

Remote voting in a pandemic: Options for consideration¹

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Introduction

This short note allows for easy comparison of the options available to policy makers considering the introduction of remote voting in the context of the current pandemic conditions. The main text of general applicability. Annex 1 sets out the conditions unique to Sri Lanka. Additional annexes may be added if there is demand from countries in developing Asia.

Elections are more important than ever to the common voter. Politics before COVID 19 was considered as a petty tug of war on issues that did not affect the day-to-days lives of many. But now, people are beginning to realise the importance of political leadership at all levels of governance and the impact it can have on the average citizen.²

Like everything in our society voting will also have to undergo quick changes in to adapt to post-COVID world. Every county will have to look at the voting options available and consider what additions can be made to the existing systems ensure future elections have decent participation rates. Even if the world gets control of COVID 19, voters may be reluctant to go to a public voting booth due to safety concerns.

Traditional in-person voting will still have to be a key method of voting as complete elimination of in-person voting will not be practical.³ But different options need to be offered along with in person voting to reduce the burden and traffic on traditional voting booths.

A good voting mechanism must fulfil the following criteria:⁴

1. Correctness of the results
 - a. Only eligible users vote;
 - b. They only vote once;
 - c. All votes counted are valid votes, and all valid votes are counted.
2. Verifiability of results by involved parties
3. Secrecy of votes

Election observer groups, political parties and other stakeholders engage in negotiations over how these criteria are operationalized in electoral systems and in practice.

Remote voting

Postal voting around the world

All most all the countries have some form of postal voting in their election systems. Postal voting is generally available to voters upon application, sometimes with restrictions. If no reason for a request

² <https://www.bbc.com/worklife/article/20200326-covid-19-what-makes-a-good-leader-during-a-crisis>

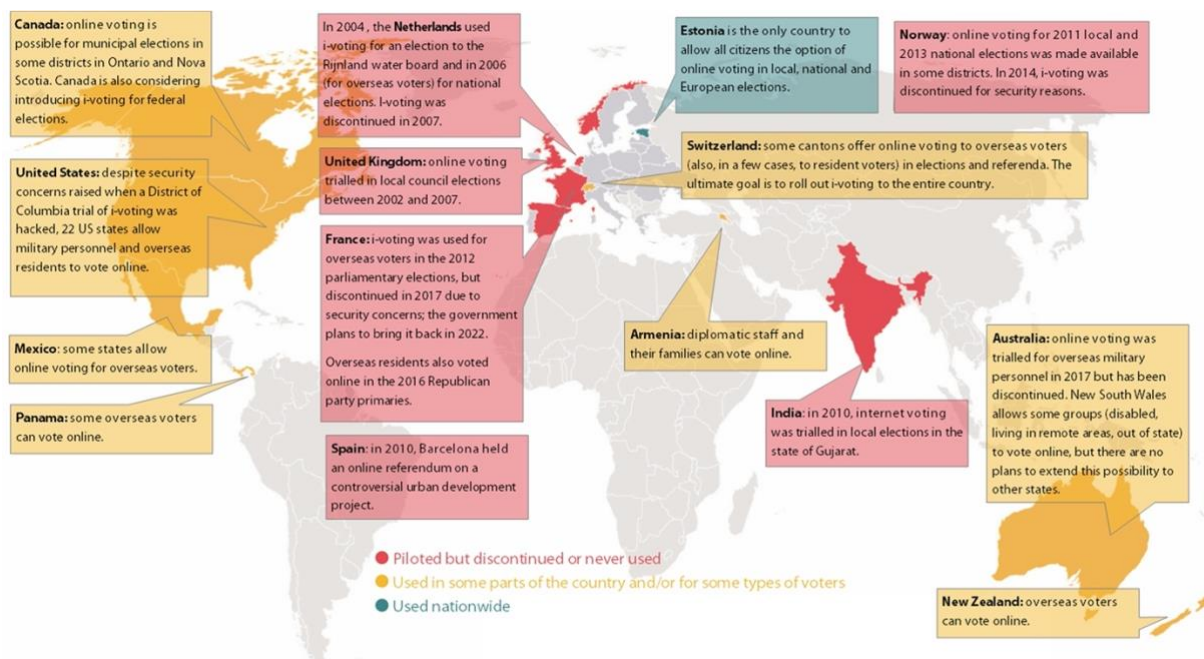
³ <https://www.euronews.com/2020/04/04/coronavirus-how-will-covid-19-affect-the-u-s-election>

⁴ <https://www.nap.edu/read/25120/chapter/7#103>

is required, it may be called postal vote on demand. Postal voting may be an option for voters in some jurisdictions, while in some elections universal postal voting may be available.⁵

Internet voting around the world

Estonia is the global leader in internet voting (i-Voting), they introduced internet voting in 2005 and have continued to expand its use in their elections systems. The 2019 election saw 43.75 percent of the votes being cast over the internet.⁶ Canada, USA, Mexico, Panama, Switzerland, Armenia, Australia and New Zealand use internet voting in some parts of the elections process. Many countries including Netherlands, the UK, France, Spain, Norway and India have attempted internet voting but have discontinued it.^{7 8}



Source: European Parliamentary Research Service ⁹

Mechanisms of remote voting

Postal voting

Postal voting is voting in an election whereby ballot papers are distributed to and/or returned by post. Historically, postal votes must be distributed and placed in return mail before the scheduled election day, it is sometimes referred to as a form of early voting. It can also be used as an absentee ballot. However, in recent times some countries or sub-national units have relied on postal voting exclusively in their elections. For example, in the certain US state elections the post is used to mail the ballots to

⁵ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2768900

⁶ <https://e-estonia.com/i-voting-the-future-of-elections/>

⁷ http://aceproject.org/ace-en/focus/e-voting/countries/mobile_browsing/onePag

⁸

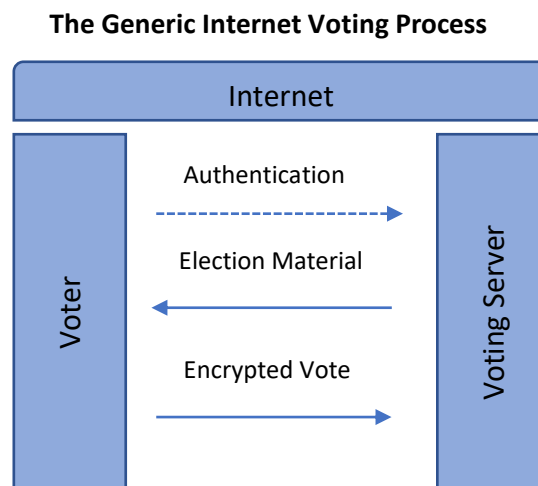
<https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/03/colorado-voting-reforms-early-results>

⁹ [https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/625178/EPRS_BRI\(2018\)625178_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/625178/EPRS_BRI(2018)625178_EN.pdf)

voters whereas the method of return has alternatives (return by mail or dropping off the ballot in person via secure drop boxes and/or voting centres).^{10 11}

Internet voting

The voter needs a desktop, laptop or a smart phone which is connected to the Internet. She/he uses the device to connect to the voting server. After successfully authenticating his/her identity, the voting client using the device displays the ballot and makes her/his choice. The vote is then sent to the voting server and the voter receives confirmation on the successful storage of his or her vote. At the end of the election phase, the votes are counted by the voting server and the results are delivered to the election commission.¹²



Internet voting in Estonia

The Estonian i-Voting system was used for the first time in 2005 for local council elections. In 2007, i-voting was available for parliamentary elections, a world first. The goal of i-Voting was to make electoral participation easier for voters and so increase their participation.¹³

i-Voting allows registered voters to cast their ballots from any Internet-connected computer, anywhere in the world, without going to a polling station. I-voting is meant to supplement, not replace, traditional voting methods.

Each person who has the right to vote in Estonia can cast their vote in a secure way via the Internet at the elections and referendums, because:

- there is a legal basis for the use of digital signature, and all acts concerning elections provide for a legal basis for the conducting of i-voting;
- most of the persons who have the right to vote possess an ID card that enables secure electronic identification and giving digital signature; many people also have an additional legally backed electronic ID document, like Digi-ID or Mobile-ID.

¹⁰ [https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/625178/EPRS_BRI\(2018\)625178_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/625178/EPRS_BRI(2018)625178_EN.pdf)

¹¹ <https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/03/colorado-voting-reforms-early-results>

¹² DOI: 10.1007/s12243-016-0525-8

¹³ DOI: 10.1007/s12290-013-0261-7

During a designated pre-voting period, the voter logs onto the system using an ID card or mobile ID, and casts a ballot. The voter's identity is removed from the ballot before it reaches the National Electoral Commission for counting, thereby ensuring anonymity.¹⁴

E-voting procedure in Estonia

From their own computers, voters download an application that encrypts the vote. The encrypted vote can be regarded as the inner, anonymous envelope. After that, voters give a digital signature to confirm their choice. The voters' personal data, or outer envelope, are then added to the encrypted vote. The procedure is as follows:

1. Voters insert their ID card into a card reader and open the webpage for voting.
2. They then verify who they are using the first pin code of their ID card.
3. The server checks whether voters are eligible, using data from the population register.
4. Voters are shown the candidate list for the appropriate electoral district.
5. They make their voting decision, which is encrypted.
6. Then they confirm their choice with a digital signature by entering the second pin code of their ID card.

I-voting system is based on an "envelope scheme", where an anonymous closed envelope with the vote is placed into an outer envelope with the voter's name and signature. With the help of the program used for i-voting (Voter Application), the i-voter:

1. encrypts the vote and the random number generated by the computer with the elections-specific public key, forming the "inner envelope";
2. signs the encrypted vote by using a digital signature tool, forming the "outer envelope".

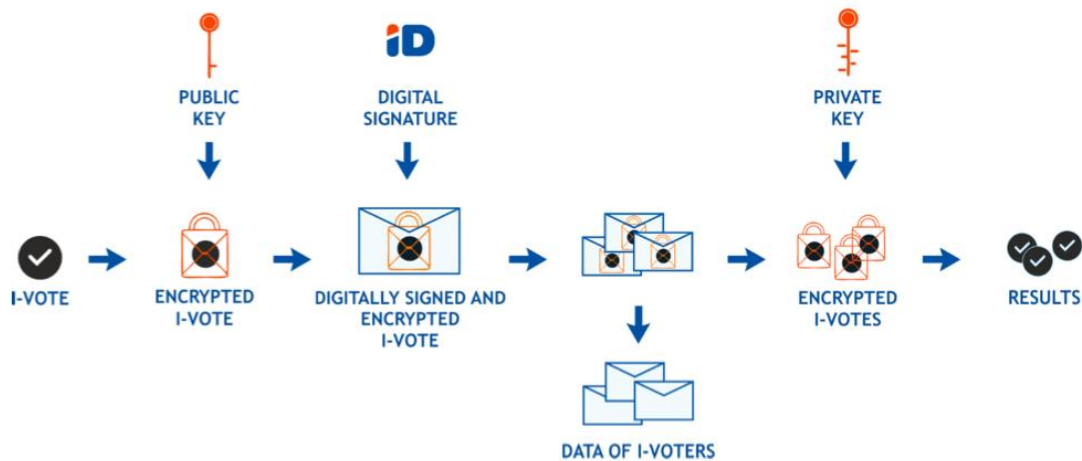
A vote encrypted with the public key can be decrypted only with the private key. Encrypted and signed votes are collected and sorted, the eligibility of voters is checked, and repeated i-votes and the i-votes of the persons who also voted at a polling station during advance voting are removed.

Before the counting of i-votes they are sorted by electoral districts, the list of i-voters is compiled, and then the digital signatures are removed.

During the counting of votes, anonymous and mixed votes are decrypted with the elections-specific private key, and the summarized results of i-voting are issued.

Envelope Scheme

¹⁴ <https://www.valimised.ee/sites/default/files/uploads/eng/IVXV-UK-1.0-eng.pdf>



Source: State Electoral Office of Estonia¹⁵

Pros and cons of postal voting and internet voting

The advantages of postal voting and internet voting are similar as these are forms of remote voting. These systems enable as many voters as possible to participate, increases the convenience to the voter and can lead to long term cost savings. In the case of a pandemic, improves health and safety of voting officials and voters.¹⁶

The key problem with postal voting with fraud in private environments in which the voter will be casting his or her vote. Fraud could take the form of someone else casting the vote on behalf of the voter because the voter chooses to sell his or her vote (vote buying), someone observing the voter casting her/his vote and forcing the voter to make a particular choice. Coercion can either be direct (made by a person) or indirect (for example, several family members casting their votes together, thus influencing one's vote).^{17 18}

Other disadvantages of postal voting include delays in election results due to slower vote counting, difficulties in developing the additional infrastructure needed to handle increased capacity (this will still be cost effective compared to internet voting).¹⁹

Risks deriving from the Internet as an open and public environment, errors happening during voting that are aggravated by using an application that is unknown to the voter, errors of vote recording/sorting server as the most complex component of the system, vote counting problems,

¹⁵ <https://www.valimised.ee/en/internet-voting/internet-voting-estonia>

¹⁶ <https://www.brennancenter.org/our-work/policy-solutions/how-protect-2020-vote-coronavirus>

¹⁷

https://www.researchgate.net/publication/262933801_Challenges_Posited_by_Distance_Voting_in_General_Postal_Voting_and_in_Particular_eVoting

¹⁸

https://www.researchgate.net/profile/Matt_Qvortrup/publication/237609631_Absentee_Voting_in_a_Comparative_Perspective_A_Preliminary_Assessment_of_the_Experiences_with_Postal_Voting1/links/548087600cf22525dcb5f30a.pdf

¹⁹ <https://fortune.com/2020/03/30/usps-postal-service-stimulus-package-no-funding-post-office-mail-delivery-could-shutter-june-coronavirus-relief-bill/>

magnified by high requirements to the organizational security of the process)²⁰ are the main disadvantages of internet voting.

Conclusion

Like any other election, polls carried out with the help of digital technologies must comply with the general principles set out in Article 25 of the UN's 1966 International Covenant on Civil and Political Rights: universal and equal suffrage and secrecy of the ballot. International standards addressing the specific characteristics of electronic voting and other voting technology do not yet exist.²¹

Primary concerns of internet voting and postal voting are verifiability (the possibility to verify the elections' outcome, i.e. to check if all votes have been counted correctly) privacy (i.e. anonymity of the voter) and secrecy. To address this issues, many different protocols have been developed. Common criteria of such protocols include:^{22 23 24}

- Eligibility: Only the registered voters can vote, and nobody can vote more than once.
- Fairness: No preliminary results are available which could influence other voters' decisions.
- Individual Verifiability: Each voter can check whether his vote was counted correctly.
- Universal Verifiability: Anybody can verify that the announced result corresponds to the sum of all votes.
- Vote-Privacy: The votes are kept private.
- Receipt-Freeness: A voter cannot construct a receipt which allows him to prove to a third party that he voted for a certain candidate. This is to prevent vote-buying.
- Coercion-Resistance: Even when a voter interacts with a coercer during the entire voting process, the coercer cannot be sure whether the voter followed his instructions or actually voted for another candidate.
- Robustness: The protocol should be able to tolerate a certain number of misbehaving voters.

Remote voting options will have to be used to supplement an on-site voting system, but many contextual factors have to be considered.

²⁰ http://www.vvk.ee/public/dok/E-voting_concept_security_analysis_and_measures_2010.pdf

²¹ http://www.vvk.ee/public/dok/E-voting_concept_security_analysis_and_measures_2010.pdf

²² <http://www.lsv.fr/Projects/anr-avote/PUBLIS/DLL-fps11.pdf>

²³ <https://ieeexplore.ieee.org/abstract/document/1625329>

²⁴

https://www.researchgate.net/profile/Robert_Krimmer/publication/221561337_Bits_or_Paper_Comparing_Remote_Electronic_Voting_to_Postal_Voting/links/0912f50cb2745a503a000000.pdf

Annex 1: Sri Lanka

Introduction

Sri Lanka along with the rest of the world will have to change and adjust its elections mechanisms in a post COVID world. Sri Lanka may not be able to fully implement the remote voting processes used by other countries, but consideration should be given to all options available to reduce crowding at polling stations.²⁵ The Election Commission of Sri Lanka, political parties, election observers and other relevant stakeholders should consider customizing such options to suit the ground realities of the country.

Postal voting

Postal voting facilities in Sri Lanka are limited to the following voter categories²⁶:

- State officials engaged in election duties
- Members of the Armed Forces, Police and Civil Defence Services engaged in duty
- Officers and public servants engaged in essential services

Voters eligible for postal voting must collect an application from a designated center or a district elections office. The application includes details such as polling division name, polling district number, grama niladhari division, village name, house number, voter's name, serial number assigned to the voter in the particular register, place of work, designation and service and the Class/Grade. The signed application is then to be handed over to the Postal Vote Certifying Officer. He/she would then certify the application and send them by post or by hand to the relevant District Elections office²⁷.

Currently all the voter categories eligible for postal voting belong to the public sector. Therefore, Sri Lanka will have to expand the categories of voters eligible for postal voting in order to minimize crowd gathering on election days. This has been a goal of the Strategic Plan of the Election Commission of Sri Lanka for 2017-2020. The goal under legal and advocacy work has the objective on developing an improved system to enable electors belonging to essential services, both in the public and private sectors, and who are not granted postal votes, to cast their votes other than at a polling center by the end of 2020.²⁸

Internet voting

The Institutional Development Goal 6 of the Strategic Plan is for the election process to be administered competently and transparently. Specific Objective 6.2 states that a pilot project for electronic voting is to be introduced by the end of 2019. It is not clear whether this is Internet voting or the use of electronic voting machines. In either case, a pilot project has not been initiated.

²⁵ Samarajiva, R. (2020 March 18). Election in the time of pandemic: Electronic voting offers no solution, Daily FT. <http://www.ft.lk/columns/Election-in-the-time-of-pandemic-Electronic-voting-offers-no-solution/4-697655>

²⁶ <http://www.dailymirror.lk/news-features/Voters-rights-and-responsibilities/131-177004>

²⁷ <http://gic.gov.lk/gic/index.php/en/component/info/?id=1134&catid=33&task=info>

²⁸ <https://elections.gov.lk/web/wp-content/uploads/2018/09/Strategic-Plan-2017-En.pdf>

A successful internet voting system must be accessible to a significant proportion of voters, and provide a high level of security²⁹. As of 2018, 78% of the population aged 15-65 had a mobile phone. But only 37% of the population aged 15-65 had a smart phone³⁰. Therefore, many developing countries including Sri Lanka lack the basic elements required for effective implementation of internet voting.

²⁹ <http://www.mecs-press.org/ijieeb/ijieeb-v8-n6/IJIEEB-V8-N6-2.pdf>

³⁰ <https://lirneasia.net/2019/05/afteraccess-ict-access-and-use-in-sri-lanka-and-the-global-south-presentation/>