



MAA-AMET

Land Board, NW Services and SDI

Tambet Tiits, FRICS

07.09.2016



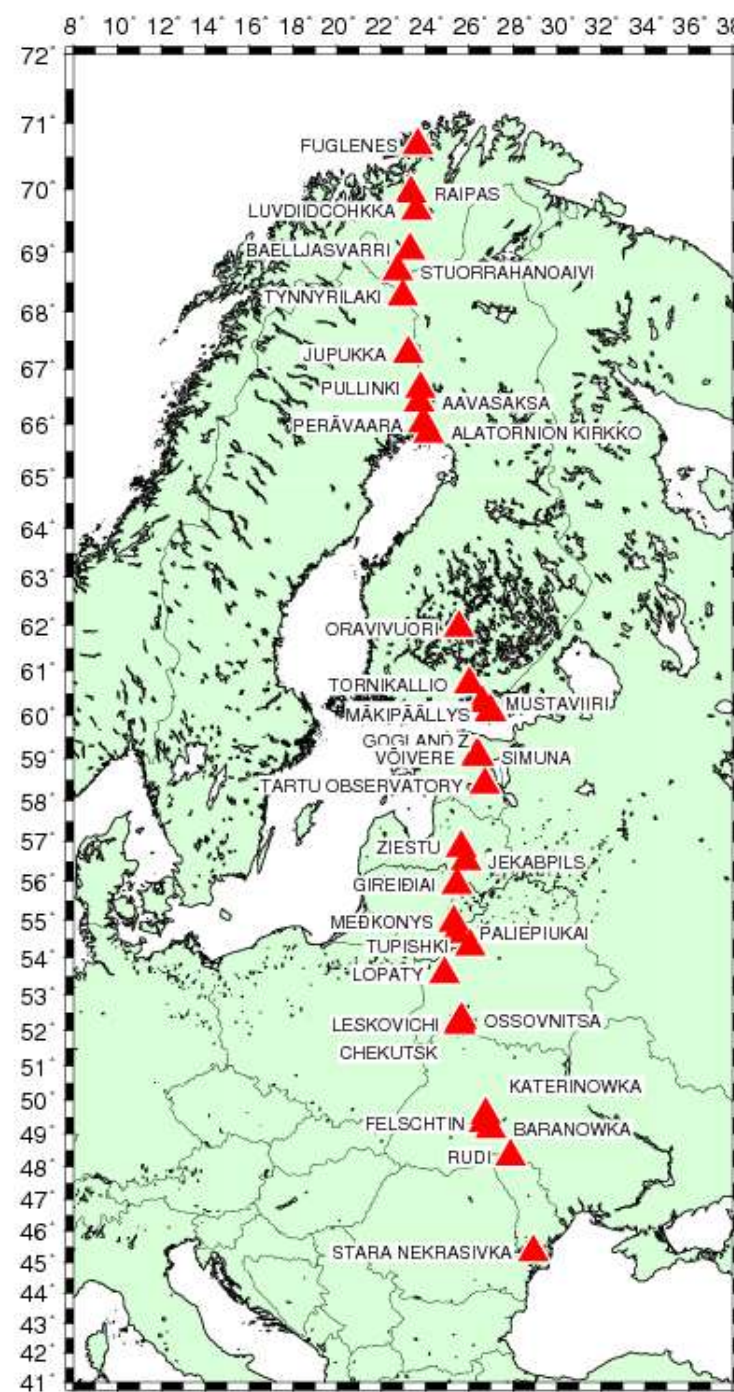
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200th anniversary of the Struve Geodetic Arc

Friedrich Georg Wilhelm Struve
and Carl Friedrich Tenner

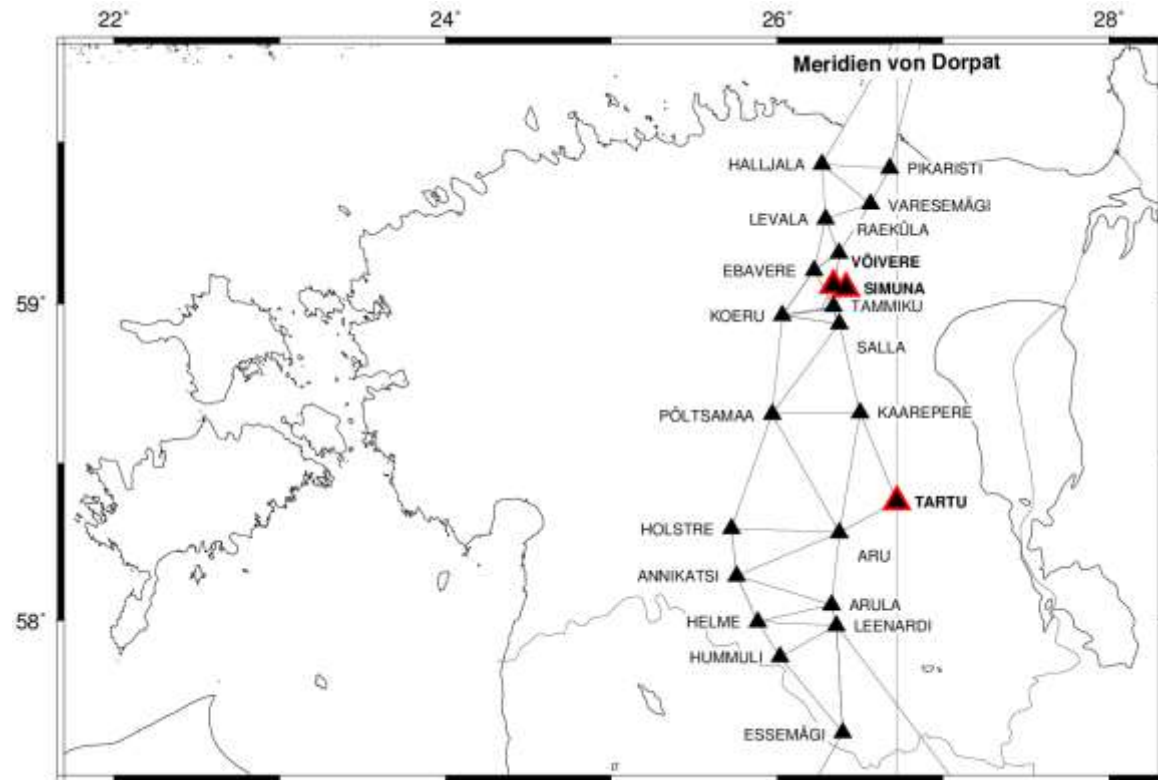
Struve Geodetic Arc

- The Struve Geodetic Arc is a triangulation chain from the Arctic Ocean to the Black Sea, stretching down along the 26E meridian.
- The original arc consisted of 258 main triangles with 265 main station points.
- The Struve Geodetic Arc was included in UNESCO's World Heritage List in July 2005 as an outstanding example of a scientific and technical achievement.
- The listed site includes 34 of the original station points.



Struve Geodetic Arc Estonia

- In Estonia, Wilhelm Struve measured altogether 22 points, of which 3 are described in world heritage list.



Estonian Land Board

- Government agency founded in 1990 under the jurisdiction of the Ministry of the Environment.
- 260 employees
- State funding 100%



Main Fields of Activity

- Implementation of land policy
- Maintenance of land cadastre
- Mapping and GIS
- Capture and management of geodetic, geological and topographic data
- ESA
- Land valuation



Main Rules of the Estonian Information Policy

- Distributed service based architecture
- Suitable security of data and data-exchange
- Online features
- Focus on e-services
- The use of strong authentication measures

National Digital Strategy

- Basic documents for national strategy:
 - Digital Agenda 2020 for Estonia
 - Interoperability Framework
- The Land Board is responsible for the development of strategy for spatial data services:
 - Spatial Data Act (adopted in 2011)
- The Land Board contributes to the development of national strategies (GIS related issues) and ensures that its own strategic documents (development plans) are in line with national principles

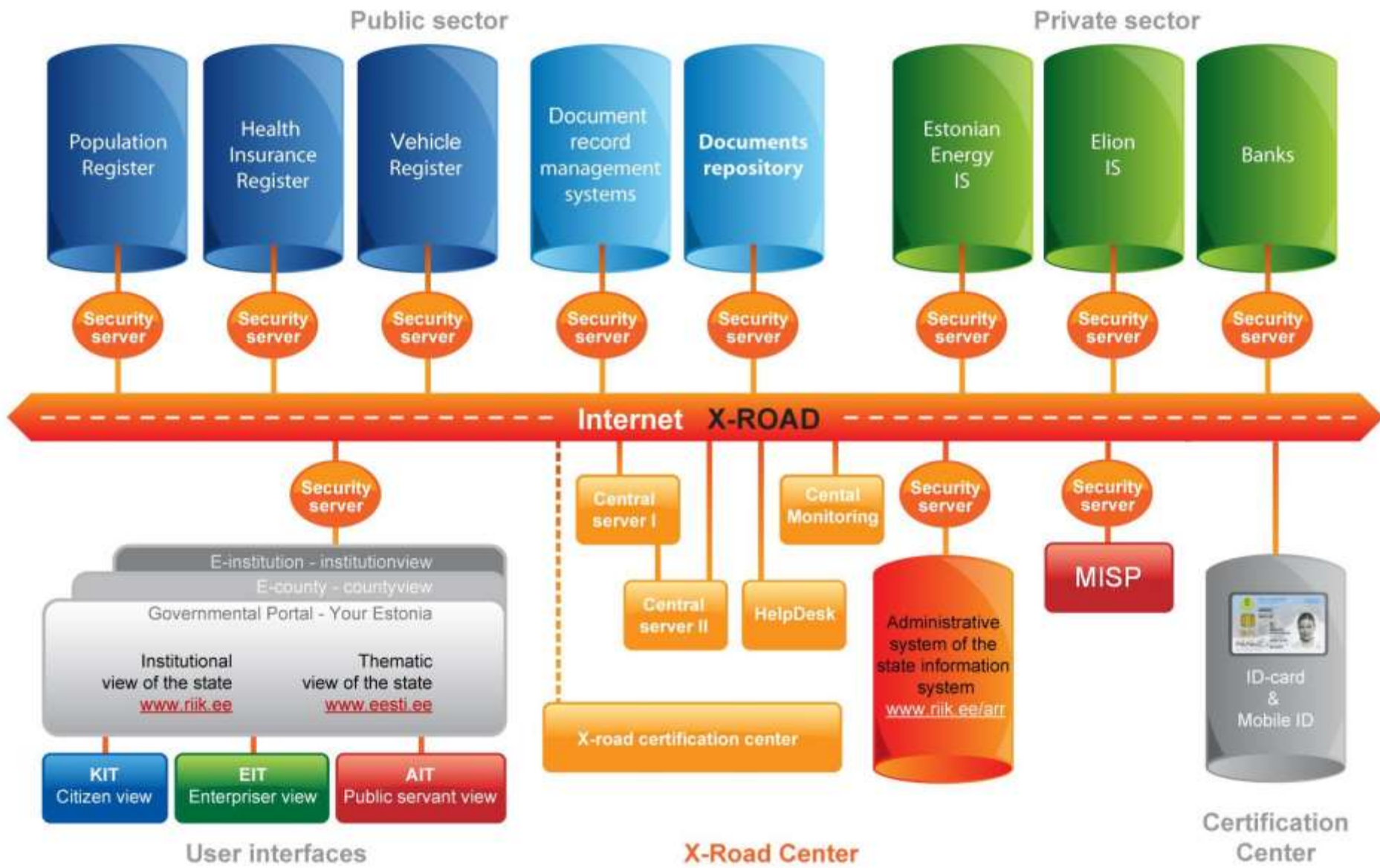
List of Estonia's “digital firsts”

- 2000 E-government with paperless e-cabinet sessions
- 2000 Mobile parking system
- 2001 X-Road implemented, the de-centralized backbone to all public e-services
- 2002 Introduction of mobile payments and digital signature
- 2005 World's first internet voting in official elections
- 2005 DigiDoc system for signing, storing and sharing documents
- 2009 Electronic registration of companies (up and running in 15 minutes)
- 2014 99% of banking transactions are done electronically in Estonia
- 2014 Estonia launches the world's first e-residency

X-Road

- X-Road is a technical and organisational environment, which enables Internet-based data exchange between the state's information systems
- Public and private sector enterprises and institutions can connect their information systems with the X-Road, services can be added one at a time, as they are ready
- Over **170** databases offer their services over X-Road in Estonia
- Over **2,000** services are used over X-Road
- Over **900** organisations use X-Road daily
- Over **50%** of the inhabitants of Estonia use X-Road through the information portal: eesti.ee.

Estonian information system



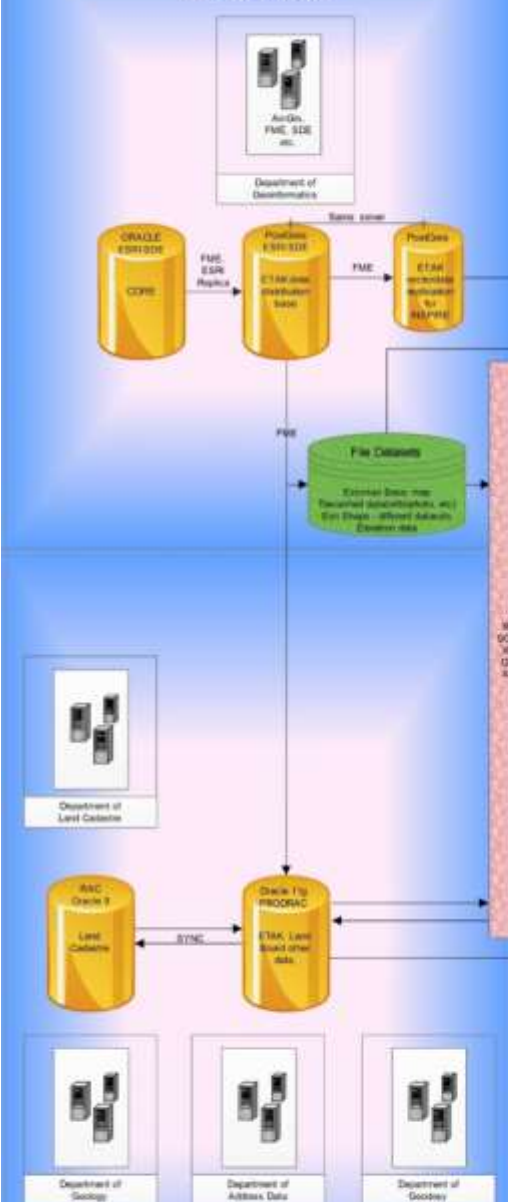
X-Road and the Land Board

- Of our data sets the following are provided to customers over X-Road:
 - Address Data System
 - Place Names Register
 - Mineral Deposits of the Environmental Register
 - Estonian Topographic Database
 - Land Tax Information System
 - Cadastre
- Altogether 66 active services

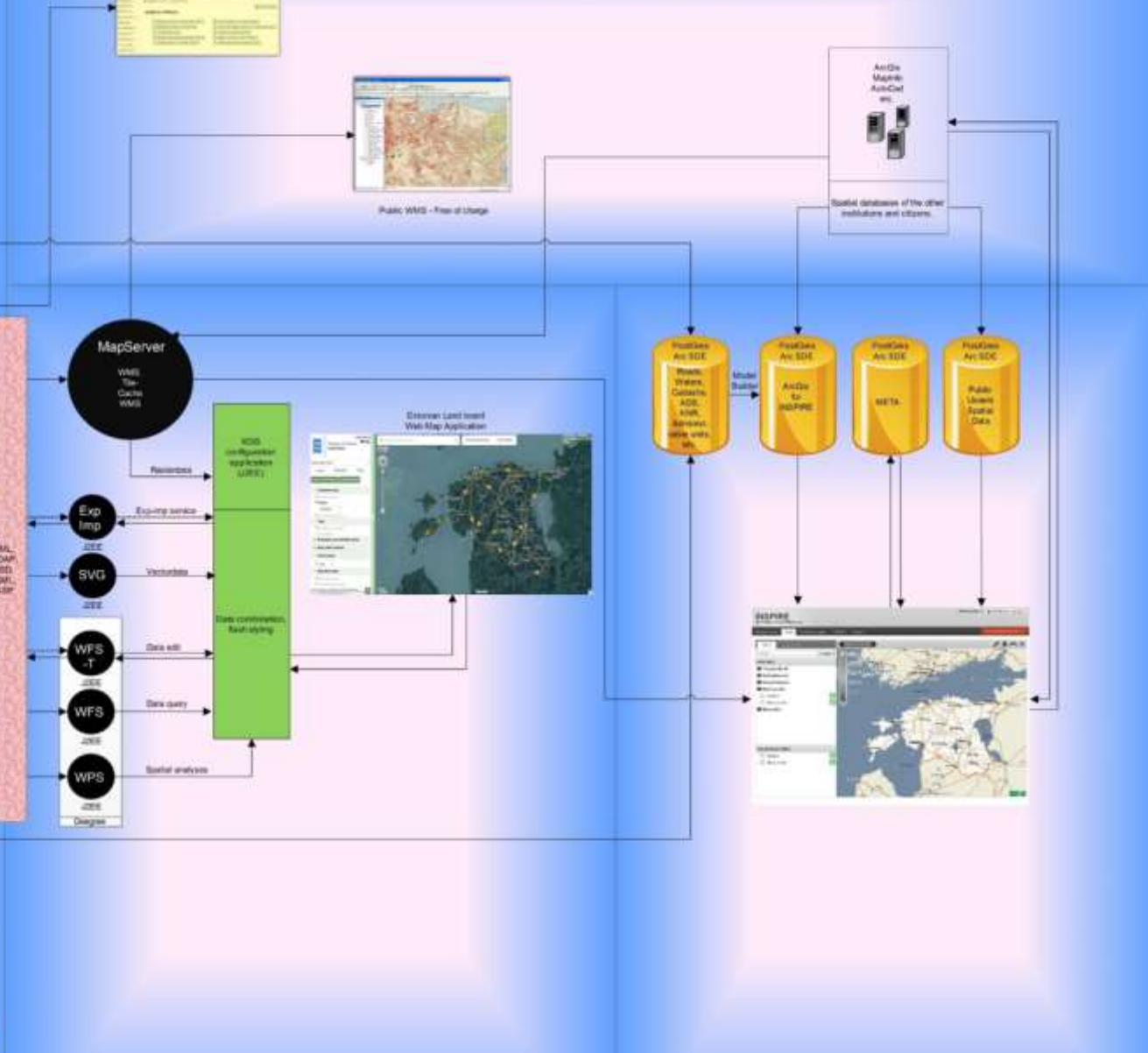
X-GIS

- The first map application was developed in 2001 for publication of cadastral data
- In 2007, a new web-based map server, X-GIS, was launched, which was based on open standards (WMS, WFS, etc.)
- X-GIS includes an administration module, new map applications can be added very easily
- Over 70 thematic map applications, most of them are public and free
- Data producing module – enables to authenticate, create and edit data
- We also host the data of other state agencies. Currently, e.g. spatial data of heritage objects and of roads are maintained in our environment
- In Estonia X-GIS is very popular, in a way it is the X-Road for spatial data

Estonian National Topographic Database



Citizens, users and associates



Spatial Data

X-GIS

Estonian Geoportal



REPUBLIC OF ESTONIA
LAND BOARD

[mobile layout](#)



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Layers Searches Tools

Layer info and legend Layers metadata

- Cadastral map

- Registered parcel
- Display
 - Identifier
- Parcel by surveying

- Task

- tasks/border proposals
- Task attribute

+ Evaluation and fertility zones

+ Map sheet indexes

- Flood areas

- max

- Elevation Data

- Elevation Data
- Digital surface model

X-GIS, Estonian Land Board. All Rights Reserved.
e-mail: kaardirakendus@maaamet.ee phone: 6 750 866

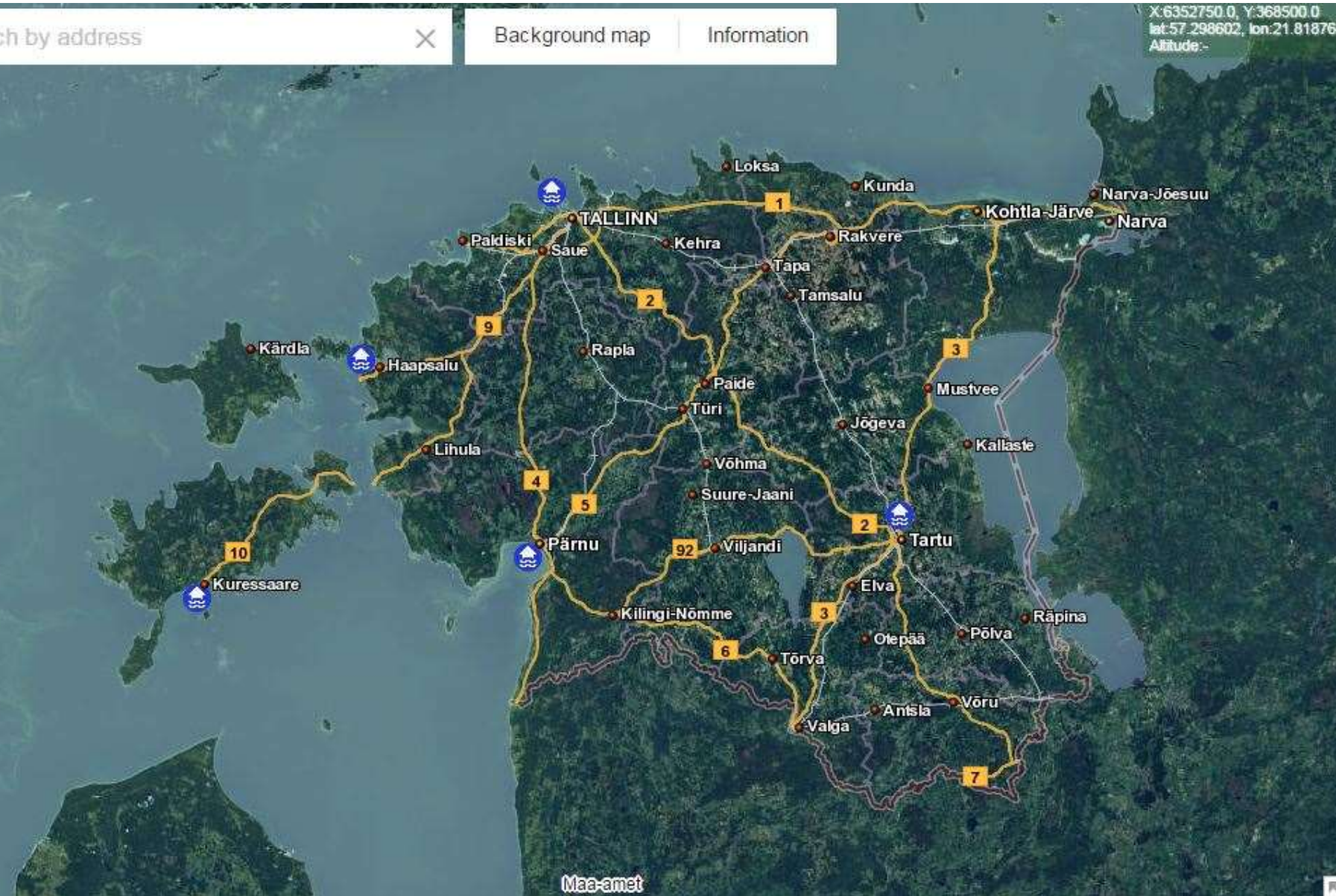


20 km
1:1889765

Search by address

Background map Information

X:6352750.0, Y:368500.0
lat:57.298602, lon:21.818764
Altitude: -



Geoportals

Currently the Land Board manages two geoportals:

- Land Board's Geoportal (<http://geoportaal.maaamet.ee>)
 - Launched in 2009
 - Self tailored
 - Oriented to the Land Board's data and services
 - Map application is X-GIS



Services shortcuts

- Address data (map)
- Address data (query)
- Conservancy and Natura 2000
- Detailed Plans Application
- Estonian Road Administration
- Geological Data Application
- Historical Maps Application
- Marine Areas Application
- Place Names Register (map)
- Place Names Register (query)
- Restrictions Application
- Cadastral Register Query
- State Land Sales

Geoportal shortcuts

- Admin. and Settlement Division
- Estonian Basic Map 1:10000
- Estonian Soil Map
- Geological Base Map
- INSPIRE
- Orthophotos

- Map Server
- Services
- Maps and Data
- Spatial Data Infrastructure
- Ordering Data

location: Opening page

Print page

Opening page

Enter Web Map Server by clicking on the button below:

Enter Web Map Server
 Web Map Server contains all public web map applications of Estonian Land Board.

On this site we offer besides Web Map Server other spatial data services and information about maps and spatial data as well as data ordering information.

Map Server

Web Map Server and other ELB public web map applications

Services

Spatial Data Services

Maps and Data

Overview of ELB maps and spatial databases

Spatial Data Infrastructure

INSPIRE Directive

Ordering Data

Information about ordering maps, spatial data and printouts:

Geoportals

- Estonian Geoportal (<http://inspire.maaamet.ee>)
 - Launched in 2012
 - Outsourced
 - Part of the first INSPIRE development project
 - A “gateway” through which spatial data, metadata and services, including INSPIRE compatible services, are published and made available
 - Part of the Estonian NSDI



Layers Search

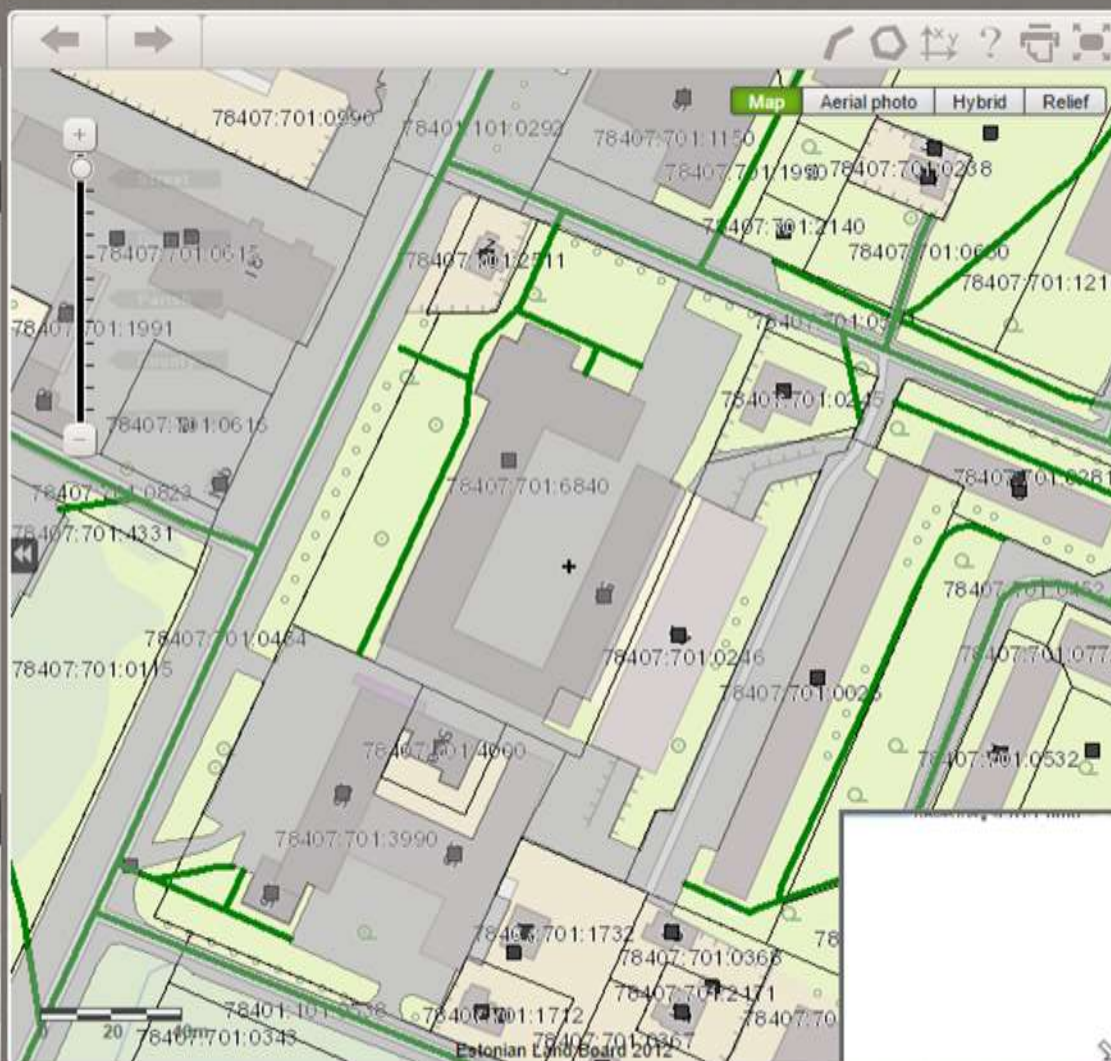
Filter:
Filter text

All layers

- INSPIRE
 - Ka Geographical names
 - Administrative units
 - Address
 - Catastral parcels
 - Cadastral Zoning
 - Cadastral Parcel
 - Transport networks
 - Common Transport Elements
 - Air Transport Network
 - Railway Transport Network
 - Road Transport Network
 - Road Area
 - Road Link

Selected layers ★

<input checked="" type="checkbox"/>	Road Area	45%	×
<input checked="" type="checkbox"/>	Road Link	100%	×
<input type="checkbox"/>	Cadastral Parcel	100%	×
<input checked="" type="checkbox"/>	Address	100%	×
<input checked="" type="checkbox"/>	Map	100%	×



INSPIRE Implementation

- The Land Board is INSPIRE contact point and also responsible for the majority of Annex I/II INSPIRE themes and for part of Annex III themes
- Stage I – 2009-2011 – technical infrastructure, central INSPIRE database, data harmonisation, discovery and view services for Annex I data was developed
- Stage II – 2014-2015 – harmonisation of Annex II and part of Annex III themes, download services, most Annex I and II data will be compatible with data model version 4.0
- Stage III – 2016 ... - implementation according to the roadmap
- INSPIRE services are made available through the Estonian Geoportal at <http://inspire.maaamet.ee>

Use of Our Services

- Web Map Server – e.g. more than 730 000 requests per month
- Base services (WMS, WFS) – e.g. more than 450 000 requests per month
- Land Board's homepage – 192 000 requests per month
- Hits in the Map Server per month – more than 180 million
- All view web services are free to use for everybody

Impact of Spatial Data Services on the Land Board

- Need for manual work has been reduced
- Customers obtain more and more information from web services
- The competencies of employees in the field of spatial data have improved
- We can provide the society with up-to-date spatial data straight from the source
- The quality of services has improved considerably
- Economic and social effects are more user related and therefore more difficult to measure

Conclusions

- Provision of data through services has been a right choice – the Land Board's data are widely used
- It is extremely important to guarantee the quality and up-to-datedness of data that serve as basis for decision making
- Estonia, being a small country, is an ideal place for the implementation of new and innovative solutions



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Thank you!

Further information:

www.maaamet.ee

geoportaal.maaamet.ee