

The Information Society Policies implementation in Estonia

Hannes Astok

Director of Regional and Municipal
eGovernance program

Estonian statistics 2006

- Population of Estonia – 1,356,000
- 52 % of population uses Internet
- 42 % of households have computer (82% connected to internet)
- 99 % of public employees have computerized workplace with Internet connection
- All governmental agencies have web pages
- More than 800,000 Internet-banking clients
- More than 900,000 ID-cards issued (01.03.06)
- About 80% tax declarations were filled online (2006)
- 60% are using internet banking in order to pay for e-services provided by public authorities

Historical background

- Good level of education and research
- Relatively young ICT systems
- Finnish, Swedish and German influence
- Good telecom infrastructure and high level of eBanking
- Flexibility of small country

Historical background

First governmental IT-policy in 1994

Estonian government's positive attitude towards IT promotion and knowledge-based economy:

- There is few natural resources in Estonia
- There is few competitive traditional industry in Estonia
- Estonia need's to empahsize to ICT and other knowledge-based industries and services
- **We need to start from education!**

Estonian Information Policy (from 1994)

Main tasks:

- eServices for citizens, business, government
- eDemocracy tools
- Efficient public sector
- eLearning – eEducation
- ICT industry and eBusiness
- eSecurity
- International position

Tiger Leap Program

National educational program for
ICT in the schools (K1-K12)

Tiger Leap Programme 1996-2000 with total national budget of 10 M EUR and following results:

- All schools got computers, 25 pupils per computer on average, 75% of schools got online Internet connection, the others had dial-up connection
- 64% of teachers trained for basic computer skills
- Development of 61 different software (incl. 39 new original) dealing with Estonian language, culture, history, nature

www.tiigrihype.ee

Tiger Leap Plus Program

Tiger Leap Plus Program 2001-2006 with total national budget of about 7,5 M EUR and following priorities:

- Development of the ICT competencies of graduates, teachers and officials in education
- Production of electronic educational materials
- Sustainable development of infrastructure
- Collaboration between state, local governments, schools, organisations, parents

www.tiigrihype.ee

Internet Connection in education 2006

- 97% of schools have broadband Internet connection
- 3% of schools have dial-up connection
- All schools in Tallinn and Tartu have at least 100Mbps Internet connection
- 93% of all computers in schools have Internet connection
- **Over 70% of students (K5-12) use computer at home – K10-12: 95%**

Follow-up in Georgia: Deer Leap

- Successfully replicated in Georgia
- Deer Leap Program in Georgia is sponsored by President of Georgia Mikhail Saakashvili

<http://www.dlf.ge/en/>

Look@World initiative 2001-2005

Private companies initiative: banks, telecoms, ICT companies



Look@World initiative 2001-2005

- **Commitment to 13 M EUR**
- **Goals**
- **To train 100 000 people (7,5% of population) in target group:**
 - Older population (50+)
 - Blue-collars, i.e non-office workers
 - Agriculture
 - Service
 - Production & processing
 - Internet sceptics

Look@World initiative 2001-2005

Motivation for sponsors:

- Banks: wider use of internet banking
- Telecoms: boosting broadband subscription
- ICT companies: sales and services

+ social responsibility

Look@World initiative 2001-2005

Results

- 102 000 persons trained
- Over 75% of persons continues using internet actively after training
- Lot of companies sold their used computers to employees
- Lot of companies established internet access points to employees
- Computer classes (30+) handled over to schools

Legislation

- Databases Act (1997/ 2004)
- Telecommunications Act (2000)
- Principles of Estonian Information Policy (1998)
- Action Plan of Estonian Information Policy – (eEstonia) (1998, 1999, 2001, 2002, 2004)
- Personal Data Protection Act (1996)
- Public Information Act (2001)
- Broadband Strategy (2005)

Internet services market and Telecommunications Act 2001

In Estonian Telecom privatisation (1994) concession agreement was mentioned that there are exclusive rights for x.25 protocol for Estonian Telecom, **but TCP/IP protocol was not even mentioned.**

This means, that **the market was and remains open for Internet Service Providers.**

Telecommunications Act **opened telecom market from 2001**

As well it states that **data communication is universal service** i.e. every telecom operator should provide it (together with voice service).

Public Information Act (2001)

- guarantees citizens' constitutional right to information;
- regulates what information on the administrative apparatus and its activities is to be offered to the public;
- asserts that all information must be accessible also through the Internet
- requires that every public institution should have updated web-page

Digital Signatures Act (2000)

- Stipulates the possibility to use digital signatures in public sector organisations as of June 1, 2001.
- Governmental organizations are obliged to receive digitally signed documents.
- The digital signature infrastructure is developed in cooperation between public sector and private sector organisations: banks, telecoms and ICT vendors.

eGovernment new developments

- Infrastructure, identification, authorization
 - “Central road”, “village road”, public libraries, X-road
 - PKI
 - ID-cards
- State registers (databases) and G2G, G2C, G2B
- eCitizen
 - environment for eServices from central government and local government
 - Assistance to encourage digital document management for citizens and businesses
- iVoting

National chip-based Identity Card

Issuing authority:
Estonian Citizenship

and

Migration Board

Service contractor:

TRÜB Switzerland

Start of
issue: January 1,
2002

Conformance with:
ICAO Doc. 9303 part 3



Inside 16 Kb RSA crypto chip are :
2 private keys; authentication
certificate;
digital signature certificate;
personal data file

- 18 Dec 2001 – ID-card as the first compulsory identity document
- 28 Jan 2002 – first ID-cards issued
- 15 Sept 2002 – over 50,000 ID-cards issued
- Today – more than 900 000 ID-cards have been issued
- ID-card also carries also a certificate for allowing the use of digital signature and e-mail address name.family@eesti.ee

X-road project

Registers and databases status and construction has fully changed two times during the last ten years.

The first period of changes started in the beginning of 90s, when paper documents based folder and register systems came to the end and the Database Management System (DBMS) based development begun.

- **The second** period begun ten years later (and continues today) when all stand alone databases are being connected to the common Internet accessed data resource.

X-road project

Estonian Registers and Databases

Population register, Business register, Cars register, Driving licenses database, Passports register, Land register, Real estate register, Ships register, etc.

The task is to cross-use the databases to get relevant information for public services:

- Faster results
- No data duplication
- Pre-designed services
- Availability as e-service

Citizen uses X-road solutions via Citizens Portal e-governance academy

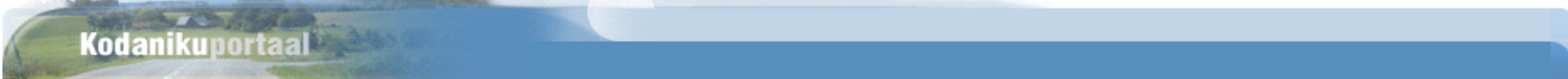
www.eesti.ee

Minu teenusteportaal - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <https://www.eesti.ee/portaal/portaal.sisene?level=3&loc=> Go

+ abc | - abc | Printer Teabeportaal



Kodanikuportaal

Tere tulemast! Esmaspäev, 25. aprill 2005


Kodanikuportali sisenemine

teenus(t)e kasutamiseks on vajalik autentimine panga kaudu või ID kaardiga. Sisenemisega aktsepteerite [Kodanikuportali kasutamistingimusi](#).

... kasutajal olema [ID kaart](#), arvutil küljes ID kaardi lugeja ja installeeritud vajalik [tarkvara](#), mis ühendab omavahel ID kaardi kasutamise erinevates isiku tuvastamist vajavates internetikeskkondades.

... saab kasutada järgmisi Kodanikuportali teenuseid:

Sisenen ID kaardiga



- **Digitaalne allkiri** - siin saate saata ja vaadata Teile saadetud digitaalselt allkirjastatud dokumente ning kontrollida allkirja kehtivust
- **Ametlikud vormid** - siin saate täita ja saata erinevate riigiasutuste blankette
- **Registrite teenused** - siin saate vaadata Teie kohta erinevatesse riiklikesse registritesse kogutud andmeid ja esitada erinevaid taotlusi, näiteks taotleda peretoetusi (Pensionikindlustuse register), EL ravikindlustuskaarti (Haigekassa andmekogude)
- **Lingimärgmiku teenus** - lingimärgmik on mõeldud linkide säilitamiseks ja kasutamiseks ka siis, kui kodu- või tööarvuti linkide nimekiri pole kättesaadav, samuti saab lingimärgmiku abil tellida ametlikule e-posti aadressile teavituse selle kohta, kas viidatud lehekülg on viimase 24 tunni jooksul muutunud
- **Ametliku e-posti (@eesti.ee) suunamise teenus** - siin saate korraldada oma @eesti.ee postiaadressi ümbersuunamise
- **Teavitusteenus** - teavitusteenus võimaldab tellida asutuste või ettevõtete poolt edastatavaid teateid, mis puudutavad konkreetset aadressi või asukohta

Sisenen panga kaudu

Panga kaudu sisenemiseks peab kodanik olema internetipanga klient. Internetipanga vahendusel pakuvad isiku tuvastamise teenust järgmised pangad:
Hansapank, Ühispank, Krediidipank, Sampo Pank, Nordea Pank.

Panga vahendusel tuvastatud kasutaja saab kasutada järgmisi Kodanikuportali teenuseid:

onet

- **Digitaalne allkiri** - siin saate vaadata Teile saadetud digitaalselt allkirjastatud dokumente ning kontrollida allkirja kehtivust
- **Ametlikud vormid** - siin saate täita ja saata erinevate riigiasutuste blankette

Opening page <https://www.eesti.ee/login/index.php?r=/portaal/portaal.index...>

start | Minu teenusteportaal... | Microsoft PowerPoint... | Internet | 19:41

One portal serves citizens as a gateway to the services of approximately 20 different databases www.eesti.ee

The screenshot shows a Netscape 6 browser window displaying the Estonian Citizen Portal (Päringud). The browser's address bar shows the URL: <https://portaal.riik.ee/x/kodanik/index.php?fp=querylist>. The page content is as follows:

Päringud

Liiklusregister

- Isiklike sõidukite päring
- Juhilubade päring

Rahvastikuregister

- Kodaniku päring iseenda kohta rahvastikuregistrist
- Kodaniku võimalus teavitada oma andmetes vea leidmisest registri volitatud töötajale kodanikuportaali vahendusel
- Kodaniku võimalus teavitada oma statistiliste andmete (rahvus, emakeel, haridus, tegevusala) muutumisest

Äriregister

- Kodaniku päring iseenda kohta äriregistrist

KMA infosüsteemi andmekogud

- Isikukaart

Väikelaevaregister

- Minu väikelaeva andmed

Apply for EU health insurance card www.eesti.ee

X-tee päringute portaal. Taotlus Euroopa ravikindlustuskaardi saamiseks - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <https://portaal-id.riik.ee/x/kodanik/index.php> Go

X-tee

RIHO OKS 37903265217 / Päringute portaal

Taotlus Euroopa ravikindlustuskaardi saamiseks

Euroopa ravikindlustuskaart väljastatakse Teile kas klienditeenindusbüroost või Teie postiaadressil lihtkirjana.
Küsimuste korral pöörduge haigekassa kliendiinfo telefonile 1 6363

Kaarti soovin kätte saada:

Teie aadress: UDESELJA 2-17, Tallinna linn, Harju maakond

[Muudan aadressi](#)

Taotluse esitamiseks vajuta nupp <<Esitan taotluse>>

Esitan taotluse

Päringu id: 080d2d816f8909938dd1199153052c819b5dcd2e

Teade **Uut kaarti saab taotleda juhul, kui olemasoleva kaardi kehtivuse lõpuni on jäänud alla 1 kuu**

Done Internet

start Minu teenusteportaal... X-tee päringute porta... Microsoft PowerPoint ... 19:44

Consult data about their real estate possessions www.eesti.ee

http://www.maaamet.ee - Avalik Teenus - Microsoft Internet Explorer

70201:003:0920
70201:003:0300
70201:003:0700
70201:003:0007
70201:003:0180
90003:001:0022
90003:001:0046
90003:001:0045
90003:001:0008
90003:001:0021
90003:001:0024
90003:001:0572
90003:001:0990
90003:001:0573
90003:001:0981
90003:001:0982
90003:001:0674
90003:001:0972
90003:001:0750
90003:001:0422
90003:001:0774
90003:001:0980
90003:001:1170
90003:001:0983
90003:001:0711
90003:001:0023
90003:001:0028
90003:001:0028
90003:001:0820

Maa-amet. Kõik õigused kaitstud.

0 km 1 2 3
M 1: 21175

Maa-amet. Kõik õigused kaitstud. Süsteemilahendus **Datel**

Rakendus: **Katastriüksus** Aktiivne kiht: -- Valik puudub -- **TUVASTA**

Navigatsioon

Leppemärgid

- riigipiir/kontrolljoon
- omavalitsusüksuse piir
- maakonna piir

Kaardikihtide juhtimine Toimingud Info

- Katastrikaart**
 - katastriüksuse piir
 - Katastriüksuse tunnus**
- Aluskaart**
 - aluskaart 1:10 000
- Kaardilehtede jaotus**
 - Vali-----
- Baaskaart**

Apply for parental benefit allowances www.eesti.ee

The screenshot shows a Microsoft Internet Explorer browser window displaying the X-tee portal. The page title is "RIHO OKS 37903265217 / Päringute portaal" and the main heading is "Taotlus". The form contains the following information:

Päringu id: 9147c4e155dc1f5048138d069d6b6b37afd38d55

Taotluse number	68808
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Palun mulle määrata vanemahüvitis.

Isikukood	37903265217
Eesnimi	RIHO
Perekonnanimi	OKS
Elukoht	Maakond Harju Vald/linn Tallinn Asula Pirita
Tänav, maja, korter	UDESELJA TN 2-17
Postiindeks	11913

<<Täpsustan isikuandmeid>>

soovin selgitust...

Isikut tõendav dokument	Kodakondsus	EST
	Liik	ID kaart

The browser's address bar shows the URL: https://portaal-id.riik.ee/x/kodanik/index.php?fq=pkp/pkr.kod_taotl. The taskbar at the bottom shows the Start button, taskbar icons for "Minu teenusteportaal...", "X-tee päringute porta...", and "Microsoft PowerPoint ...", and the system tray with the time 19:42.

Example – Parental benefit solution on the X-road

5 information systems interact the data (real time)

- Citizens' portal
- Register of Social Insurance Board
- Population register
- Information system of Health Insurance Fund
- Information system of Tax and Customs Office

Parental benefit solution on the X-road

Best practice award for civil servant solutions 2004

- No bureaucracy was imitated
- Civil servant is free from revising mountains of paper documents (7)
- Civil servant is free from inputting the data from paper documents
- Civil servant is free from checking data in different databases
- Civil servant can start the process by inputting only the personal code of client
- There does not exist any paper applications at all
- Available as self-serve in eCitizen portal

First Internet voting

- In October 2005 Estonia had the
- first pan-national Internet Voting with binding results
- ~ 80% of voters had a chance to vote via Internet
- ~2% of voters used that possibility

To vote via Internet voter needs:

- an Estonian ID card with valid certificates and PIN codes

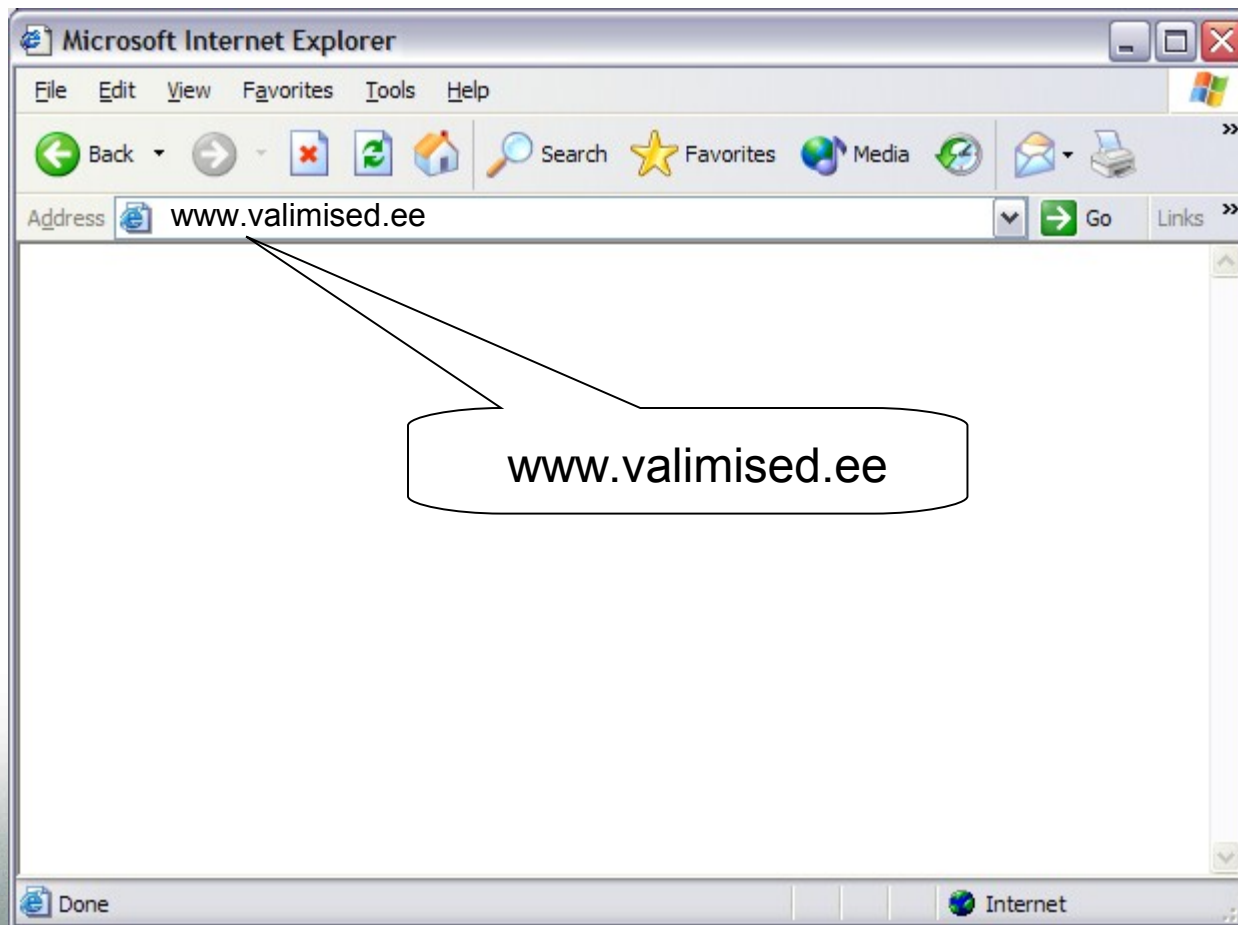


Computer used for voting must have:

- a smart card reader
- a driver for ID card (free to download from page www.id.ee/installer)



Website for voting



II Identification

- Put your card into card reader
- Insert PIN 1



The screenshot shows a web browser window with the address bar displaying `http://www.valimised.ee`. The browser window has a blue header with the text "Vabariigi Valimiskomisjon". The main content area features a "Welcome to the website of Internet Voting System!" message. Below this, it states: "Elections to the local government councils take place on October 16th 2005." and "Advance voting via Internet begins at 9.00 on October 10th and ends at 20.00 on October 12th." There is a link for "Korduma kippuvad küsimused".

The overlaid dialog box, titled "ID - kaart", contains the text "Sisesta PIN-kood isikutuvastuseks (PIN 1)" and a text input field. Below the input field are two buttons: "OK" and "Katkesta".

III Ballot completion


■ Choose a candidate

www.valimised.ee - Microsoft Internet Explorer

Back Forward Stop Home Search Favorites Media Print Copy Paste

File Edit View Favorites Tools Help

Links >> Address www.valimised.ee Go

 Vabariigi Valimiskomisjon

- [Küsitluse teema ja tingimused](#)
- [Kus asuvad hääletuspunktid](#)
- [Kuidas hääletada internetis](#)
- [Korduma kippuvad küsimused](#)

Name: **Mari-Liis Männik**
Identity code: **47302200234**
Constituency: **City of Tartu, District No 1**

LIST OF CANDIDATES

Democratic Party
101 Erna Noor
102 Ermo Vana

People's Party
103 Helve Hani
104 Kaarel Kana

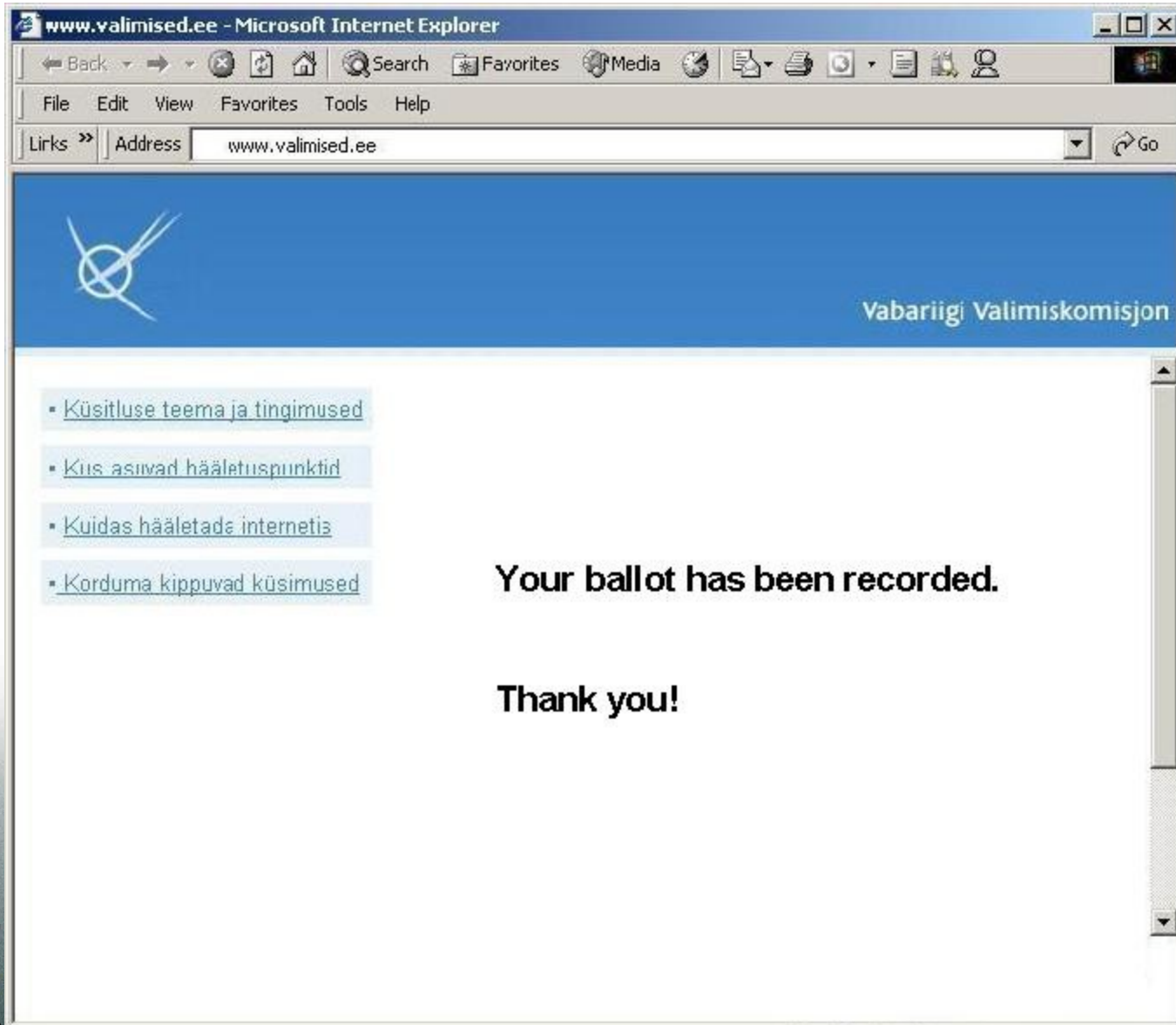
Independent candidates
105 Kalle Kaamel

IV Authentication

- Confirm your choice
- Insert PIN 2

The screenshot shows a Microsoft Internet Explorer browser window displaying the website www.valimised.ee. The browser's address bar shows the URL. The website content includes the header "Vabariigi Valimiskomisjon" and a list of candidate names: "103 Helve Hani", "104 Helve Hani", "105 Helve Hani", and "106 Helve Hani". A modal dialog box titled "ID - kaart" is overlaid on the page, prompting the user to "Sisesta PIN-kood digiallkirjastamiseks (PIN 2)" (Enter PIN code for digital signing (PIN 2)). The dialog box contains a text input field and two buttons: "OK" and "Katkesta" (Cancel). The browser's status bar at the bottom shows the date and time: "23.05.2006 11:00:00".

V Confirmation



Statistics

E-votes counted	9287
E-vote turnout (e-votes/votes)	1,85 %

Advance votes among all votes	24 %
E-votes among advance votes	8 %

E-voters by gender:	women	45.7%
	men	54.3%

E-voters by age:	-29	27.7%
	30-59	62.4%
	60 -	9.9%

Lessons learnt

- **Internet voting is just an additional way of voting. It widens accessibility.**
- **It takes time to change voters' habits and attitudes and to increase the turnout.**
- **Internet voting brings people closer to the information society.**
- **Existence of a reliable and secure authentication system is vital.**
- **Internet voting is there to stay.**

Conclusions

- **Education is crucial: the age group from 1996 now has attended labour market**
- **Results: Skype, Playtech, Reach-U**
- **We need to keep in mind older age groups**
- **Liberal telecommunication legislation makes market competitive**
- **Governmental and public institutions should provide all information by web**
- **Services and content are driving forces.**

e-governance academy

**Thank you for your attention!
Questions?**

Hannes.Astok@ega.ee

www.ega.ee