

enter e-Estonia

Identity and e-identity in Estonia

Margus Arm
eID domain manager
State Information System Authority, Estonia
14.06.2018, Bangkok

Identity in physical world

In most cases ONE identity!

- + Name and surname
- + Face and photo
- + Date of birth
- + Several documents – Passport, ID-card, driving licence
- + Trust, even cross-border – travelling etc.
- + Memory - seen once, remember next time (or ask document)



My physical identity

Name: MARGUS ARM

ID CODE: 37412170217 (like social sec no, unique identifier)

Format: xYYMMDDyyyz

x – century and sex

YYMMDD – date of birth

yyy – hospital and number of born baby at the day

z – control number



Population Registry - All records are available since birth (but with limited access)

My identity carriers are:

Passport

ID-card

But how in digital world?



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

We all are on-line more and more!
How to differentiate „dogs“ and „humans“?

We all are online already!

- + Who do you trust?
- + Facebook
- + Google
- + Banks
- + Telcos
- + ...
- + .. or your own government - state issued and granted identity

EESTi
Uks e-riiki

 **Alibaba.com**

Google

facebook

SCB
ไทยพาณิชย์

true

Data about my income and deductions at the disposal of the Tax and Customs Board

19 April 17 Help / Legal info

Data about me

Contacts

Address entered in the population register: Patsim 40 - 16, 11413, Tallinn, Harju maakond
 Postal address: Patsim 40 - 16, 11413, Tallinn, Harju maakond
 Contacts: 00076081@gmail.com@gmail.com

Salaries, wages and other remunerations with tax rate 20%

1. Payer	2. Name of first name and surname	3. Type of income	4. Amount of income	5. Income tax withheld	6. Tax rate
00001000	E-riigi Akadeemia Sihtasutus	payment made based on the contract for services, authorization agreement or other contract	400.00	77.12	20.00
00000002	Sihtasutus	payment made based on the contract for services, authorization agreement or other contract	1000.00	200.00	20.00
00001100	Majandus- ja Kommunikatsiooniministeerium	employment income	1000.00	200.00	20.00
00000002	Sihtasutus Põhikooliõpetaja Keskus Põhikool	payment made based on the contract for services, authorization agreement or other contract	100.00	20.00	20.00
Total:			2500.00	517.12	

Housing loan or finance lease interest paid

1. Name of housing loan or finance institution	2. Name of the borrower	3. Loan amount	4. Loan term	5. Interest rate	6. Interest amount	7. Interest rate	8. Interest amount	9. Interest rate	10. Interest amount	11. Interest rate	12. Interest amount	13. Interest rate	14. Interest amount
JAHK 279121000000	Sihtasutus	1000000.00	10.00	10.00	100000.00	10.00	100000.00	10.00	100000.00	10.00	100000.00	10.00	100000.00

Unemployment insurance premiums and payments to mandatory funded pension fund

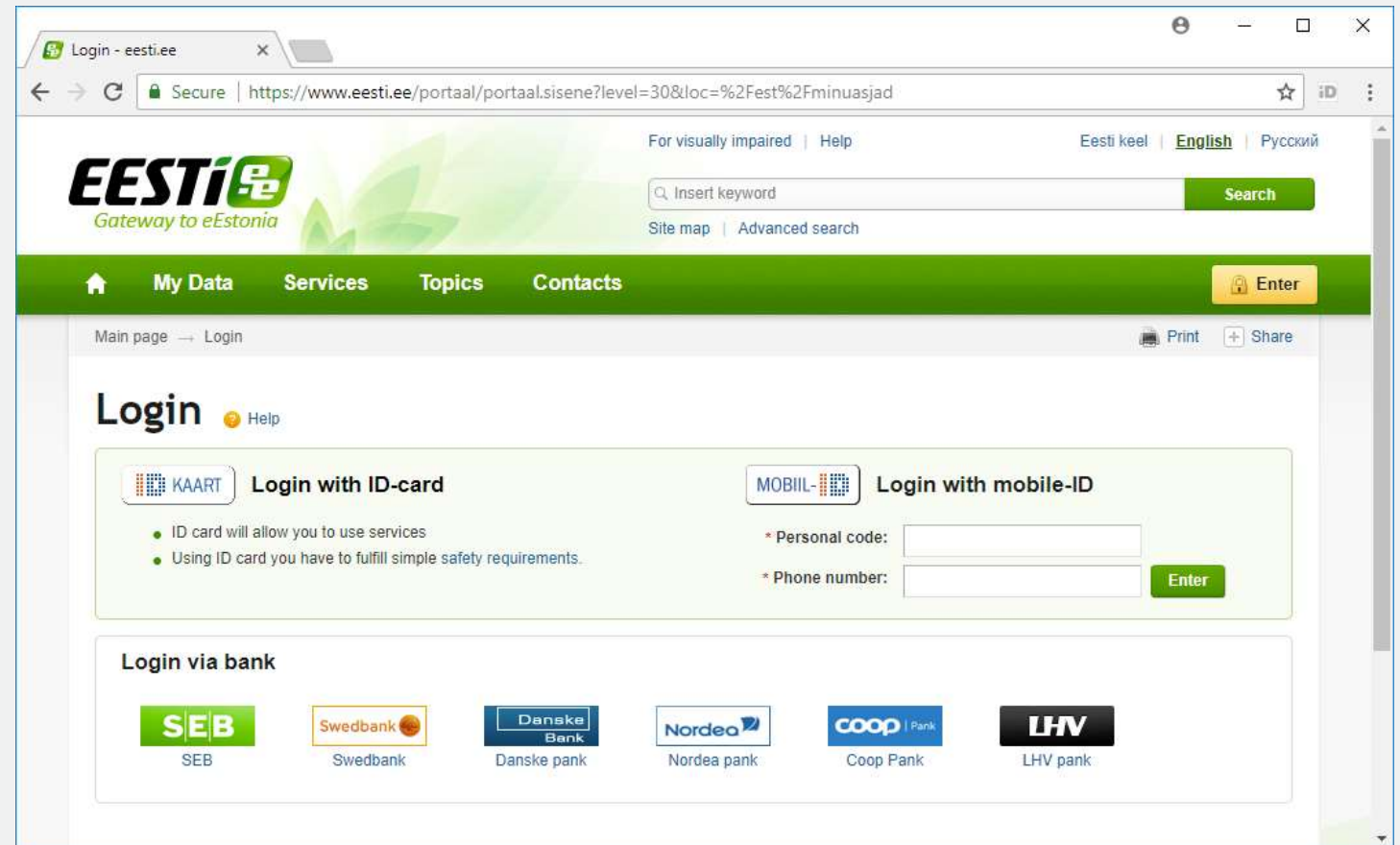
1. Payer	2. Name	3. Type of payment	4. Unemployment insurance premium amount	5. Payments to mandatory funded pension fund amount
00001000	E-riigi Akadeemia Sihtasutus	payment made based on the contract for services, authorization agreement or other contract	9.40	9.40
00000002	Sihtasutus	payment made based on the contract for services, authorization agreement or other contract	10.00	10.00
00001100	Majandus- ja Kommunikatsiooniministeerium	employment income	100.00	100.00
00000002	Sihtasutus Põhikooliõpetaja Keskus Põhikool	payment made based on the contract for services, authorization agreement or other contract	0.00	0.00
Total:			119.40	119.40

back submit

 **AIS**

e-Identity in Estonia

- + Identity documents are issued by the Government
- + Physical documents
 - + ID-card (mandatory)
 - + Passport (voluntary)
- + Strong electronic identity
 - + ID-card
 - + Digi-ID
 - + Mobile-ID



The screenshot shows the login page of the EESTi.ee portal. The browser address bar displays the URL: <https://www.eesti.ee/portaal/portaal.sisene?level=30&loc=%2Fest%2Fminuasjad>. The page features the EESTi.ee logo and a search bar. A green navigation bar contains links for 'My Data', 'Services', 'Topics', and 'Contacts', along with an 'Enter' button. The main content area is titled 'Login' and offers three login methods: 'Login with ID-card' (using KAART), 'Login with mobile-ID' (using MOBIIL-ID), and 'Login via bank'. The 'Login with mobile-ID' section includes input fields for a personal code and phone number, with an 'Enter' button. The 'Login via bank' section lists logos for SEB, Swedbank, Danske Bank, Nordea, Coop Pank, and LHV Pank.

Login - eesti.ee

Secure | <https://www.eesti.ee/portaal/portaal.sisene?level=30&loc=%2Fest%2Fminuasjad>

For visually impaired | Help

Eesti keel | **English** | Русский

EESTi.ee Gateway to eEstonia


Insert keyword Search

Site map | Advanced search


My Data Services Topics Contacts Enter

Main page → Login Print Share

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**


* Personal code:


* Phone number:


Enter


Login via bank


 SEB

 Swedbank

 Danske Bank

 Nordea

 Coop Pank

 LHV Pank

My unique digital identity

Name: MARGUS ARM

ID CODE: 37412170217

My digital identity carriers are (issued by the Government):

ID-card

Digi-ID

Mobile-ID

My digital identity carriers are (issued by the private sector):

Smart-ID

ID and eID roles in Estonia

Police and Boarder Guard Board

- + Identity is issued by Police
 - + Plastics, security elements
 - + Personalization
 - + Enrollment processes



Estonian Police and Border Guard Board

Information System Authority

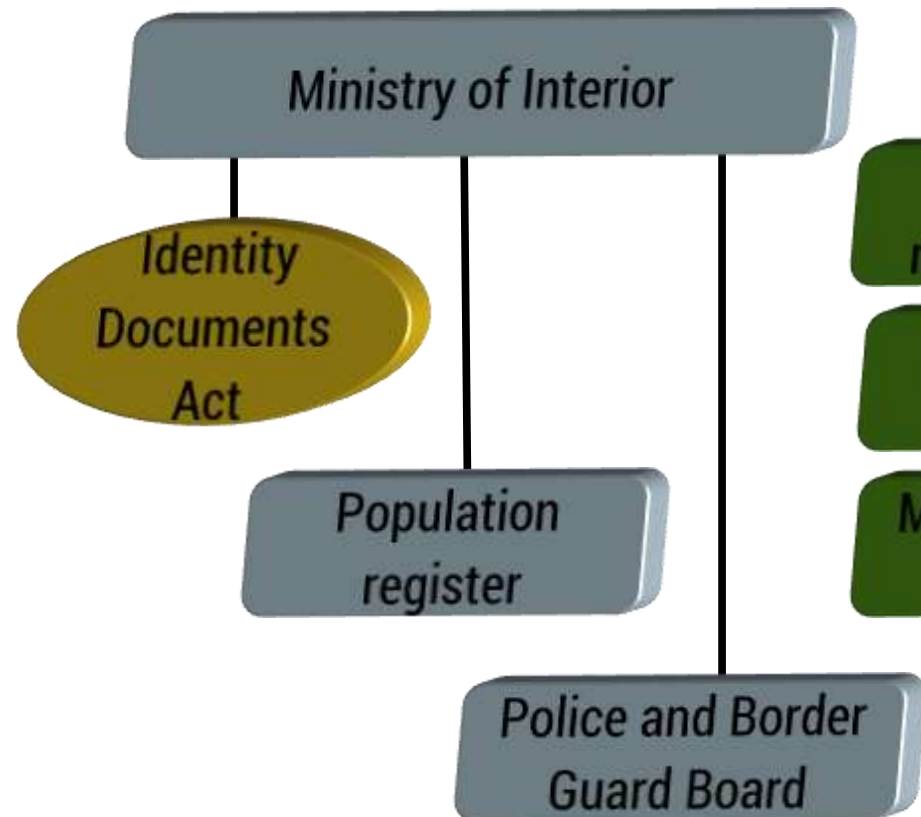
- + eID related topics handled
 - + Chip, eID applet
 - + Requirements for Trust Service Providers (incl CA-s), standards, regulations ets
 - + eID usage (desktop software, libraries etc – open source)



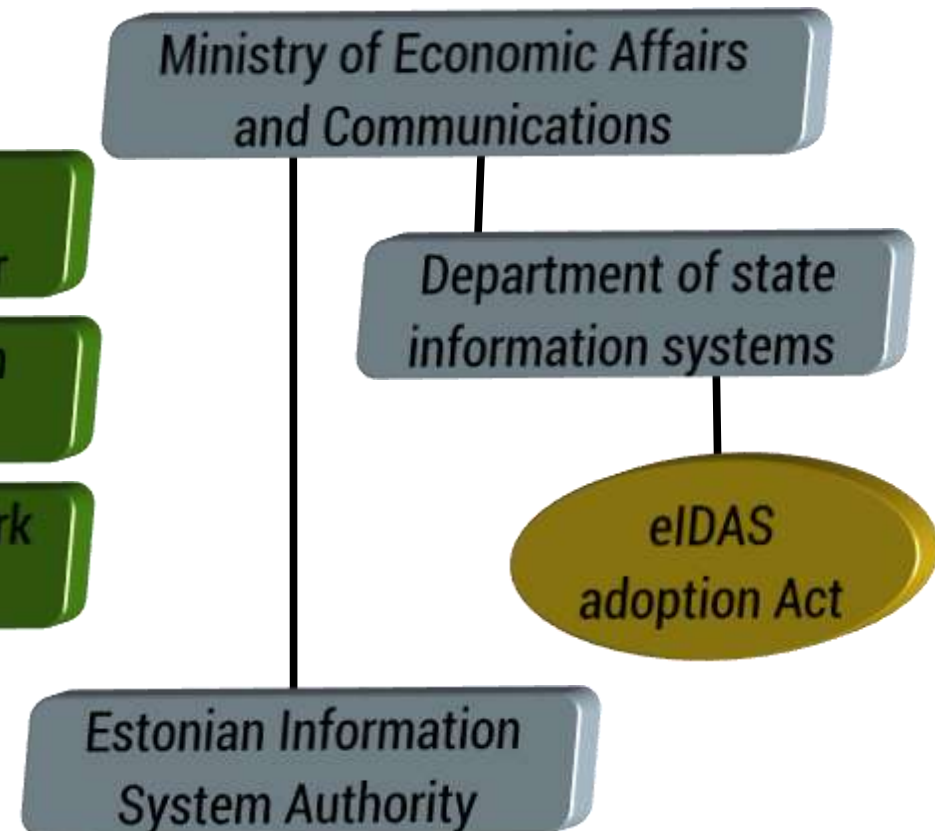
**REPUBLIC OF ESTONIA
INFORMATION SYSTEM AUTHORITY**

Ecosystem

eID (document & hardware)



Digital use (implementation)



History in short 1



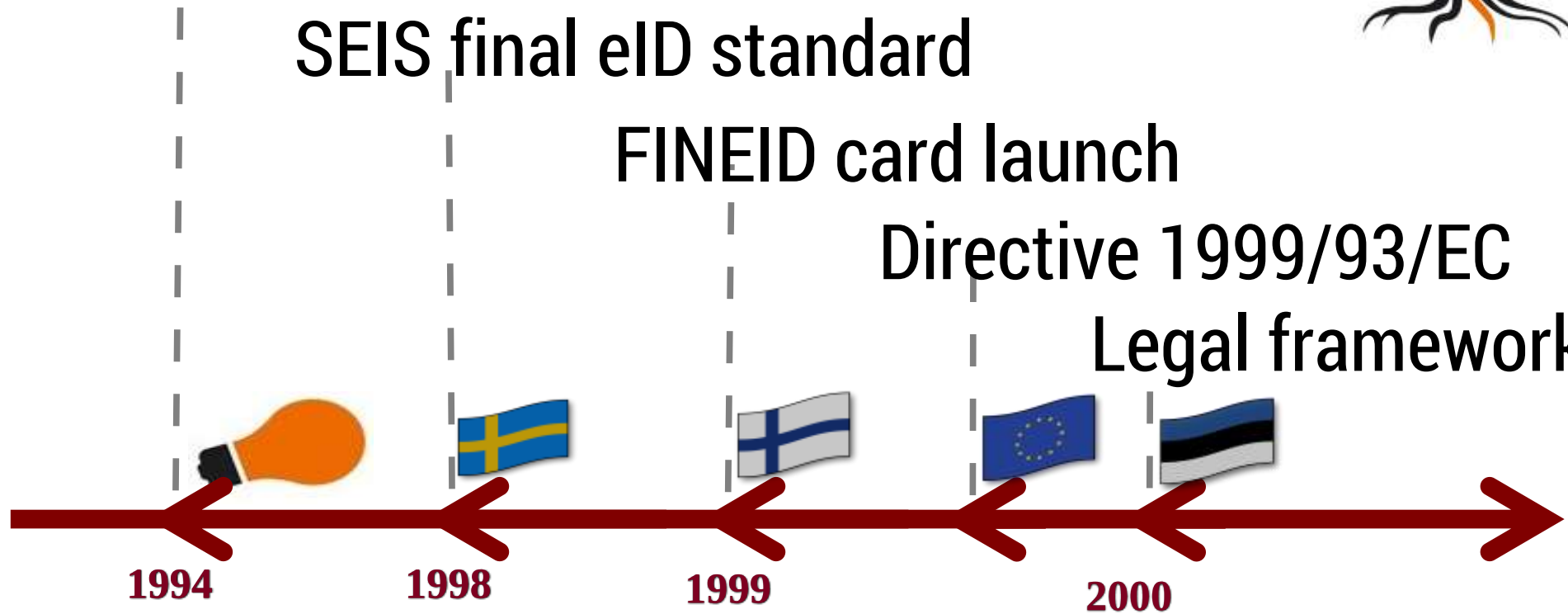
First ideas about universal eID

SEIS final eID standard

FINEID card launch

Directive 1999/93/EC

Legal framework



History in short 2



Estonian CA (SK)

Estonian ID-Card (eID) – copy of FINEID

Estonian Mobile-ID

Digi-ID

e-Resident



ID - card

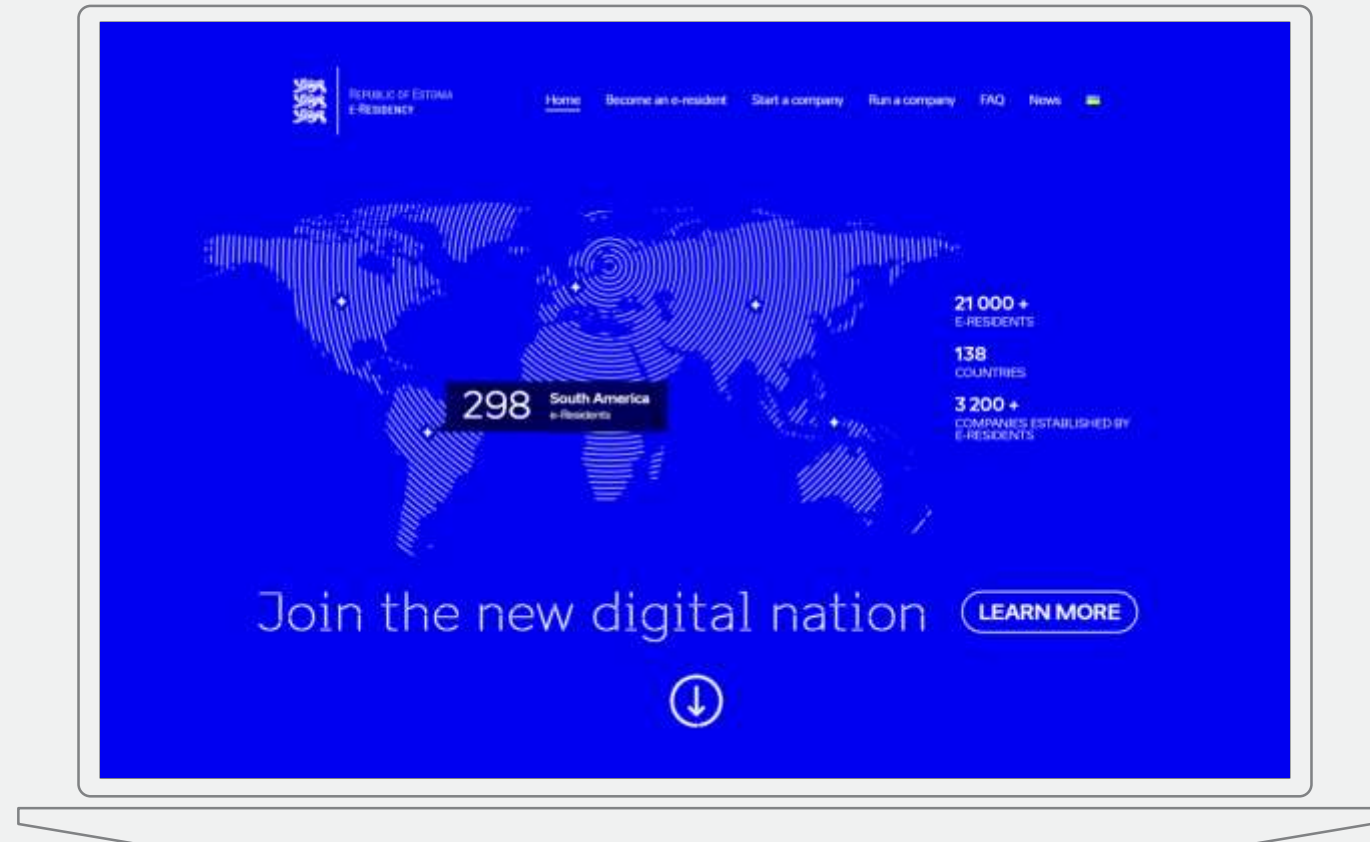
The strongest identity.

- + Issued by Estonian Police
- + Technically same for:
 - + ID-Card,
 - + Residence Permit Card,
 - + Digi-ID,
 - + e-Residence Card
- + ID card is mandatory document
 - + 2 pairs of PKI keys (X.509 certificates – RSA2K, ECC384)
 - + Authentication
 - + e-Signature
- + Validity 5 years

enter e-residency

e-resident.gov.ee

- + Technically same as ID-card
- + first in the world
- + 138 countries
- + 40 000+ e-residents to date
- + 4000+ e-residents companies
- + make business online



Mobile-ID

<http://mobile.id.ee/>

- + Special SIM card with PKI eID applet
- + SIM Toolkit MID application
- + Over the SMS channel
- + At least EAL 4+ SIM cards
 - + 2 pair of PKI keys (X.509 certificate)
 - + Private keys are stored on the SIM card (RSA2048, ECC384 used)
 - + Authentication
 - + e-Signature
- + 176 000 users and 4M transactions per month
- + Validity: 5 years



Smart-ID

www.smart-id.com

- + Issued by private sector
- + Internet connection is needed
- + App based solution
- + 2 pair of PKI keys (X.509 certificate)
 - + Private keys are shared between device and HSM
 - + Authentication
 - + e-Signature
- + 200 000 users in Estonia
 - + More than 1M users in total
- + Validity: 5 years



ID-card vs Mobile-ID vs Smart-ID

ID-card

Mobile-ID

Smart-ID

Enrollment and trust

Legal basis

The strongest
competence.

- + eIDAS regulation
- + National law for eIDAS implementation
- + Qualified e-Signature definition = „Digital Signature“
- + Identity Document Act



eID software in Estonia

Government provides tools

Service providers provides benefit/values

Simplest and fastest eID environment.

- + Libraries for systems and software developers
- + End user desktop app - (e-signing, card maintenance, data encryption/decryption)
- + Web browser plugins
- + Container based e-Signatures
- + Win, Mac, Linux, Android, iOS supported
- + All components are free of charge to use and open-source (<https://github.com/open-eid>)

eID use cases

The bravest story of transformation.

eID = as a master key

- Works as SSO (Singel-Sign-On)

- One key to open all doors (more than 3000 eServices/Applications are online)

- Banking (in EE more than 70% of eID transactions done by financial sector)

- Communicating with the government (taxes, applications, i-voting etc)

- Health sector (medical data, book doctor's appointment, e-prescriptions)

- Different eServices (self-service portals, eShops)

- Sign documents digitally, legally binding signature

WHO DRIVES THE SERVICE MARKET?

Public sector
Tax
Declarations



Once a year

Private sector
Online
banking



Once a week

empowering

Easiest life: only getting married or divorced and selling real estate cannot be done online.

Yet.

First card was issued 02.2002

Online authentications since
2002: 637 M

Given digital signatures since
2002: 510 M

100 M digital signatures / year

Saving time: 1 week per capita



Pricing models

- State fee for citizens to get eID:
 - Covers eID production, issuing and maintenance
 - <https://www.politsei.ee/en/teenused/riigiloivud/riigiloivu-maarad/isikut-toendavad-dokumendid/index.dot>
- Authentication
 - Free of charge for citizens
 - Web-service: service provider pays for every authentication
- Signing
 - Local computer: each citizen can give 10 signatures per month for free
 - Web-service: service provider pays for transactions
 - <https://sk.ee/en/services/pricelist/certificate-validation-services>


eID use cases - Demos

Banking – [Swedbank](#) (Smart-ID)
Government – [eesti.ee](#) portal (ID-card)
Health sector – [Patient Portal](#) (ID-card)
Utility – [energy provider](#) (Mobile-ID)
Different eServices – [retail shop](#) (Mobile-ID)

Sign documents digitally – vacation application
(Margus to Andrus)

DigiDoc4 for end-users


The DigiDoc application allows you to:



Sign documents

DigiDoc Client can be used to sign digitally with ID-card and Mobile-ID, check the validity of digital signatures and open and save documents inside the signature container.


[VIEW INTRODUCTION](#)



Encrypt documents

DigiDoc Client can also be used to encrypt data and decrypt the previously encrypted data. For encryption the program uses the authentication certificate of the ID-card.

[VIEW INTRODUCTION](#)



Manage your eID-s

Manage your ID-card's PIN/PUK codes and handle certificate renewals.

[VIEW INTRODUCTION](#)

[Skip introductions](#)

MARI-LIIS MÄNNIK
61710030010 | ID-card in card reader

SIGNATURE

CRYPTO

My eID

PIN/PUK CODES AND CERTIFICATES

Authentication certificate Certificate is valid until 02. October 2022. Authentication key has been used 3 times CHANGE PIN1 Forgot PIN1? Check the details of the certificate	Signing certificate Certificate is valid until 02. October 2022. Signature key has been used 0 times CHANGE PIN2 Forgot PIN2? Check the details of the certificate	PUK code The PUK code is located in your envelope CHANGE PUK
--	--	---

[REDIRECTION OF EESTLEE E-MAIL](#)

IAN MARIO NASKA
39407070824 | ID-card in card reader

Container: /Users/ian/Desktop/Document.asice

SIGNATURE

CRYPTO

My eID

Container files

Document.docx

Container signatures

IAN MARIO NASKA - Signature is valid
39407070824 - Signed on 11. June 2018 at 06:23

[START](#) [ENCRYPT](#) [OPEN CONTAINER LOCATION](#) [SEND WITH E-MAIL](#) [SIGN WITH ID-CARD](#)

eID is just a key!

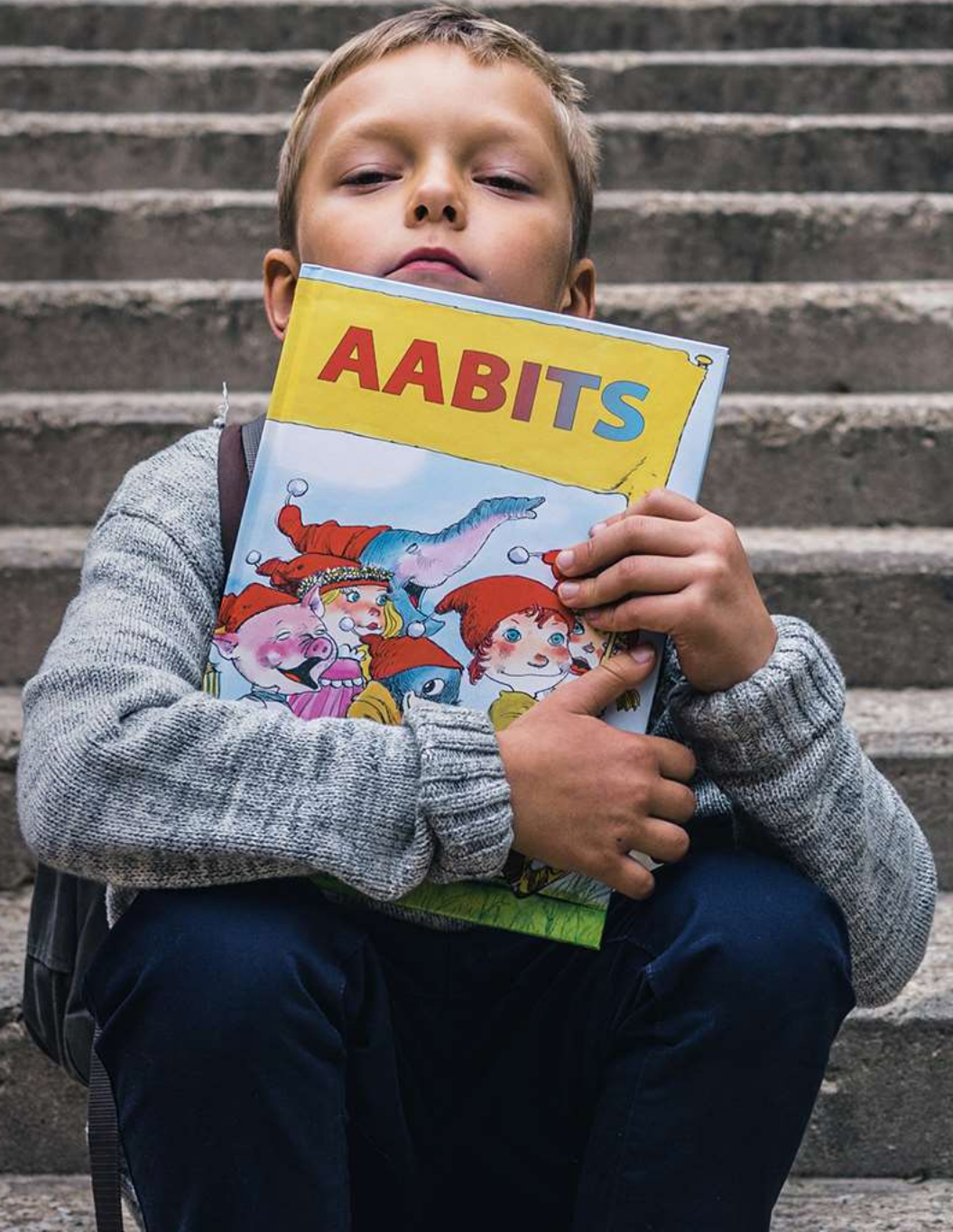
eID is just a strongest key to use your own unique identifier!

- + No health data recorded
- + No bank access data recorded
- + No social security data recorded
- + No wallet functionality
- + No driver's license functionality
- + It's convenient, easy, effective, 24/7/365 supported

Lessons learned

smartest hints we can share

- + Getting started:
 - + Is ID-card mandatory or voluntary? With or without certificates? Infrastructure or services first?
- + Cheap & free of charge for end users
- + PKI enabled e-ID is just a tool for accessing services
- + ID-card or Mobile based solution?
- + Cooperation between public and private sector:
 - + Win-win concept, where the State takes responsibility
 - + Technology risks to be handled by private vendors
 - + Agreed rules/standards how to issue eID-s
 - + Share common infrastructure with private sector
 - + Provide open source software tools and drivers
 - + Main usage volume comes from private not government services
 - + Distribute ID-card readers at low price for masses
- + There is never too much promotion and training for end users
- + Users' privacy and security stands on top
- + It is good to have more than one eID!





RSS

SITEMAP

EST ENG RUS

Search

INSTALL
ID-SOFTWARE

FOR DEVELOPER

HELP CENTRE

ID-CARD

MOBIL-ID

SMART-ID

ATTENTION INSTRUCTIONS FOR SIGNING!

If payment confirmation or digital signing fails,
please follow our instructions.

[READ MORE](#)

News

[macOS: Mozilla Firefox v60.0.1 or later does crash if you keep eID card in reader](#)

25.05.2018

If your computer is running on macOS op. system and if you are using Mozilla Firefox, then starting from Firefox v60.0.1 or later browser does crash, while your eID card is in reader. Due to that currently it is not possible to use eID card with Mozilla

www.id.ee/?lang=en&id=36639

Statistics

On 08.06.2018 06:47

Active ID-cards: **1 300 103**Active Mobil-ID: **176 024**Active Smart-ID: **893 592**Active Smart-ID in Estonia: **219 213**Transactions yesterday: **982 455**Transactions last month: **22 818 379**[ASK FOR HELP](#)

estonishing future


A person is silhouetted against a dark, starry night sky. They are looking towards a bright, glowing light source, possibly a fire or a light flare, which is surrounded by a cloud of smoke or mist. The foreground is filled with tall, dry grass or reeds, some of which are illuminated by the light source. The overall atmosphere is mysterious and futuristic.

- + Our latest „lessons learnt“. More than one eID ROCA.
- + New generation of eID-s? Bioometrics? Blockshain?
- + IoT - How to differentiate „humans“ and „machines“?
- + Security and usability Security is never absolute and changes over time

Some useful links







- ID-card overview
 - <https://e-estonia.com/component/electronic-id-card/>
- ID-card concept
 - http://www.id.ee/public/The_Estonian_ID_Card_and_Digital_Signature_Concept.pdf
- General information and documentation
 - <http://id.ee/?lang=en>
 - <https://sk.ee/en/useful/digitalsigning/>
 - http://eid.eesti.ee/index.php/EID_application_guide
 - <http://open-eid.github.io/>

A hand holding a smartphone against a starry night sky. A red laser beam is projected from the phone, creating a bright red line that extends diagonally across the frame. The background is a deep blue night sky filled with numerous small, distant stars.

Thank you for your attention

Mārgus Arm
margus.arm@ria.ee

 e_Estonia
 e_Estonia
 e-Estonia
 Estonian ICT