

Estonian e-government ecosystem: analogue and digital elements



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Hannes Astok

- 2011 - eGovernment expert, Deputy Director, e-Governance Academy
- 2007-2011 – Member of the Estonian Parliament
- 2005 - Programme Director, Municipal and Regional eGovernance, e-Governance Academy
- 1998-2005 Deputy Mayor, Tartu City Government



Estonia

- Population: 1.257 million
- Area: 45,200 km²
- Population density: 31 inhabitants per km²
- Urban population: 69%
- Rural population: 31%
- Birth rate: 10,29 per 1 000 residents
- Mortality rate: 13,69 per 1 000 residents
- Capital City: Tallinn, 430,000 residents
- GDP per capita: 17,661 USD (2015)

e-Governance Academy
Building and Developing
Open Digital Societies
Since 2002



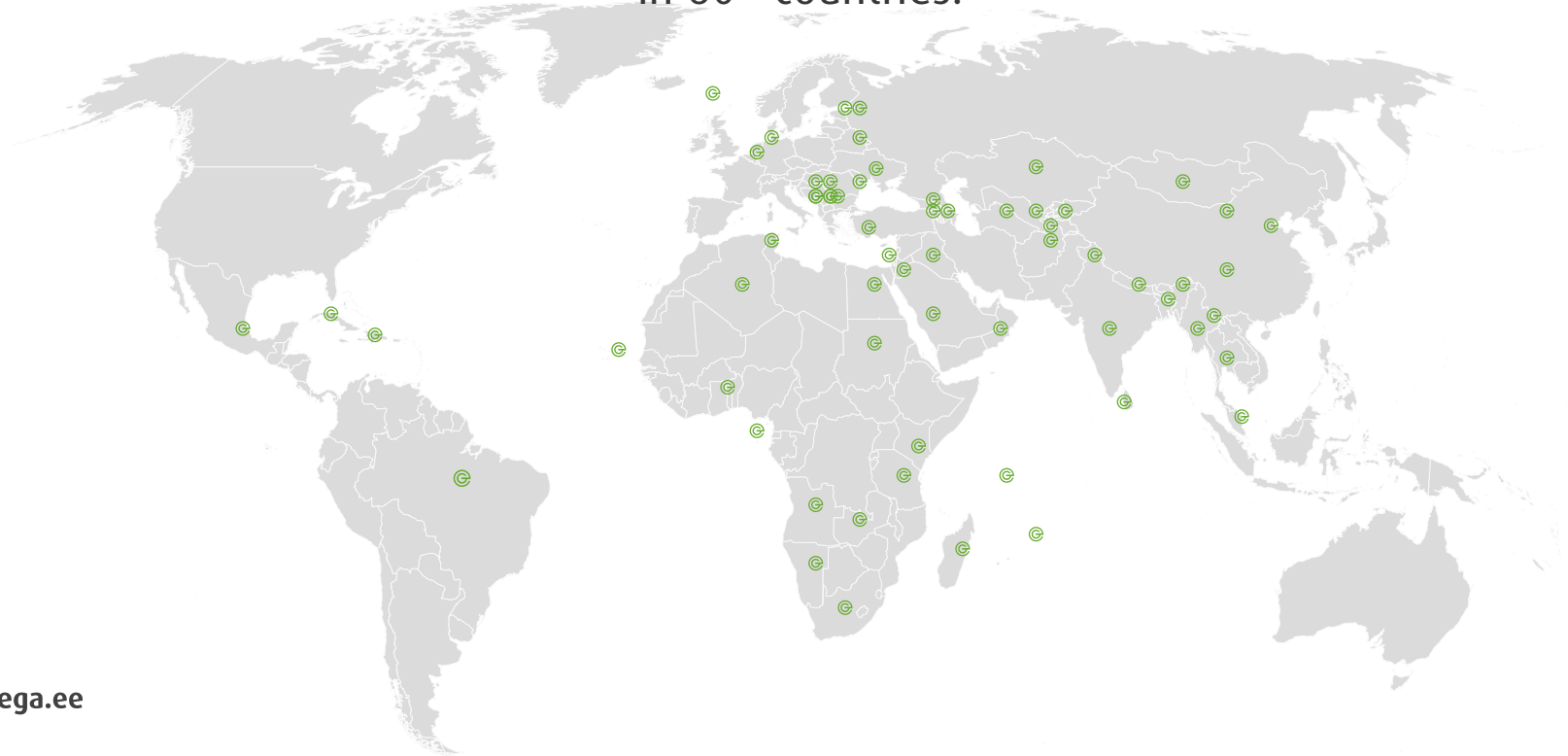
e-Governance Academy

- An independent and mission-based: non-profit, non-governmental, non-academic.
- Jointly brought into existence by UNDP, Open Society Institute and Estonian Government.



REPUBLIC OF ESTONIA
GOVERNMENT OFFICE

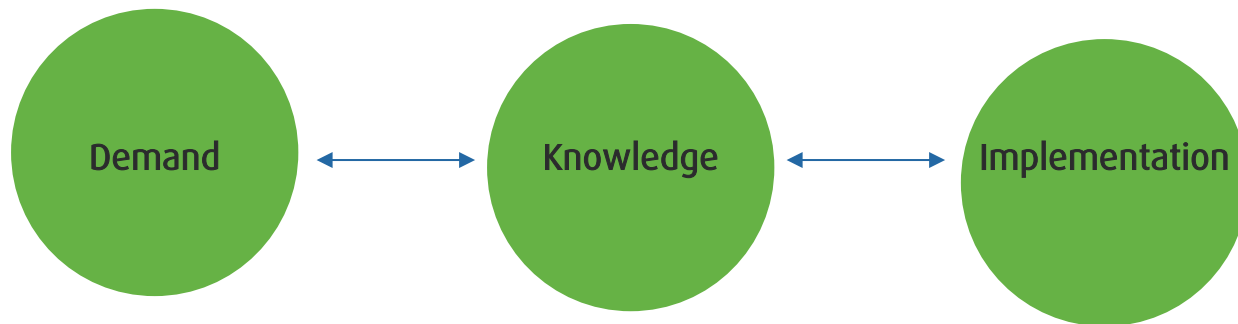
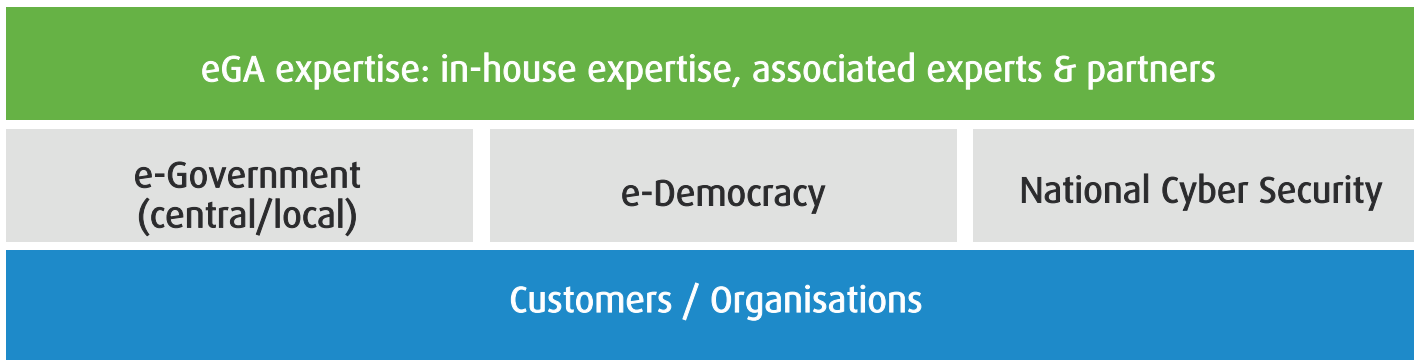
e-Governance Academy creates and transfers knowledge and best practices concerning e-governance, e-democracy and national cyber security in 60+ countries.



- 25+ permanent staff
- In-house hands-on expertise: experts who built e-Estonia
- 100+ international experts with hands-on experience



How does eGA work?



Donors

Main Donors



Current projects



Armenia



Georgia



Moldova



Kirgystan



Ukraine



National Cyber Security Index



Cayman Islands



Indian Ocean Countries



Namibia



Sao Tome & Principe



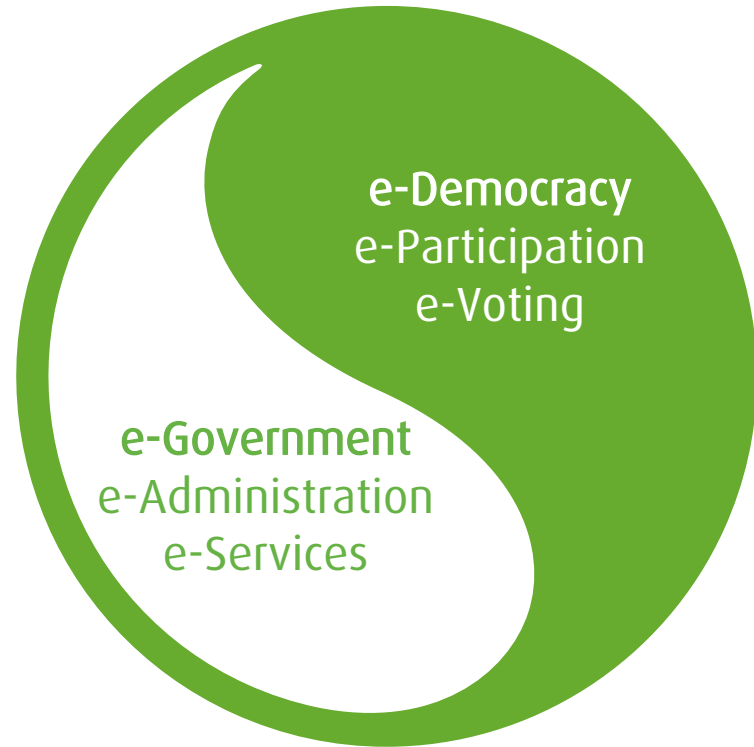
Cyprus



Faroe Islands

e-Governance

Electronic democracy +
Electronic government =
e-governance



**The e-governance is
comprehensive set of
organizational, regulative and
technological measures,
not just the set of computer software
and hardware.**

Analog and digital elements of e-Government

ANALOG ELEMENTS

Legislation & regulations
Sustainable organization
Change management
Political will



DIGITAL ELEMENTS

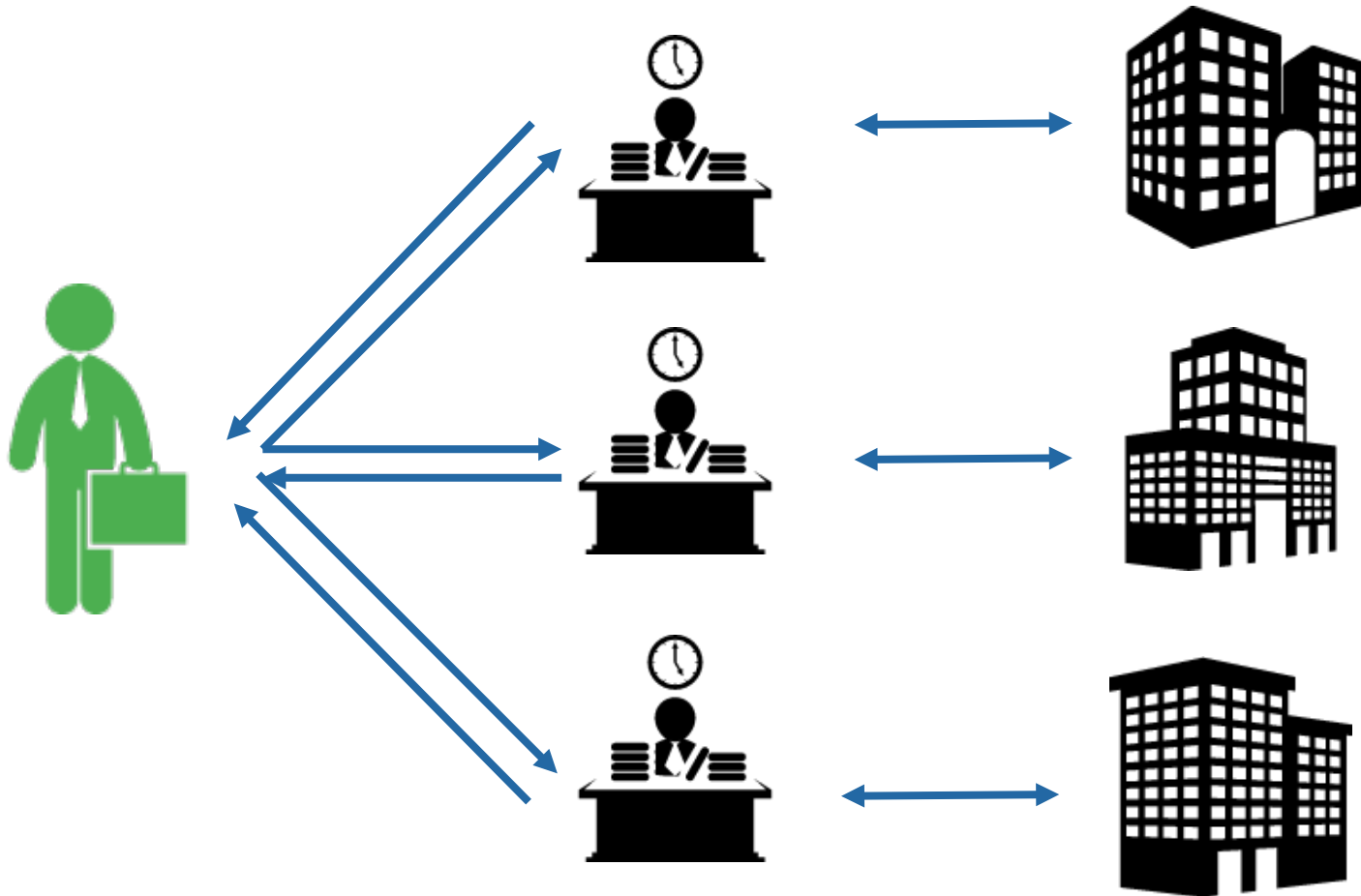
Digital databases
Interoperability
Digital Identity
Document exchange
Services portal
Cyber security
Sectoral solutions

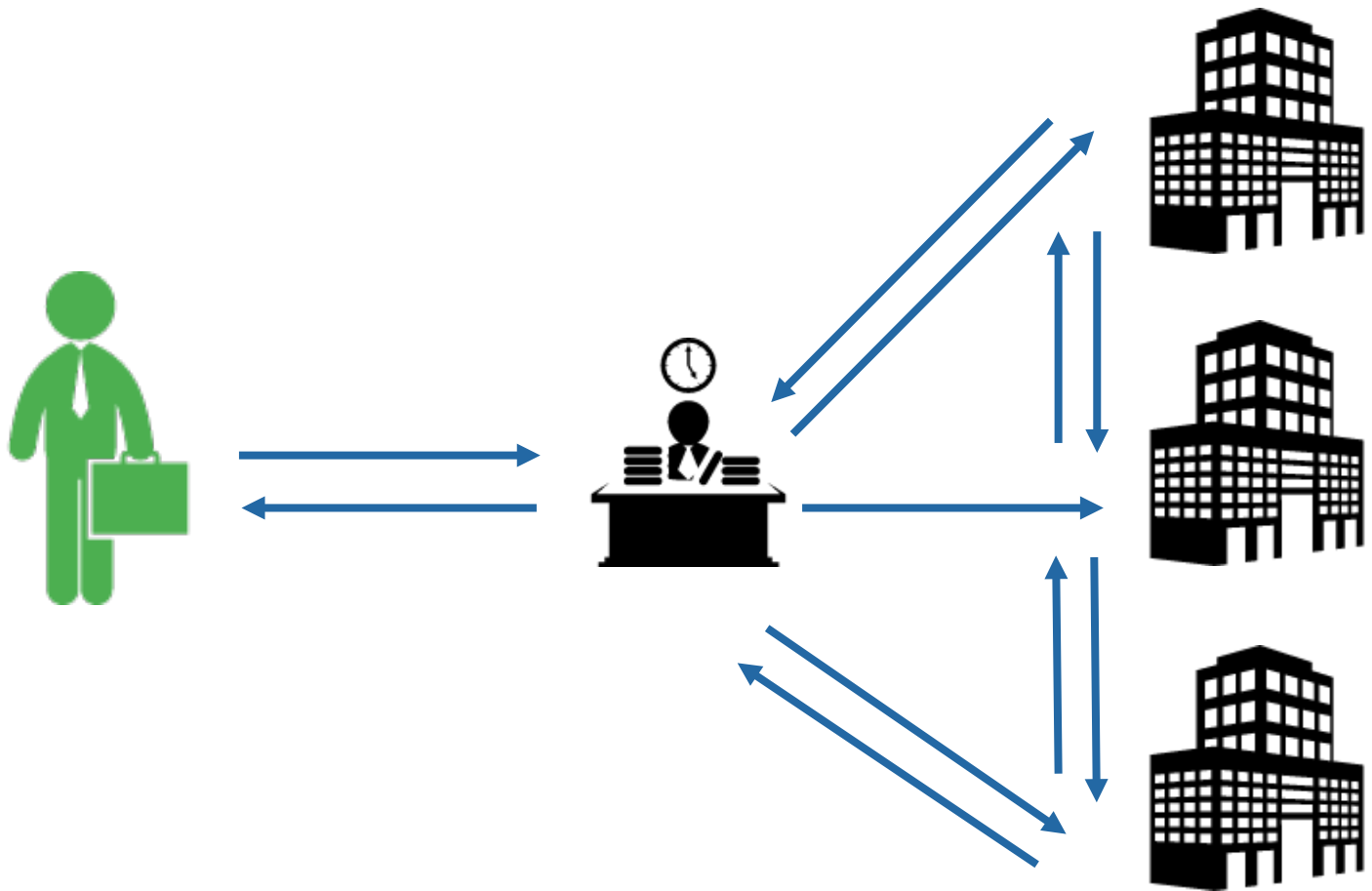


One of the 1st photos of
Estonians, end of 19th
Century



Where is the bottleneck?









**Strong Digital
Identity**



**Portal &
Secure Data
Exchange**



Data Online

Online versus Offline

Service	Time spent on e-service (min)	Time spent on offline service (min)	Time savings (min)
Establishing a company	30	510	480
VAT declaration	7	68	61
Tax declaration	10	78	68
i-Voting	6	44	38

Key digital elements

- Digital databases
- Interoperability solution (data exchange)
- Digital identity
- Digital documents exchange
- Services portal
- Cyber security
- Sectoral solutions

Digital Databases- Data Online



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N.º 1. 2428
D. 1. 30/05/63

Impressão de...
Car de...



Nome:

Cartão
Relatório

R. L. LINDA
1 - Rua...

27

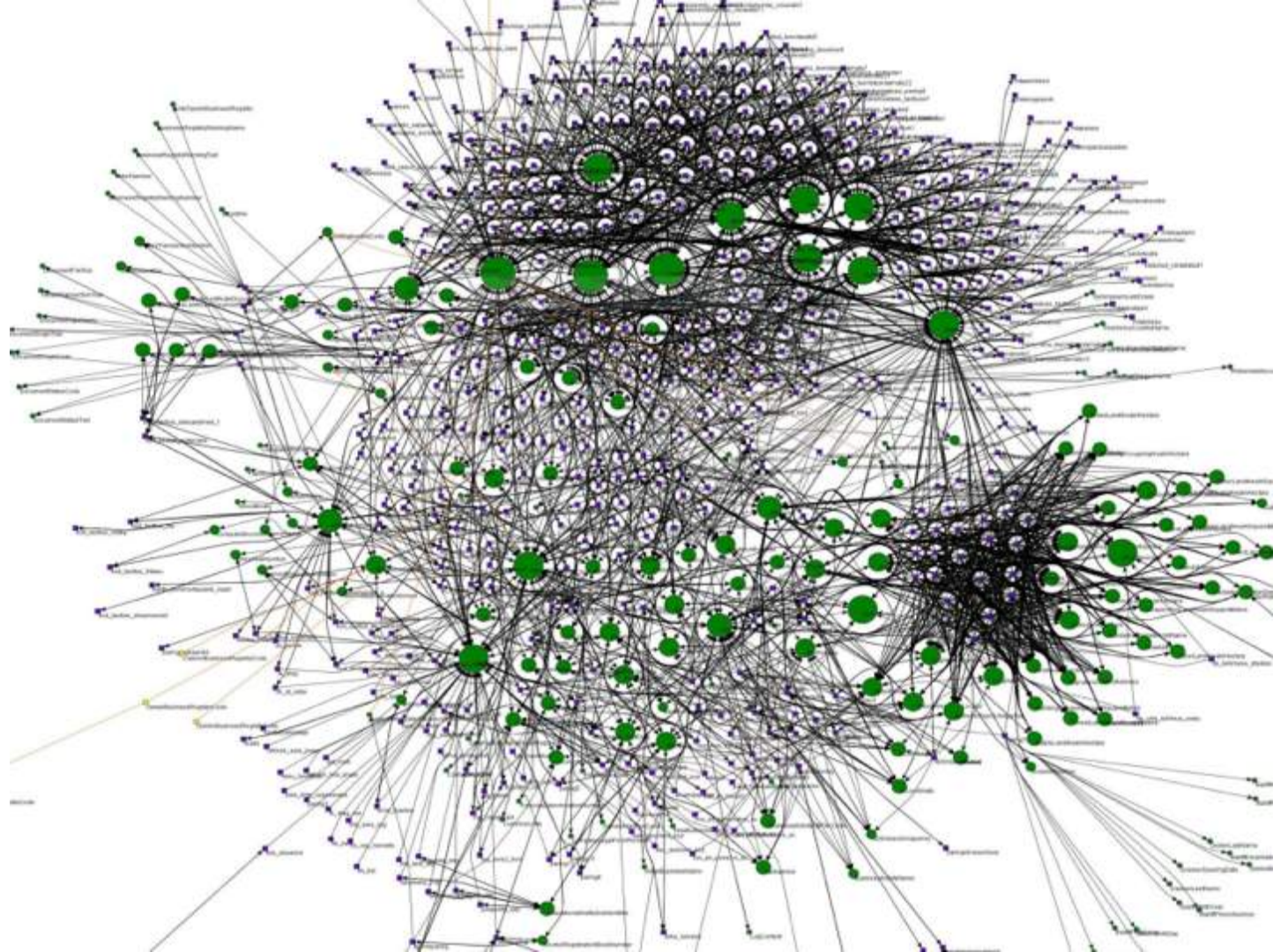
How to make data digital?

- New data – born digital
- Historical data: digitalization of the data
 - By request
 - Going back in time

Principles

- Once only. Citizens never have to provide the same information twice.
- No duplicated data in the databases
- Central registry of databases metadata
- Clear data ownership
 - Data is owned by the citizen
 - Each authority is responsible for own database quality

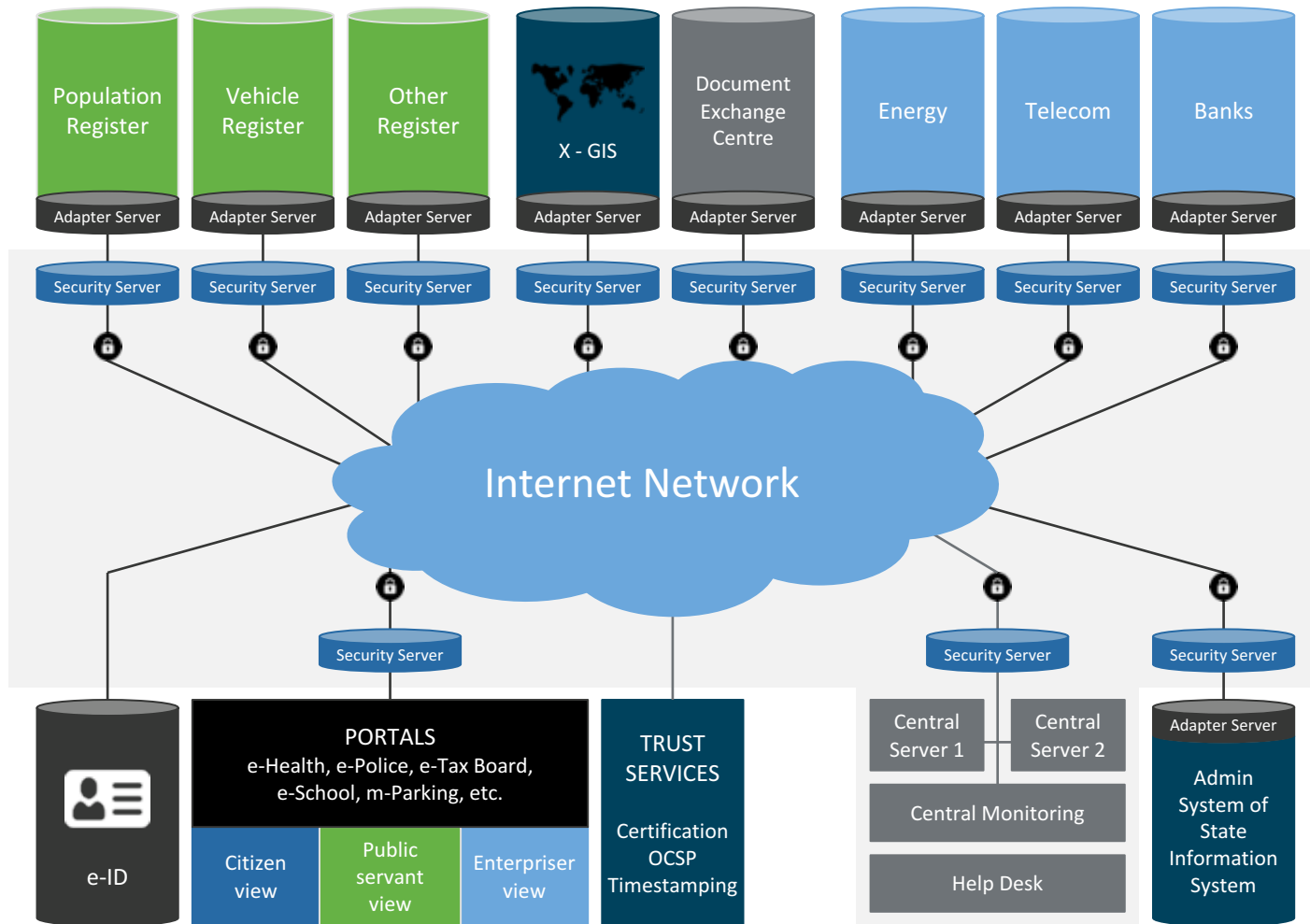
Governmental interoperability



**Governmental Secure Data
Exchange Solution
X-Road in Estonia**

- Backbone of the Estonian government
- 14 years of active duty, no downtime from 2002
- 1500+ services
- 900+ connected organizations, public registers and databases
- 350+ million transactions per year

X-Road



Principles

- Decentralized architecture
- No single point of failure
- Personal data protection
- Logging and timestamping of the transactions
- Legal value of the request and answer

Digital identity



"On the Internet nobody knows you're a dog."

Digital ID and Signature

Since 2002



Active cards: 1, 284,870
Authentications: 547,837,985
Digital signatures given: 410,101,668

ID-card

since 2002

1st national document

Public e-services (e-Tax, e-Prescriptions etc)

Applying for driver license, social benefits

E-elections

Signing documents

Accessing grades and curriculum @ school

Bank transactions

Register a new business

Customer identification card, Bus ticket



mID

(in SIM card)

Doesn't need software installed on PC

Doesn't need web browser support

Works on any handset

Can be supported by any operator



mID

since 2007

Bank transactions

i-Voting

Signing documents

Applying for driver license, social benefits

Filling tax returns

Accessing grades and curriculum @ school

Register a new business

etc

 ega.ee



mID

Trusted by the Government

100 000+ users (02/2017)

25 M transaction in a year

30 transaction per user/month

300+ e-Services



Efficiency



Digital signatures save
20 minutes per
transaction

World Bank World Development Report 2016



Private Business About Swedbank

EST | RUS Search

Everyday banking

ACCOUNT

- Summary statement
- Statements and reports
- Opening an account

PAYMENTS

- List of payments
- Domestic payment
- International settlements
- Consolidated payment
- Import of payments
- Payment archive
- Defined payments
- Currency exchange
- E-invoices
- Standing orders

MOBILE SERVICES

- Alert

BANK CARDS

- Bank cards for a company
- Credit card statement
- Secure internet shopping

E-SERVICES

- 3rd party e-services

ELECTRONIC BANKING

- Internet bank

Log in with

[▶ Become a Swedbank customer](#)

Smart-ID

ID card

Mobile-ID

Password card

PIN-calculator

User ID:

Personal code:

Enter

Smart terminal - an innovative solution for accepting card payments

Purchasing a terminal is a one-off investment. Once you purchase it, it's yours - and you can use it at any time, wherever you happen to be.

[Find out more](#)



Save for your future in a way that lets you reclaim your income tax

Start saving for your pension in the third pillar now, and next year you will get a 20% income tax refund on the deposits. Go to the third pillar page and calculate the size of your income tax refund and start saving today.

New solution in Internet bank

All board members who have sole representation rights for their companies (according to the e-business register) have now the opportunity to use administration rights in Internet bank automatically. This means that they do not need a separate contract to change user rights and limits.

Debit card name will change

MasterCard Business Debit card name will change from March 1st 2017. The new name will be Business Debit Card. All other terms and conditions of the agreement on the usage of debit card will remain the same.

EMAIL

You need to use the email address which you use to log in to Telia self-service portal, Online.ee, or minuTV.

Email

Password

[LOG IN >](#)

[Forgot your password?](#)
[Create user account](#)

SOCIAL NETWORKS

[GOOGLE](#)

[FACEBOOK](#)

[MICROSOFT](#)

BANKS

[SWEDBANK](#)

[SEB](#)

[NORDEA](#)

[DANSKE](#)

[KREDIIDIPANK](#)

[LHV](#)

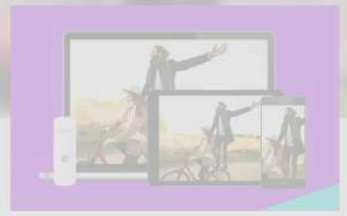
ID-CARD

[LOG IN >](#)

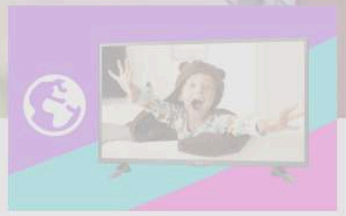
MOBILE-ID

Phonenumber

[LOG IN >](#)



MOBILE LIFE



HOME INTERNET AND TV



TELIA SAFE



DEVICES WITH A 0% INTEREST

**Vali kuidas soovid Netiapteeki siseneda:**

- E-posti aadressi ja salasõnaga
- Salasõna saadeti kasutajaks registreerides.
 - Vajadusel saate uuendada või muuta salasõna.

 ID-kaardi, Mobiil-ID või pangalingiga

ID-KAART

MOBIIL-ID

Mobiiltelefoni number

EDASI

Swedbank

Danske Bank

SEB

REGISTREERU

SISENE KASUTAJANA

RETSEPTIRAVIMID

KÜSI APTEEKRIILT

OSTUKORV



toode, toimeaine, tootegrupp, märksõna, ...



ilu Tervis Külmetus ja valu Dieet ja seedimine Vitamiinid Süda ja veresooned Sport ja liikumine Delikaatne Ema ja laps Hooaeg Lemmikloom

Käsimüügiravimid

Retseptiravimid

 KLIENDIINFO
+372 679 1870

Õnnelikuna oled ilus!

Paljud ilutooted kuni -30%

Vaata pakkumisi >

10,95 €

-25%

WOMAN+ 30 kapslit

14,10 €

-20%

BABE VITANCE ANTI-OX
DETOX NÄOPESUGEEL 245 ml

5,00 €

-20%

CICCARELLI SOS NAHKA
PÄÄSTEV KREEM 25 ml



Sisene

Registreeru

372 Telefoninumber

Parool

Sisene

[Unustasid parooli?](#)

Logi sisse:



Facebook



Google



MOBIIL-ID



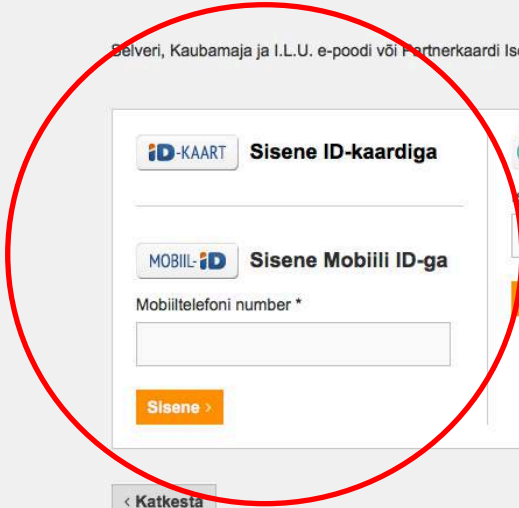
ID-KAART

Copyright© Tele2 2015

partner *

ET EN RU

Belveri, Kaubamaja ja I.L.U. e-poodi või Partnerkaardi Iseteenindusse sisse logimiseks pead omama kehtivat Partnerkaarti.



iD-KAART Sisene ID-kaardiga

MOBIIL-ID Sisene Mobiili ID-ga

Mobiiltelefoni number *

Sisene >

SMART-ID Sisene Smart-ID-ga

Smart-ID kood *

Sisene >

Sisene panga kaudu

< Katkesta

Any benefits from eID and digital signature?

5 working days saved by every citizen who is using eID

It is 2% of working time

It is 2% of GDP

(2% of GDP goes for defense)

Statistics

2006: 0,5 million digital signatures
1 million digital authentications

2010: 19,2 million digital signatures
33,7 million digital authentications

2012: 31,9 million digital signatures
49,9 million digital authentications

2016: 79 million digital signatures
102 million digital authentications

Up to today: 410 million digital signatures

Cost-Profit Calculators

Up to today: 410 million digital signatures
People and companies have saved
more than **328 000 000 €** (0,8€ per signature)

<http://eturundus.eu/digital-signature/>

<http://eturundus.eu/digital-document/>

Digital documents exchange

- Allowing secure digital documents exchange between governmental institutions
- Address book feature
- Receipt of delivery

Governmental service portal

www.eesti.ee

(Eesti=Estonia)



For a citizen

For an entrepreneur

For an official

Services A-Z

Services

Descriptions of e-services are available in English, all official forms are in Estonian.



For a citizen Help

- ▶ Nomination of a sports club to receive the sports activity benefit (parent)
- ▶ Prescriptions
- ▶ Benefits for incapacity for work
- ▶ Personal data in the Insured Persons Registry

[View all](#)



For an entrepreneur Help

- ▶ Notarised documents
- ▶ Traffic insurance history
- ▶ Economic Activities of Estonia (EMTAK)
- ▶ Query about identity documents

[View all](#)



For an official Help

- ▶ Notarised documents
- ▶ Economic Activities of Estonia (EMTAK)



Services A-Z

[View all](#)



My Data

Services

Topics

Contacts

Enter

Main page → Services

For a citizen

For an entrepreneur

For an official

Services A-Z

Services

Descriptions of e-services are available in English, all of



For a citizen Help

- ▶ Nomination of a sports club to receive sports activity benefit (parent)
- ▶ Prescriptions
- ▶ Benefits for incapacity for work
- ▶ Personal data in the Insured Person Registry

[View all](#)



For an official Help

- ▶ Notarised documents
- ▶ Economic Activities of Estonia (EMT)

Login Help

Close x



Login with ID-card



Login with mobile-ID

+3725091366

Enter

Personal code
or mobile phone number (+3725xxxxx)

Login via bank



SEB



Swedbank



Sampo pank



Nordea pank



Krediidipank

Login [Help](#)



Login with ID-card

- ID card will allow you to use services
- Using ID card you have to fulfill simple safety requirements.



Login with mobile-ID

Enter

Personal code
or mobile phone number (+3725xxxxx)

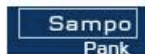
Login via bank



SEB



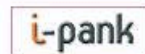
Swedbank



Sampo pank



Nordea pank



Krediipank

Foreign citizen login

Please select your country icon and sign in to the Estonian State Portal.



Germany



Spain



Iceland



Italy



Lithuania



Luxemburg



Portugal



Slovenia



Finland



Sweden

Cyber security

- Complex issue: mixture of digital and analog elements
- Roles and responsibilities in the government
- Technical measures
- Behavior of officials
- Awareness of the citizens

Key analog elements

- Legislation & Regulations
- Supportive organization
- Change management
- Political will

Supportive legislation

- Keep it simple!
- Digital signature- same value as handwritten signature
- No need to define every service delivery channel
- Legal meaning of the digital data
- Do not describe technology in the law

Sustainable organization

- Horizontal coordination of the e-government activities
- Coordinator: Ministry of Economic Affairs and Communication
- Clear roles and responsibilities with resources for all stakeholders

Change management

- It is not transfer of the services from paper to computer, it is re-inventing of the public services
- Changing officials mindset: new skills and competences needed

Political will

- To secure long-term changes, political will and leadership is required
- Consensus among the main political forces in the Parliament
- High priority in the parties and governments political agenda

Challenges

- Bring the last citizens online
- Broadband to every household
- Comprehensive services
- Simplification of the services



**Strong Digital
Identity**



**Portal &
Secure Data
Exchange**



Data Online



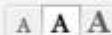
**New company in summer
cottage in 15 min? Yes!**
Online Business Register and ID card

Company Registration Portal Login

x



JUSTIITSMINISTERIUM



Please Log In

Time left: 12:40

Login with ID-card



Estonian ID-card



Latvian ID-card



Belgian ID-card



Finnish ID-card

Login with mobile-ID

Personal ID code:

Phone number:



Estonian mobile-ID



Lithuanian mobile-ID

- 1 Preparation of the petition
- 2 Confirmation of the petition
- 3 Payment
- 4 Sending the petition for proceeding

 **Trader:**

§ Legal form

Legal form

Private limited company

 **Business name**

[Enter the name](#)

Business name

 **Address**

[Enter the address](#)

Address:

 **Capital**

[Enter the capital](#)

Share capital

Currency

 **Persons in the entry**

[Enter the persons in the entry](#)


Function

Code / Date of birth

Name / business name

Place of residence / seat

Contribution

 **Specifications of the right of representation**

[Enter the conditions of the right of representation](#)

Type

Contents

 **Financial year**

[Enter the financial year period](#)

Start of a financial year End of a financial year



**Signing contracts while
hiking?**

Digital Signature and MobileID

Signing digital documents





**Getting Prescription from Doctor
when outdoors?**

Medical Records Online and MobileID

Patient Portal

The Patient Portal allows you to view your medical data, submit statements of intention, appoint representative(s) for yourself, and act on behalf of the persons who have appointed you as their representative.

Please refer all questions, technical issues and proposals for further developments to the **help desk of Health and Welfare Information Systems Centre** by phone at +372 694 3943 (7:00-22:00) or e-mail at abi@tehi.ee.

Log in using ID card



[Need help?](#)



Log in using mobile ID



[Need help?](#)



Health information system

The health information system includes medical data the health care service providers have submitted about you.

[Read more](#)

Security

Data security is extremely important. Each activity leaves a mark.

[Read more](#)

Important topics

Web pages where you can find systemic information related to health and health care management.

[Read more](#)

Legal aspects

The Health Information System and the My Health portal base their activities on the legislation of the Republic of Estonia and the European Union.

[Read more](#)

Enter using mobile ID



Home

To enter the portal using mobile ID, enter your mobile phone number in the field.
A verification message will be sent to your phone.

+372 5091366

Enter

5091366

What is mobile ID?

Mobile ID allows you to enter the portal and sign documents using your mobile phone. Get more information about mobile ID from your service provider or go to the web page mobil.id.ee.

My e-Health

VANANENUD TARKVARA
KASUTAMINE ON OHTLIK



My data

Hannes Astok
36409252766

INSURED

**Family doctor:
Monika Vask**

Update



Health data

[Time critical data](#)

[Dental care documents](#)

[Dental care charts](#)

[Dental status chart](#)

[Passport of Immunization](#)

[Ambulance charts](#)

[Prescriptions](#)

[Referrals](#)

[Invalid referrals](#)

[Valid referrals](#)

[Referrals related to an-
appointment](#)

[Health declarations](#)

[Health certificates](#)

[Case summaries](#)

[Out-patient case summaries](#)

[Day-care case summaries](#)

[In-patient case summaries](#)

[Birth case summaries](#)

[Notifications](#)

[Development assessment
notifications](#)

[Immunisation notifications](#)

[Growth notifications](#)

[Examination notifications](#)

[Counselling notifications](#)

[Examination results](#)

[Image references](#)

[Referral responses](#)

Important updates

Data is added to Your health declarations and health certificates (sleep apnoea). Possibility to open attachments (pdf) in case summaries is developed.

Invoices submitted to the Estonian Health Insurance Fund

Click on the box to view medical invoices, click on the information sign for more information



Selling your car here...

... or better here?



Online Car register and MobileID



Front page » Vehicle

EST | RUS | ENG



FRONT PAGE



DRIVER



VEHICLE



ROAD

PUBLIC
TRANSPORT

My vehicle



My vehicle »

The list of vehicles will give you an overview of your vehicles and allows you to perform various transactions.



Vehicle transactions history »

Here you will see the information of transactions carried out via e-service.



Order a licence plate »

Special order and individual license plate availability check and ordering

Information about vehicle:

- Main information
- Owner and users
- Mileage
- Third party liability insurance
- Technical inspections
- Technical details
- Vehicle transactions history

Transactions of the vehicle:

- Ownership transfer
- Temporary removal from register
- Changing users
- Ordering registration certificate
- Ordering duplicate registration plates
- Road train declaration



Ownership transfer »

Useful tips and hints by the Estonian Road Administration that you should consider when selling or purchasing a vehicle.



Vehicle history check »

Inquiry for technical information and history of the vehicle, participation in insured events.



Using the vehicle »

Mandatory documents, motor third party liability insurance contract and policy, technical inspection and inspection stations, etc.



Demolition of vehicle »

Demolition certificate, demolition shops, etc.



Fuel consumption and carbon dioxide emission guide »

Energy label generation based on vehicle type code



Energiamärgise genereerimine »

Sõiduauto tüübikoodi alusel energiamärgise genereerimine ja infolehe trükkimine.





FRONT PAGE



DRIVER



VEHICLE



ROAD

PUBLIC
TRANSPORT

My vehicle



Save



202MKU

MITSUBISHI GRANDIS
VIN: JMBLRNA4W4Z000246

First registration:	09.09.2004
Category:	passenger car
Body:	universal
Body colour:	light blue
Engine:	2378 cm ³
Engine power:	121 kW
Fuel:	gasoline catalyst
Transmission:	automatic
Drivetrain:	front wheel drive
Registration certificate:	EL122556

- Technical inspection expires on 04.2018 »
- Motor third party liability insurance is valid until 28.03.2018 »

I AM OWNER

[DETAILED VIEW OF THE VEHICLE](#)[TRANSACTIONS](#)

945YJK

I AM OWNER





FRONT PAGE



DRIVER



VEHICLE



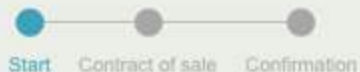
ROAD

PUBLIC
TRANSPORT

Exchange of ownership of the vehicle

202MKU

MITSUBISHI GRANDIS



Who will be the new owner?

Please indicate the information of the new owner to allow us to start the process of recording the exchange of ownership.

 Natural person

Personal ID code of the new owner

 Legal person

OK

After giving your digital signature you're kindly asked to inform the new owner to carry out transactions required of him/her in the e-service.

Who will settle the state fee

You will be required to settle a state fee of 48 euros for changing the ownership of the vehicle. You can either settle the state fee yourself or have it settled by the new owner, if so arranged.

 Will be settled by the new owner

48.00 €

 Will settle myself

Quickly or safely?

We recommend to formalise exchange of ownership safely, simultaneously with conclusion of a contract of sales.

Ownership of the vehicle will be formalised once both the new and previous owner have confirmed that all and any obligations, taken under the contract, have been fulfilled (vehicle and money has been handed over)

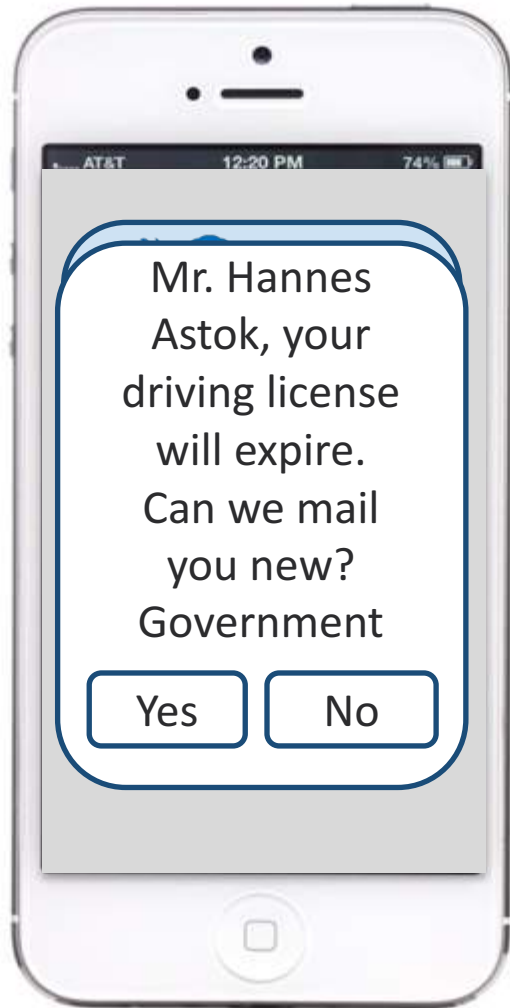
You should opt for faster formalisation of change of ownership if the contract has been concluded and all and any obligations

 Safe exchange of ownership - with the contract and confirmations Exchange of ownership

Future of the online governance



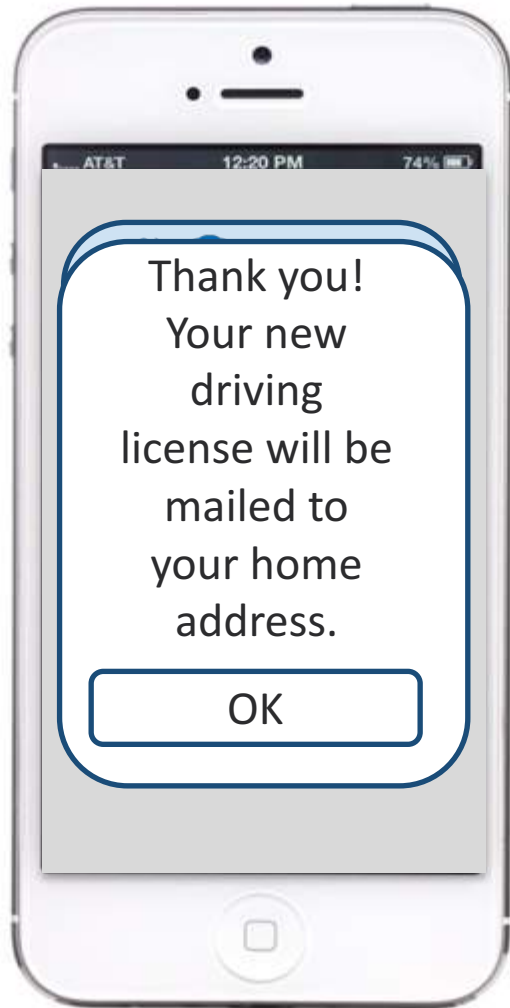
Estonia



Mr. Hannes
Astok, your
driving license
will expire.
Can we mail
you new?
Government

Yes

No



Thank you!
Your new
driving
license will be
mailed to
your home
address.

OK

The future government is

Proactive

Online

24/7

Intuitive

Key success factors

- Sustainable organization
- Change management
- Re-engineering of the government
- Public support & demand
- Political will

Analog and digital elements of e-Government

ANALOG ELEMENTS

Legislation & regulations
Sustainable organization
Change management
Political will



DIGITAL ELEMENTS

Digital databases
Interoperability
Digital Identity
Document exchange
Services portal
Cyber security
Sectoral solutions

Thank you!



Hannes Astok
www.ega.ee
+372 5091366
Hannes.Astok@ega.ee

