



State Electoral Office
of Estonia

Internet Voting in Estonia

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Over 50% of participating voters vote online

EUROPEAN PARLIAMENT ELECTIONS 2024						
Mon 03.06	Tue 04.06	Wed 05.06	Thu 06.06	Fri 07.06	Sat 08.06	Sun 09.06.2024
ADVANCE VOTING						ELECTION DAY
Online voting						Voting at all polling places 9.00 - 20.00
Mon 9.00 Sat 20.00			
Voting at polling places of administrative centres 12.00 - 20.00			Voting at all polling places 12.00 - 20.00			
			Home voting 9.00 - 20.00			



Estonian Internet Voting System

Voting from location of voter

Voters can i-vote as many times they want – only last vote counts.

Paper vote cancels out Internet vote.

Voting app for PC (Windows, macOS, Linux)

App uses state-issued digital ID (ID-card, m-ID).



Acceptance of risks

100% security is impossible

Voters are responsible for their Computers

eID usage



Key prerequisites

eID infrastructure

Voters use Internet and eID

Electronic voter list

Legal framework

Trust in Internet voting



e-ID in Estonia

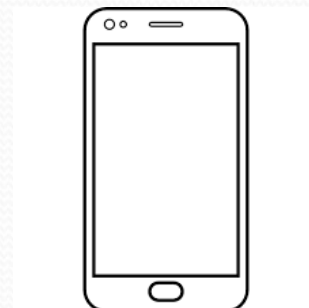
- ID Card (mandatory document)



- Mobile ID



- Smart ID





Downloading the voting app

For i-voting, download the voter application for Windows

↓ Download

- Installation instruction
- Checking authenticity
- Frequently asked questions

In case of questions: abi@valimised.ee, tel 1247

Key participation figures

Data as of 6. June 17:45

12.1%

voter turnout

118 693	voters total
42 448	votes cast on paper
76 245	votes cast online
979 940	eligible voters

Internet voting is ongoing

It is possible to vote on the Internet round the clock from 9 a.m. on 3 June until 8 p.m. on 8 June.

Time until the end of the internet voting

02 02 01

Days Hours Minutes

The timer is set to the Eastern European Summer Time, which is the time

News

Altogether 89,264 voters have cast their vote during the first three days of the European elections in Estonia

05.06.2024

During the first two days of the European elections in Estonia, 57,271 voters have cast their vote

04.06.2024



1. Identification

Put your ID card in the card reader and insert PIN 1



E-hääletamiseks peate ennast tuvastama ID-kaardi või Mobiil-ID abil:

ID-kaart

Mobiil-ID

Peeter Hääletaja

Palun sisestage isikutuvastuseks PIN1.

Katkestan

OK



2. Identification

Select a
candidate



Tere tulemast!

Olete e-hääletamas 2023. aasta Riigikogu valimistel.

Olete juba e-hääletanud! Soovi korral saate uuesti e-hääletada. Arvesse läheb viimasena tehtud valik. Järgnevalt tehke meelepärane valik.

Minu andmed

Nimi:

Peeter Hääletaja

Isikukood:

12345678901

Katkestan

Otsustama



3. Voting

Confirm your
choice by
entering PIN2

The screenshot displays the voting process progress bar at the top with four steps: 'Sisenemine' (checked), 'Tutvustus' (checked), 'Valiku tegemine' (active), and 'E-hääletamine' (unchecked). Below the progress bar, there are two main sections. The left section contains a list of categories: 'Kõrged kohad', 'Pargid', 'Järved' (with sub-items: 114 Kurtna järvestik, 115 Võrtsjärv, 116 Kaali järv, 117 Pühajärv), and 'Madalad kohad'. Below this list is a search bar with the placeholder text 'Otsi'. The right section is titled 'Milline on looduskauneim koht?' and shows the selected 'Valimisringkond' as 'Ida-Viru maakond, Valimisringkond nr. 7'. Below this, it says 'Minu valik on:' followed by a large grey box containing the text 'Valiku tegemiseks klõpsake nimekirjas soovitud kandidaadi nimele'. At the bottom right, there are two buttons: 'Katkestan' and 'Valin'.

Sisenemine Tutvustus Valiku tegemine E-hääletamine

- Kõrged kohad
- Pargid
- ▾ Järved
 - 114 Kurtna järvestik
 - 115 Võrtsjärv
 - 116 Kaali järv
 - 117 Pühajärv
- Madalad kohad

Milline on looduskauneim koht?

Valimisringkond:
Ida-Viru maakond,
Valimisringkond nr. 7

Minu valik on:

Valiku tegemiseks klõpsake nimekirjas soovitud kandidaadi nimele

Otsi

Katkestan Valin



4. Verification (optional)



Teie tehtud valik läks arvesse

Soovi korral saate e-häält muuta uuesti elektrooniliselt hääletades (kuni 4. märts kella 20:00ni).

Kui olete hääletanud mitu korda elektrooniliselt, võetakse arvesse viimane hääl. Kui soovite kontrollida, kas Teie e-häääl jõudis muutmata kujul valimiste serverisse, kasutage Android või iPhone nutitelefoni mobiilirakendust "EH kontrollrakendus", et skaneerida ekraanil asuvat QR-koodi. Saate seda teha 30 minuti jooksul kuni kolm korda.

Palun sulgege rakendus.

E-hääletamine ei ole veel alanud. Sellel elektroonilisel hääletamisel on see **TESTE-HÄÄL** ning valimistel arvesse ei lähe.



Sulgen



Verification of I-votes

App on an independent channel: smart device (Android, iOS)

Confirms that the vote was received as intended

Enables the voter's computer to be checked for malware infections

Goal: 2% verified votes

Result: 5.3 % I-votes verified



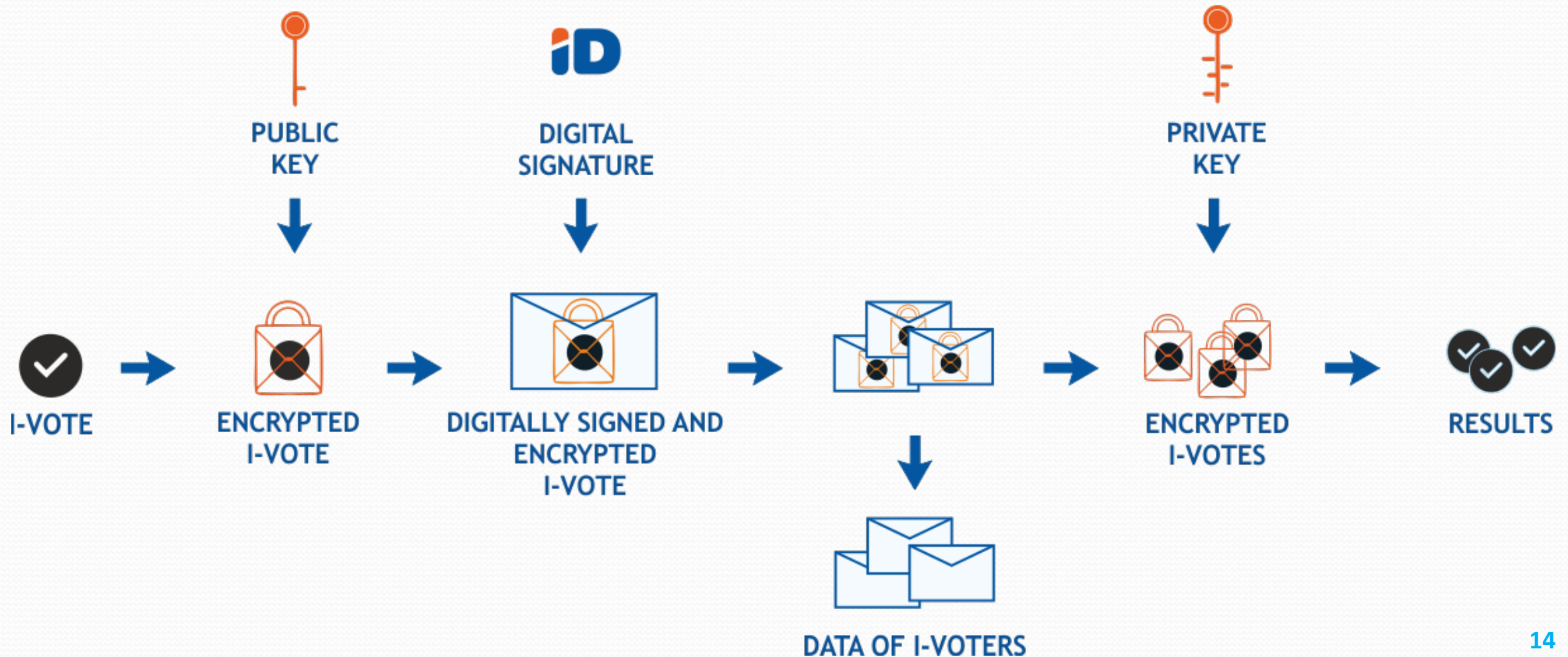
Accessibility for persons with disabilities

JAWS support for voters with seeing difficulties

The app is universally available and can be used by everybody
- paper voting option is still provided (home voting)



„Double envelope“ scheme





Internet Voting System

Current system from 2017

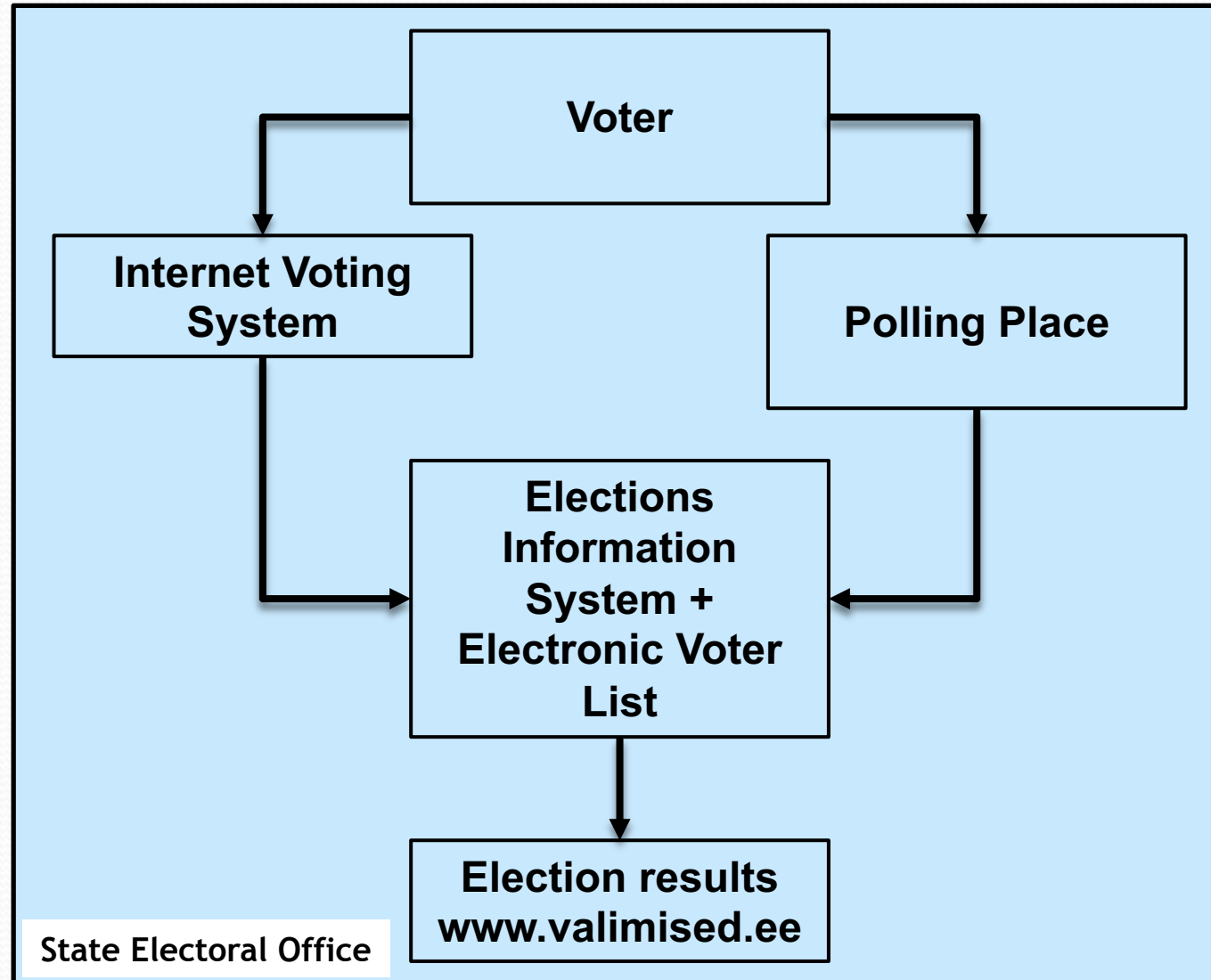
Individual vote verification: cast-as-intended

Universal end-to-end verification: mixing and counting proof

Homomorphic vote encryption

Public-Private Key system

Vote secrecy is guaranteed





Testing, auditing, observation

System penetration tests

EITS security audit

All key processes can be observed

Public voting trial

Data and process audit of all procedures

Verification of results by auditors



Communication and voter awareness campaigns

Cyber hygiene:

- how to safely handle your digital identity
- how to keep your PC clean

Trust in Internet voting:

- how i-voting works
- how i-voting procedures are verified

Voter awareness:

- check you digital ID and PC
- when, how and where to vote



Transparency

Source code published

Documentation and protocols are public

Procedures of the SEO are public

The system trial is carried out and the results tested publicly before the start of voting

Observation encouraged with a preparatory course available

Results auditable



Threats and vulnerabilities

The secrecy of the vote is guaranteed through cryptography (RSA scheme and PKI framework)

Data over Internet protected by HTTPS/TSL

Internet monitoring by CERT

Risk of DDoS: several sets of clustered servers; DDoS prevention services.

Security in general backed by security policies

3d party registration service is used for vote collector



I-voting: Impact

Minimal effect on increasing participation
(but voting abroad has increased)

I-voters more likely to i-vote and vote in the future

Voting is gender neutral, age neutral

Young voters less likely to vote

I-voting is the most popular voting method (since 2019)

By price per vote I-Voting is the cheapest voting method



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Thank you! Questions?

More information at

<https://www.valimised.ee/en>