

12 January 2023

The Committee,  
Technology Assisted Voting review  
NSW Electoral Commission  
GPO Box 832  
SYDNEY NSW 2001

**Re: Technology assisted voting review – submission**

Dear Committee,

Thank you on behalf of Scytl Australia Pty Ltd. for continuing to look into means of technology assisted voting for the state of New South Wales.

Scytl has been pleased to have been a supplier of the NSW Electoral Commission through its support of the iVote Core Voting System since 2014 and iterations since then.

Scytl has been proud of supporting the benefit to the community brought by the enfranchisement of the blind low vision community and others who may have struggled to have their votes recorded had the iVote system not been in place.

Whilst the use of the iVote system for the 2021 LGE did not go as anyone supporting the enfranchisement of voters would have desired, it is our view that Scytl technology has helped to bring secure online voting forward, showing the benefit to the community of providing alternatives for voters who need additional support.

As expected from the outset, this has proven to be a complex undertaking due to the intertwining and sometimes competing needs of community and stakeholders – a system should be usable by those for which it is designed, however that ease of use is easily diminished as more security elements are implemented – the same in the online world as the paper based.

Scytl is keen to support future NSWEC reviews and planning into how technology can continue to be used to provide secure online voting services to voters.

Within this document, Scytl has kept to specific questions raised by the Commission that fall within our technical purview, with some additional commentary based on what we see both locally and in other jurisdictions.

Scytl hopes that the Commission finds value in this submission.

Yours Sincerely,

Lachlan (Sam) Campbell  
Director, Scytl Australia Pty. Ltd.

# Submission: Technology assisted voting review

By ScytI Australia Pty. Ltd.  
January 2023

## 1 Introduction

This submission provides answers to selected questions raised by the New South Wales Electoral Commission (NSWEC) as they are reviewing options for technology assisted voting (TAV) in New South Wales for the 2027 State election and subsequent state and local government elections.

## 2 Question 1: The constitutional context

ScytI actively supports the use of secure online voting for each of the classes of voters that have been able to use the iVote system in the past.

## 3 Question 3: Regarding electors who are blind or have low vision

- a) *What forms of technology assisted voting best support the independent casting of a secret and verifiable vote for electors with accessibility requirements? Please specify the requirements alongside the preferred form of technology assisted voting.*
- b) *Are there advantages in having kiosks at voting centres that provide speech output through headphones and buttons to scroll through the ballot and choose candidates? These may include controls that are identifiable tactilely or have braille, user*

Whilst NSW Electoral Commissioner is considering different forms of TAV (i.e., telephone assisted voting; telephone voting with an interactive voice recording; Internet voting; Self-service digital kiosks), Internet voting is undoubtedly the best alternative.

ScytI has noted that several countries have discontinued the use of self-service digital kiosks. For example, Slovenia introduced voting machines intended to ease voting procedures for people with disabilities in 2006, according to the answers of a questionnaire by the Council of Europe (2014: 14)<sup>1</sup>. By 2011, only 55 polling stations (out of 3,468, that is: only 1.6%) were equipped with electronic voting machines as their cost made it difficult to have them in all districts (OSCE/ODIHR, 2012)<sup>2</sup>. Groups of voters with disabilities raised concerns, stating “that there were an insufficient number of accessible polling stations, that not all districts were equipped with voting machines, and that it was not possible for a disabled voter residing in a district without such a machine to go to such a polling station in another district” (OSCE/ODIHR, 2012). The issue was brought to the attention of the European Court of Human Rights in Strasbourg.

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<sup>1</sup> The report is available online: <<https://rm.coe.int/1680597ab3>> [last accessed: Thursday, 12 January 2023]

<sup>2</sup> The report is available online: <<https://www.osce.org/files/f/documents/6/b/87786.pdf>> [last accessed: Thursday, 12 January 2023]

As a result, it was decided that “this technology would no longer be used in polling stations on grounds of a disproportionate burden on the authorities, as the machines were little utilized and expensive” (OSCE/ODIHR, 2017)<sup>3</sup>.

Scytl does of course note that, whilst not specific within scope of this process, the use of terminals in polling places can be found to be viable in certain specific circumstances, such as a major voting centre where the cost of providing ballot papers for many districts may be a factor – an example would be a location such as Sydney Town Hall acting as a major voting centre attracting voters from many locations.

#### 4 Question 4: Regarding electors located outside NSW or remote

- a) *Noting that being outside New South Wales on election day is a lawful reason to be excused from voting, should technology assisted voting options be provided to these electors? If yes, what forms of technology assisted voting and why? What other options could be considered?*

Yes.

Being outside NSW is a lawful reason to be excused from voting - however in the situation of a voter being outside NSW, that voter may still wish to cast their vote, as is their right under the franchise.

We assume that the majority of voters outside NSW are sighted, with those who are blind/low vision being a subset of that cohort. The forms of TAV that Scytl sees as relevant to voters outside NSW are:

- Secure online voting – user provided device over the internet
- Voting at a terminal at provided nominated sites (embassies and so forth) – secure voting at stand alone system or connected via a network
- IVR may be considered, however there are security issues that cannot be reasonably addressed in an IVR based system.

- b) *Noting that an elector in a remote location in New South Wales (more than 20km from a voting centre) has the option for a postal vote, should technology assisted voting options be provided to these electors? If yes, what forms of technology assisted voting and why?*

Yes.

Scytl sees postal voting as a poor service option for the collection of votes.

We assume that the majority of voters in a remote location in NSW are sighted, with those who are blind/low vision being a subset of that cohort. The forms of TAV that Scytl sees as relevant to these voters are:

- Secure online voting – user provided device over the internet
- Voting at a terminal at provided nominated sites (embassies and so forth) – secure voting at stand alone system or connected via a network
- IVR may be considered, however there are security issues that cannot be reasonably addressed in an IVR based system.

Scytl has written a number of times on the topic of postal voting and refers the NSWEC to prior submissions to the Commission, and the AEC, amongst others. In general, Scytl does not support the use of postal voting rather than secure online voting as a more secure level of voter confidence may be achievable via the secure online method, based on the fact that the voter can verify their vote - something not available with postal voting. Add to this the increasing levels of postal decline both in

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<sup>3</sup> The report is available online: <<https://www.osce.org/files/f/documents/c/1/363561.pdf>> [last accessed: Thursday, 12 January 2023]

Australia and across the world, it is hard to picture a solution including the postal vote as a sufficiently modern approach.

- c) *To support contingency planning ahead of elections and referenda, should there be a requirement for pre-registration for these eligible electors to use technology assisted voting (for example, registration closes one week before the election day)? Should the voting period for these eligible electors close before election day (for example, one day or earlier before election day)?*

This is not a solid black and white answer here – whereas a voter who is vision-impaired is likely to know this prior to an election and can choose to pre-register, those affected by an emergency or unplanned travel may miss their right to vote should the ability to register not be available and the election is running.

The decision as to whether to have a requirement for pre-registration is a democratic question weighing the cost versus benefit - ScytI can contribute information on the technical benefit, and leaves it to the Commission to weigh the cost as that is directly related to the obligation to the voter to provide the franchise.

Pre-registration has technical advantages - system load prediction providing for appropriate system sizing leading to predictability in outcomes, monitoring of voter connection activity (did they vote / not vote), or to suspend activity for a period for example for the resolution of a system issue – this allows contacting only those affected as service is resumed. ScytI notes the potential difficulties introduced by over-complicating system design, and the requirement for a voter to manage a further 'iVoteID/PIN'.

Given experience of voter behaviour showing a large increase in voting activity towards the end of an election, it might be understandable that registration may not be available for the latter part of the final day - or some other timeframe that is widely communicated and understood.

The purpose of this removal of the ability to register is to accommodate for system outages that may require access to an online service being extended, without being extended past the actual close of polls.

- d) *If legally permitted, is it appropriate for the Commissioner to verify eligibility of these elector classes, for example by geolocation data such as and IP address or telephone caller location information? Do you have any further suggestions of how this information could be verified (beyond what has been suggested above)?*

No.

ScytI is looking at this question from the pure technical implementation aspect with no consideration of legal impact.

Geolocation data is notoriously difficult to collect with a sufficiently high level of confidence that the data reported truly reflects the location of the person. An individual mobile device with GPS can be quite accurate, but a user using a shared landline device may have this information removed prior to reaching the measurement location. In the event a voter is blocked from voting based on Geolocation data, and the voter subsequently proves that they should have been allowed to vote from that location, the voter will be able to claim they were denied a vote and it is reasonable to then expect a negative impact on the perception of the voting system as a whole.

Side effects of geolocation, or predicting the location of a user, have caused significant impact in other projects in Australia – an example being when users were prevented using the Australian Census system in the case where their ISP routed traffic outside Australia, making Census application users appear to be overseas where they were actually located in Australia<sup>4</sup>.

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<sup>4</sup> <https://www.arnnet.com.au/article/617270/ibm-nextgen-networks-locked-legal-battle-over-census-debacle/>

- e) *Should government or other digital identity credentials, such as a myGovID or an ACT Digital Account, be used as an elector verification channel for technology assisted voting?*

Yes – this increases the available channels of authentication.

The NSWEC should look into the use of available government identities being used to authenticate to the system. The use of myGovID can be integrated into modern systems giving a high level of confidence of the voters' identity. This should not be at the expense of other forms of authentication which may be chosen. Whilst evidence is anecdotal, we would expect this to mutually build confidence between the voter, the government and myGovID. Scytl has indicated interest in configuring this integration in the past and is of the opinion that the technologies are maturing to the point they can be relied upon. Each authentication mechanism should be investigated on its merits.

## 5 Question 5: Risks and benefits of TAV to the electoral system

- e) *Does technology assisted voting improve the enfranchisement (that is enrolment and voting of citizens in New South Wales) of particular classes of electors or in general?*

Yes.

TAV, such as the iVote system previously in use, has improved the enfranchisement of voters in NSW. Scytl believes there is evidence from blind voters that they have taken the opportunity to vote with iVote where they had not always done so in the past. Further there has been anecdotal evidence during election periods of voters claiming to have voted via iVote who would otherwise not have voted - this has been reflected in social media postings that were viewed at the time.

In the event that there is further disruption that affects voters getting to polling booths, such as floods, natural disasters, health emergencies, the NSWEC might find that the use of TAV dramatically enhances enfranchisement of voters in voters who are affected by these unexpected disruptions.

## 6 Question 7: Suitability of current legislation

- b) *Should technical detail concerning vote verifiability be specified in legislation (for example software system design, computation and protection protocols in regulations)?*

No - in general technical detail should not be defined in legislation.

Several experiences regulating internet voting show that the best way to regulate Internet voting is based on:

- Legal frameworks (Act) setting the conditions in which Internet voting can be used and what it is supposed to do (i.e., electoral principles such as equal, secret, free, universal suffrage, as well as some more detailed aspects related to transparency and auditability that could be mentioned).
- Administrative acts, that could develop these principles. For example, secret suffrage should be broken down into the standards of individuality, confidentiality, and anonymity. Likewise, for the purposes of transparency, audits, the publication of the source code, access to system logs, and end-to-end verifiability could be prescribed.
- Technical documents should then detail how the principles and standards could be met. In any case, these technical standards should be open and directed towards already-existing security provisions for public administrations, without precluding alternative solutions which could guarantee the same level of security.

Good examples of such implementation can be found, amongst others, in the regulation of Internet voting in Switzerland (with an Act, two government Decrees, and a Technical Appendix) and France (with an Legal Act, a Regulatory Part of the Electoral Code, and a Recommendation by the Data Protection authorities which is completed by the Security Standards of the National Cybersecurity Agency). Scytl notes that NSWEC does have a parallel here via the Commissions Approved Procedures policy.

ScytI does not support the view that setting detailed design requirements is to occur in legislation - for example legislation should not propose a protocol usage (SHA-256 and not SHA-1 for example) as this may unexpectedly limit the system design at a later stage. Alternatively, it may limit implementation or usage where legislation requires a protocol which in the future is found to be flawed, limiting the ability of the Commission to resolve an issue in a timely manner.

Making these decisions seemed to fit the purview of the iVote Technical Advisory Group in the past, and ScytI suggests that continuing that function might address the concerns proposed by this question.

## 7 Question 8: Tech-related developments - similar jurisdictions

- a) *Should any specific features be adopted from other jurisdictions to improve the framework for ensuring voter and system integrity in New South Wales?*

The NSWEC iVote system is one of the most advanced in the world, and far beyond systems used by many early adopters. The inhouse research done by the NSWEC in preparing the iVote system has placed them in a strong position to measure and gauge the evolution of online voting solutions across the globe.

Whereas NSW remains a pioneer in the introduction, security, and accessibility of Internet voting, some recent developments in Switzerland could also be studied:

- The organisation of a Public Intrusion Test and publication of the source code, which showcased how hackers could not manage to manipulate the system in the context of a mock election (up to 3,000 hackers attempted to exploit the system, unsuccessfully) with financial rewards offered to hackers for their success.
- The set-up of a scientific expert group to discuss some potential improvements to the regulation and audit of Internet voting system. The group worked for a few months and suggested some mid- and long-term potential improvements to pave the way for Internet voting adoption.

ScytI believes that Cloud based environments should be reviewed, and continue to require end-to-end verifiable solutions.

Furthermore, the Commission's study could benefit from the experiences with online voting in France, where Internet voting has been used since 2003 to enfranchise French voters residing abroad.

A recent PhD published by one of our researchers looks into Internet voting developments in France, Estonia, and Switzerland, with special focus on aspects related to secret suffrage and the transparency of e-enabled elections (Rodriguez-Pérez, 2022)<sup>5</sup>.

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<sup>5</sup> The dissertation is available online: <<https://www.tdx.cat/handle/10803/675606#page=1>> [last accessed: Thursday, 12 January 2023]

## 8 About ScytI

ScytI is a global leader in secure election modernisation solutions, with significant resources invested in the research and development of online voting protocols and software. ScytI has worked in the area of secure electronic voting since before 2000 and has delivered electronic voting projects across the world – from Australia, to Canada, the United States, Norway, Switzerland, and others.

In Australia ScytI has delivered the following electronic voting projects:

- NSW – the iVote®<sup>6</sup> project – still the world’s largest state government binding online voting event, 2015, 2019, 2021
- Western Australia – the iVote project to allow votes from the visually impaired and other voters who were incapacitated, 2017
- Victoria – Secure electronic voting for the visually impaired 2006, 2010

ScytI sees secure electronic voting and specifically secure internet voting, as a means to collect those votes that are otherwise “hard to get” – from those with accessibility issues, those who are travelling on election day, and an ideal substitute for declining postal voting services. In an emergency that restricts movement or creates logistical problems, it clearly has a place.

ScytI thanks the NSWEC for considering this submission.

***Document ends***

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<sup>6</sup> iVote® is a registered trademark of the NSW Electoral Commission