

Citizen Participation using Electronic Voting for Decision Making Processes

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Abstract

In traditional paper-based voting, one can distinguish between voting in polling stations (in the presence of an election committee) or absentee voting using mail ballots. Table 1 summarises the different steps in the voting process for these forms.

Process steps	Polling station	Absentee voting
Voter identification	Identification at election committee in the polling station.	Identified application for mail ballot sheet by the voter prior to election, which is sent to the known address of the applicant.
Vote casting	Polling booth during opening hours of polling station.	Mail ballot is filled in at an arbitrary location and at any time prior to a certain deadline.
Vote counting	Manual count by election committee, transfer of local results to centralised counting software.	Manual count of ballot sheets upon reception of mail vote by the election committee until specified deadline.

Table 1: Traditional voting procedures

The same fundamental distinction can also be made for voting systems using IT support: Various types of electronic (or mechanical) devices may be used to automate the voting process in the polling station; absentee voting can be implemented by various means with the Internet being only one of them. Table 2 provides a summary:

Process steps	Polling station	Absentee voting
Voter identification	Identification at election committee in the polling station.	Either by receiving the token (=TAN) to cast one vote by mail (analogous to paper-based absentee voting) or by electronic application.
Vote casting	Polling booth during opening hours of polling station using IT-supported (or mechanical) device.	Vote is transferred to electronic ballot box using various media: SMS, digital phones, proprietary computer networks or via the Internet
Vote counting	Automated counting.	Automated counting.

Table 2: IT-supported voting procedures

Given the above systematisation we understand e-voting as absentee voting using the Internet. It comprises of one identified and two anonymous steps: (i) application for electronic voting token (identified), (ii) vote casting and (iii) vote storage and counting (both permanently anonymous).

The criteria usually applied to e-voting systems in the literature were summarised in an Internet Policy Report (2001) on e-voting as (i) correctness in counting votes, (ii) dishonest voters cannot disturb the election, (iii) permanent anonymity, (iv) voters can only vote once, (v) only authorised voters may vote, (vi) independence (no undue influence is exercised on the voter), (vii) verifiability, (viii) receipt-freeness (voters cannot prove how they voted).

References

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