in elections is challenging the capability and budget of many Australian election bodies. It was gratifying to read in submissions from commissions that they had a willingness to work together to spread costs and maximise outcomes.

The missing ingredient is a single national entity that can provide support services to all commissions to run e-voting and other election-critical technologies, such as electronic mark-off. There is a need for a national body, which is ideally government owned, that can manage the technology required by all commissions efficiently and reliably. Such an entity would have the advantage of operating regularly and as such will be able to achieve economies of scale and retain a critical mass of skills at a lower unit cost. The committee should consider making recommendations which support the creation or engagement of such an entity. Thank you for your patience. I would be pleased to take questions, and particularly questions posed by Ms Teague.

The CHAIR — Ms Teague is not a member of this committee, so Ms Teague will not be posing any questions.

Mr BRIGHTWELL — I know, but my name was raised.

The CHAIR — Thank you very much for your carefully considered submission and for your written notes. Can I ask first of all: can you please explain to me under the New South Wales system what was the role of the scrutineers?

Mr BRIGHTWELL — The scrutineers, because of the legislation, did not have a significant role. It was deemed that the legislation restricted the scrutineer activities to certain tasks, which were largely viewing activities. So we invited scrutineers at two or three points to participate. One point was where the initial encryption of the ballot box was done so they could visibly see the multiple people who were involved in actually encrypting the ballot box — I think there were five people involved — and also the decryption process, so they could see the people do that. They were also invited to look at the process which was matching the output of the ballot box to the verification server. In fact your next person giving evidence, Dr Wen, was one of the people who were involved in that process from the University of New South Wales, at the time, so he could give much more detail on what it entailed.

I believe they may have been invited to one or two other aspects of it, but those are the parts, and at those processes we spent some time discussing what they were viewing, how it worked, why they were there and why it was significant. But they did not have much more of a view of the system. Indeed one of my recommendations will expand that. To be frank, as well intentioned and carefully considered these people were in their views, they did not have much of a capacity to take on a lot more of the technical detail, which is the difficult part about this technology.

The CHAIR — So am I correct in assuming that your recommendation for the oversight mechanism would be to replace people from parties — —

Mr BRIGHTWELL — Not replace; add.

The CHAIR — To add to it with technical expertise, to add to the existing scrutineers from parties?

Mr BRIGHTWELL — Correct. I think the existing scrutineers should be entitled to basically do as they have done and possibly expand that where they may choose, but I think there is a necessary technical oversight and, dare I say it, Dr Teague would be an excellent member of such a committee.

The CHAIR — Very good. Further questions?

Ms BLANDTHORN — I was just interested in your comment in relation to electronic voting means something that can facilitate greater participation of perhaps those who might be disenfranchised. I noted that the statistics in relation to iVote showed that those who took it up in the greater numbers were not actually those who were perhaps visually impaired, for example, or disabled. It was actually more people who were absent. Going to the point that Launch Housing made earlier, online enrolment has not really increased the number of homeless people who are enrolling to vote. Why do think that he is, and how do you think it could be improved?

Mr BRIGHTWELL — I think, to be frank, we are struggling to hold our participation rate. I think we are all seeing participation is creeping down. I think all that iVote did at the last election was stop that decline; iVote picked up those that might have otherwise not voted, partly because we picked up probably a larger cohort of the overseas voters who could not have voted. I dare say that some of the people were not entirely truthful in their declarations and they were in fact local voters who probably would not have bothered voting locally anyhow. So it is hard to say with self-declarations what exactly happened, but the participation was a little softer for New South Wales. It is a struggle to get the venues and get the people to them. We are all seeing that; all states are seeing it and the feds are seeing it.

Ms BLANDTHORN — But particularly people who may be visually impaired or homeless or whatever?

Mr BRIGHTWELL — I am not at all confident. I have worked as polling place manager for federal and state over a 15-year period. In fact I just did the last federal election where I was the pre-poll manager, OIC and a polling place manager on election day. I provided services personally to a number of blind and in fact some homeless people. I could see maybe some of the blind people would have had access to technology. Certainly that would not have struck me as something these homeless people had. It is just not available to them readily. I think going to polling places is still their best avenue.

But the point I heard made by the Launch Housing person was the enrolment was very tricky, and that is a challenge because it is to do with their entitlement to an area. I am not an enrolment expert, but my understanding is that you have to give some indication of where you are attached to — the electorate you are attached to — and that becomes a challenge. And depending on the office you go to, that becomes a real challenge.

Mr DIXON — We have just had an interesting census matter. What lessons can we draw from that, and what are the parallels perhaps with electronic voting?

Mr BRIGHTWELL — I suspect there were people who were in the data centres and at the bottom end of the food chain who knew exactly what was going to happen, but their voice was not heard up the line. I think the government at large, when they are launching event-based systems which are highly critical and public would be extremely wise — if I was the minister, I would be asking for an independent assessment, the audit office, to come in and tell me what is going on, and if I was the CEO or secretary of an agency, I would be definitely doing that, because there are multiple layers of management in between, and you are not getting the right messages at the last minute when you go to go-live.

The way I do a go-live is I get a bigger room than this; I get everyone from the bottom end to the CEO in the room, and I get the CEO to ask anyone in the room — a bit like at a wedding — 'Is there any reason that you should not go live today, or forever hold your peace?'. It is amazing the discussions you have. In the course of half an hour or an hour, all people's fears and anxieties are brought to the table and you are forced to discuss them. If that had happened at the census, I do not think they would have had the problem. But I suspect their problems were twofold: one, they had misconfigured stuff, and they made a decision in not putting DDoS on, the technical decisions.

Mr DIXON — What is DDoS?

Mr BRIGHTWELL — Distributed denial-of-service attack is a bad attack mechanism. They did not have adequate protection, and I think that is going to come out in subsequent reports.

Ms PATTEN — Obviously you have heard some of the comments about the low number of people who are verifying their votes. I am just wondering what your thoughts are. Is this just that people actually have confidence in a system?

Mr BRIGHTWELL — That is what came through in the surveys, and to be frank, I think it is fairly easy to overcome. We had some information from Norway that suggested that figure would be much, much higher. There are some reasons why the figure in Norway was much higher. It is fairly easy for us to go out there and push people. We know who has voted. We certainly know who is registered. We can actually go back and say, 'Please verify'. I think if we prodded the people that voted, we could get them to verify. I think 5 per cent is a nice healthy figure. We have 1.7. I think 5 per cent would be a good figure to get. At that level statistically you are in the 99.999 per cent sort of confidence level.

Ms SPENCE — One of the concerns that was raised was in regard to the uncertainty of matching figures after there have been votes removed from the 'Please remove my vote; I want to cast it again'. I struggle to see the point of a system where you can remove your vote and cast it again, given that is something you cannot do in a traditional paper-based system. Could you perhaps explain why that happens and how that anomaly could perhaps be rectified?

Mr BRIGHTWELL — Okay. First of all, it is a design feature. I know it sounds strange. You have got to remember first of all that in paper-based systems — and I think this is a point everyone needs to take on board — once you have dropped your ballot paper into a ballot box or you have filled out your envelope and stuck it into a letterbox, you have no idea whether your vote is counted. Most people would be horrified to know the percentage of rejected postal votes and absent votes. There is quite a significant percentage rejected. In fact the AEC used to send out reports telling people their vote was accepted or rejected. They stopped doing that because they got too many complaints. So we now have a verification system. You have to have a means of dealing with someone saying, 'I didn't want to vote that way; I was coerced', or, 'I didn't vote that way because I pushed the wrong button' — we had very few of those. Many people said they made a mistake voting in some way. We had an attitude, and it was in our protocol, that if anyone wanted to remove their vote prior to the close of poll, they could remove it and revote.

The process was automatic, contrary to what you were told this morning. We had a central mechanism which basically removed them both from the verification server and from the voting server simultaneously. So those two were always in sync. We had a mechanism which allowed us to reconcile the two on an ongoing basis — not that we could actually see the votes, but we could actually tell they were aligned, that the two systems had the same number of votes and that they were the same votes.

Ms SPENCE — So the removal and recasting of the vote does not need to be almost simultaneous? You can vote and then change your mind sometime later?

Mr BRIGHTWELL — A week later, sometime later; typically it is sometime later.

Mr SOMYUREK — I know it is not technical; I know it is a design feature.

Ms SPENCE — Do you think that is an essential part of the design?

Mr BRIGHTWELL — Yes, I do.

Ms SPENCE — And for the purpose of coercion or 'Changed my mind'?

Mr BRIGHTWELL — Correct.

Ms SPENCE — Either?

Mr BRIGHTWELL — Coercion is the main reason, but changed your mind, as far as we are concerned, is quite valid too.

Ms SPENCE — Do people provide an explanation as to why they have?

Mr BRIGHTWELL — Yes.

Ms SPENCE — And what was a result?

Mr BRIGHTWELL — To be frank, I cannot tell you that off the top of my head. It was a year and a bit ago now — a year and a half ago. There was a list of reasons. We had a set of pull-downs by which basically people nominated why they were doing it. I would not say that those were 100 per cent accurate, but they certainly were indicative. I cannot remember the exact — —

Ms SPENCE — But the data would be available?

Mr BRIGHTWELL — The data is available. If you ask Mr Radcliffe from the New South Wales Electoral Commission, I am sure he could provide it. The interesting feature they had was also that after you verified your vote there was one to say: did your vote not match the vote you thought you cast?

Ms SPENCE — Are you sure about that.

Mr BRIGHTWELL — Are you sure, basically. There were six people who said 'No, it didn't'. We only got to contact two of them. Because we were trying to limit the amount of data that was available to us, it was quite difficult to find that data. We contacted two of the six people and said, 'Are you saying that your vote wasn't cast as intended?', and they said, 'No, no, no; we pulled the wrong pull-down'. That is the problem with capturing information; a good slab of your problems are people reporting things incorrectly with pull-downs and quitting. We tried as best we could to go back and double-check when we had anomalies, where people were saying, 'I don't want to vote this way'. We would ring them up, and Mr Radcliffe spoke to quite a few.

Mr SOMYUREK — I have got to say that I have been on this committee for quite a while, and I have not heard anybody giving evidence pointing to coercion at all. I think we should investigate that, if there is coercion. Have you got the evidence, or can you point us in the right direction, because we really have not — —

Mr BRIGHTWELL — We do not believe coercion is really happening. Dr Rodney Smith of Sydney University wrote a report for the New South Wales Electoral Commission on coercion, and his conclusion was that it is not significant within Australian elections. That is on the New South Wales EC's website.

Mr SOMYUREK — Exactly. So why do you need that design feature — —

Mr BRIGHTWELL — Because you are offering people the opportunity to verify, and if for whatever reason they deem that that verification shows a vote that they are not happy with, there has to be a way out of that. The same also applies if you have electronic voting in a polling place and you get a printed docket, and you stare at the docket and you say, 'I don't like that docket', you need a way out of it.

Mr SOMYUREK — That is fine. I understand the verification angle, but what I do not understand is being able to recast your vote a week later when, if you have put your vote in on a pre-poll, you do not have the ability to go back and recast your vote.

Mr BRIGHTWELL — Correct.

Mr SOMYUREK — So we are setting up a two-tiered system. In an election campaign it might well be that a lot of people change their minds a week later, a day later or an hour later.

The CHAIR — A policy announcement later.

Mr SOMYUREK — That is right. Surely you just cannot have one set of voters being able to change their minds and another set not being able to change their minds. That just does not seem right to me. Why would you not put a time frame around being able to change your mind, like 5 minutes or 10 minutes?

Mr BRIGHTWELL — I think this is very much in your purview rather than mine. I mean, all these things are possible, and I think these are valid questions for people in your position to ask. There are things that can be done technically, and there are things that the commission decided to do in the absence of any guidance from any other source. But these are all valid questions and I think worth examining. I personally have no view.

The CHAIR — We have gone over time, but I also have got a question. So you go; we might do a bit longer on this one.

Mr SOMYUREK — On a comment you made earlier about the census people, the census company, I guess, not designing the program properly, that is always going to happen, though, is it not? There is always going to be something that happens?

Mr BRIGHTWELL — Yes.

Mr SOMYUREK — From the government's end, are there checks and balances that the government could have put in to make it almost foolproof? That probably does not exist.

Mr BRIGHTWELL — I think independent scrutiny, and it would be very prudent for electoral authorities to have an independent observer with the right skills. I think for government agencies with these sorts of systems, which are big bang event systems — they are going to be flicked on in a day; I can think of at least three government systems that have fallen over in the last couple of years of this nature — to me, it is common sense. But it does not seem to fit within the normal administrative process of government. I think this is a challenge for parliamentary oversight committees to try and convince agencies that it is in their interest to do this — 'It is not that we don't trust you; it is just in your interests to get it right because no-one comes out of this looking good'.

The CHAIR — I am conscious of going over, but you have mentioned in your opening remarks that you are knowledgeable about some flaws in the paper ballot handling process that may have had a material impact. Are you able to tell the committee broadly what sorts of errors have occurred, which have just been — —

Mr BRIGHTWELL — Actually what I said did not have an electorally significant impact. I can give you two examples in my experience. I had one at an election where about 1500 absent votes did not make the lower house count and were put in the upper house count. The reason for that was that the two returning officers involved misplaced them and had them in the back of the office in a bag. When they were clearing the office out just before they left they found the bag, and that was after the count was done. Those ballots were checked, and it was found that there was not sufficient ballots for any lower house seat to cause the outcome of the election to change, so they were opened and put into the upper house count. Now that is not a good thing. It had no electoral significance, but it illustrates human error. Simple — I put the bag over here. That person leaves the next day, and no-one checks that bag. They think it is rubbish. They go to pick it up and go, 'Oh, my God. It's absent votes'.

Another one was similar: 2800 ballot papers were put in the unused ballot paper pile in a returning officer's office. We knew that we were missing them, and we had to go hunting. It was a day before the garbage truck turned up that we found them. We just scrounged through those unused ballot papers because we thought they were there. We knew they were there because we had the polling place count. I was sitting in a warehouse with 4.7 million ballot papers, and we had spent days going through bins trying to find them and then we finally concluded they were not there, so we had to send people out to try and find them. These are not uncommon events when you are dealing with 5 million ballot papers — two contests — and some of the ballot papers are that big.

The CHAIR — Thank you so much for your willingness to engage in this very, very important inquiry and for giving us your expertise and experience. In a fortnight's time you will receive a copy of the Hansard transcript, and you are free to make any corrections to errors but not obviously to the direction of testimony.

Mr DIXON — You cannot change the vote.

The CHAIR — We do not allow you the opportunity to change the vote.

Mr BRIGHTWELL — But I was not coerced!

The CHAIR — Again, the committee wishes to express its appreciation for you coming along and sharing your experience today. Thank you very much.

Witness withdrew.