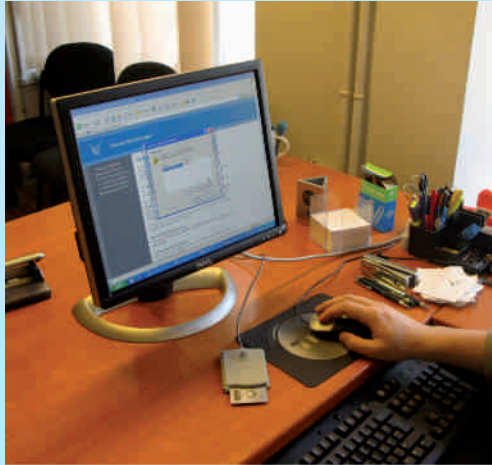




Internet voting in Estonia

Internet voting

with binding results has been carried out twice in political elections: in local elections of October 2005 and parliamentary elections of March 2007.



Key facts

- 63 per cent of the population (aged 6-74 years) uses the Internet (*TNS EMOR, spring 2007*).
- 53 per cent of households have a computer at home, and 89 per cent of these are connected to the Internet (*TNS EMOR, spring 2007*).
- All Estonian schools are connected to the Internet.
- In 2007, 86 per cent of Estonian taxpayers declared their income tax via the Internet.
- 79 per cent of Estonian Internet users conduct their everyday banking via the Internet (*The Nielsen Company, 2007*).
- The rate of mobile phone subscriptions is 123.4 per 100 inhabitants (2006).
- Estonia currently holds the fourth place in EU25 in terms of online availability of basic public services (*Information Society Benchmarking Report, European Commission, 2005*).
- More than 80 per cent of voting-age population hold an ID card.

Preconditions

High e-readiness of the Estonian population, modern infrastructure combined with governmental IT programs as well as collaboration between public and private sector make up the crucial factors in developing successful e-services for a citizen-oriented state.

In 2002 the Estonian Parliament created the legislative basis for conducting Internet voting. The widespread use of national ID cards was vital for introducing the new voting channel. The ID card, issued by the Estonian Government since 2002, is the new generation's primary identification document, with dual purpose: besides being a physical document it also functions as an electronic identity.

Why a new voting channel?

- It provides an additional and convenient channel for voting, thereby improving voting activity
- It enables a more efficient use of the existing infrastructure:
 - the use of digital channels is spreading steadily
 - eID cards enable secure online authentication

All major principles of paper-based elections are followed.

Authentication with eID

In order to vote via the Internet the voter needs:

- an Estonian ID-card with valid certificates and PIN codes
- a computer with:
 - a smart card reader and relevant software
 - an Internet connection
 - Windows, MacOS or Linux operating system



What about voting privacy?

Voters' free expression cannot be wholly guaranteed in case of Internet voting, therefore, i-voter has the right to replace his/her i-vote with:

- another i-vote -> only the last vote counts
- a paper ballot -> i-vote is cancelled

Repeat voting is allowed only during advance voting period.

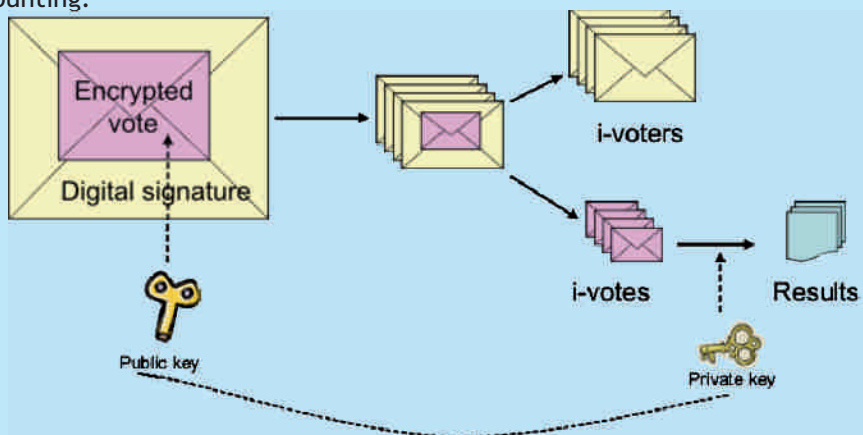
Secrecy scheme

A double-envelope scheme used for postal voting in some countries guarantees the secrecy of the vote. The voter's choice is encrypted by the voting application (i.e. voter seals the choice into an inner blank envelope) and then signs it digitally (i.e. puts the inner envelope into the outer one and writes his or her name and address on it). The signed and encrypted votes (outer envelopes) are collected to the central site for checking and ensuring that only one vote per voter is counted. Before counting, digital signatures with personal data (outer envelopes) are removed and anonymous encrypted votes (inner envelopes) are entered into the ballot box for counting.

The scheme uses public key cryptography which consists of a key pair - a private and a public key.

Once the vote is encrypted with a public key, it can only be decrypted with the corresponding private key.

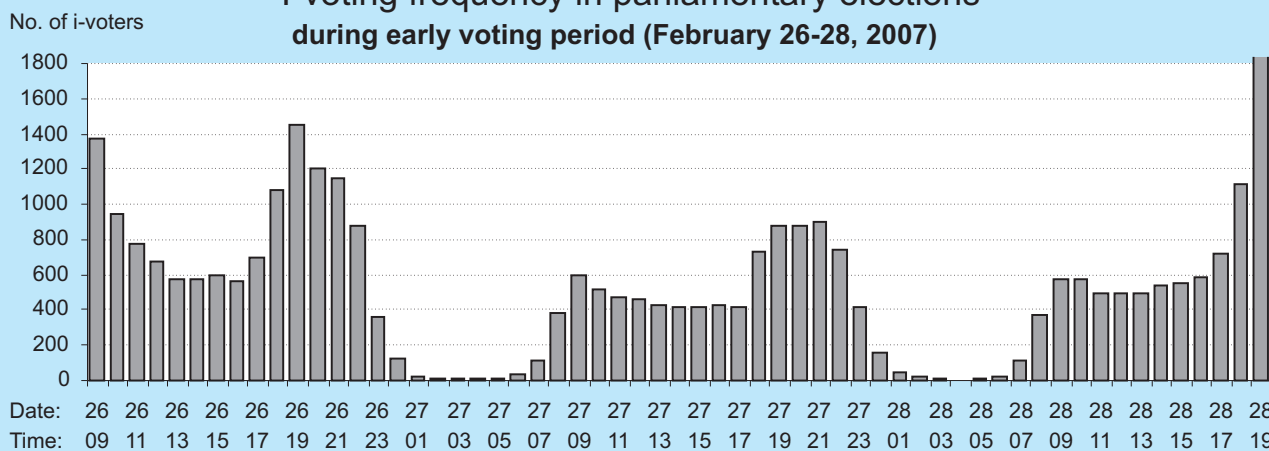
The National Electoral Committee, holding the private key, collegially opens the encrypted i-votes on the Election Day.



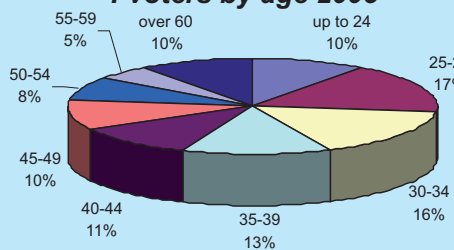
Results

	2005	2007
Eligible voters:	1 059 292	897 243
i-votes:	9 681	31 061
i-voters:	9 317	30 275
i-vote turnout:	0,9 %	3,4 %
First-time ID-card users:	61%	39%
% of i- votes among early votes	8%	18%
% of i votes cast abroad (51 countries in 2007)	...	2%

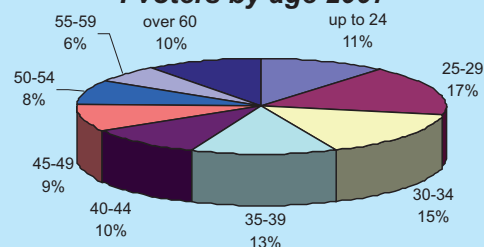
I-voting frequency in parliamentary elections during early voting period (February 26-28, 2007)



I-voters by age 2005



I-voters by age 2007



Perspectives

In order to increase the competitiveness of the society, more emphasis is placed on the development of citizen-centricity and inclusiveness, and i-voting is a step towards this goal. New initiatives, like the public-private project "Computer Security 2009" and the state-run Information Society Awareness Program, which aim at further increasing the use of e-services with due attention to security issues and application of ID-card, will most probably increase the popularity of Internet voting in the future. Next elections with optional i-voting will take place in 2009.

Information: www.vvk.ee/engindex.html

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