



Democracy **Volunteers**

Response to the Scottish Government's Consultation on Electoral Reform

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Introduction

Democracy Volunteers is the UK's leading domestic election observation organisation. Our mission is to improve the quality of democratic elections, by advising those who administer and oversee elections, to enhance them for the benefit of voters. We aim to do this by attending elections and empirically reporting statistics that support this objective through a strong methodology, based on the international standards for election observation as set out by OSCE/ODIHR. We aim to do this in a constructive and encouraging way to benefit the delivery of democracy and to benefit the electorate as a whole.

This response to the Scottish Government's consultation on electoral reform has been drawn up in order to provide an insight into the impact of the introduction of electronic voting technology on impartial election observation, based on evidence of previous countries' trials and implementation of a variety of electronic voting technologies. We particularly evaluate how new technologies can inhibit, and possibly even prevent, effective election observation. This paper will first look at the distinction between E-voting and I-voting followed by a look at a number of examples of implementations of these technologies around the world and will finally look at the relation between election observation and new voting technologies.

E-voting and I-voting

When discussing "e-voting", it is not always clear what version of electronic voting is meant. For the purpose of clarity, from the start, the difference between 'E-voting' and 'I-voting' will be made clear.

E-voting

So-called 'electronic voting' ('E-voting' for short) is a process by which the voter casts their ballot in an official space (i.e. a polling station) under the supervision of voting officials using an electronically operated machine. There are several different ways in which this E-voting can be conducted.

Paper-based

The paper-based method of E-voting is whereby an electronic machine is used to mark a paper ballot that is then printed (or impressed) so that the voter may verify their choice and cast their ballot in a traditional ballot box. This method yields a physical copy of a ballot that is seen and cast manually by the voter. These can be counted by hand or by using a ballot counting machine that employs optical scanning methods to tally the number of votes.

Direct-Recording Electronic (DRE)

The DRE method of voting typically uses an Electronic Voting Machine (EVM) where the machine itself records and tallies the votes as the polling is ongoing. This can be either in the form of an analogue button that is linked to a central machine that records and tallies the votes, or a touchscreen device. In both cases, the tally of votes is saved on a memory card, or similar device, that is accessible to the polling staff and renders a printed record of the total at the close of poll. The results, rendered at the polling station can then be transmitted to a central tally location either through oral or written communication between the polling station staff and those at the tabulation centre, or by physically transporting the central unit or memory unit to the central count location. A sort of hybrid of internet-based voting and DRE voting can be found in a variation of the DRE and EVM processes whereby the ballots are sent over a network to the central count location. These can be sent individually (as they are cast), in packets (i.e. every 100 votes cast), or as a group at the close of poll.

I-Voting

Remote E-voting, whereby voters can cast their ballots from any internet-enabled computer is a much rarer form of electronic voting than those that have been previously discussed. In the case of I-voting, voters are given a form of unique identifier (i.e. I.D. card, personal login and/or PIN) with which they can go online and cast their vote from any location with an internet-enabled device or from a designated polling place.

N.B. from this point forward, unless specified, the term E-voting will apply generally to electronic voting in polling stations as well as remote electronic voting through means such as the internet – I-voting.

Previous trials and results

Estonia

The most prominent national user of E-voting in Europe is Estonia. It has used remote E-voting for parliamentary elections since 2007. In this model, voters can cast their vote from their home computer using a mandatory biometric chipped ID card and an electronic reader linked to the computer but only during the early voting period (six to four days before the election). Voters can change their vote an unlimited number of times during this period. On polling day, the only option to vote is at official polling stations, invalidating any previous internet vote. Since the introduction of E-voting, the number of internet voters has increased to just over 30% at the 2015 election¹.

The use of the internet voting system centres on Estonia's advanced compulsory ID card system. As of March 2018, 1.297 million ID cards have been issued² (almost every single resident of the country). These cards contain an electronic chip that can be read by specialised equipment at home, or by electoral officials, and is used to store extensive personal data as well as electoral registration³.

Researchers from the University of Oxford found that, although internet voting was a successful endeavour in Estonia, it works because of the close-knit nature of society in Estonia⁴ with its population of just over 1.3 million. Other concerns regarding the security of the system, which have been raised, centre around potential 'serious architectural limitations and procedural gaps that potentially jeopardize the integrity of elections'⁵. The research acknowledges that the ID cards do provide a high level of defence against attacks to the system which is assisted by the transparency exercised by the electoral authorities. However, the release of the program's source code⁶ also highlighted that using a simulated attack from a third party on the system and significant problems could arise⁷. They also point out a number of security breaches (including the unintentional revelation of a number of key passwords to the system in promotional material for the system)⁸.

¹ Valimised, 2015 Available at: <http://www.vvk.ee/voting-methods-in-estonia/engindex/statistics>

² ID.ee, 2018 Available at: <https://www.id.ee/?lang=en>

³ The Economist, 2014 Available at: <https://www.economist.com/news/international/21605923-national-identity-scheme-goes-global-estonia-takes-plunge>

⁴ Cyber Studies Programme, 2016 Available at: <https://www.politics.ox.ac.uk/materials/publications/15483/workingpaperno6nurse.pdf>

⁵ Independent Report on E-voting in Estonia, 2014, page 703 Available at: http://delivery.acm.org/10.1145/2670000/2660315/p703-springall.pdf?ip=82.46.55.127&id=2660315&acc=OA&key=4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E638B5282305ABE89&__acm__=1520345906_a892ab20216d110f8e26863ca8373772

⁶ Ibid, page 712

⁷ Ibid

⁸ Ibid, page 708

Other European Trials

Several European countries have trialled E-voting, to varying extents, including Finland, the Netherlands and the United Kingdom amongst others.

Of the three mentioned above, only one has implemented this on a large scale through the use of DRE EVMs: The Netherlands. The United Kingdom trialled the process for the 2003 local elections but had little statistically significant increase in voter turnout that could be directly attributed to the use of E-voting. Additionally, a number of councils using these systems encountered a number of technical glitches that forced them to revert to paper ballots during the polling process⁹.

In 2010, the Finnish Ministry of Justice (*Oikeusministeriö*) released a memo indicating that the development of electronic forms of voting would not be developed further and that remote E-voting would not be implemented until a secure form of source code could be developed. They speculated that this could not be executed until 2016¹⁰. Democracy Volunteers deployed an observation mission to the Finnish presidential election in January 2018 and at a pre-election meeting, presented by senior civil servants, there was no evidence of discussion of developments of E-voting. Indeed, questioning focused on whether local external actors might be a significant reason in the decision not to develop this further by the Finnish authorities.

Since the 1980s, the Netherlands had started introducing E-voting (mostly DRE-based) to vote in most types of elections. By the 1990s, electronic voting was used by a majority of councils, and in 2006 98% of municipalities used the government recommended DRE EVMs in polling stations in the Netherlands as well as remote E-voting (as an experimental alternative to postal voting since the mid-2000s) for voters abroad (which represented just under 20,000 votes)¹¹.

The Organisation for Security and Cooperation in Europe's Office for Democratic Institutions and Human Rights (OSCE/ODIHR) sent an election observation mission to the 2006 Parliamentary Elections which, through consultation with interlocutors, expressed a number of concerns about the independent verification of votes during polling whereby it was impossible to actually verify that the votes were not being altered¹². Other difficulties with the Dutch EVMs were related to the ability by some 'technically capable individuals' to understand enough about the machines to make them 'behave fraudulently'¹³. Another concern, of the OSCE/ODIHR, identified the fact that 'each system incorporates elements that are understood by a limited number of experts, and a number of these elements are not available for public scrutiny'¹⁴ therefore potentially decreasing the confidence in the system if it is not readily understood by the average voter – and limiting the capacity for independent oversight by party, domestic and international observers.

Claims that the secrecy of the ballot could be severely compromised, through surveillance with easily obtainable electronic equipment, meant that a month before the election large municipalities, such as Amsterdam, reverted to paper ballots¹⁵. As a result of these controversies and potential breaches

⁹ BBC, 2003 Available at: <http://news.bbc.co.uk/1/hi/technology/2995493.stm>

¹⁰ Oikeusministeriö, 2010 Available at:

<https://web.archive.org/web/20140222062106/http://valtioneuvosto.fi/ajankohtaista/tiedotteet/tiedote/fi.jsp?oid=285151>

¹¹ OSCE, 2006, Pages 13-14 Available at:

<https://www.osce.org/odihr/elections/netherlands/24322?download=true>

¹² Ibid. Page 13

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid. Page 14

of confidence and secrecy of the vote, on May 16th 2008, the government of the Netherlands declared that the system would return to the tried and tested system of paper ballots and red pencils and rejected a proposal to develop a new generation of EVMs¹⁶.

Australia

However, concerns about the capacity of independent oversight has not been limited to the experience in the Netherlands. In 2016, controversy arose in a New South Wales after confidence in the remote electronic voting was undermined after a flaw in the system potentially affected up to 66,000 votes. The problem with the codes was left undetected for a number of hours until an academic from a US university alerted the election authorities to the issue¹⁷.

Because of the nature of election observation, it would not have been possible to verify this flaw without this external influence. Potentially 66,000 votes would have been affected by this error – the size of a Scottish Parliamentary constituency.

Effect on turnout

As Estonia is, so far, the only country that has deployed internet voting on a national scale it has been researched by a number of academic studies and one such study demonstrated that voter turnout was not particularly increased by the introduction of remote electronic voting¹⁸. The study also found that not only was turnout not increased but also that there was no diversification in demographics, leading to ‘a disproportionate share of the voters with a high formal education, and who resided in affluent, Estonian-speaking areas’¹⁹.

A study of Swiss internet voting trials between 2001 and 2006 across a number of elections compared cantons that were trialling the new technology and others that were not and found that turnout was not positively statistically affected²⁰.

Observation challenges

Importance of election observation

The merits of non-partisan citizen-led election observation have been stated in numerous intergovernmental documents, mostly since the 1990s. The first major document of its kind, the 1990 Copenhagen Agreement signed by all members of the Organisation for Security and Cooperation in Europe emphasises in Article 8 that states should facilitate the access of ‘any appropriate private institutions and organizations who may wish to do so to observe the course of their national election proceedings [...] and will also endeavour to facilitate [...] access for election proceedings held below the national level’²¹.

The OSCE, being the body that is responsible for the formal observation of all its 57 member states, is the body which formally advises the UK on how to improve the quality of elections.

¹⁶ Wij Vertrouwen Stemcomputers Niet, 2009 Available at: <http://wijvertrouwenstemcomputersniet.nl/English>

¹⁷ The Guardian, 2016 Available at: <https://www.theguardian.com/australia-news/2015/mar/23/nsw-election-result-could-be-challenged-over-ivote-security-flaw>

¹⁸ Can Internet voting increase political participation?, 2010, page 1 Available at: <https://www.eui.eu/Projects/EUDO-PublicOpinion/Documents/bochslere-voteeui2010.pdf>

¹⁹ Ibid, pages 19-20

²⁰ Germann and Serdult, (2017) *Internet Voting and Turnout: Evidence from Switzerland* Electoral Studies (47) 1-12

²¹ OSCE, 1990 Available at: <https://www.osce.org/odihr/elections/14304?download=true>

The UK's Electoral Commission is responsible for the accreditation of election observers in Scotland, as well as the rest of the UK, as they recognise that independent election observation is a fundamental aspect of the voting process – whether domestic or international.

The role of election observation within a functioning democratic state is not one of a so-called 'elections police', dictating what is wrong and what is right within a system, but rather acts as impartial assessment of the practice compared to the theory. In effect, acting as the eyes of the voting public with access to all stages of the electoral system. The main role of observers can, in effect, be summarised as one of helping increase the confidence in the system due to its impartial and critical nature: the more access and oversight that observers can have to the process, the more confidence can be built in electoral systems.

Voter confidence

A key part of the democratic process is that of the confidence that the voters have in the system used, and the willingness of the electorate to accept the result because they are confident that their vote has been cast in the way that was intended by them. Part of the confidence in paper-based voting systems stems from the simple and analogue processes involved whereby the voter can see their ballot paper from the moment they receive it to the moment they cast it into the sealed ballot box.

Where the voters do not see their ballot after they have cast it (i.e. at the count), they have the confidence that it cannot be tampered with because of the scrutiny of impartial observers and party representatives that ensure the correct counting of votes. As was seen in the example of the Dutch EVMs where the majority of the voting public, bar a few experts, could not understand the jargon and complicated procedures that govern the world of programs, electronic storage types and online transmission language the system became opaque and eventually was replaced because public confidence was diminished.

Observation of New Voting Technologies (NVT)

In 2013, the OSCE's Office for Democratic Institutions and Human Rights (ODHIR) produced an observation handbook on New Voting Technologies (NVT)²². Because of the nature of NVTs the handbook explored the creation of a specialised role of 'NVT Specialist' within an observation team however, this is mostly applicable to international elections observation missions. It could be possible to allow election observers access to the technical processes of the NVT but this would require local election authorities to have the capacity to make this access possible, as well as requiring observers to have technical skills above those of the average voter, whom they are effectively representing.

In their handbook, the OSCE/ODHIR noted that the introduction of NVTs poses a number of challenges for observers and, even more so in the case of remote E-voting²³. It stated that the main concern 'is the need to preserve the secrecy of the vote, while at the same time ensuring the integrity of the results'²⁴. The report maintained that the observation of NVTs in polling stations does not fundamentally alter the nature of observation but adds a significant number of new areas to observe whilst in the polling station, before the polling starts and during polling. It also expressed concerns regarding the transparency of the process, particularly when some components of the machines are kept secret for security reasons²⁵. In the case of internet based voting, the handbook explicitly stated

²² OSCE, 2013 Available at: <https://www.osce.org/odihr/elections/104939?download=true>

²³ OSCE, 2013, Page 5 Available at: <https://www.osce.org/odihr/elections/104939?download=true>

²⁴ Ibid.

²⁵ OSCE, 2013, Page 44 Available at: <https://www.osce.org/odihr/elections/104939?download=true>

that the guarantee of both the preservation of the secrecy of the ballot and the integrity of the vote while maintaining transparency in the working of the system is difficult²⁶.

‘The use of NVT does not, therefore, necessarily build confidence’²⁷

Conclusion

A crucial aspect the success of a strong democratic system is the confidence of the public in the voting methods that are presented to them. As suggested by a number of reports, it may not always be the case that a change in the method of voting will increase voter confidence in the system and, in the case of NVTs, may even *decrease* confidence in the process due to the technical language employed and the difficulties in observing the process, not to mention the opacity of encountered when verifying that votes have not been tampered with in most EVMs.

The changes brought about by the introduction of EVMs to the polling station process would present a number of new challenges for observers on the ground, and at a higher level a need to seek out technical expertise concerning the technological functioning of EVMs in order to better understand potential issues. This is something that is beyond the capability and budget of most smaller observation organisations, and may discourage the establishment of other groups that might not be willing to invest in the technical knowledge necessary to properly evaluate the functioning of these programmes.

The impact of NVT on the work of both domestic and international observers is something that needs to be acknowledged when considering the implementation of this technology, as observation is recognised as a key part of the democratic process worldwide being enshrined in documents like the 1990 Copenhagen Agreement to which the UK is a signatory.

Some versions of NVT, most notably the paper-based versions discussed earlier, do allow for effective observation but we believe that I-voting, and the more technologically advanced forms of E-Voting, which would rely on a small number of experts to comprehend, would make legitimate observation of elections extremely challenging, possibly even impossible.

²⁶ OSCE, 2013, Page 5 Available at: <https://www.osce.org/odihr/elections/104939?download=true>

²⁷ Ibid.