11

Technology and the electoral system

11.1 In age where so many day-to-day activities utilise modern technology, is the machinery of Australia's electoral system outdated? Could 'new' technology be utilised to better serve the needs of groups of voters, or in fact all voters?

11.2 Numerous submissions have raised the use of technology in the electoral system, albeit for a variety of purposes.[1]

11.3 Also, several recent and important studies have looked at various electoral technologies and made assessments of their benefits and risks.[2]

11.4 In this chapter, the Committee examines different areas in which electoral technology could be utilised, analyses the advantages and disadvantages, and then provides a view on whether it is suitable within the context of the Australian electoral system.

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1 See Submissions 16, 45, 46, 48, 50, 52, 54, 68, 74, 101, 120, 135, 138, 182, 184 & 187.

2 See Barry C, Dacey P, Pickering T, and D Byrne, *Electronic Voting and Electronic Counting of Votes: a Status Report*, March 2001; Barry C, Dacey P, Pickering T, and T Evans, *eVolution not Revolution: Electronic Voting Status Report 2*, September 2002; Scrutiny of Acts and Regulations Committee, *Inquiry into Electronic Democracy: Final Report*, November 2004; and, Elections ACT, *Electronic Voting and Counting System: Review*, August 2005.

Online enrolment

11.5 At present, the AEC has electoral enrolment forms and an enrolment verification service available on its website.[3]

11.6 However, under Section 98 (2) of the CEA, the AEC must receive an original enrolment form that is signed by the applicant and an enrolled witness, and therefore forms cannot be lodged on-line.[4]

11.7 Given that banks and other such organisations are able to successfully verify identity over the internet, is it then possible for the AEC to consider accepting online enrolment forms?

Advantages

11.8 Potentially, electronic enrolment would simplify the process for both the enrolee and the AEC, leaving behind the inaccuracy associated with manual data entry and paper-based applications.

11.9 In terms of developing appropriate technology, the NSW Disability Discrimination Legal Centre suggests:

> the Australian Electoral Commission could liaise and consult with banking and financial institutions or utilities or organizations (like Australia Post or Telstra), who enable their customers to transact with them online.[5]

11.10 As well as the possibility for new enrolments, it could also be used to allow people to update their enrolment online.

Disadvantages

11.11 While every attempt is made by organisations who engage in online transactions to maintain security, it appears this is not always a guarantee against the sophisticated techniques used by hackers.[6] Therefore, it may not be impossible to guarantee that the electoral roll, and voter's identities, would not be compromised.

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3 See www.aec.gov.au/_content/what/enrolment/forms.htm

4 Under paragraph (3) of Section 98, if a person is physically incapacitated and unable to sign a form, it may be signed on their behalf.

5 Submission No. 68, (NSW Disability Discrimination Legal Centre), p. 12.

6 See, for example, Dash, E, 2005, "Data Thieves Have Us All in Their Pockets", *Australian Financial Review,* 30 July, p. 29.

11.12 There also may be the potential for such a system to make the enrolment of fraudulent names and addresses simpler. For example, would it still be possible to require voters to verify their identity, in line with the recommendations contained in Chapter 2 of this report?

The Committee's view

11.13 While acknowledging technology of this type is evolving, the Committee is of the view that the risks associated with allowing online enrolment outweigh any potential benefit.

11.14 The concerns with regard to fraudulent enrolment could be lessened if the Committee's recommendation in Chapter 2 of this report (ID requirements for enrolment) was implemented, and could be enforced for online enrolments.

11.15 Therefore, the Committee considers that it would be unwise to dismiss online enrolment altogether, and believes it could be especially useful for the purpose of updating enrolment.

11.16 However, while it would be useful for the AEC to consider this matter, at this stage the Committee does not foresee online enrolment as a realistic option in the near future.

Electronic lodgement of postal vote applications

11.17 There are two kinds of postal voters:

- those who are registered to receive a postal vote for every election, under Section 184A of the CEA; and
- those who have applied to receive a postal vote for a specified election, for a reason specified in Schedule 2 of the CEA.

11.18 Postal vote applications must be either mailed or faxed to the AEC, and must be signed by the elector and an enrolled witness.

11.19 The AEC has recommended to the Committee that the *Electronic Transactions Regulations 2000* be amended to permit postal vote applications to also be accepted if they are scanned and emailed to the AEC.[7]

7 Submission No. 165, (AEC), p. 5.

11.20 Another possibility is to move beyond paper-based forms, and establish an online form, where an elector could apply for a postal vote by inputting their relevant, verifiable details.

11.21 The AEC, in speculating about such a system, suggested:

> they might have a form that can be completed online. You push the send button and it is submitted electronically at that time.[8]

Advantages

11.22 Allowing applications for postal votes to be submitted by e-mail would provide people who are either isolated (in rural areas or overseas) or incapacitated with another means of applying to become a postal voter.

11.23 In one of his recommendations for improving the postal voting service, the Hon. Bruce Scott MP, suggested that the AEC should "offer accessible technology for people to apply for postal votes".[9]

11.24 In regard to claims that email access would increase the opportunity for fraud, the AEC advised:

> scanned and e-mailed applications would present no greater fraud risk than a standard written application because, once received by the AEC, exactly the same checks will be applied to written and e-mailed applications.[10]

11.25 On line application forms are a second option, which could be verified by requiring a person to have an internet connection. As with other organisations who transact online, the AEC could use methods other than signature verification to confirm identity, such as a password.

11.26 Under Section 182 (4) of the CEA, applications for a postal vote (not a GPV application) must not be made until after the issue of the writ. Therefore, with either system, electronic lodgement would allow the AEC to process applications sooner, allowing people to receive their postal votes earlier.

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8 Mr Timothy Evans, Director, Election Systems and Policy, AEC, *Evidence*, Friday, 5 August 2005, p. 75.

9 Submission No. 1, (The Hon. B. Scott MP).

10 Submission No. 74, (AEC), p. 5.

Disadvantages

11.27 A simplified online form would make online application especially convenient. Allowing people to apply for postal votes electronically may therefore encourage those who could otherwise vote conventionally to apply for a postal vote.

11.28 With the scanning and emailing of the applications, there may well be questions of accessibility, with respect to how many people actually have scanning equipment.

11.29 In regard to the online application form, concerns will inevitably arise about the security of the system, including the potential to fraudulently apply for a postal vote.

11.30 Furthermore, with the online form it would no longer be possible to check the signature on the postal vote certificate against the relevant application at the time of scrutiny.

The Committee's view

11.31 The Committee is of the view that electronic lodgement of postal vote applications will make the voting process simpler for many Australians. This would be particularly true, for voters in rural and remote areas of Australia, such as those in Queensland, where the Committee conducted three hearings.[11]

11.32 However, the Committee maintains that postal voting should not become a form of convenience voting for those who do not need it. It is therefore important that the AEC continues to apply the provisions of the CEA stringently.

11.33 The Committee acknowledges that scanning and emailing a PVA does not carry the same technological risks associated with electronic enrolment or online application forms.

11.34 While the Committee does not claim to have wide-ranging IT expertise, it holds that it is essential for the AEC to assess and document all possible risks associated with any new system it is considering.

11.35 The Committee is of the view that scanning and emailing signed PVAs is the more viable option, predominantly because it will still

11 At Dalby, Longreach and Ingham, 27–28 April 2005.

allow the signature on a postal vote certificate to be checked against the application at the time of preliminary scrutiny.

11.36 Therefore, in Chapter 3, *Voting in the pre-election period,* the Committee has recommended that the *Electronic Transactions Regulations 2000* be amended to permit electors to submit an application for a postal vote or an application to become a general postal voter by scanning and emailing the appropriate form.

11.37 While the Committee can see the benefit of an online application form, it believes that security and identification issues may be prohibitive at this time. However, as with online enrolment, it may be worthwhile for the AEC to consider the matter, with a view to implementation at some time in the future.

Checking the roll on election day

11.38 At present, every polling place has several hard copies of a division's Electoral Roll, which are marked off by hand as electors collect their ballot papers.

11.39 It has long been argued that this system creates a possibility for fraudulent voting, because a person could potentially vote at every polling place within a division.

11.40 If it were possible to "mark" an elector off on an electronic Electoral Roll, and for polling places to communicate that fact to each other in real time, this possibility could be eliminated.

Networked checking of the electoral roll

11.41 Using this system, every polling place in Australia (or a designated number on trial basis) would have computers networked to the AEC's central server. As each person voted, their name could be "marked" off the roll as having voted, therefore not enabling them to vote again.

11.42 In regard to the existence of this type of technology, the AEC put forward a prominent example, saying:

> in the United Kingdom at local government elections in 2002 in the London borough of Camden, they trialled a voting system where all attendance early voting—pre-poll voting in our parliaments—was undertaken on a direct recording electronic voting machine or DRE. They had five pre-poll

> voting centres set up. They were set up in libraries in the borough, so they were in property owned by the London borough and were already linked up on a local area network operated by the borough…There was a roll loaded in each of the DREs that recorded the names of people who had already had a postal vote, so that group of people were not able to multiple vote. Then, because they were wired up on a local area network, as a person cast their vote and their name was marked off, that information was held on a shared database. So if that person or somebody endeavouring to personate that person attended another polling place or the same polling place at another time, that name was already marked off as being recorded.[12]

11.43 Moreover, in Germany, the AEC noted that:

> trials [are] being conducted, which… are more aspirational than the example… in London, where they are endeavouring to set up an intranet network linking all places where polling occurs so that DREs can be plugged into those using that intranet and then that same sharing of information can occur.[13]

Advantages

11.44 This system could reduce the inaccuracy, potential fraud and costs of printing associated with paper electoral rolls.

11.45 Most importantly, because a person's name is marked off on the networked system as they vote, the potential for any individual to vote in their own name on multiple occasions is eliminated. In combination with recommendations about identification for voting (made in Chapters 2 and 5) the technology could therefore help eliminate both fraudulent voting and multiple voting.

Disadvantages

11.46 The cost and infrastructure associated with setting up such a system would be substantial. The AEC commented:

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12 Mr T Evans, Director, Elections Systems and Policy, AEC, *Evidence,* Friday, 5 August 2005, p. 73.

13 Mr T Evans, Director, Elections Systems and Policy, AEC, *Evidence,* Friday, 5 August 2005, p. 73.

> we currently have over 7,000 polling booths… there is a cost of wiring up those facilities which are not ours, mainly schools and other community facilities. For a one-off event every three years, a significant infrastructure may well be required.

11.47 In regard to the London example, a key element was that the council owned and controlled all of the buildings (libraries etc) where polling took place. Therefore, a local area network was already in existence in the council and the information could be shared in real time between the direct electronic voting machines at the several sites.[14] By contrast, in Australia booths are often set up in buildings that the Government does not own, and which the AEC certainly does not control.

11.48 Referring to the trials being conducted in Germany, the AEC observed:

> you are looking at voting that occurs across a voting period, rather than on a polling day, which means that there is a reasonable return on investment for that infrastructure.[15]

11.49 Given that such a system would rely on a connection between polling places, which can be thousands of kilometres away from each other, concerns would inevitably arise about electoral integrity under the technology. For example, would it be possible for someone to hack into the system and compromise the integrity of the electoral roll?

The Committee's view

11.50 The Committee believes this networked system has potential to eliminate the potential for fraudulent and multiple voting. However, the Committee has reservations, especially in relation to:

- the cost;
- the infrastructure; and
- the security of the system.

11.51 At this point, the Committee considers this combination of factors prevents any serious consideration of introducing this system.

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14 Mr T Evans, Director, Elections Systems and Policy, AEC, Evidence, Friday, 5 August 2005, p. 73.

15 Mr T Evans, Director, Elections Systems and Policy, AEC, *Evidence,* Friday, 5 August 2005, p. 73.

However, as technology evolves, these flaws may be addressed, making the introduction of this system more feasible.

Recommendation 40

11.52 **The Committee recommends that the AEC investigate technology that could facilitate electronic checking of the electoral roll through networked polling places. In doing so, it will be beneficial to monitor any international developments in which such technology is utilised. The AEC should report back to the Committee about any major developments in this area.**

Barcoding

11.53 Using this system, every elector who is on the roll when it is closed for an election would be sent a barcode, which would be unique to that person. An elector would then be required to bring this barcode to a polling place, where it would then be scanned, and that person issued with ballot papers. The system would be linked back to a central database, where the person would be marked off the roll as having voted.

11.54 The H S Chapman Society proposed barcoding methodology,[16] noting that the AEC, the New South Wales and Queensland Electoral Commissions, and the AEC in Victorian Council elections have all sent barcoded letters to electors for presenting at polling booths.[17] The Australian Capital Territory also used barcode technology in voting, as did the AEC for the 1998 Constitutional Convention.[18]

11.55 A key aspect of the Society's proposal was that attendance would be recorded centrally through mobile telephone technology.[19]

Advantages

11.56 The H S Chapman Society advised that barcoding has a number of advantages, some of which are:

16 Submission No. 41, (H.S. Chapman Society).

17 Submission No. 41, (H.S. Chapman Society).

18 AEC Constitutional Convention Overview, www.aec.gov.au/_content/when/constitutional/overview.htm

19 Submission No. 187, (H.S. Chapman Society).

- eliminating multiple voting in the same name;
- eliminating multiple voting in different names;
- saving on printing multiple electoral rolls for each booth; and
- saving on delivery costs of rolls to and from polling places.[20]

Disadvantages

11.57 While voting using barcodes is near failsafe when the barcode is in the correct hands, if someone was to obtain the barcode of another person, this may give them an unchecked ability to cast a vote on behalf of that person.[21]

11.58 Further, when first introduced, it is probable that many would lose, forget or ignore their barcode, leading to disenfranchisement.

11.59 Similar to networked checking of the electoral roll, cost and security could be major concerns.

The Committee's view

11.60 The Committee acknowledges the possible benefits of barcoding to eliminate potential voting fraud, and to reduce costs and inaccuracies associated with hard copy electoral rolls.

11.61 However, the Committee believes the potential for barcodes to be misused, lost, or ignored poses too great a risk to consider implementing a barcode system.

11.62 In a similar vein, the Committee also considers that some identification process would still be required to complement the barcode sent to electors. If this were the case, barcoding would not achieve the advances envisaged.

11.63 The Committee also believes that a system combining voter identification, with electronic checking of the roll through networked polling places, would provide all the advantages that barcoding could, with the added guarantee of identity verification.

11.64 However, as mentioned, the Committee still regards such a development as some way off.

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20 Submission No. 187, (H S Chapman Society).

21 Senator George Brandis, *Transcript of evidence*, Friday, 12 August 2005, p. 6.

Electronic Voting

11.65 Electronic voting is blanket term used to describe a variety practices and technologies that can facilitate voting and counting.[22]

11.66 In 2002, a joint report of the AEC and the Victorian Electoral Commission (VEC) stated that:

> The technology is now sufficiently mature to support trials of e-voting in Australia. This could be managed with minimum risk and would test both stakeholder and public acceptance of e-voting for electors in special circumstances.[23]

11.67 Generally speaking, however, there are two major concerns with the implementation of any kind electronic voting, namely:

- cost; and
- security.

11.68 In this regard, the report of the AEC and VEC noted:

> The technical barriers to wide spread implementation of e-voting are considerable. There are also the democratic issues of secrecy of the elector's vote, equal access to e-voting by voters and public confidence in the system.[24]

11.69 Despite these hurdles, Professor George Williams and Mr Brian Mercurio maintain that providing a service to blind and sight impaired voters, is the "central reason" why Australia should investigate electronic voting at a federal level.[25] Similarly, several groups who represent and support people with a disability, advocate the introduction of electronic voting.[26]

The Committee's view

11.70 While acknowledging the barriers to widespread implementation of electronic voting, for reasons mentioned in the discussion of assisted

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22 Barry C, Dacey, P, Pickering, T and D Byrne, *Electronic Voting and Electronic Counting of Votes: A Status Report*, March 2001, p. 2.

23 Barry C, Dacey P, Pickering T, and T Evans, *eVolution not Revolution: Electronic Voting Status Report 2*, September 2002, p. 2.

24 Barry C, Dacey P, Pickering T, and Evans T, *eVolution not Revolution: Electronic Voting Status Report 2*, September 2002, p. 19.

25 Submission No. 48, (Prof G Williams & Mr B Mercurio).

26 See Submission Nos 16, 45, 50, 54, 68, 101, 135 and 138.

voting in Chapter 5, *Election day,* the Committee is particularly keen to see a form electronic voting implemented that would allow the blind or visually impaired to cast a *secret* and *independently verifiable* vote.

11.71 However, because of the overriding concerns identified, the Committee believes it would only a limited trial of electronic voting would be appropriate, which is strictly targeted to people who are blind or visually impaired.

Recommendation 41

11.72 **The Committee recommends that a trial of an electronic voting system be implemented at an appropriate location in each electorate to assist blind and visually impaired people, who currently cannot cast a secret and independently verifiable vote.**

- **In terms of the type of electronic voting system, and the most appropriate locations, the AEC should liaise with relevant groups, and then report back to the Committee with its proposal.**
- **Following the election, the AEC should report back to the Committee on all aspects of the trial.**

Recommendation 42

11.73 **The Committee recommends that the AEC identify, at an early stage, any legislative changes required to allow the paper ballot output of the system (whether electronic counting or a printed ballot paper) to be counted as a valid vote.**

11.74 The Committee discusses below some of the most prominent electronic systems, and assess their potential to address to concerns discussed in the body of this report. In particular, it will consider which systems could best achieve the objectives of the preceding recommendations.

Direct recording electronic voting machine (DRE)

11.75 The DRE system was described as:

> Any system where the elector casts their vote on an electronic voting machine, such as a dedicated computer terminal, touch screen computer or other purpose-built equipment in a polling place. Once recorded, the elector's vote is stored in the machine. After voting has concluded, data is transferred electronically to a counting system.[27]

11.76 An example of a successfully operational DRE is the Electronic Voting and Counting System (eVACS), which was employed by the ACT Electoral Commission at the 2001 and 2004 ACT elections.

11.77 At the 2001 ACT election there were 16,559 votes cast and counted electronically, and at the 2004 election there were 28,169.[28]

11.78 As well as the bulky PC based eVACS machine, at the 2004 election, the ACT also trialled "voting tablets"; a highly portable and robust alternative.[29] At this election, eVACS was deployed in four pre-poll centres, which later became polling stations on election day, and four election day only polling stations.[30]

Advantages

11.79 The ACT Electoral Commission asserts the key features of its DRE, eVACS, are that it:

- eliminate[s] the need for manual counting of electronic votes, thereby removing the possibility of counting error and speeding the transmission of results;
- [is] reliable and secure;
- significantly reduce[s] the number of unintentional voter errors and contribute[s] to an overall drop in the proportion of informal voters at the election;
- allow[s] blind and sight-impaired people to vote without assistance and in secret through use of headphones and recorded voice instructions; and

27 Submission No. 216, (AEC), p. 20.

28 Elections ACT, *Electronic Voting and Counting System: Review*, August 2005, p. 3.

29 Elections ACT, *Electronic Voting and Counting System: Review*, August 2005, p. 3.

30 Elections ACT, *Electronic Voting and Counting System: Review*, August 2005, p. 4.

- provide[s] on-screen voting instructions in twelve different languages.[31]

11.80 One of the most important advantages of DREs is to allow blind and sight-impaired electors to cast a secret and independently verifiable vote. The DREs do this by providing audible instructions to guide an elector through the voting process.

11.81 In a testament to the success of DREs the Canberra Blind Society, which has used the ACT's eVACS, reported:

> for the first time in over 100 years, people in the target group were able to exercise their rights as citizens of Australia and vote independently, with confidence and in privacy. While the assistance of booth attendants or friends and relatives was appreciated, a young blind lawyer summed up her feelings saying, "Being able to vote by myself has given me a sense of freedom and belonging that I have never felt before".[32]

11.82 EAV's (discussed below) may also achieve this, but because DREs don't produce a ballot paper they have an added advantage: it would not be possible for scrutineers to single out electronic ballot papers at the time of scrutiny. This is fundamentally important if a trial of electronic voting were to be limited to specific groups of voters.

11.83 To ensure cost effectiveness, the AEC could use electronic voting in pre-poll centres, which then would become normal polling centres on election day. On this point, the ACT Electoral Commission notes:

> the deployment of the required hardware to polling places for a single day poses logistical challenges and is of questionable cost effectiveness. By contrast, computer voting in pre-poll centres [which become normal polling places on election day] is an effective and efficient use of resources.[33]

11.84 Another advantage of having DREs available in the pre-poll period, as well as on election day, is that it allows blind or sight-impaired people, who may have difficulty accessing a polling place on a Saturday to vote at the time most convenient to them.

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31 Elections ACT, *Electronic Voting and Counting System: Review*, August 2005, pp. 3–4.

32 Submission No. 138, (Canberra Blind Society).

33 Elections ACT, *Electronic Voting and Counting System: Review*, August 2005, p. 4.

11.85 The DRE setup does not utilise any internet or remote connections, and therefore the devices are easily controlled and monitored, and are at no risk of hacking.

11.86 While there are concerns that electronic recording and counting of votes leaves no auditable paper trail, all votes recorded could be recorded on to a CD or memory card, which are auditable.

11.87 With regard to the security of votes recorded electronically, the ACT Electoral Commission states:

> the transfer of electronic ballots aimed… to ensure that the same level of security was afforded electronic ballots as is given to paper ballots. In traditional paper elections, ballot papers are transferred from the polling place in a locked and sealed ballot box. To achieve the same security, electronic votes [are] copied to write-once only CD-ROMs in the polling place.[34]

11.88 Evidence from the ACT election in 2004 suggests that the use of a DRE can result in a reduction in informal voting. At this election, informal rates for electronic ballots were only 1.9%, compared to 2.9% for ordinary votes.[35] This reduction is explained by the fact that a DRE can assist those electors who might accidentally cast informal ballots, providing an audible and written alert to the elector. The ACT Electoral Commissioner described how this would work:

> you are about to cast an informal vote. If you want to proceed, swipe your bar code; if you do not want to proceed, go back and start again.[36]

11.89 In regard to electronic voting as a means to reducing unintentional informal voting, the AEC advised:

> one of the main drivers for the introduction for DREs is a complex ballot. This is the case in the ACT and the Netherlands, with multi-member constituencies and proportional representation, and the USA, with multiple elections on the one ballot paper. Complex ballot papers can lead to an increase in informal votes...[37]

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34 Elections ACT, *Electronic Voting and Counting System: Review*, August 2005, p. 15.

35 Elections ACT, *Electronic Voting and Counting System: Review*, August 2005, p. 15.

36 Mr Phillip Green, Electoral Commissioner, ACT Electoral Commissioner, *Evidence,* Monday, 8 August 2005, p. 6.

37 Submission No. 216, (AEC), p. 15.

11.90 There is little doubt that the Senate ballot is complicated if an elector chooses to vote below the line, particularly in the larger states such as NSW. With regard to the House of Representatives, informal voting rates have consistently increased in recent elections,[38] indicating growing confusion among electors about the voting system.

11.91 As was demonstrated in Chapter 6, *Counting the votes,* electorates consisting of large numbers of people from non-English speaking backgrounds generally have very high informal voting rates. DREs are able to display instructions in multiple foreign languages and, as mentioned, provide warnings when an elector is about to cast an informal vote. DREs, therefore, may assist those from non-English speaking backgrounds to cast a formal vote.

Disadvantages

11.92 As mentioned, there are two major concerns with all electronic voting systems: cost and security. While security issues are overall addressed by DREs, cost remains an issue.

11.93 The ACT experience demonstrates that appropriate DRE technology exists. However, in terms of its widespread deployment at Federal level, the AEC maintains that it:

> does not believe that DREs can be deployed in all polling places for a federal election in the near future. The deployment and support of DREs at over 7,700 polling places at a federal election would be an extremely expensive exercise. For example, it cost the ACT Electoral Commission $406,000 to develop and deploy ten DREs each at four pre-poll voting centres and eight polling places at the 2001 ACT election. [39]

11.94 This suggests that the cost of fitting out all polling places in Australia with DREs would clearly be unrealistic.

11.95 With regard to proposals to divide the costs of electronic voting systems between the States and Territories, the AEC asserts that there is:

> little scope to improve the cost structure through a joint investment in DREs by the AEC and all State and Territory

38 AEC, *Electoral Pocketbook,* 2005, p. 71. Informal rates were, 1993, 3.0%; 1996, 3.2%; 1998, 3.8%; 2001; 4.8%; and 2004, 5.2%.

39 Submission No. 216, (AEC), p. 20.

> electoral agencies. Given the three to four year election cycles, the systems would not be used often enough, while the technology would continue to age. Complementary legislation establishing a similar electronic voting system would also have to be passed by the federal Parliament and all State and Territory parliaments.[40]

11.96 Another problem for the DRE is fitting all of the Senate candidates on one screen. At the 2004 election in NSW, for example, there were seventy-eight Senate candidates.[41] In the ACT the most candidates the eVACS had to deal with was thirty three.[42]

11.97 Added to this is the complexity, and space requirements, associated with the above-the-line voting option in the Senate. The Senate ballot paper would need to undergo a major redesign to become suitable for a DRE screen.

11.98 The time it takes to cast a ballot using a DRE also appears to be of concern. The ACT Electoral Commissioner, Mr Phillip Green, stated that the eVACS took "twice as long" as a normal ballot. [43]

11.99 However, when you consider that voting for the Senate would involve numbering up to double the number of candidates that have been required for the ACT, time becomes a significant consideration. The fact that the ACT has a form of optional preferential voting[44] only supports this view.

11.100 In terms of assisting all Australians who may not be able to vote conventionally, the AEC states:

> DREs will not address the issues of access to electoral services for electors in remote locations, both in Australia and overseas, who do not have access to a reliable postal service. Electronic voting using DREs requires an elector to attend a pre-poll voting centre or divisional office, and it is their

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40 Submission No. 216, (AEC), p. 21.

41 AEC, *Electoral Pocketbook,* 2005, p. 68.

42 ACT Electoral Commission, see www.elections.act.gov.au/Cand2004.html

43 Mr P Green, Electoral Commissioner, ACT Electoral Commissioner, *Evidence,* Monday, 8 August 2005, p. 10.

44 The ACT elects multi-member constituencies. The electors are only required to put preferences for the number of members that are to be elected for that seat. See, *Electoral Act 1992* (ACT), part 10.

> inability to do so in the first place that makes voting difficult for these electors.[45]

The Committee's view

11.101 The Committee believes there are two major factors limiting the widespread implementation of DREs: the time taken to vote; and the cost.

11.102 The Committee considers that the time taken to vote with DRE, particularly in States with a large number of Senate candidates, would be excessive. It would require large numbers of DREs at each polling place which, in turn, would add to fit-out costs that the AEC already considers exorbitant.

11.103 The Committee believes that the overall success of the current system of paper-based voting proves that there is no need to rush into the widespread implementation of DREs, especially when the costs may overwhelmingly outweigh the benefits.

11.104 At this point, the Committee considers that the DRE system is the most appropriate type of electronic voting for the purposes of assisting targeted groups, such as the visually impaired, as set out in previous recommendations. This view is supported by the AEC.

Electronically Assisted Voting (EAV)

11.105 For the most part, EAV's are very similar to the proposed DRE system, with the key difference being that EAV's print ballot papers.

11.106 The EAV voting system was described as:

> a form of electronic voting… comparable to the successful e-voting system employed in the past two Australian Capital Territory parliamentary elections (2001 & 2004), but which does not contain the ingredient of electronic recording and counting of votes…EAV uses the ingredients of a standard personal computer equipped with adaptive technology for the blind and vision impaired (audio screen readers and text enlarging software) to electronically register the vote. Following this, the voter actions a print command function to

45 Submission No. 182, (AEC), p. 16.

> print their ballot paper from a printer connected only to the computer's local printer port. Then, like all other voters, the ballot paper is placed in the designated ballot box. There is no Local Area Network (LAN) or Internet connectivity involved and a paper trail is maintained.[46]

11.107 The Committee notes that May 2005 report of the Victorian Parliament's Scrutiny of Acts and Regulations Committee, advocated implementation of an EAV type system. It recommended the development by the VEC of a system of electronic voting machines for local and general elections in Victoria, which should, inter alia:

- permit the casting of a private, unassisted vote for the blind, those …with limited vision, and…with low levels of English literacy;
- provide the same voting instructions as appear on the paper ballot in a range of languages other than English;
- produce a voter-verifiable paper trail to be retained by electoral officials; and
- be restricted to a closed local area network under the complete physical control of electoral officials. [47]

Advantages

11.108 Summarising the benefits of EAV, Vision Australia stated:

> From the perspective of the voter, electronically assisted voting has substantial benefits. Being an electronic medium, the ballot paper can be rendered in a range of formats including:
>
> - audio- synthetic speech or human recorded voice;
> - large print format;
> - a variety of screen colours and contrasts;
> - multiple languages;
> - refreshable Braille display; and
> - audio in multiple languages.
>
> A number of computer applications can be used to provide a solution for a broad range of end users. In addition, this

46 Submission No 135, (Blind Citizens Australia), pp. 6–7.

47 Victorian Parliament Scrutiny of Acts and Regulations Committee, *Victorian Electronic Democracy*, Final Report, May 2005; Recommendation 53.

system has the ability to be used in the polling place environment.[48]

11.109 From this, it is evident that this system could provide a better service not only for people who are blind or visually impaired, but also those who are not fluent in English.

Disadvantages

11.110 When discussing the EAV proposal, the AEC noted several concerns, some of which are:

- The printed ballot paper may not meet the requirement of providing electors with a truly secret ballot. As the printed and normal ballot papers will have a different appearance, these printed ballot papers will be easily identifiable during the scrutiny. As scrutineers observe the ballot count, it would be possible for people other than AEC employees to identify how electors using EAV voted in the election.[49]
- Printers connected to electronic voting machines are a high-risk point of failure (for example, PC connection failures, consumables failures or paper jams can all jeopardize the effectiveness of the system). [50]
- If the EAV systems are used in pre-poll voting centres, printers would need to be able to produce one hundred and fifty different House of Representatives ballot papers and eight different Senate ballot papers. This would require up to eight different printers and paper feeds (one for the House of Representatives ballot papers, one for the uniformly-sized ACT and NT Senate ballot papers, and one for each of the six State Senate ballot papers). [51]

11.111 The AEC notes that the ACT Electoral Commission, which has the most experience in electronic voting machines in Australia, does not support the use of printers connected to electronic voting machines.[52]

11.112 Further to these issues, the AEC also confirmed to the Committee that it knew of no electronic voting systems anywhere in the world that produced a printed ballot paper, as EAV purportedly would.[53]

48 Submission No 54, (Vision Australia), p. 3.
49 Submission No. 205, (AEC), p. 9.
50 Submission No. 205, (AEC), p. 10.
51 Submission No. 205, (AEC), p. 10.
52 Submission No. 205, (AEC), p. 10.

The Committee's view

11.113 The Committee's evaluation of the EAV approach was complicated because there is no operational EAV system at present.

11.114 While the Committee can see the benefit of having an electronic system that prints ballot papers, the problems associated with it may outweigh any potential benefit.

11.115 Of most concern was the possible compromise of the secrecy of a specific group of voters, and the difficulties associated with printing equipment.

11.116 In view of the development work being pursued in Victoria, aimed at producing "a voter-verifiable paper trail", the Committee considered that the AEC should monitor developments in the field rather than duplicate the activities of the VEC.

Remote electronic voting

11.117 In discussing this type voting, the AEC advised:

> Remote electronic voting can use a variety of delivery systems. These include the Internet, an organisation's intranet, touch-tone phones using interactive voice recognition (IVR), mobile phones using short message system (SMS) text facility, or interactive digital television (iDTV). All of these delivery systems have two things in common: they are remote access systems, that is to say remote from a traditional polling place, enabling the elector to vote from home, work or any public outlet (such as an Internet café); and they are online systems, where the elector's vote is despatched in real time to a secure electronic vote store, where it is held prior to counting.[54]

11.118 Rather then look at each piece of technology separately, the Committee instead considered the concept of remote electronic voting in a more general sense.

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53 The AEC understands that a variety of electronic voting systems have been trialled at UK local government elections, but that this form of EAV has not. The AEC has confirmed with Vision Australia that they are not aware of the use of this form of EAV in the UK, and the Electoral Commission of the UK has not made mention of this form of EAV in recent reports published on electronic voting. Submission No 205 (AEC), p. 10.

54 Submission No. 182, (AEC), p. 16.

Advantages

11.119 Technology may well be sufficiently mature to allow for safe online transactions. Mrs Lindsay MacDonald noted:

> I submit my quarterly Business Activity Statement online. In order do to this, I downloaded the appropriate software from the ATO, and received a digital certificate in order to communicate with them. If I can conduct my confidential business with the ATO in this manner, I believe it must be possible to develop a system for registered postal voters to access the AEC in the same way.[55]

11.120 Provided that the technology does exist, then remote electronic voting could be utilised by groups of electors, or in fact, all electors. One example of this is defence force personnel serving overseas. In this regard, the Department of Defence advised:

> Given the advance of secure communications and the risks associated with the attempts to apply traditional voting methods in a war zone, Defence believes that electronic voting warrants investigation in order to provide a safer, and more effective, alternative.[56]

11.121 Remote electronic voting would also enable Australians living in the Antarctic to lodge a secret and verifiable vote. Under current arrangements, ballot papers are faxed to Antarctic bases, and after the close of polls the Assistant Returning Officer for each base phones the votes through to a Returning Officer in Australia.[57] Therefore:

> voting is not compulsory for Antarctic electors because the secrecy of the vote cannot be assured due to the processes used to transmit the results.[58]

11.122 Furthering the case for the introduction of remote electronic voting for Antarctic electors, a joint report of the AEC and VEC, stated:

> Antarctic electors are also prime candidates for Internet voting for two reasons: the Electoral Commission knows who

55 Submission No. 47, (Mrs L McDonald), p. 3.

56 Submission No. 132, (Department of Defence).

57 Barry C, Dacey P, Pickering T, and T Evans, *eVolution not Revolution: Electronic Voting Status Report 2*, September 2002, p. 18.

58 Barry C, Dacey P, Pickering T, and T Evans, *eVolution not Revolution: Electronic Voting Status Report 2*, September 2002, p. 18.

> they are, and the Antarctic bases are equipped with appropriate technology.[59]

11.123 These premises, it seems, would also apply to defence force personnel. The Department of Defence has offered to provide operational, technical, and information security advice and assistance to the AEC.[60]

11.124 Beyond targeting specific groups who are living overseas, the technology used to vote remotely could be extended to include all Australian's living overseas. However, this would undoubtedly raise questions of identity and fraud, which are not relevant to Antarctic or Defence Force electors.

11.125 Similarly, technology could be extended to allow voters in rural parts of Australia to vote remotely. In doing so, it would allow voters to avoid many of the problems discussed in Chapter 10: *Geographical challenges in the modern age.* In support of remote technology, Mrs Sonja Doyle suggested that all voters should be able to exercise their democratic right by electronic voting with a secure digital password.[61]

11.126 Another group of voters potentially advantaged by remote electronic voting would be disabled voters. For the physically incapacitated, it would save the inconvenience of having to travel to a polling place. For voters who are blind or visually impaired, it could allow a secret and independently verifiable vote to be cast from home.

Disadvantages

11.127 The major concern with remote electronic voting is its potential to increase the risk of vote insecurity. The 2001 report of the AEC and VEC stated:

> There are two aspects to the security issue that need to be addressed. The first is to ensure that the system is not exposed to attack that would interfere with the electors' votes. The second is to provide a level of confidence as to the identification of the elector at the time of voting.[62]

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59 Barry C, Dacey P, Pickering T, and T Evans, *eVolution not Revolution: Electronic Voting Status Report 2*, September 2002, p. 18.

60 Submission No. 132, (Department of Defence), p. 4.

61 Mrs S Doyle, *Evidence,* Wednesday, 27 April 2005, p. 3.

62 Barry C, Dacey P, Pickering T, and D Byrne, *Electronic Voting and Electronic Counting of Votes: A Status Report*, March 2001, p. 14.

11.128 In regard to these concerns, the ACT Electoral Commission suggested:

> Security concerns and the difficulty of providing electors with unique online identifies are still seen as obstacles that have not yet been overcome.[63]

11.129 Moreover, in response to the United Kingdom's experience with this type of technology, Mr Oliver Heald MP, UK Shadow Secretary of State for Constitutional Affairs stated:

> Remote electronic voting is even more vulnerable than all-postal voting; not only are the internet and text messaging insecure, but Pin numbers must still be sent by post to voters - and there is no way of confidently identifying that an electronic vote is being cast by the eligible voter.[64]

11.130 Other disadvantages of remote electronic voting could be:

- A perceived lack of transparency in the voting process. The paper balloting system provides a transparent process, from electors voting through to the counting votes and distribution of preferences. Internet voting may be less transparent in a number of the key areas.
- An increased potential for coercion and intimidation when voting takes place outside the view of polling officials e.g. at home or in the workplace.
- Electors may vote before candidates and parties have had sufficient time to present their policies.
- The secrecy of employees' votes may be violated by unscrupulous employers if electors vote from a work place computer.
- Some candidates may concentrate their campaign messages to the Internet voters at the expense of the attendance voters.[65]

63 Elections ACT, *Electronic Voting and Counting System Review*, August 2005, p. 5.

64 Oliver Heald MP, Shadow Secretary of State for Constitutional Affairs, United Kingdom, in Deane J, "E-voting Plans Shelved", *The Independent,* 6 September 2005.

65 Barry C, Dacey P, Pickering T, and D Byrne, *Electronic Voting and Electronic Counting of Votes: A Status Report*, March 2001, p. 14.

The Committee's view

11.131 The Committee believes that because voting is on a Saturday, it is not too onerous a task for people who can vote in person to do so.

11.132 Furthermore, the Committee regards attendance at a polling place as a key contributor to Australia's democracy. If all Australians were given the opportunity to vote remotely, the Committee believes one of the best features of Australia's voting system would be removed. Therefore, even if it is technologically possible, the Committee has no desire to see widespread remote electronic voting introduced at any time in the future.

11.133 With regard to remote electronic voting for all Australians living overseas, the Committee believes that security and identity confirmation are concerns, and therefore does not consider this a viable option.

11.134 The Committee holds similar concerns for electors in remote in Australia. The Committee is of the view that if postal voting is run efficiently, it is the best way for electors in rural areas to cast their vote. While acknowledging postal voting problems prevalent during the 2004 election (as discussed in Chapter 3, *Voting in the pre-election period)*, the Committee has been assured by the AEC that these problems will not occur at the next election.[66]

11.135 The Committee does believe, however, that remote electronic voting could advantage electors stationed overseas with the defence force, Australian Federal Police (AFP) and for electors resident in Antarctica. The difference between these groups and rural and overseas electors is that the AEC can be certain of the identity of Antarctic, AFP, and defence force electors. Further, postal voting is not a realistic option while other forms of polling are problematical and could compromise secrecy.

66 See AEC, *Evidence,* Monday, 5 August 2005.

Recommendation 43

11.136 **The Committee recommends that the AEC trial remote electronic voting for overseas Australian Defence Force and Australian Federal Police personnel, and for Australians living in the Antarctic. The AEC should develop a proposal that considers matters such as security and verification of identity, and report back to the Committee.**

11.137 While the Committee advocates remote electronic voting in these specific circumstances, it is keen to stress that it does not view this trial as a precursor to wider implementation.