Overview about Address Data System

Andre Kaptein
Estonian Land Board / Chief Specialist

24.04.2017 – Presentation in Statistics Estonia

Address Data System (ADS)

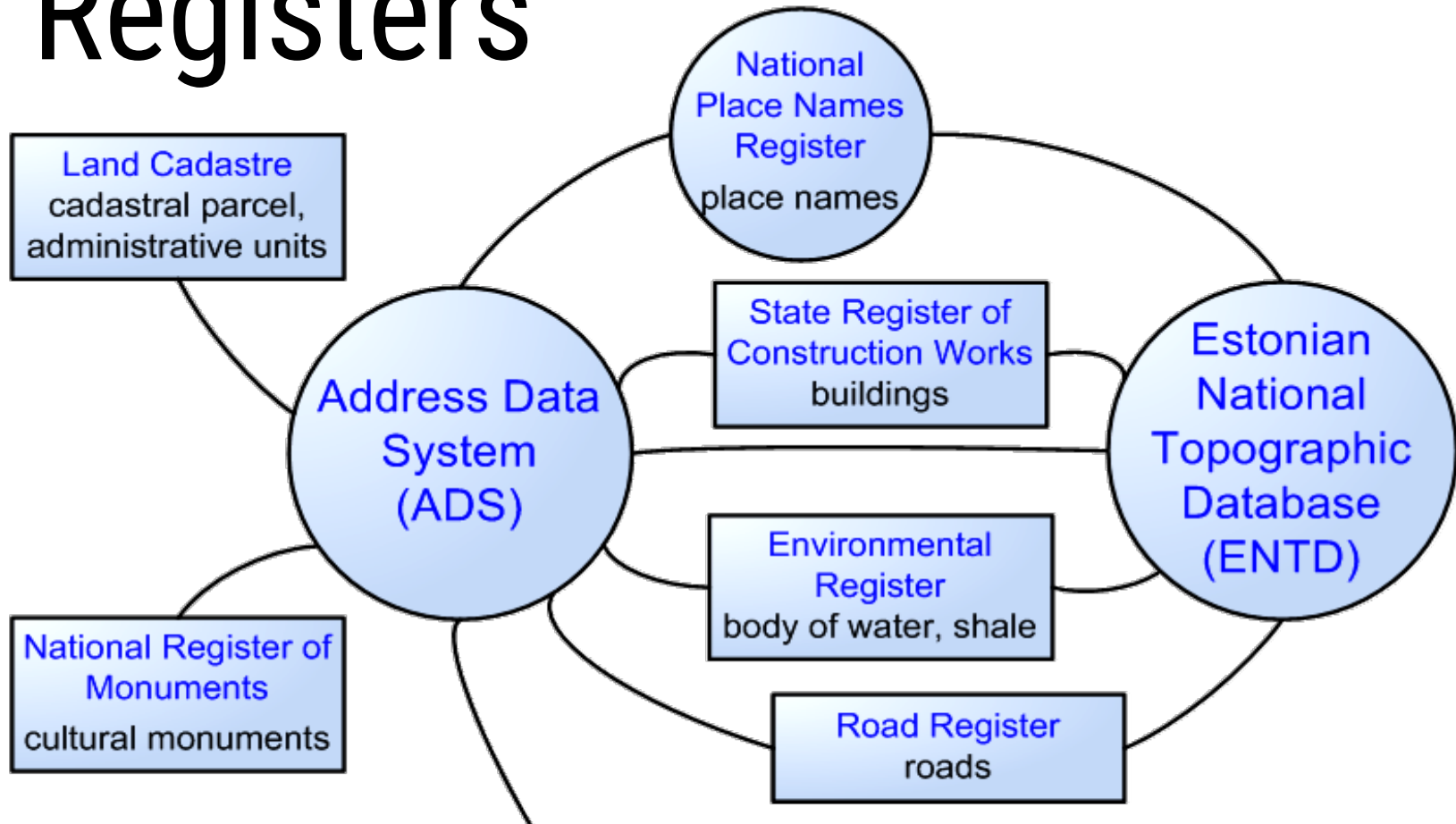It is a base for spatial data infrastructure and ensures that address data is up to date

It is a framework for organizational, technical and legal tools that provide an unambiguous identification of address objects in their location and in different databases

Aim is to ensure uniform organisation of the functions of establishment of geographical addresses and processing of address data.

Legislation

- Mainly based on **Spatial Data Act** (implementation of INSPIRE directive, passed 17.02.2011, modified 20.03.2017 – also many aspects about ADS clarified)

- **Address Data System** - Government **regulation**, passed 20.12.2007, modified 8.10.2015, in process of being updated)

Registers

National Place Names Register
place names

Land Cadastre
cadastral parcel, administrative units

State Register of Construction Works
buildings

Address Data System (ADS)

Estonian National Topographic Database (ENTD)

National Register of Monuments
cultural monuments

Environmental Register
body of water, shale

Road Register
roads

Registers and information systems which use the data, public and private sector

for example: Population Register, Commercial Register, Land Register, Police Information System, Rescue Board, Alarm Centre, local governments, Estonian Post Ltd, Estonian Energy Company, communication company etc....

Application for processing address data

- Application launched 01.01.2012. Constantly further developed and modified.

- Addresses are created directly by local authorities

- No address object can be registered without first entering its address to ADS

- Addresses are verified through business rules before gaining official status

- No address valid before being registered in ADS

- Building addresses verified from october 2014

ADS menetlusrakendus

🏠 | Register ▾ | Menetlus ▾ | Väljavõtted ▾ | Volitused | Klassifikaatorid ▾ | Mitteametlik ADS ▾

| ADS-OID/tunnus | 🔍 Otsi aadressiobjekti | Menetluse nr | 🔍 Otsi menetlust | ✏️ Uus menetlus | 🚪 Ava kaart |

Tere tulemast ADS menetlusrakendusse!

Probleemide korral soovitame pöörduda oma organisatsiooni tugiisiku poole Maa-ameti aadressiandmete osakonnas. Omavalitsuste tugiisikute kontaktid on leitavad lisatud tabelist (TUGIISIKUD). Pöörduda võib ka ADS menetlusrakenduse üldtoe poole e-posti aadressil või telefonil 6650790 (E-R 9-12 ja 13-17).

Uudised

Täienenud kasutusjuhend	5.06.2013
Uus õppevideo - EHR hoonesse ADS's hooneosade lisamine	31.05.2013
Mais 2013 ADS menetlusrakenduses tehtud täiendused	23.05.2013
ADS-i ja rahvastikuregistri koolitused mais 2013	30.04.2013
Aprillis 2013 ADS menetlusrakenduses tehtud muudatused ja täiendused	8.04.2013
Oktoobris 2012 ADS menetlusrakenduses tehtud täiendused	10.10.2012

Näita kõiki uudiseid

Kasulikud lingid

ADS menetlusrakenduse kasutusjuhend
ADS menetlusrakenduse lühijuhend
ADS menetlusrakenduse koolitusmaterjalid (VIDEOD)
Aadressitoiminguid EHR's tutvustavad videod
Maa-ameti geoportaal
Maa-ameti koduleht
ADS käsiraamat
Ehitisregistri ehitise otsing
E-Kinnistusraamat
Kiirpäring Maaregistrist

Maa-amet menetlused

Pooleli menetlused (19)
 sh süsteemi algatatud menetlused (6)
Jõustatud viimase 30 p jooksul (4253)
 sh haldaja poolt (2)

Andmekorrastuse käigus muudetud andmed

Jõustatud menetlused
sh viimase 60 päeva jooksul (10049)

Jõustamisvalmis menetlused

Jõustamisvalmis menetlused (7)

Harju maakond(1)
Pärnu maakond(1)
Viljandi maakond(4)
Võru maakond(1)

1. County

2. Administrative unit (city, rural municipality)

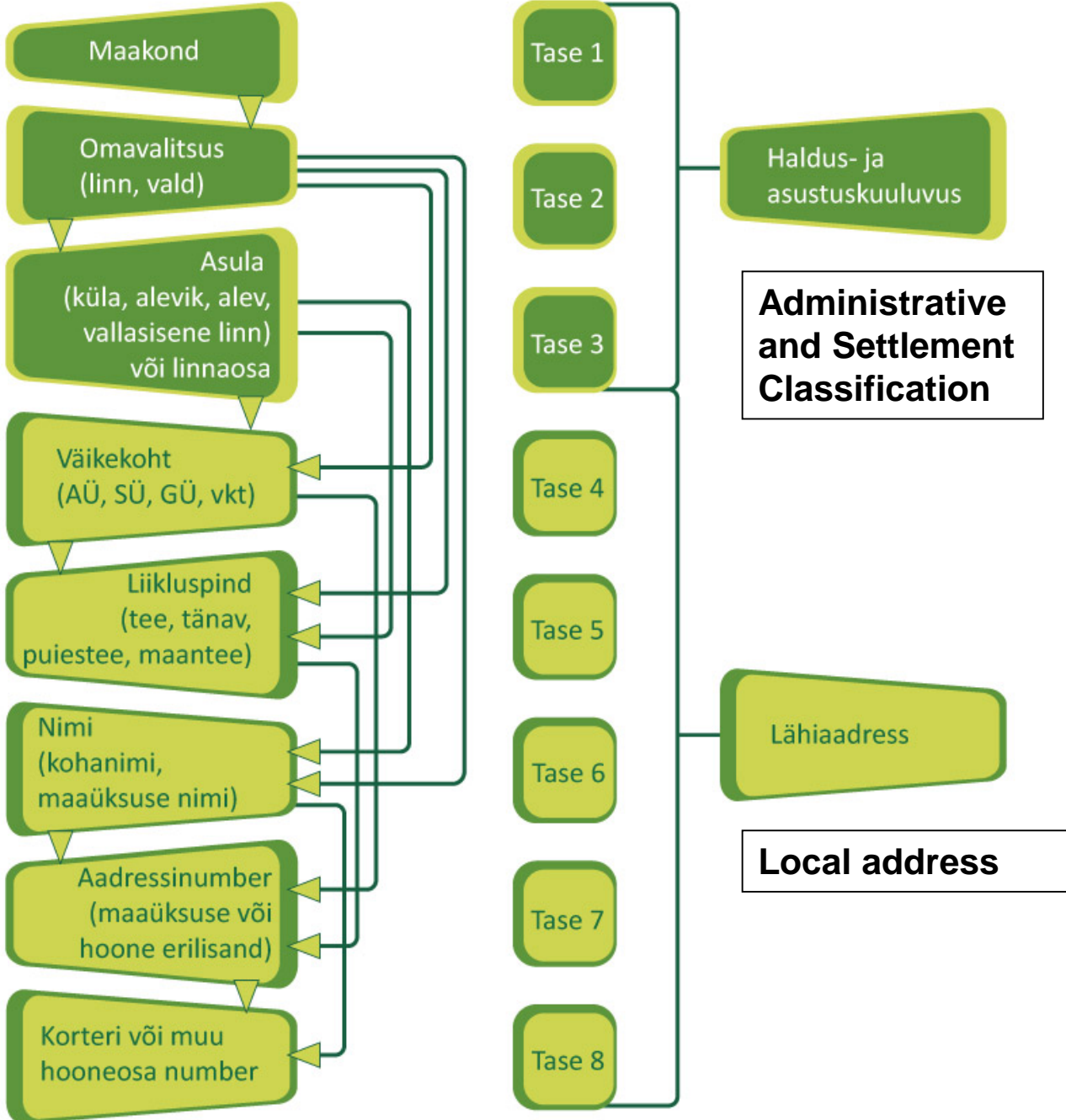**3. Settlement unit** (village, borough) or city district

4. Territorial address unit (small places, gardening cooperatives, garages)

5. Traffic surface (street, road, alley, highway, cross-street)

6. Name (place name, name of a land parcel)

7. Address number (number of a house or land parcel)

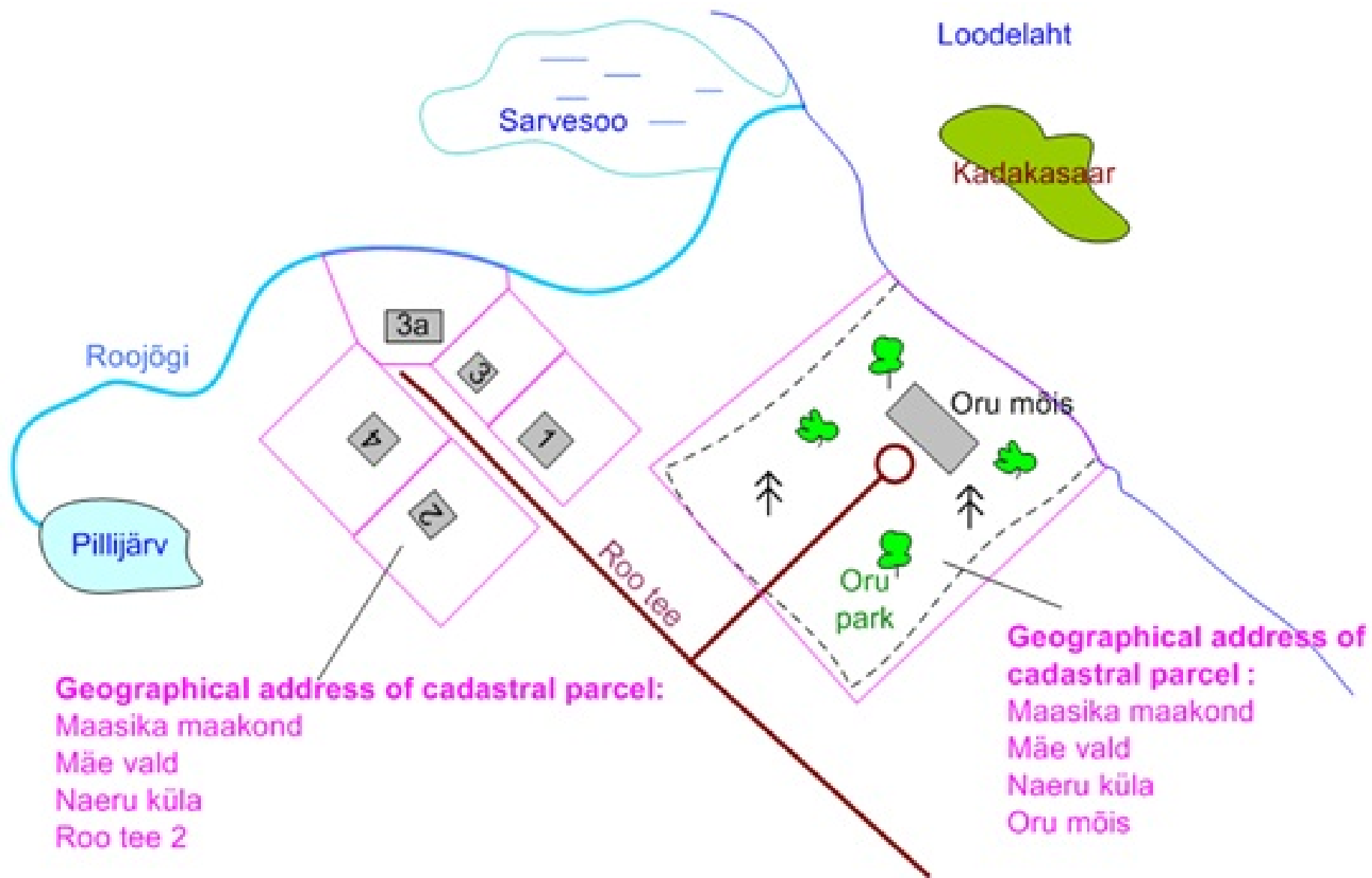**8. Part of the building** (number of apartment or other part)

Maakond

Omavalitsus (linn, vald)

Asula (küla, alevik, alev, vallasisene linn) või linnaosa

Väikekoht (AÜ, SÜ, GÜ, vkt)

Liikluspind (tee, tänav, puiestee, maantee)

Nimi (kohanimi, maaüksuse nimi)

Aadressinumber (maaüksuse või hoone erilisand)

Korteri või muu hooneosa number

Tase 1

Tase 2

Tase 3

Tase 4

Tase 5

Tase 6

Tase 7

Tase 8

Haldus- ja asustuskuuluvus

Administrative and Settlement Classification

Lähiaadress

Local address

Loodelaht

Sarvesoo

Kadakasaar

Roojõgi

3a

3

1

4

2

Pillijärv

Roo tee

Oru mõis

Oru park

Geographical address of cadastral parcel:
Maasika maakond
Mäe vald
Naeru küla
Roo tee 2

Geographical address of cadastral parcel :
Maasika maakond
Mäe vald
Naeru küla
Oru mõis

MAA-AMET

Kihid Otsingud Vahendid Tegevused

Kihtide info ja legend   Kihtide metaandmed

+ Aadressipunktid

+ Probleemid

+ REL 2011

- Hoone

☐ Menetluses hoone

☑ Jõusolev hoone

  ☑ EHR

    ◩ EHR hoone

    ☐ koos aadressiga

  ☑ EHR seoseta

    ◩ EHR seoseta hoone

    ☐ koos aadressiga

☐ Endine hoone

◩ ☐ ETAK hooned

- Liikluspinnad

◩ ☑ Liikluspind

◩ ☐ Endine liikluspind

Q Otsi aadressi   ✕   Aluskaart   Infopäring

Tatari tänav T3
Tatari tn

Tatari tn 51a

Vana-Lõuna tänav T1

Tatari tn 51

Vana-Lõuna tn 4

Vineeri tänav
Vana-Lõuna tn 13

Vana-Lõuna tn 15

10 m
1:923

Maa-amet

Maakond (tase 1): Harju maakond

Omavalitsus (tase 2): Tallinna linn

Asustusüksus/Linnaosa (tase 3): Mustamäe linnaosa

Väikekoht (tase 4): <määramata>

Liikluspind (tase 5): Sõpruse puiestee

Nimi (tase 6):

Aadressnumber (tase 7): 169

Hoone osa (tase 8): 12

Aadress

ID

Maakond (tase 1): Harju maakond

Omavalitsus (tase 2): Tallinna linn

Asustusüksus/Linnaosa (tase 3): Mustamäe linnaosa

Väikekoht (tase 4): <määramata>

Liikluspind (tase 5): <määramata>

Nimi (tase 6): Sõpruse puiestee T13

Aadressnumber (tase 7): <määramata>

Hoone osa (tase 8): <määramata>

ADS includes the following data

- place names
- geographical addresses
- coordinates of address points
- the dates of commencement and termination of the validity of the address data
- information on the status of address objects
- spatial addresses
- and others ...

Address objects in ADS

Object	Code	Number of objects
Cadastral unit	CU	694 233
Residential building	EE	303 577
Non-Residential building	ME	816 532
Dwelling / flat	ER	525 945
Other part of building	MR	61 227
TOTAL		**2 401 514**

Quality of Data

- All data is controlled according to business rules before entering it into ADS

- About 470 000 problems

- Examples of problems:

  – *Object must have shape*

  – *Object must have a unique address*

  – *Building and cadastral unit addresses do not comply*

  – *Incorrect symbols in component*

    » … and 60 other checks

- It is the task of **local governments** (who establish addresses) to fix these faulty situations

Public service of the address data system

Search for different addresses , address objects (also through spatial filter) or its components

View the objects on map

Extract and download data

Address text normalization

Also available in English

http://xgis.maaamet.ee/adsavalik/ads

Address	Address object	Address text normalization	Extracts	Help

ADDRESS SEARCH

⦿ address filter from the selection   ◯ address filter as a text

Address as text	[_____] [?]
County	[_____▼]
Local government	[▼]
Settlement unit/city district	[▼]
Territorial address unit	[▼] [?]
Traffic surface	[▼] [?]
Name	[▼] [?]
Address number	[▼] [?]
Part of the building	[▼] [?]
Type of the object	[_____▼] [?]
Validity	⦿ valid ◯ invalid ◯ all [?]
ADR-ID	[_____] [?]

[Find] [Empty fields / Initial view] [Help]

To and on the map

| Address	Address object	Address text normalization	Extracts	Help

FOUND ADDRESS OBJECTS

Address object search> Found address objects

Nr	Select	ADS-OID	Vers.ID	Attribute	Type	Full address	Valid since	Expired since
1	☐	LP00620299	2972312	3325124	liikluspind	Rapla maakond, Kohila vald, Hageri alevik, Pargi tn	27.09.2010	
2	☐	ME02622863	3713627		mitteelukondlik hoone	Rapla maakond, Kohila vald, Hageri alevik, Pargi tn 6	08.01.2012	
3	☐	ME01873969	2337098	109006183	mitteelukondlik hoone	Rapla maakond, Kohila vald, Hageri alevik, Pargi tn 6	26.08.2009	
4	☐	EE01873967	2791567	109006181	elukondlik hoone	Rapla maakond, Kohila vald, Hageri alevik, Pargi tn 6	13.06.2010	
5	☑	CU00158410	2091439	31701:005:0560	katastriüksus	Rapla maakond, Kohila vald, Hageri alevik, Pargi tn 6	18.12.2008	
6	☑	ME01873968	2337097	109006182	mitteelukondlik hoone	Rapla maakond, Kohila vald, Hageri alevik, Pargi tn 6	26.08.2009	
7	☑	MR01873975	2337111	109006181-1288768	mitteeluruum	Rapla maakond, Kohila vald, Hageri alevik, Pargi tn 6-1	26.08.2009	
8	☐	ER01873974	2337110	109006181-1264840	eluruum	Rapla maakond, Kohila vald, Hageri alevik, Pargi tn 6-1	26.08.2009	

Back

To the map   Export CSV
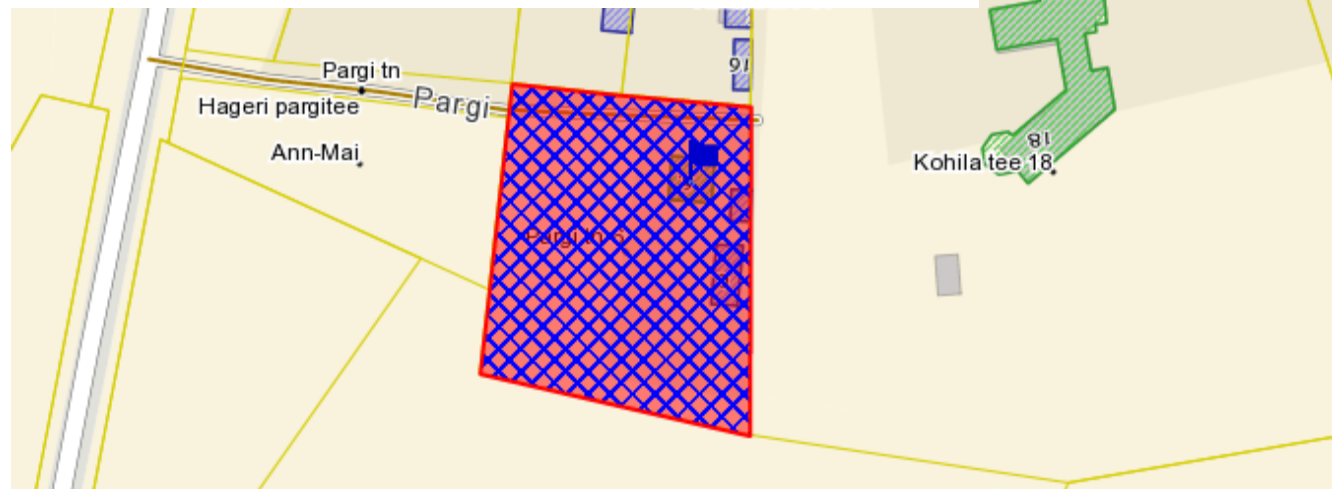
Extracts

- Comprehensive Estonian address data freely available for download

- in CSV format

- 10 different extracts with different data

- Extracts for specific administrative units

- Updated monthly

- Plans for making address data available via cloud technology

1. funding for data quality improvement

- July 2013 – November 2014
- 1,5 mln €
- 335 000 objects
- Money from the Ownership reform reserve fund of Government of Republic
- Agreeing on tariffs with representatives of Local municipalities
- Tariffs meant to compensate labour costs
- Notifying the local municipalities
- Good co-operation with bigger municipalities
- **BUT still only 35% of the funding was used**

2. funding for data quality improvement

- January 2015 – November 2016

- 1 496 000 €

- 252 000 objects

- Additional funding for Land Board for 2 employees

- Most tariffs adjusted (increased)

  – According to new time consumption calculations from municipalities

- 3 new tariffs

- **AGAIN only about 70% of the funding was used**

3. funding for data quality improvement

- 2. funding period continued

- January 2017 – November 2018

- 102 200 objects

- No additional funds added (at the moment)

- Additional funding for Land Board

- Many tariffs adjusted (increased)

  – According to new time consumption calculations from municipalities

- 3 new tariffs

- 4 previous tariffs discontinued

Lahendatud osatähtsus, 01.04.2017

Lahendatud %
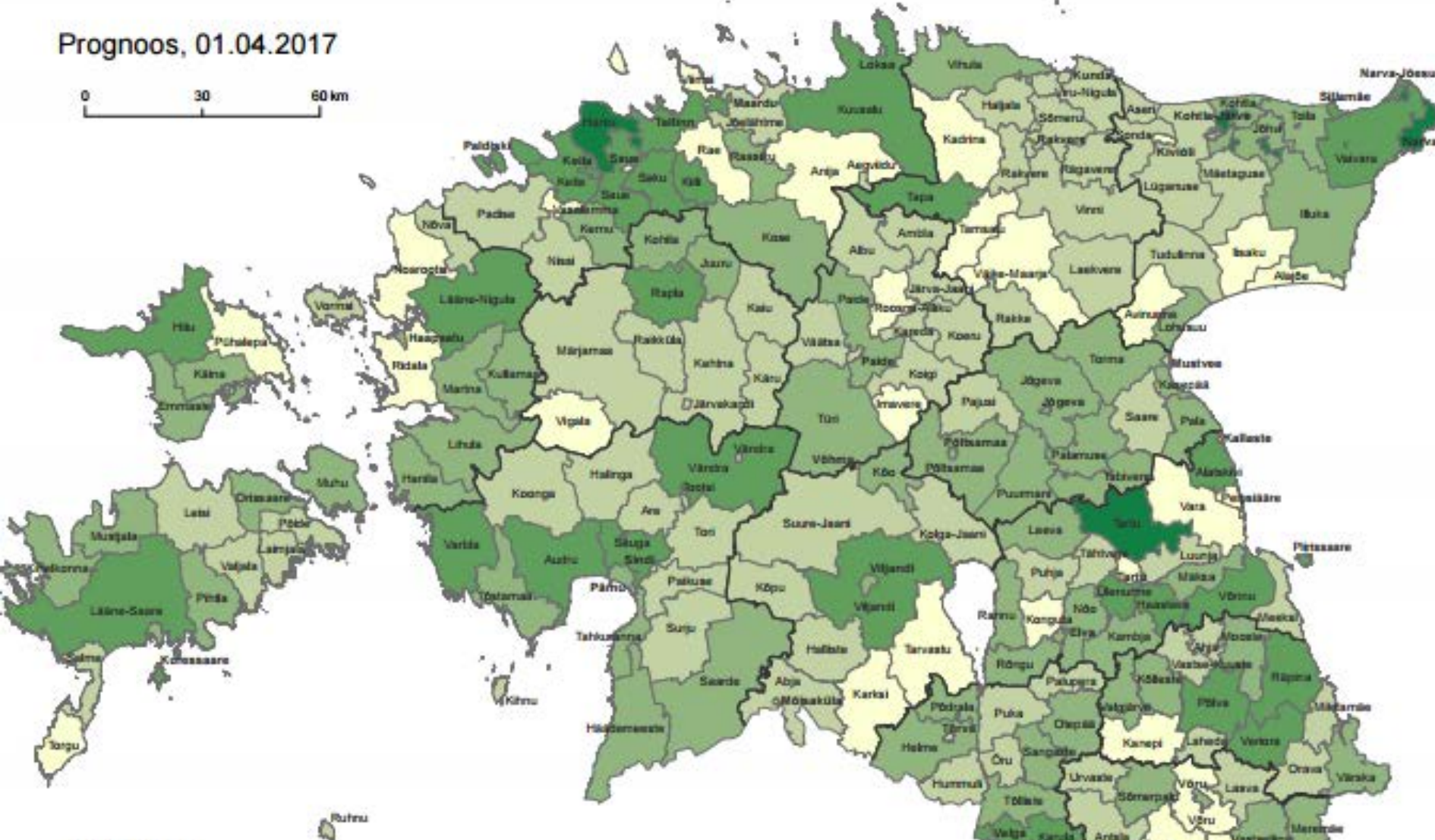
- 0 (13)
- 1 - 5 (131)
- 6 - 15 (44)
- 16 - 100 (25)
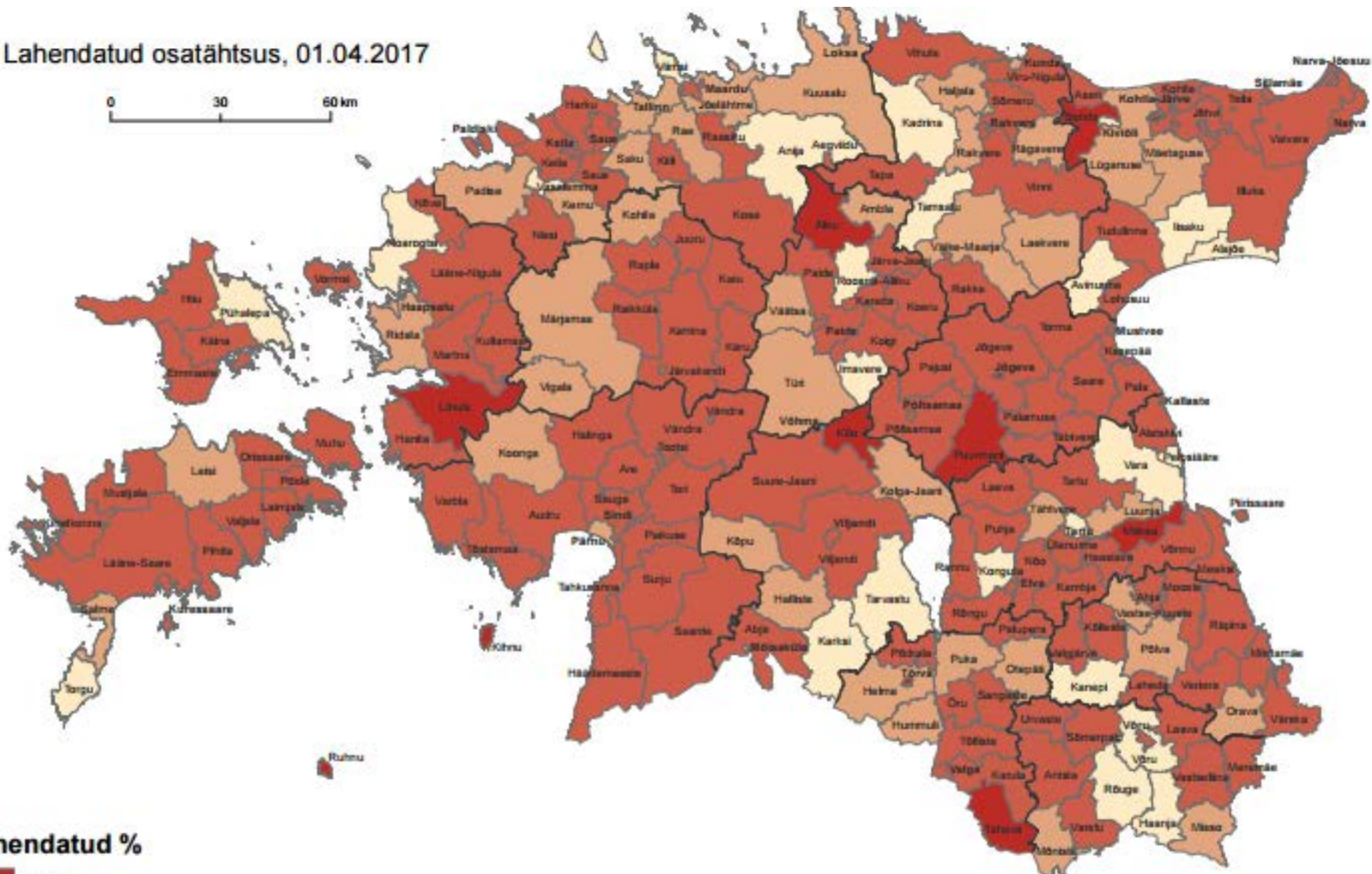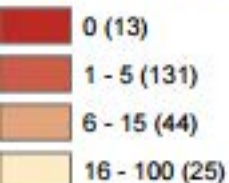
Vastava protsendi probleemsetest objektidest on omavalitsused korrastanud 01.04.2017 seisuga.
Detailsemat statistikat vaata SIIT.

Allikas: Maa-amet

Prognoos, 01.04.2017

0   30   60 km

Jääb tegemata

- 0 (29)
- 1 - 199 (84)
- 200 - 499 (64)
- 500 - 999 (32)
- 1000 - 2500 (4)
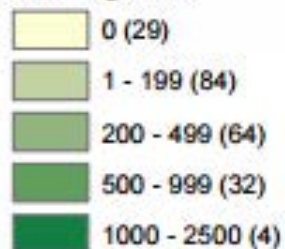
Kui omavalitsused jätkavad korrastustöid senises tempos, jääb rahastusperioodi lõpuks (november 2018) korrastamata ära toodud hulk objekte. Detailsemat statistikat vaata SIIT.

Allikas: Maa-amet

Tariffs 1

1) Add spatial data to residential or communal building

2) Correct the address of a cadastral parcel

3) Establish a unique address to a building

4) Ensure that the parcel and building address are in concord

5) Add approximate address to an address object

6) Remove unnecessary parallel address

Tariffs 2

7) Remove additional characters from apartment address

8) Add connections to other registers (population, business, land register)

11) Ensure address is in concord with spatial address

14) Ensure all addresses have a spatial reference

15) Establish a unique address to apartments

16) Add missing residential buildings to Construction works register

Tariffs 3

- Tariffs differentiated weather administrative procedure (notifying citizens) was done or not

- Also differentiated if materials from archives were used

In some cases, addresses are
essential

112

na postmark!

EESTI POST
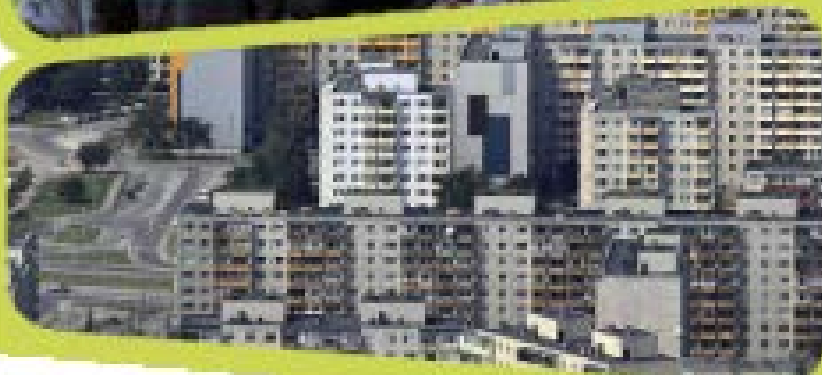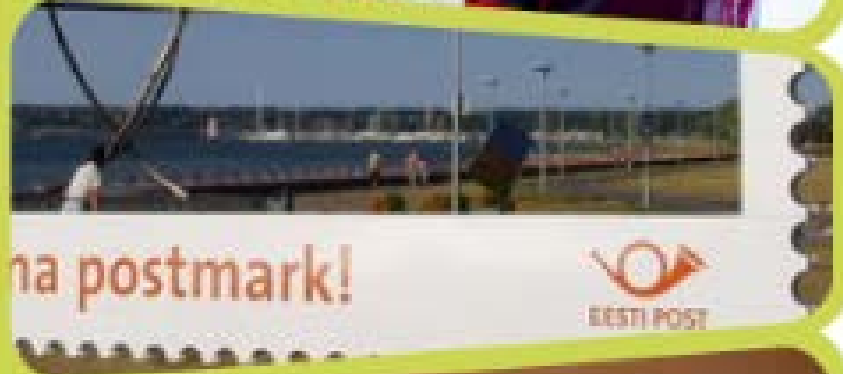
If you don't care where you are, you cannot get lost

ADS as a support system for maintenance of Estonian State Information System

consisting of a central technological solution (ADS administration system)

> **including** interfaces for processing address data and providing address services, and databases processing address data

of **requirements** for

> form of addresses,
>
> establishment of geographical addresses,
>
> the chief processors of address data,
>
> the chief processor of the ADS administration system,
>
> address services
>
> the processing of addresses

Registers

National Place Names Register — place names

Land Cadastre — cadastral parcel, administrative units

Address Data System (ADS)

State Register of Construction Works — buildings

Estonian National Topographic Database (ENTD)

National Register of Monuments — cultural monuments

Environmental Register — body of water, shale

Road Register — roads

Registers and information systems which use the data, public and private sector

for example: Population Register, Commercial Register, Land Register, Police Information System, Rescue Board, Alarm Centre, local governments, Estonian Post Ltd, Estonian Energy Company, communication company etc....

Estonian information system

Public sector

- Population Register
- Address Data System
- Place Names Register
- Document record management systems
- **Documents repository**
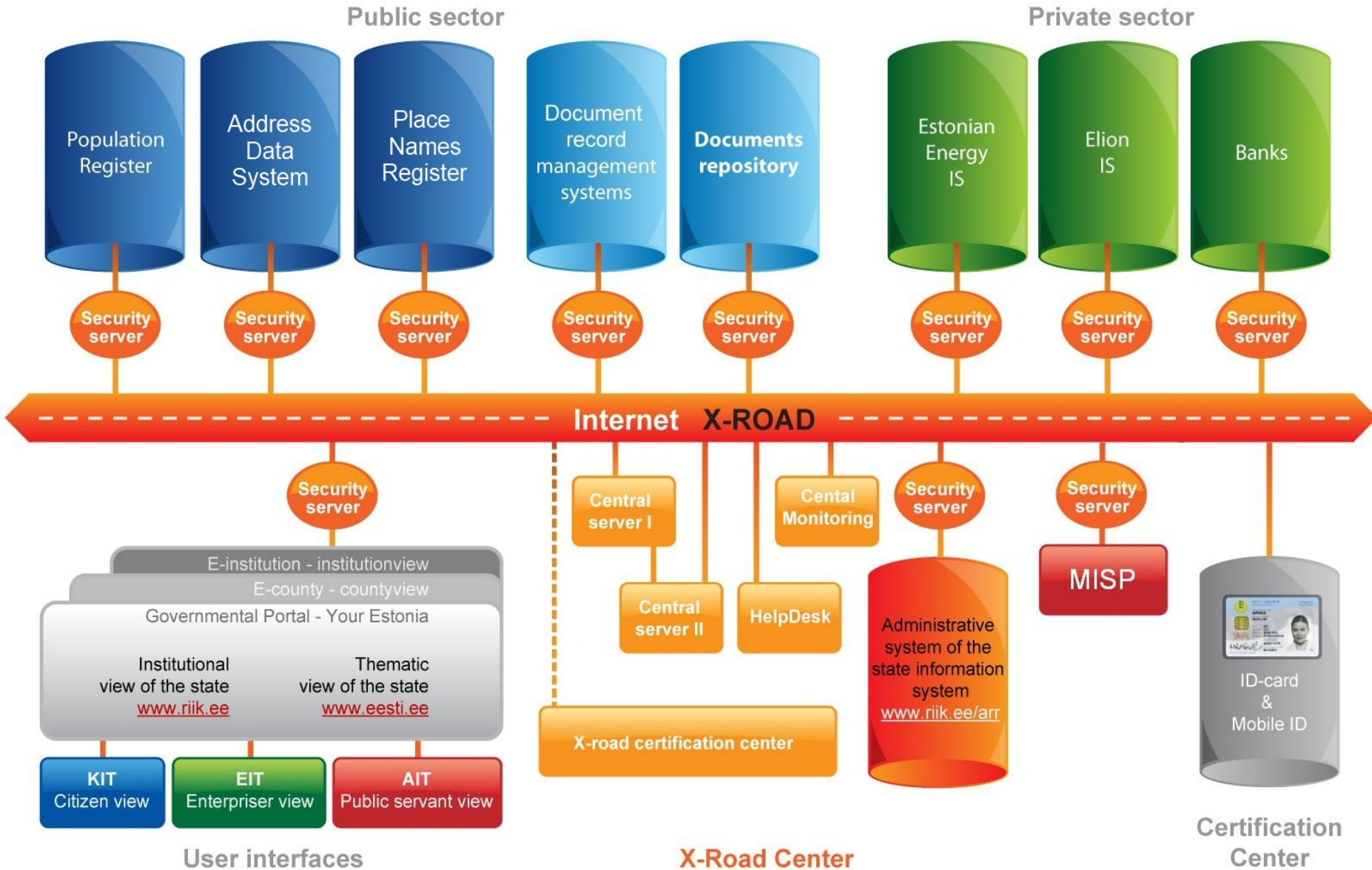
Private sector

- Estonian Energy IS
- Elion IS
- Banks

Security server (×8)

Internet X-ROAD

Security server

- E-institution - institutionview
- E-county - countyview
- Governmental Portal - Your Estonia

Institutional view of the state	Thematic view of the state
www.riik.ee	www.eesti.ee

KIT Citizen view

EIT Enterpriser view

AIT Public servant view

User interfaces

Central server I

Central server II

Cental Monitoring

HelpDesk

X-road certification center

Security server

Administrative system of the state information system
www.riik.ee/arr

X-Road Center

Security server

MISP

ID-card & Mobile ID

Certification Center

X-road

- Allows databases to interact, making integrated e-services possible

- Institutions are not locked into any one type of database or software provider

- In 2013 over **287 million** queries were done over X-road.

- Over **170** databases offer their services over X-Road in Estonia.

- Over **2,000** services are used over X-Road in Estonia.

- Over **900** organisations use X-Road daily in Estonia.

- More than **50%** of the inhabitants of Estonia use X-Road through the information portal eesti.ee.

- Roadside Safety - All outgoing data from the X-road is digitally signed and encrypted. All incoming data is authenticated and logged.

9 ADS public X-road services:

- Address search
- Address object search
- Normalizer of address text
- Address change log
- Object change log
- Object address change log
- Spatial address query
- Successor of invalid address query
- Successor of invalid object query

Address search:

```
- <SOAP-ENV:Body>
   - <adsv5:ADSaadrotsingResponse>
      - <request>
         - <AadrOtsingParam>
               <adsTase1/>
               <adsTase2/>
               <adsTase3/>
               <adsTase4/>
               <adsTase5/>
               <adsTase6/>
               <adsTase7/>
               <adsTase8/>
               <aadressTekst>auna 11, tallinn</aadressTekst>
               <objektiLiik>CU</objektiLiik>
               <objekt>false</objekt>
               <aadressKomp>true</aadressKomp>
               <kaKehtetud>false</kaKehtetud>
               <kasNormaliseerida>false</kasNormaliseerida>
               <aadrJarglased>false</aadrJarglased>
         </AadrOtsingParam>
      </request>
```

```xml
- <response>
    - <ADSaadrotsingResult>
        - <aadressid>
            - <aadress>
                <adrId>2120175</adrId>
                <koodAadress>377840614000004CC000019GE00000000</koodAadress>
                <taisAadress>Harju maakond, Tallinn, Põhja-Tallinna linnaosa, Auna tn 11</taisAadress>
                <lahiAadress>Auna tn 11</lahiAadress>
                <punktX>6589504.170</punktX>
                <punktY>540210.500</punktY>
                - <adsTase1>
                    <kood>37</kood>
                    <nimetus>Harju maakond</nimetus>
                    <nimetus_liigiga>Harju maakond</nimetus_liigiga>
                </adsTase1>
                - <adsTase2>
                    <kood>784</kood>
                    <nimetus>Tallinn</nimetus>
                    <nimetus_liigiga>Tallinn</nimetus_liigiga>
                </adsTase2>
                - <adsTase3>
                    <kood>0614</kood>
                    <nimetus>Põhja-Tallinna linnaosa</nimetus>
                    <nimetus_liigiga>Põhja-Tallinna linnaosa</nimetus_liigiga>
                </adsTase3>
                - <adsTase5>
                    <kood>04CC</kood>
                    <nimetus>Auna tn</nimetus>
                    <nimetus_liigiga>Auna tänav</nimetus_liigiga>
                </adsTase5>
                - <adsTase7>
                    <kood>19GE</kood>
                    <nimetus>11</nimetus>
                    <nimetus_liigiga>11</nimetus_liigiga>
                </adsTase7>
                <objArv>5</objArv>
                <olek>K</olek>
            </aadress>
        </aadressid>
    </ADSaadrotsingResult>
</response>
</adsv5:ADSaadrotsingResponse>
```

Address change log

```xml
- <aadrmuudatTulem>
      <logId>2800051</logId>
      <logStamp>2014-12-13T14:03:44</logStamp>
      <syndmus>D</syndmus>
      <koodAadress>742700000000000000000000000000</koodAadress>
      <adrId>100161</adrId>
      <taisAadress>Saare maakond, Kaarma vald</taisAadress>
      <esindusPunktX>6455393.100</esindusPunktX>
      <esindusPunktY>405074.400</esindusPunktY>
  </aadrmuudatTulem>
- <aadrmuudatTulem>
      <logId>2800053</logId>
      <logStamp>2014-12-13T14:03:44</logStamp>
      <syndmus>D</syndmus>
      <koodAadress>744400000000000000000000000000</koodAadress>
      <adrId>100168</adrId>
      <taisAadress>Saare maakond, Lümanda vald</taisAadress>
      <esindusPunktX>6462251.010</esindusPunktX>
      <esindusPunktY>384162.800</esindusPunktY>
  </aadrmuudatTulem>
```

Statistics Estonia and ADS

- Address data fully imported to Statistics Estonia databases

- Changes from X-road services

- Feedback of data quality to Estonian Land Board

- Use of other address related resources like geocoding, normalizing etc

- Good co-operation

Population register and ADS

- Long history of residential addresses and own logic of dealing with addresses

- Long process of finding links between existing addresses

- From 01.06.2014 fully using ADS data

- **Residential address** and **contact address** needs to be connected to an address object

- Changes are read from object address change log

Population register and ADS

- Overall **551 975** valid addresses
- Approximately **4 500** unlinked addresses and **5 400** addresses linked to an address, but not to object
- That means about **99,2% of addresses are linked**
- Local municipalities improving data and creating links between residential address and ADS address
- Giving feedback to ADS about new problematic addresses (X-road services)

Land Register and ADS

- General data, size, owners, restrictions and encumbering mortgages of immovable properties (land parcels, **apartment ownerships**)
- Overall **505 755** valid apartment ownerships
- Details (address) of apartment ownerships cannot be changed (need to create links to ADS objects)
- Approximately **9 500** unlinked apartment ownerships
- That means about **98,1% of addresses are linked**
- Local municipalities creating links between apartment owneships and ADS addresses
- Planned to give feedback to ADS about new problematic addresses (X-road services)

Business Register and ADS

- Real-time data of all legal persons registered in Estonia
- All addresses of legal persons need to be ADS addresses
- In process of starting using ADS data
- Development underway currently
- Legislation recently modified to make using ADS data possible
- Data quality quite low, but no specific details jet

More information

- Estonian Land Board: http://www.maaamet.ee/

- Spatial Data Act

- Government of the Republic Regulation No. 251 of 20 December 2007 "Address Data System"

- National Place Names Register in English: http://xgis.maaamet.ee/knravalik/knr?LANG=EN

- Estonian Land Board Geoportal: http://geoportaal.maaamet.ee/eng/

- Public Service of the Address Data System: http://xgis.maaamet.ee/adsavalik/ads

- Address Data Handbook (only in Estonian) http://ads.maaamet.ee/

- Data Exchange Layer X-Road https://www.ria.ee/x-road/

REPUBLIC OF ESTONIA
LAND BOARD

Thank You!

Andre Kaptein
Andre.Kaptein@maaamet.ee