REPUBLIC OF ESTONIA
LAND BOARD

Estonian Topographic Database

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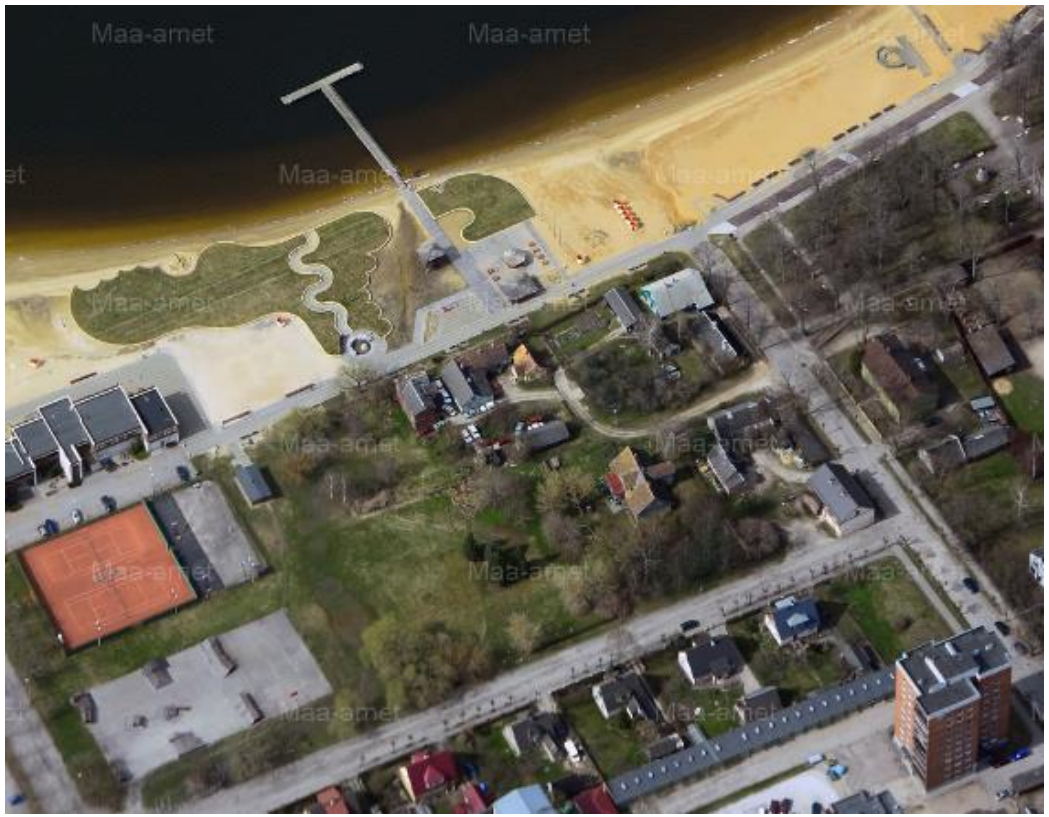
Estonian Land Board

December 6, 2018

Objectives of Estonian Topographic Database



- ✓ **To produce topographic data** covering the whole territory of Estonia
- ✓ **To provide the society with** up-to-date and high-quality **data and products**
- ✓ **To provide** state and local government **databases with spatial data**
- ✓ **To implement the** directives of European parliament and of the Council establishing an **infrastructure for spatial information** in the community.

Open data since 1st of July this year

Estonian topographic database

Legal umbrella for spatial data

- ✓ ***Aerial photos and ortophotos***
- ✓ ***LIDAR data, elevation models***
- ✓ ***Topographic vector data***
- ✓ ***Maps products in different scales 1:10K (Basic map), 1:20K (Basic map printed), 1:50K generalized layers for webmap), 1:250K (ERM)***

Vector data is the core of the database

Database

Topographic vector data management

- ✓ *ArcSDE, Oracle, PostgreSQL, versions, topology, history*
- ✓ *Simple geometries*
- ✓ *Each object has an unique id across the database*
- ✓ *Links to external databases*
- ✓ *2.5D data is updated using stereo mapping, targeted fieldwork and data exchange*

Field	Value
OBJECTID	245427
SISESTAJA	hannok (OS:hannok)
SISESTUSAEG	9/11/2006
MUUTJA	olevv (OS:olevv)
MUUTMISAEG	3/3/2018 9:19:58 AM
ANDMEALLIKA_ID	206
KORGUSALLIKA_ID	210
RUUMIKUJUALLIKA_ID	206
ETAK_ID	610610
EHR_GID	116001949
KOOD	Hoone
ALAMLIIK	Hooned
TYYP	Elu- või ühiskondlik hoone
MARKUSED	<null>
VAJALIK	Korras
ADS_OID	EE00959731
ADS_LAHIAADRESS	Karjaallika
GLOBAAL_ID	{D0A0660F-A099-4A83-9AA
KOV_ID	<null>
Shape	Polygon Z
SHAPE.AREA	290.165571
SHAPE.LEN	78.349397

Data is updated in ArcMap 10.4 and Socet Set

The database contains

Data of more than 4 000 000 objects in 16 layers/feature classes

- ✓ Over **920 000 building** polygons
- ✓ Over **870 000 land cover** polygons
- ✓ Over **650 000 road** segments
- ✓ Over **840 000 water** network segments like rivers, streams and ditches
- ✓ etc.

Topology

- ✓ Contains **8 feature classes**
- ✓ with just **50 rules**

25 custom gadgets or Add-in’s

Quality and distribution system

- ✓ More than **200 quality checks**
- ✓ Linked, only validated data will be distributed

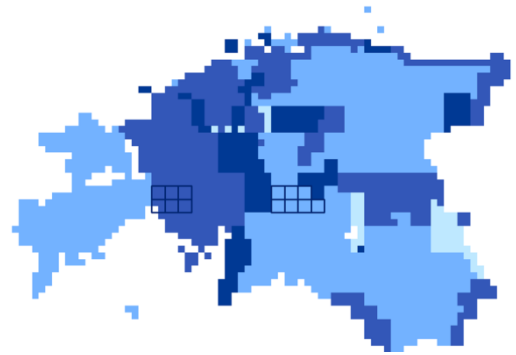
Mapnames are not in the topographic database

LEAN ?

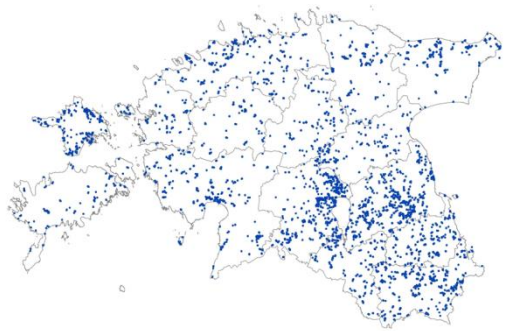
Providing spatial data for:

- ✓ 6 state registers,
- ✓ WMS, map applications, digital maps (and paper maps)

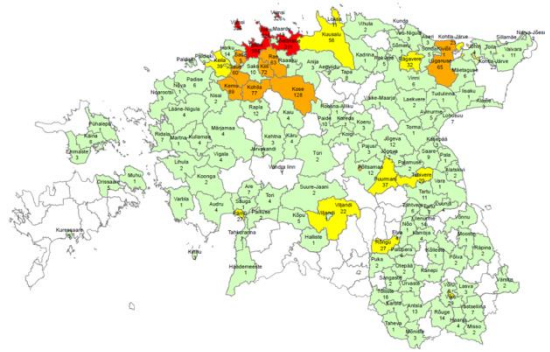
Full coverage update



On-demand mapping for cadastre

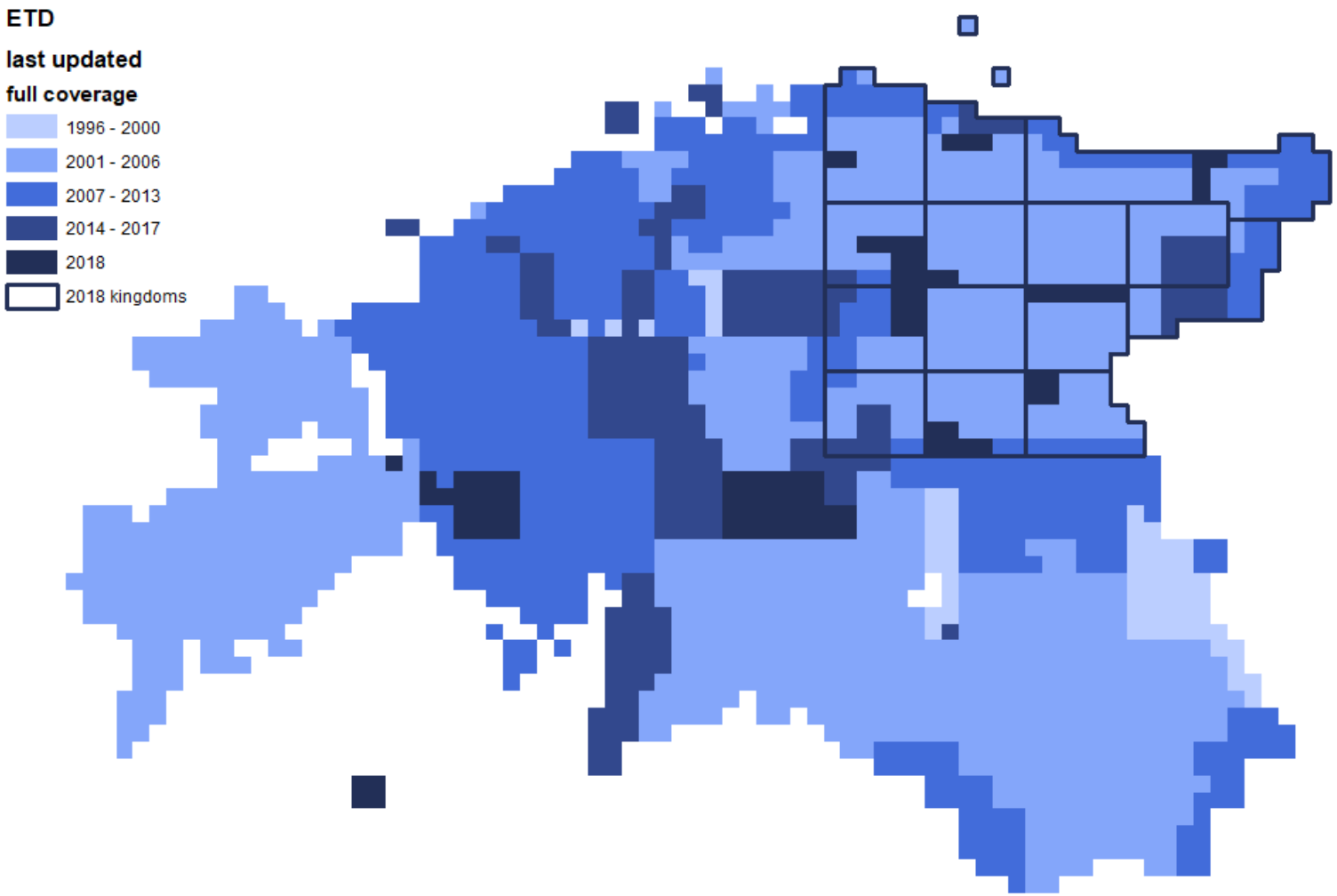


Local roads compliant with road register



Buildings, close to 30% updated or verified each year

Focus on providing spatial data to registers

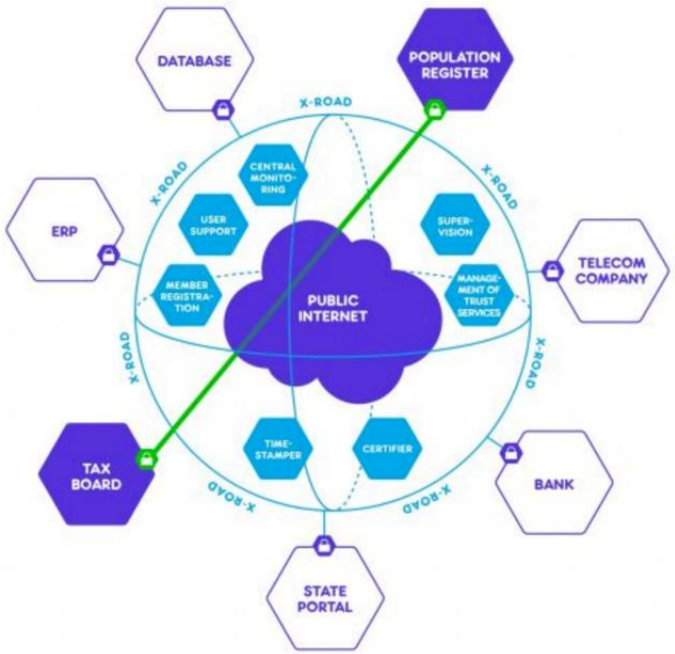


How old is data?

- ✓ *Continuous mapping (100% in-house)*
- ✓ *Thematic updates (incl. power-users)*
- ✓ *On demand updates (registers, citizens)*
- ✓ *~4000 updates per day, ~500 000 unique updates in a year*

Buildings, land-use, roads, waters have everyday updates

Data exchange



- ✓ ***Data exchange layer of the state information systems: X-road***
- ✓ ***Spatial data services: national, INSPIRE***
- ✓ ***Open data download***

Estonian Topographic database

- ✓ ***Uses** only attribute data from other databases*
- ✓ ***Users** need to detect change in spatial data as well as in attribute data*

***Main partners of data exchange:** National Register of Roads (Estonian Road Administration, Local governments, Forest Management Centre), Environmental register, National Place Name Register, Address Data System, State Register of Construction Works, Land Cadaster, Tallinn and Tartu city governments*

Is X-road suitable for spatial data?

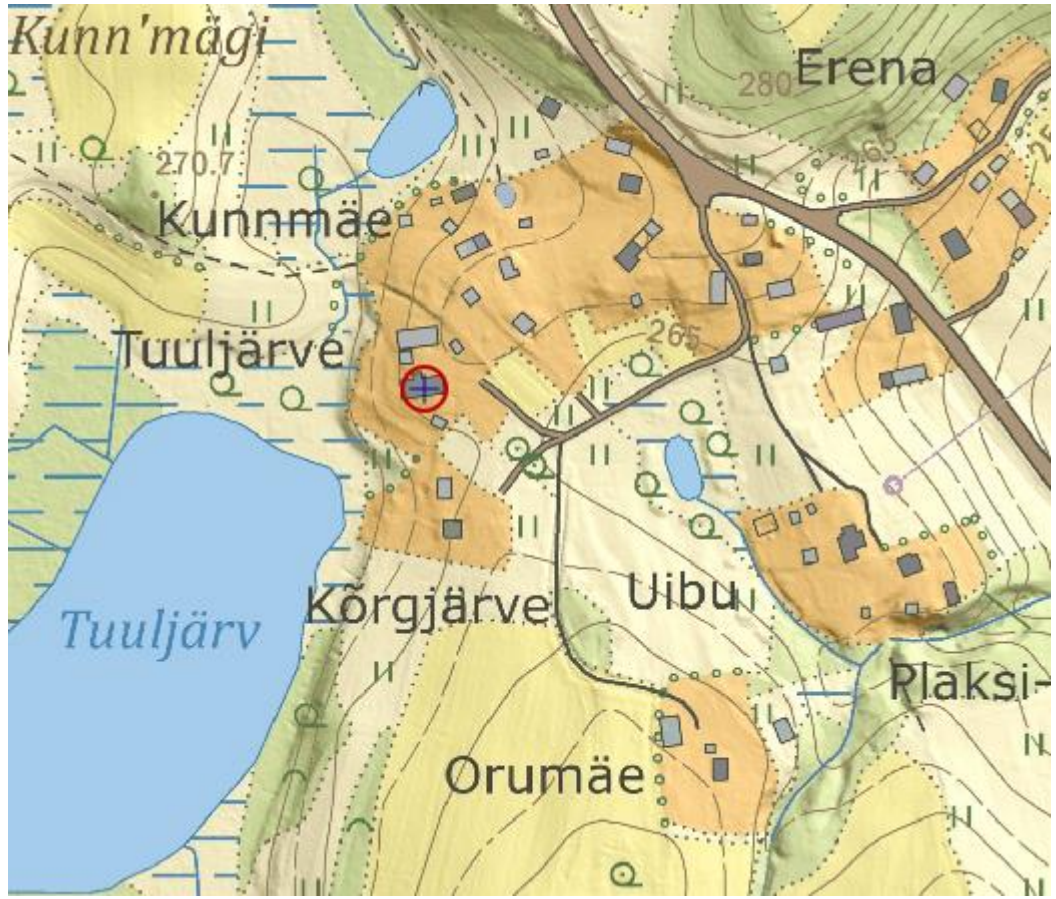
The legal role grows

Spatial Data Act:

- ✓ ***The use of existing data in ETD is mandatory for holders of national databases*** to avoid data collection duplication

Basic map 1:10K is generated once in a year from core data:

- ✓ ***Basic map's shoreline is baseline for calculations of water and nature protection/restriction zones***
- ✓ ***Basic map's land cover units ease building permissions.*** *A* new building may be constructed in the yard of an existing building in building-ban areas.



Fragment of the basic map 1:10K

Thematic accuracy and completeness of topographic maps

KIIRA MÕISJA

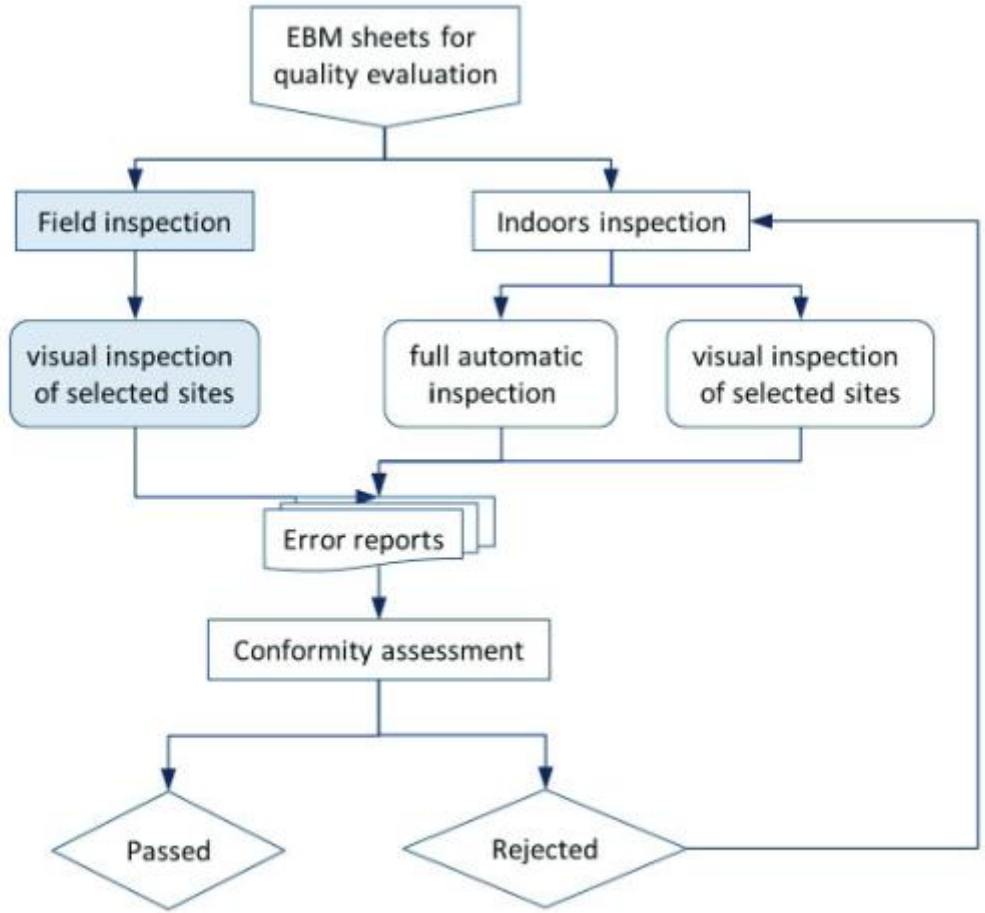
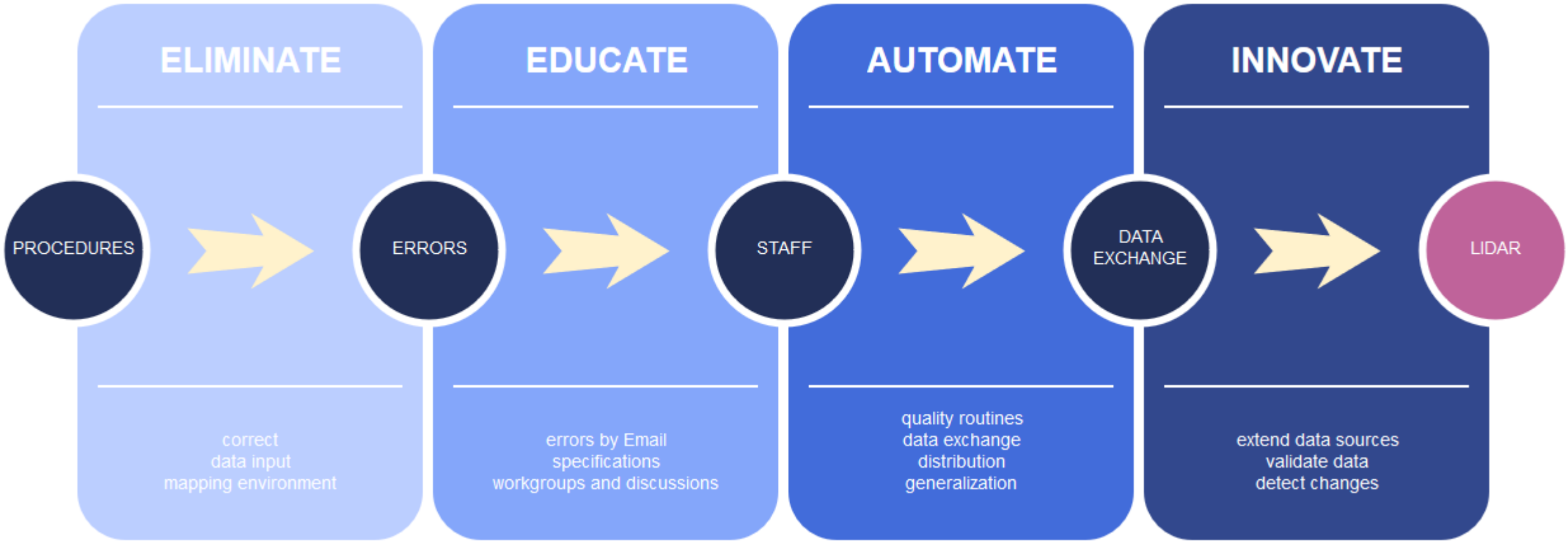


Figure 5. Quality evaluation process of digital EBM sheets. The scope of the current study is shown by coloured boxes.

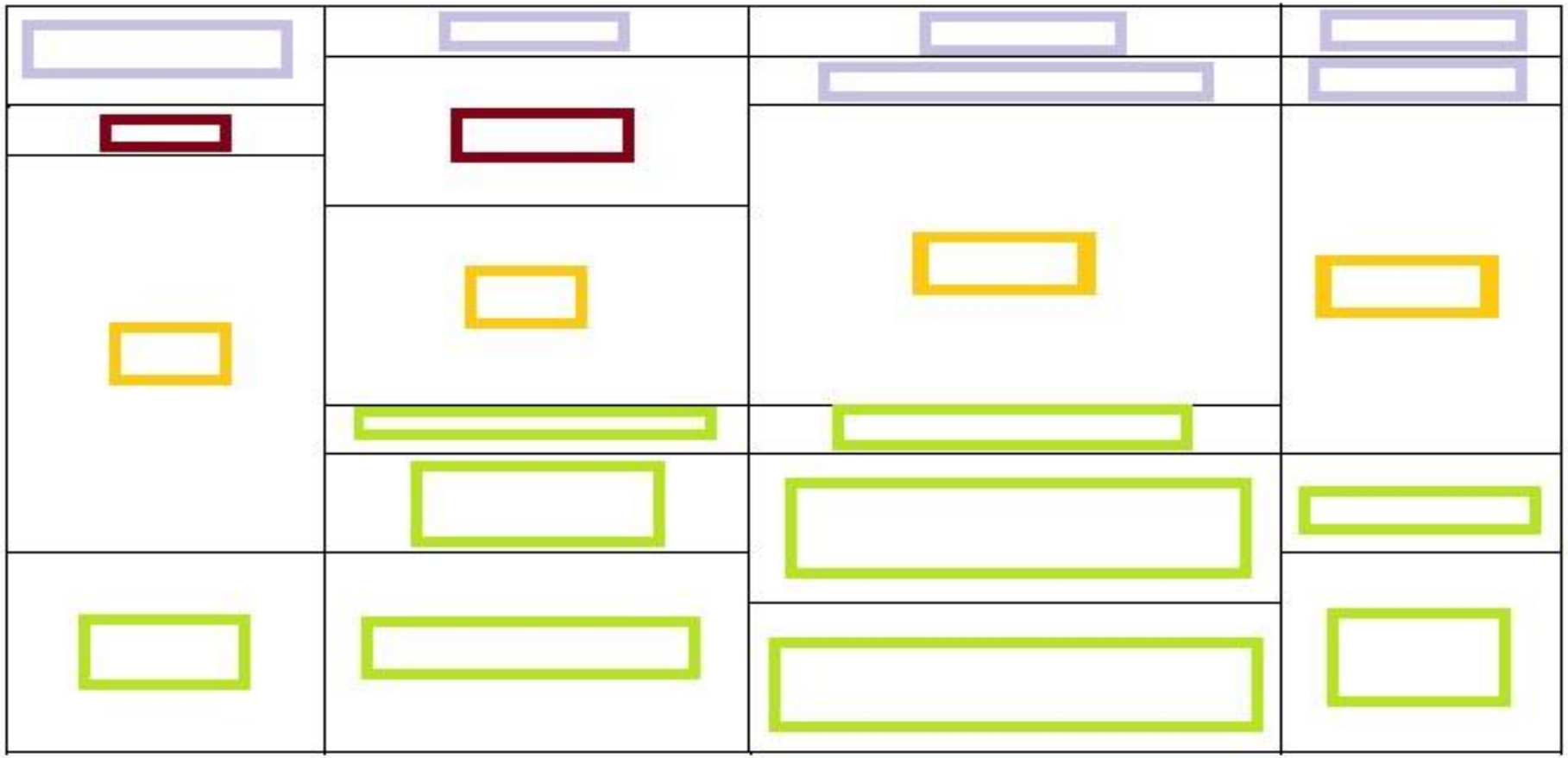
- ✓ to investigate the thematic accuracy and completeness of topographic maps using ***empirical field inspection*** in topographic mapping.
- ✓ used EBM data (produced in years ***2003–2006***) and EBM quality control results

First spatial data QA doctoral thesis in Estonia

Quality assurance

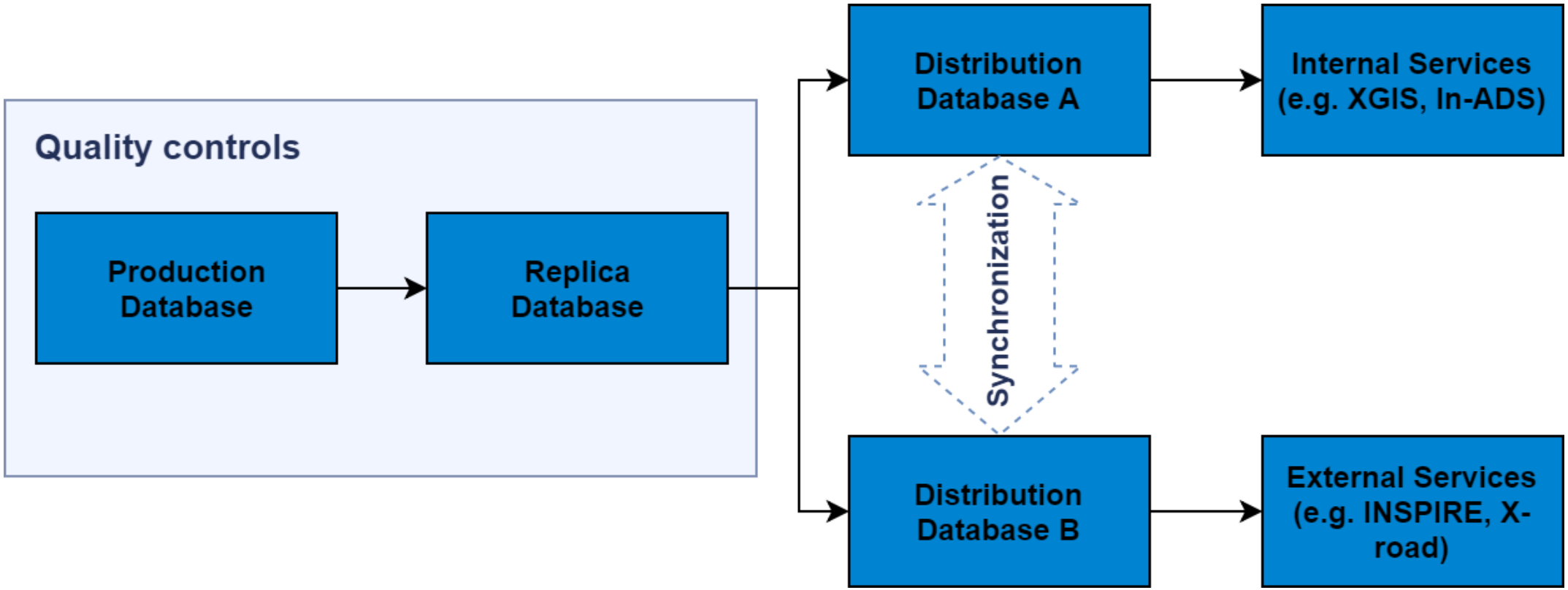


Definitions



Agricultural land by different institutions

Quality and distribution system



AB control

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[hudrograafia_p]

kood=vaartus_on_domeenis
tyyp=vaartus_on(80)
geomeetria=geomeetria_pole_mitmeosaline
;liiga_lahedal(10)
```

```
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+       *** 5122212 *** geomeetria |keak (OS:keak)| segmendi_pikkus([0.001,])
+       *** 989853 *** geomeetria |virvea (OS:virvea)| segmendi_pikkus([0.001,])
```

Tue 12/4/2018 4:29 PM

lea.pauts@maaamet.ee

ABKontroll finisheerus: (2018.12.04 16:29:20).

Adressaat Lea Pauts

Vead: piirded_j (virvea,keak); hudrograafia_p (markop); kallas_j (riinar); kolvikud_a (elerih,riinar,evah,gretelisl); teed_j (virvea,gretelepa,annt,maarjaviibur,tuudurt); vooluveekogud_j (gretelepa,riinar);

Emails at the end of the workday

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KEEP YOUR WORK AREA CLEAN IT IS PART OF YOUR JOB

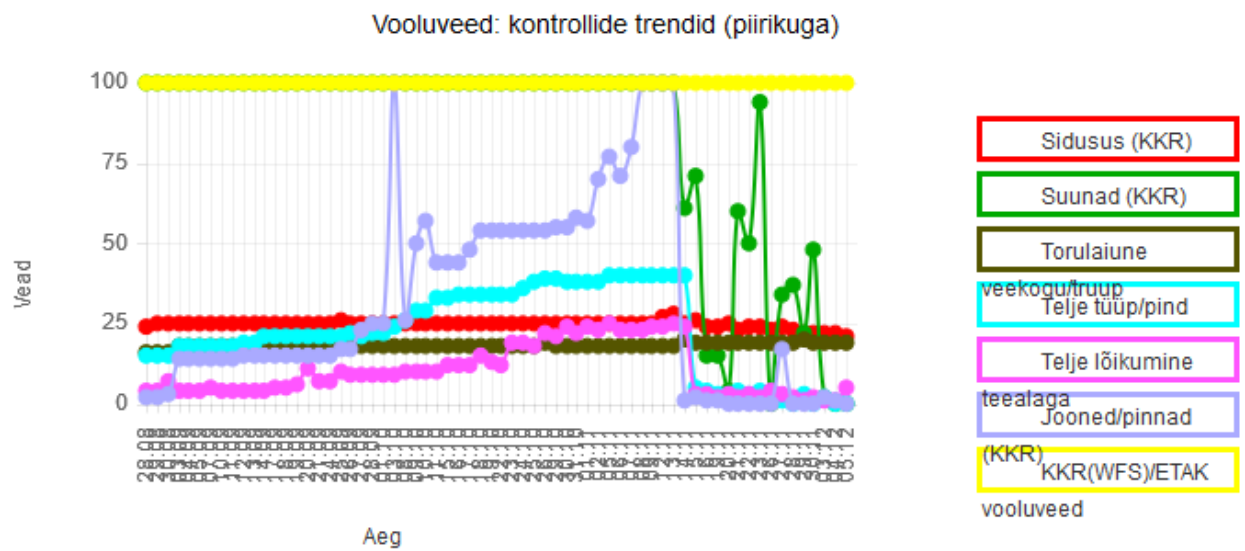
Vali nähtusklass/grupp, mille tulemusi vaadata: Vooluveed

Erandite fail: Allalaadimine Üleslaadimine

Lae alla CSV

Lae alla GDB

KKR vooluveekogude sidususe kontroll	21
KKR WFSi ja veekogude (vooluvete jooned) tärkvõrdlus	287
Vooluveekogu telje teealaga lõikumise kontroll	5
KKR vooluveekogude suuna kontroll	0



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Thank you!

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