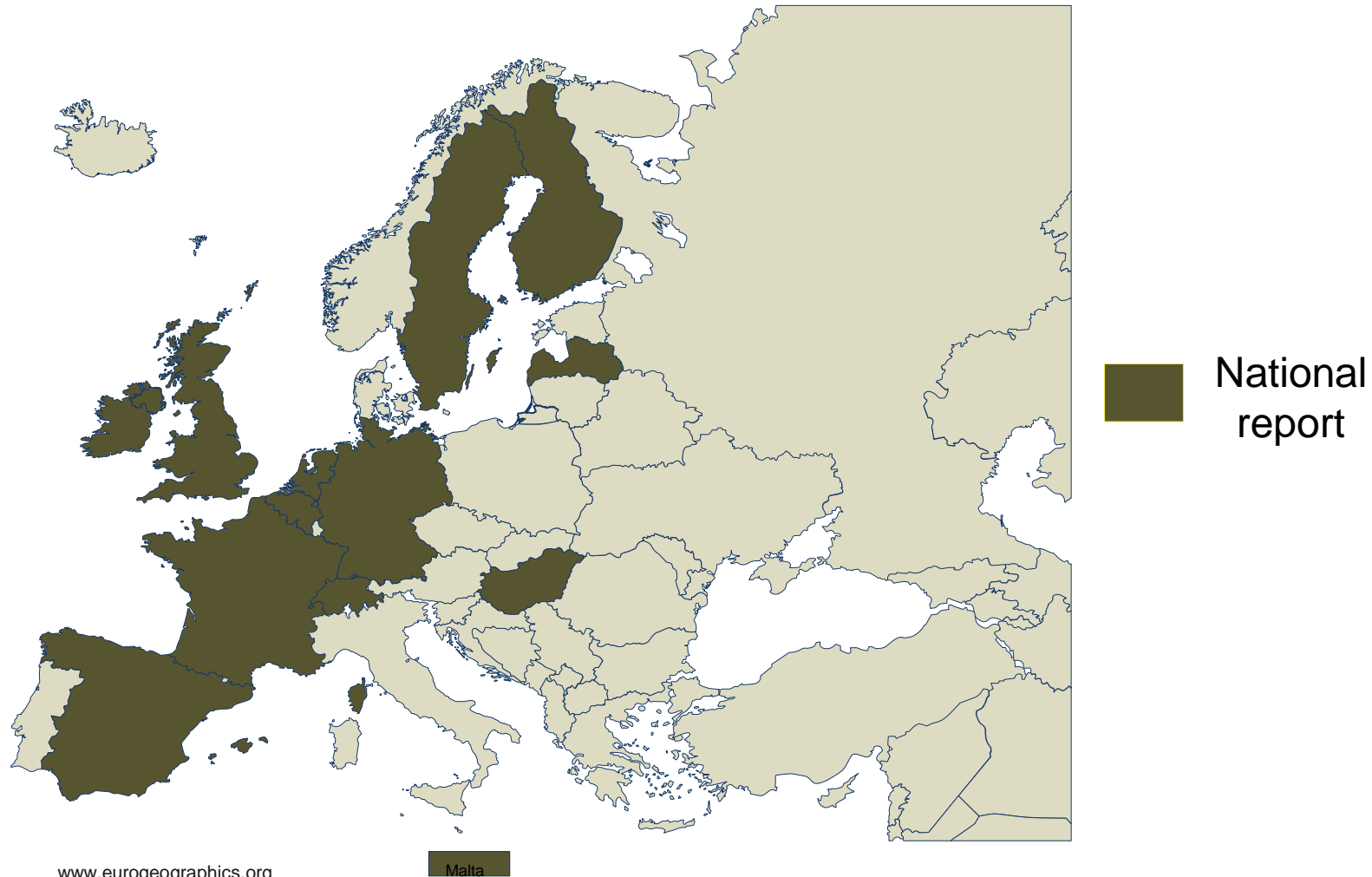# National Reports

30. November 2022, Amsterdam

Prepared by Tamás Palya,
vice-chair of QKEN
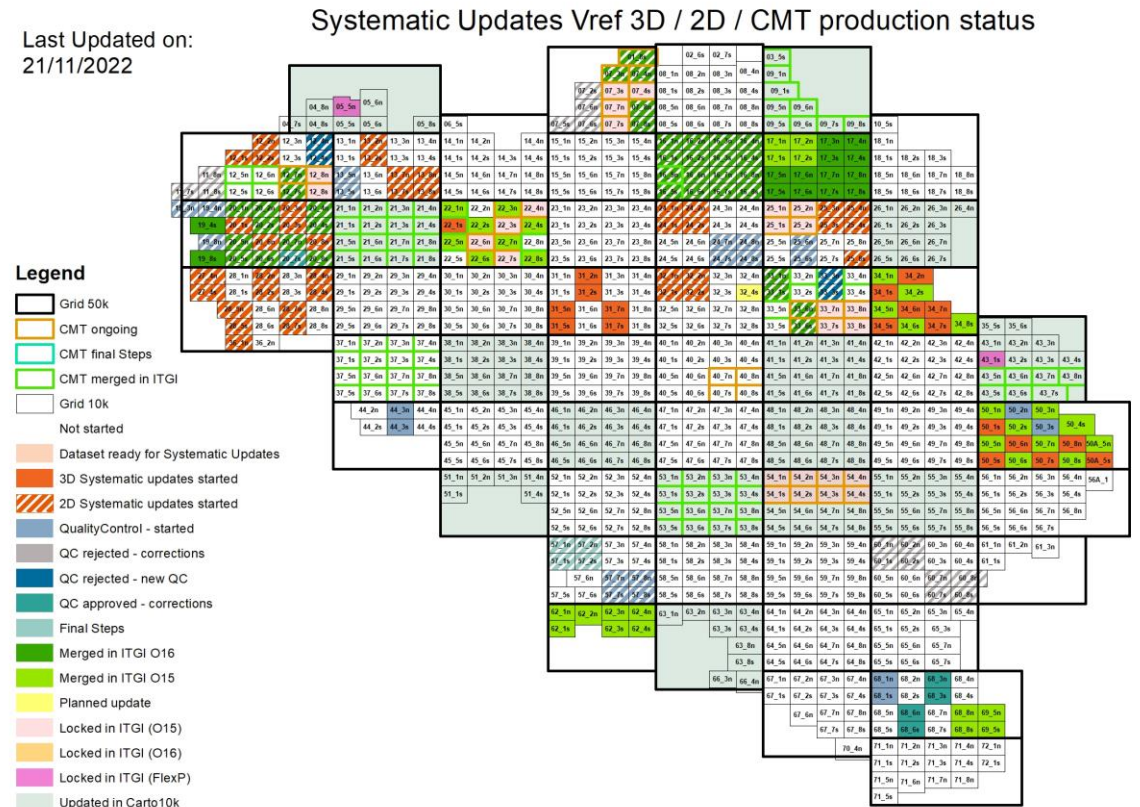
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14 National reports from 13 countries

National
report

Malta

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National Geographic Institute, Belgium
From June 2021 to November 2022

New temporary production process

- **Using 1:10k sheets**
- **Updates in 2D, 3D or in the field**
- **Small QC: automatic tests + symmetrical difference**

Systematic Updates Vref 3D / 2D / CMT production status

Last Updated on:
21/11/2022

Legend

▭	Grid 50k
▭	CMT ongoing
▭	CMT final Steps
▭	CMT merged in ITGI
▭	Grid 10k
	Not started
	Dataset ready for Systematic Updates
	3D Systematic updates started
	2D Systematic updates started
	QualityControl - started
	QC rejected - corrections
	QC rejected - new QC
	QC approved - corrections
	Final Steps
	Merged in ITGI O16
	Merged in ITGI O15
	Planned update
	Locked in ITGI (O15)
	Locked in ITGI (O16)
	Locked in ITGI (FlexP)
	Updated in Carto10k

National Geographic Institute, Belgium
From June 2021 to November 2022

Ongoing project: quality control in 3 levels

- **Level 1: QC of indispensable tests, included in the production process**

- Level 2: QC of important tests, included in the production process

- Level 3: All tests, done on the reference database, results in quality reports and visual dashboard

Deep learning for QC

- Study on use of deep learning technology for performing quality checks

- Project is in its final phase

- Presentation on Thursday

Vision and strategic goals for QC 2022-2030 have been defined

- Quality control during production
- Continuous Quality assessment of our reference data set
- QC of third-party data (integration possibilities)
- Looking for useful sources for QC
- Looking into new technologies (deep learning)

➡ We will keep you posted via QKEN National reports

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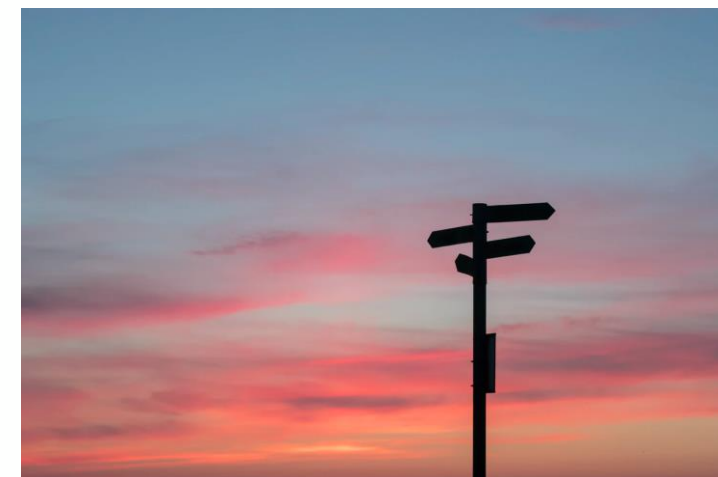
National Geographic Institute, Belgium
From October 2021 to May 2022

Working on a Quality Management System

- **Aeronautical products (ICAO legislation) : ISO 9001**
  - **External audit Jan 2023**
- **Documenting the rest of our processes**

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**National Geographic Institute, Belgium**
From October 2021 to May 2022

- **Michel Baltus will not be participating anymore to QKEN activities**
- **Replacement: Joren Van Gysegem**

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## National Land Survey, Finland
From 10/2021 to 10/2022

- Annual test preformed by private company has been carried out during the summer.
  - The test concept was the same as in 2019 test.
  - 3 years same concept
    - 14 test fields Around Finland
      - 1x1 km for buildings
      - 3x3 km for roads and addresses
    - Completeness (commission/omission) for buildings and roads
    - According to the summary NLS passed the test.
   - The complete report is published in November.

2021
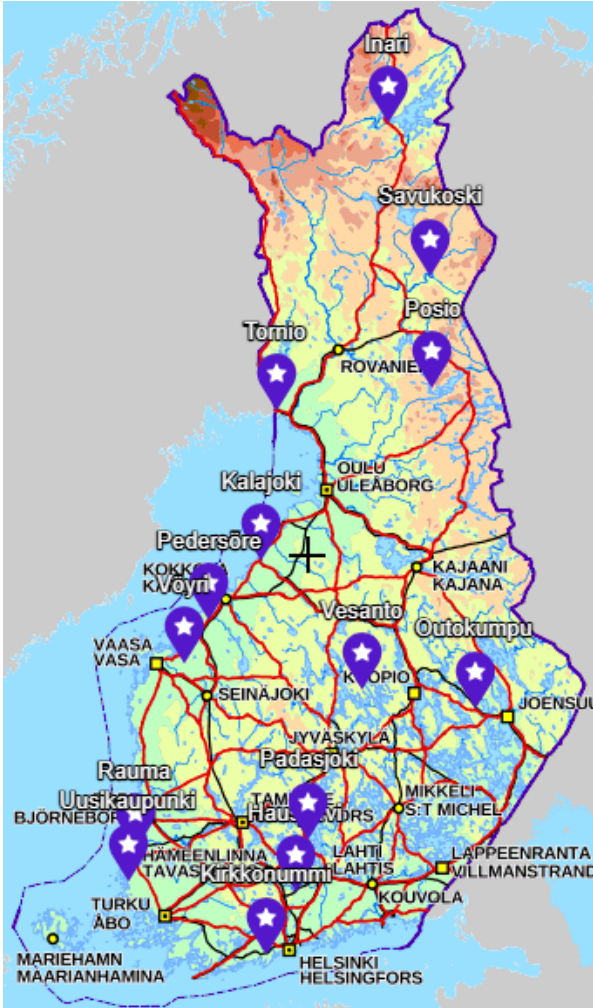
2022
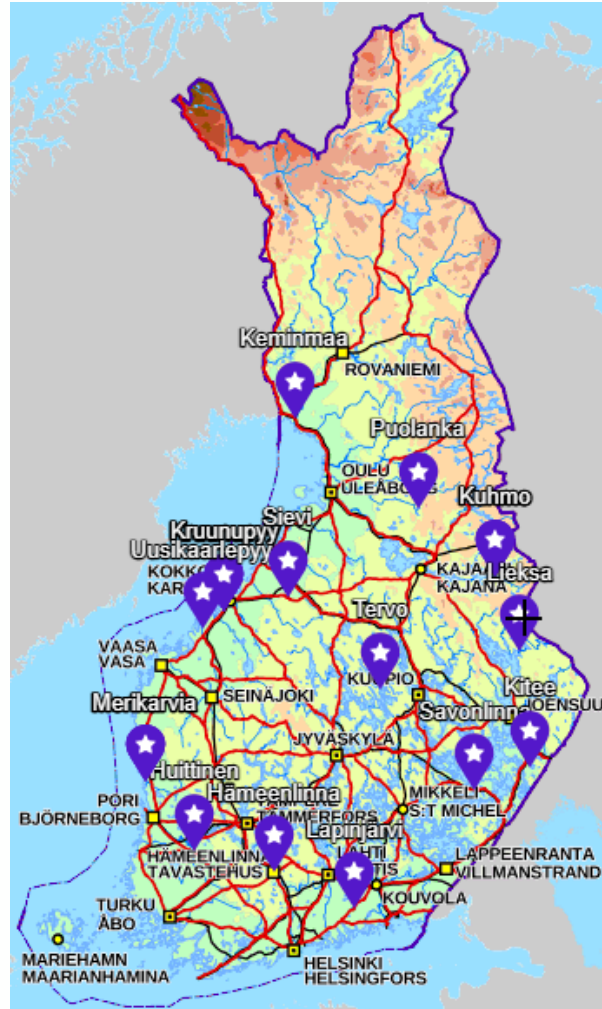
Results

Yhteenveto tarkastuksesta			
	ID		
Rakennukset			
Täydellisyys			
Rakennuksien lkm yhteensä luokissa 4110-42252		1006	kpl
Ylimääräisten rakennuksien lkm	1	5	kpl
Puuttuvien rakennuksien lkm	2	16	kpl
Ylimääräisten osuus	3	0,5	%
Puuttuvien osuus	3	1,6	%
Tiestö			
Täydellisyys			
Teiden lkm yhteensä luokissa 12111-12144		2421	kpl
Ylimääräisten teiden lkm	1	113	kpl
Puuttuvien teiden lkm	2	98	kpl
joista ajopolkuja oli		28	kpl
joista pihateitä oli		22	kpl
Ylimääräisten osuus	3	4,7	%
Puuttuvien osuus	3	4,0	%
Puuttuvien osuus ilman ajopolkuja	3	2,9	%
Puuttuvien osuus ilman pihateitä	3	3,1	%
Tien nimien temaattinen tarkkuus			
Teiden lkm yhteensä luokissa 12111-12144		2421	kpl
Virheellisten lukumäärä	4	32	kpl
Virheellisyyssuhde	5	1,3	%

Täydellisyys		
Oikein kerättyjen lukumäärä yht.	3309	
Niiden lukumäärä, joiden olisi pitänyt olla aineistossa	3423	
Täydellisyysprosentti	96,7	%

| Täydellisyys (ilman ns. pihateitä)		
Oikein kerättyjen lukumäärä yht.	3309	
Niiden lukumäärä, joiden olisi pitänyt olla aineistossa	3401	
Rakennusten ja tiestön täydellisyysprosentti	97,3	%

Data quality maintenance

- **Performed by organization data quality expert.**
- **Sample-based testing of own production, which compares topographic database with**
  - **Instructions**
  - **Existing materials**
  - **Image interpretation**
- **The aim of quality tests is to**
  - **Develop organization production**
  - **Ensure the competence of the personnel**
- **Covers at least 25% production/person**
- **Samples are randomly selected**
- **General and personal feedback**

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2021

2022

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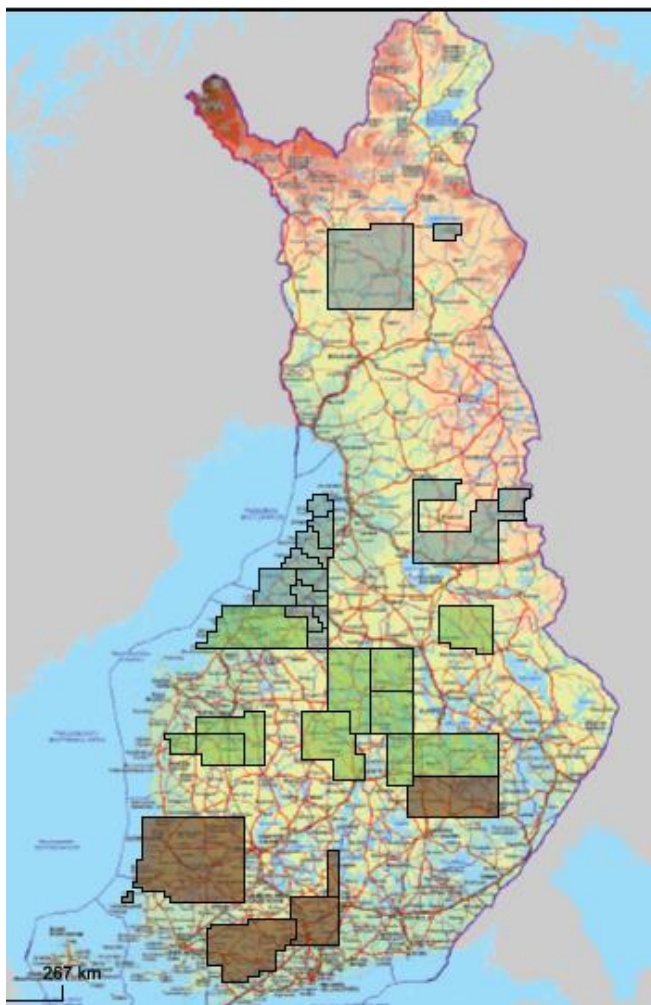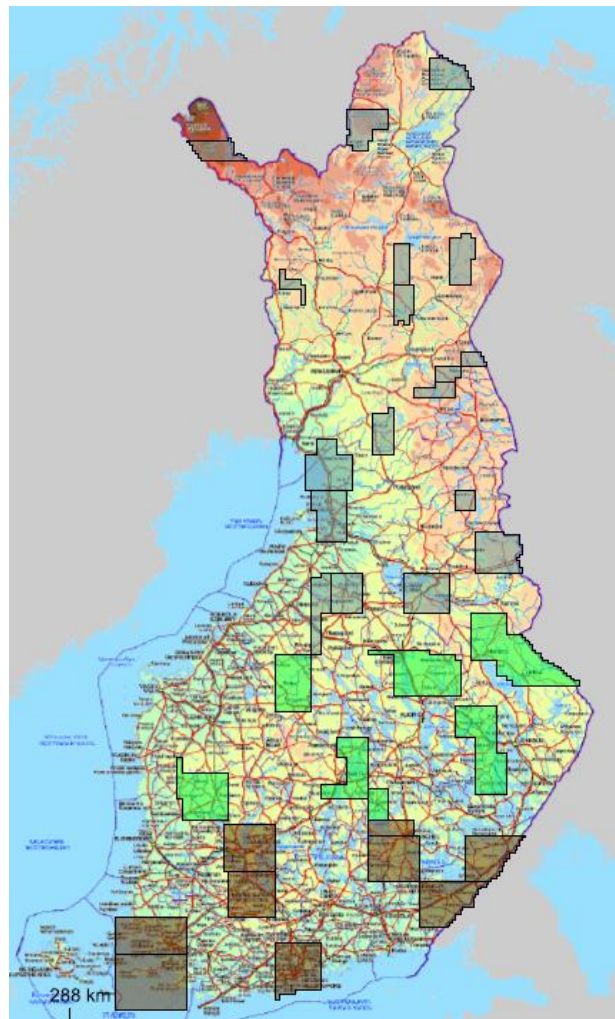
National Land Survey, Finland
From November 2021 to November 2022

- **Topographic data production system update**
- Decision to develop the collecting system based on open source technologies and especially on QGIS client was made on the fall of 2020
  - User and developer base are strong which provides confidence that the product lifecycle is secure and programs would receive updates made by other developers as well
  - Open source allows enhanced collaboration with other governmental agencies and OS-community

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National Land Survey, Finland
From November 2021 to November 2022

First phase goals (12/2024)

150 operators can update Topographic database simultaneously	Work management	Handy tools for operators	Products
Stereo mapping	Elevation data for objects	Field mapping	Place and map names

Done

Under work

Planned

NATIONAL LAND SURVEY OF FINLAND

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NGI, France
From June 2022 to October 2022

- **News concerning Data Quality**
  - **LIDAR HD data acquisition :**
    - Now almost the south of metropolitan area covered (blue+green)
    - Planned for winter (purple)
    - Use cases : DTM, DSM, DEM, LOD2 buildings, point cloud
    - Some questions about mixing spring, summer and winter acquisition / zonal acquisitions.
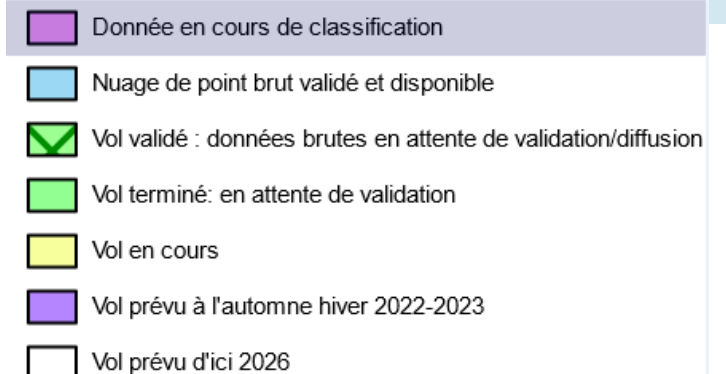 - **LIDAR HD data classification :**
    - Subcontracts for the classification : waiting for results (pink)
    - Some questions about automatic classification / interactive work
  - **Data diffusion :**
    - Some questions : COPC (Cloud Optimized Point Cloud), volume of data , data service extraction.
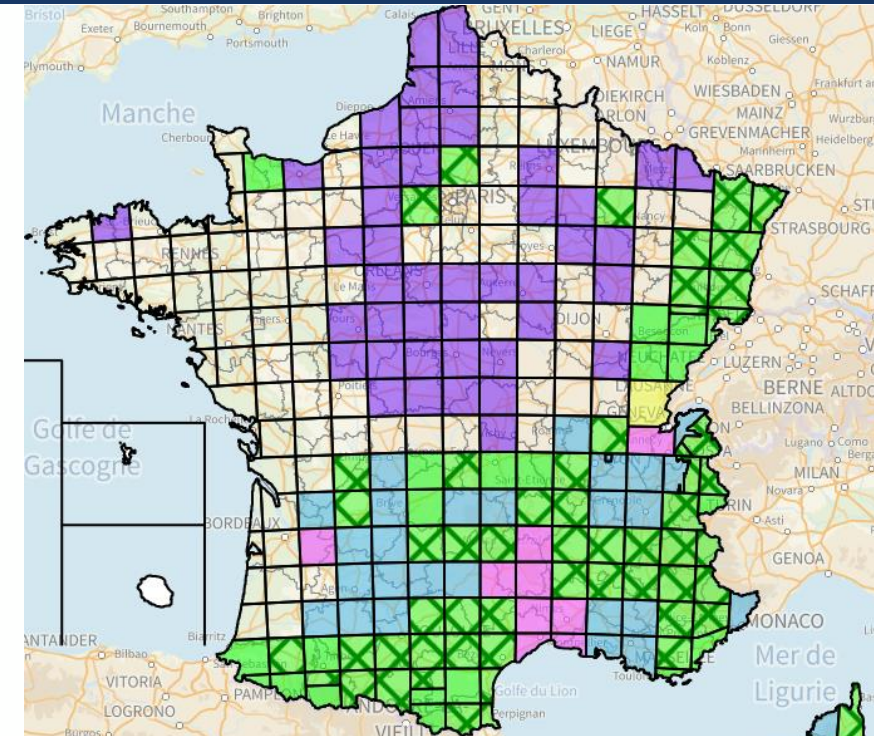
Avancement LIDAR HD au 28 Octobre 2022

▨	Donnée en cours de classification
▨	Nuage de point brut validé et disponible
▨	Vol validé : données brutes en attente de validation/diffusion
▨	Vol terminé: en attente de validation
▨	Vol en cours
▨	Vol prévu à l'automne hiver 2022-2023
☐	Vol prévu d'ici 2026

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NGI, France
From June 2022 to October 2022
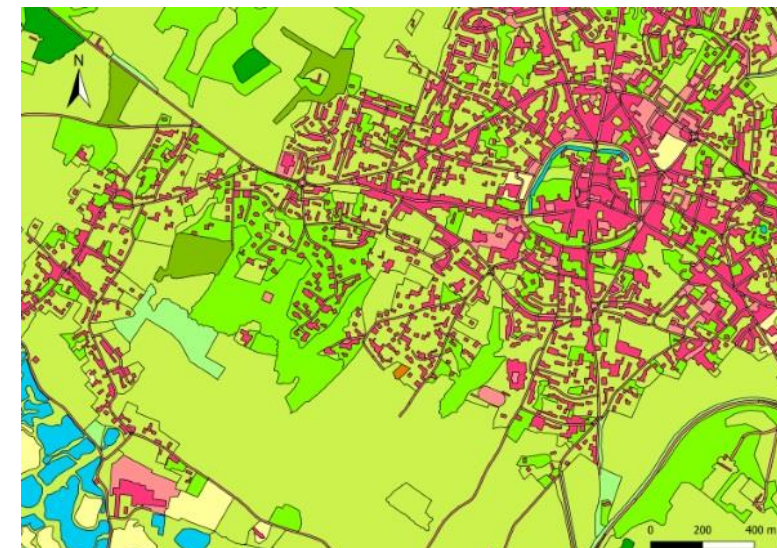
- ## News concerning Data Quality

  - **OCSGE NG :**

    - an administrative area published in May
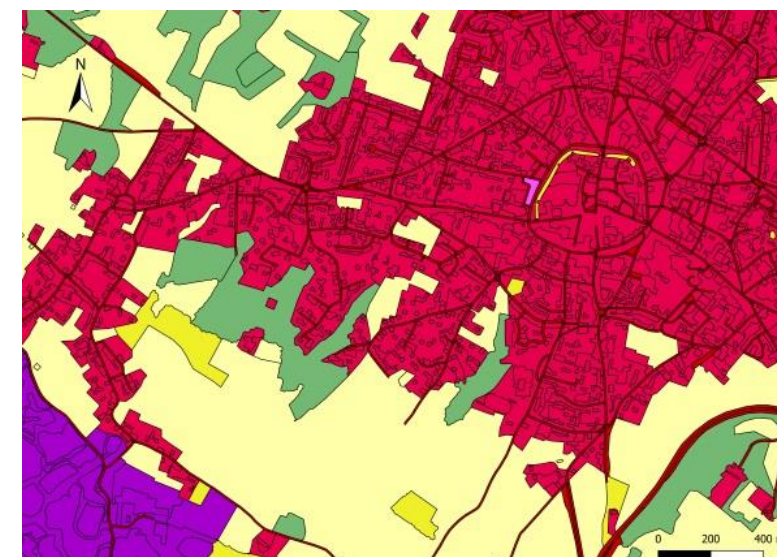   - NGI : 1. Subcontracts : 6 + 5 planned

  - **BD FRANCE : update of the topographics database in collaborative mode :**

    - 1 to 1 partnership on a subject or an area.
    - TODO : create communities to allow more entities to work together.

Land cover

Land use

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NGI, France
From October 2021 to May 2022

- **News concerning quality management**
  - *shutdown of the team in charge of quality management*
  - *what is kept: common transversal tools (records management, non-compliance management), internal quality audit, quality control, production dashboard*

  - Open governance : which subject ? For the moment, discussions by thematics (hydrography, roads and buildings …)

  - Questions about BD France : labeling / certification / qualification of collaborative data

BKG, Germany
From June 2021 to November 2022

- **News concerning Data Quality**
  - **Ongoing effort on standardising custom FME workbenches and Python scripts**

BKG, Germany
From June 2021 to November 2022

- **News concerning quality management**
  - **Raster data management project: Status quo analysis completed, requirement analysis almost finished**

  - **ISO 9001: almost finished, external certification in December**

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BKG, Germany
From June 2021 to November 2022

- **Any other news that would be of interest for Q-KEN?**
  - **University of Applied Sciences Bochum: Lecture on data quality and QC automatization**

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Ordnance Survey, Great Britain
From May 2022 to November 2022

- **News concerning Data Quality**
  - The complexities involved with collecting more data from both internal and external sources and providing this information, alongside existing datasets, through new delivery mechanisms has increased the risk of data quality issues arising. Data Quality is therefore getting an increased focussed to ensure that we maintain the standards required.
  - OS is starting to question how well our products and services are meeting the use cases. Work on this is at an early stage, but it is hoped that a greater focus on the use case will help determine not only the data contents but also the quality of the data required.

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Ordnance Survey, Great Britain
From May 2022 to November 2022

- **News concerning quality management**
  - The quality working group mentioned previously is still finding its feet. There is recognition that there needs to be a better focus on how some of the issues are managed.
  - OS in involved in the creation of ISO 19157 Part 3

Ordnance Survey, Great Britain
From May 2022 to November 2022

- Any other news that would be of interest for Q-KEN?
  - Ordnance Survey is creating a new Data Strategy with the aim to have this completed by March 2023
  - We are increasingly looking at crowdsourcing as a method of capture
  - OS is kicking off a piece of work looking at how our data needs to transform to meet future needs

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Lechner Non-profit Ltd, Hungary
From April 2022 to November 2022

- **News concerning Data Quality**
  - **Quality Control of the new national base map on the level of Hydro and transport network and Buildings**
    - **Using of orthophoto (year: 2019, 2020, 2021) for the validation**
    - **New orthophoto is preparing for whole country in 2022 (it will be used next year)**

- **News concerning Quality management**
  - **There is no the continuation of general Quality management (according to ISO), but some departments have connection with IACS-LPIS, that needs ISO certificate. These departments have to be a quality assurance process.**

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Lechner Non-profit Ltd, Hungary
From April 2022 to November 2022

- Any other news that would be of interest for Q-KEN?
  - The name of the geodesy sector is Land Management and Geodetic Directorate at the Lechner Non-profit Ltd (Hungarian Spatial planning Knowledge Center) . It is compliance the Hungarian national mapping agency.
  - The Hungarian National GIS Base Map (NTA) 1st version entered into force
    https://nta.lechnerkozpont.hu/
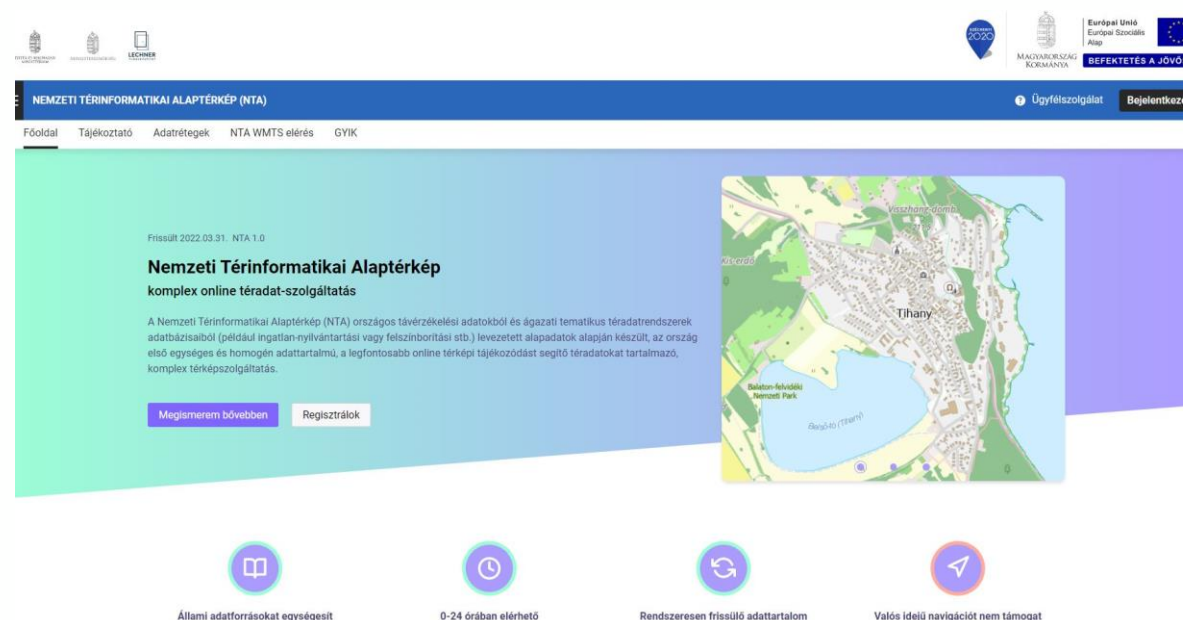
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Ordnance Survey Ireland
From November 2021 to November 2022

- **News concerning Data Quality**

  - • **An increase in customers reporting issues relating to water network suggests more activity on this dataset**

  - • **Customers requesting more up to date height datasets (DSM, DTM) highlighting the need for better data currency and consistency across datasets**

  - • **National Landcover dataset derived from image analysis through machine learning to be released shortly. This will be used to highlight issues with existing topographic mapping data.**

Ordnance Survey Ireland
From November 2021 to November 2022

- **News concerning quality management**

  - A new Data Governance Framework which defines roles and responsibility for different datasets including formalising data quality responsibilities is being rolled out across the organisation

  - Short training courses for staff across the organisation on Data Governance and Quality aimed at improving master data management is to be provided

  - Increased effort to remove duplication of data and provide controlled central databases including third party data

www.eurogeographics.org

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Ordnance Survey Ireland
From November 2021 to November 2022

- Any other news that would be of interest for Q-KEN?

    - Ordnance Survey Ireland will become part of Tailte Éireann in 2023 to form a new organisation with responsibility for property registration, valuation, surveying and boundaries. We expect significant work for data quality resources as we try to align different data sources in the coming years.

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Ordnance Survey Ireland
From November 2021 to November 2022

- **Topic I can offer for next webinar**

  - **(none at present)**

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LGIA, Latvia
From May 2022 to November 2022

- **News concerning Data Quality**

  - Steady decrease of errors detected per map sheet has continued this year in the data of Topographic map in scale 1:10K, as the production process has been improved by taking into account previous mistakes. The progress is remarkable, because the validation tools have also been improved this year and roughly the same amount of time is spent per map sheet

  - The data validation of all the orthophoto imagery from 2022 has been completed with just 1.4% of images containing errors that needed to be corrected. The 8th cycle of orthophoto coverage has been started in 2022 and currently the amount of errors is 3 times lower than it was on average for the previous cycle

  - The resolution of the orthophotos for the 8th cycle has been improved from 0.25 meters in previous cycles to 0.2 meters this year

LGIA, Latvia
From May 2022 to November 2022

- **News concerning quality management**

    - **Continuous work on maintenance of the internal quality management system**

    - **The internal quality management system process for the aeronavigational data production has been recertified according to ISO 9001:2015 standard**

LGIA, Latvia
From May 2022 to November 2022

- **Any other news that would be of interest for Q-KEN?**

  - **The data acquisition for the 2nd cycle of LiDAR data coverage of Latvia has been started this year. The data of the first coverage was acquired from 2013 to 2019**

  - **Creation of digital 3D model for the capital of Latvia currently in progress**

State Land Service, Latvia
From May 2022 to November 2022

- # News concerning Data Quality
  - **New Regulations of Data Quality Management regarding to the State Address Register**

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State Land Service, Latvia
From May 2022 to November 2022

- Any other news that would be of interest for **Q-KEN**?

Open data and Reporting System

- Open data from 1st of January 2022 are available in Latvian open data portal https://data.gov.lv
- Developed Reporting System

Data source	Public interest	Reports in Reporting System
The State Cadastre Information System	>15 000 views	71
The State Address Register	>8000 views	28
Real Estate Market Information System	>8500 views	27

Period from 1st of January 2022
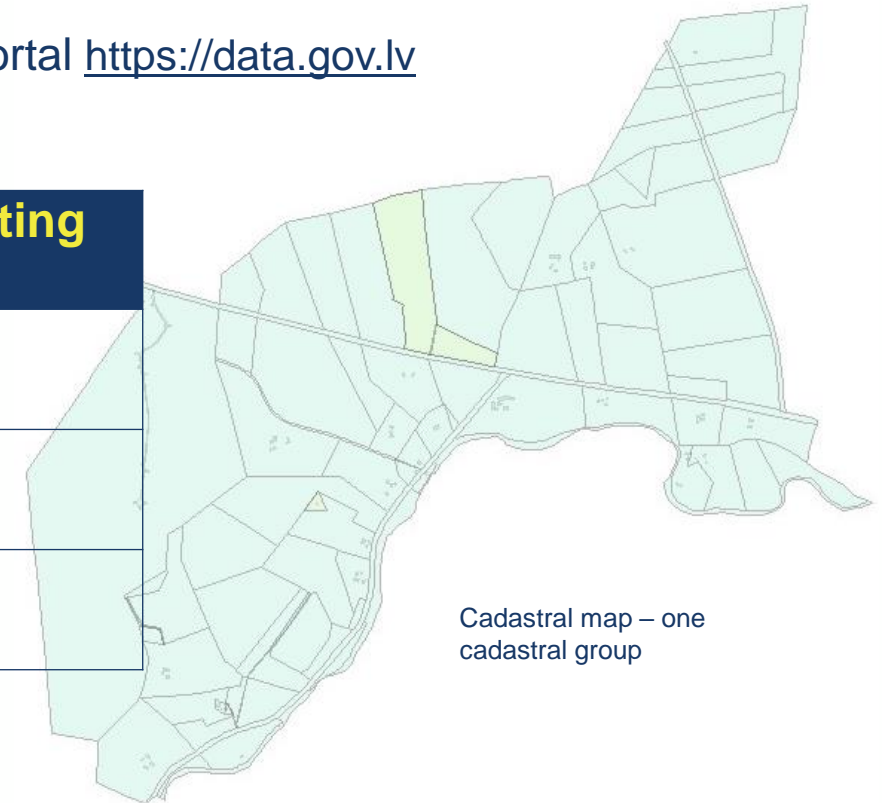
Cadastral map – one cadastral group

www.eurogeographics.org

State Land Service, Latvia
From May 2022 to November 2022

- Any other news that would be of interest for Q-KEN**?**

Evaluation of reports in Reporting System

data usage consulting	62 %
errors detected in the data	20 %
possible error that did not confirm	10 %
no related to SLS	8%
Total	**157 reports**

Reporting System form example

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State Land Service, Latvia
From May 2022 to November 2022

- **Any other news that would be of interest for Q-KEN?**

New e-service on data distribution and e-services portal www.kadastrs.lv

- The land owner can receive data from Information System of Restricted Territories and the Cadastre about his land unit for free
- E- service implemented few weeks ago – on 15th November
- More than 200 requests during the first week

40600060059
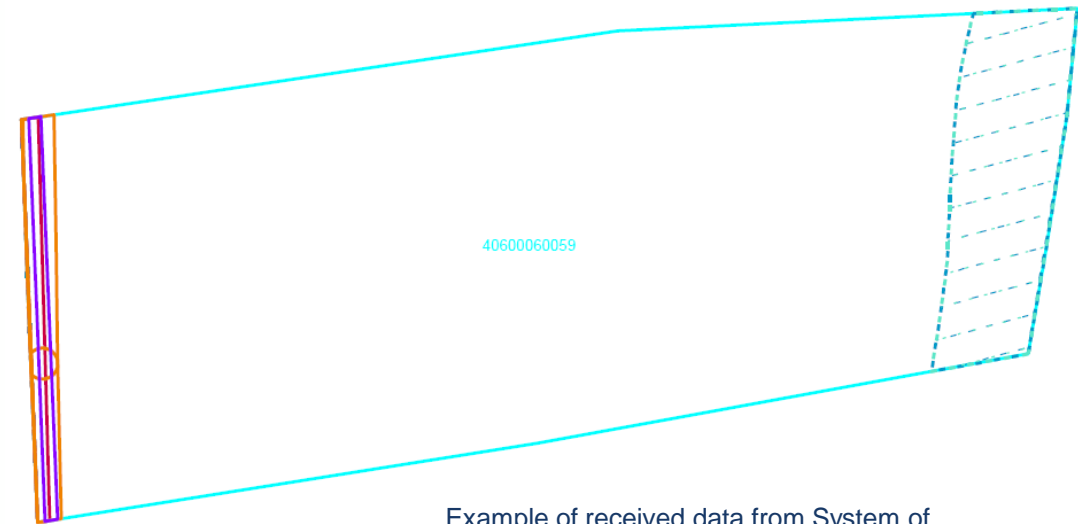
Example of received data from System of Restricted Territories and the Cadastre

Planning Authority(PA), Malta, Jan - Dec 2022

PA QC of basemap

- **ESRI topology rules tools**
- **Customised FME rules framework**
- **Visual checks**
- **Periodic positional accuracy tests**

Planning Authority(PA), Malta, Jan - Dec 2022

News concerning quality management

- **The PA is currently investigating the option of disregarding certain minor accuracy errors that would not critically impact the use of the map. This option is being considered, to accelerate the basemap updating process without impacting its quality.**

kadaster

November 2022

- **Renewal of our topographic products: using data from other Key Registers to produce the Key Register Topography while maintaining the current high quality (project BRT.next):**
  - **Creating new datamodel**
  - **User consultations on the datamodel and our range of products**
  - **Creation of the CANVAS principle: using geometries and attributes from different sources**
  - **Development of a new production line**
  - **We are starting to think about how we will re-shape our system of quality checks, public feedback and**

- **New Kadaster Data strategy**

- **Project "Improve the Map" for aviation maps**

We werken de datastrategie uit in zes pijlers
die nauw met elkaar verbonden zijn:

| Data \| **Verzamelen** | Data \| **Governance & Beheer** | Data \| **Gebruik & dienstverlening** |
| Data \| **Samenhang** | Data \| **Kwaliteit** | Data \| **Veiligheid** |

Details

Terugmeldingen

Melding
AERO0026483

Geregistreerd op
18-10-2022 12:12

Status
In onderzoek

Omschrijving
Deze kraan heeft geen verlichting

Status gewijzigd op
18-10-2022 12:13

Bronhouder
Kadaster

Toelichting bronhouder
Dank voor uw terugmelding. We gaan dit onderzoeken

Hoogte vanaf maaiveld
101

Object id
42342424

Object type
Kraan

Opties

☑ Terugmeldingen   ☑ Hoogspanningsleidingen

☐ Obstakels van 15 tot 45 meter hoog

☐ Obstakels vanaf 45 tot 60 meter hoog

☑ Obstakels vanaf 60 tot 100 meter hoog

☑ Obstakels vanaf 100 tot 150 meter hoog

Projectie

◉ WGS84

○ UTM

○ RD-New

1:124539   5 km

November 2022

kadaster

- **Feedback numbers**
- **How will we do this in the future with BRT.next when our products are based on other source data?**
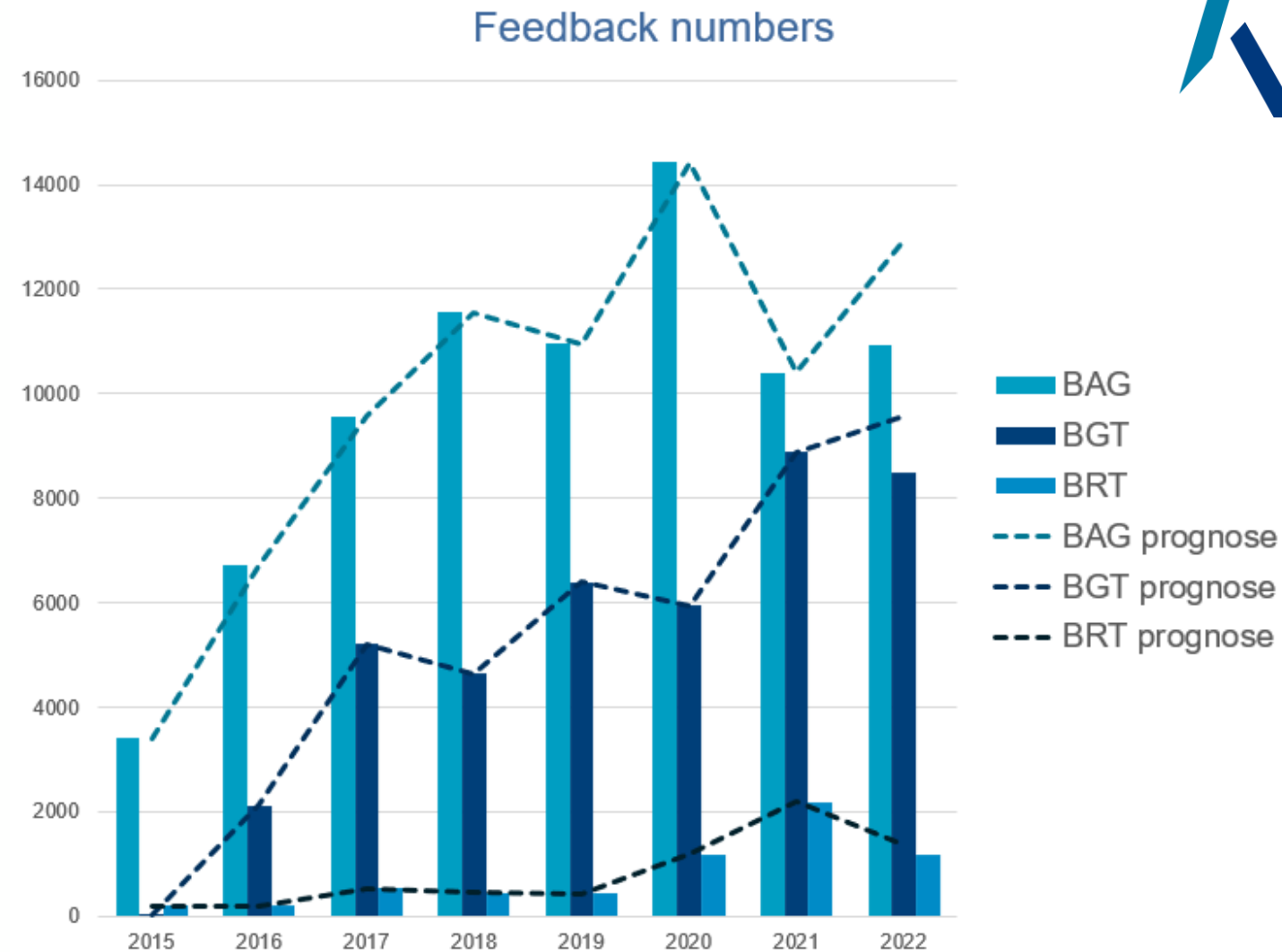
Feedback numbers

General Directorate of Cadastre, Spain
From November 2021 to November 2022

- **News concerning Data Quality**
  - **Developing test with FME Server to deploy new processes to Regional Offices**
    - Test running from October to December with selected Regional Offices and technicians from Central Services.
    - Deployed 4 processes as workflows and also as webapps:
      - Detect duplicated addresses in a province
      - Identify addresses georeferenced to centroid of parcel and not to the entrance
      - Identify overlaps between valuation areas at municipality level
      - Identify overlaps between valuation areas at province level (all municipalities of a province)
    - Analysing server load and feedback from users

  - Pilot project with Institute of Statistical and Cartography of Andalusia (IECA) to analyse and compare addresses dataset from both institutions to improve data.
    - Initial: 8 municipalities → To be extended to the whole region of Andalusia → Can work as base to extend to other regions.

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General Directorate of Cadastre, Spain
From November 2021 to November 2022

- **News concerning quality management**

  - **Moving from PowerBI to Spotfire as platform to manage indicators and extract statistical information.**

  - **Some indicators have to be "manually" loaded. Evaluation done in external tools and after that indicator value is loaded in its table.**

  - **Still very early stage of implementation.**

General Directorate of Cadastre, Spain
From November 2021 to November 2022

- **Any other news that would be of interest for Q-KEN?**

  - **Moving from Redmine to JIRA as platform to manage part of the workload.**

  - **Developed a new viewer to show 3D buildings through Electronic Office.**
    - **Expected to be published at end of the year**
    - **It has to be selected the landplot of which you want to see the building.**
    - **The building from this main landplot is represented with relevant information (dwelings if exists, etc) and allow to select the property of interest**
    - **The surrounding area is represented from INPIRE data to create volumes for the buildings (LoD1).**
    - **Allows to change base map and see shadows in different dates / hours.**
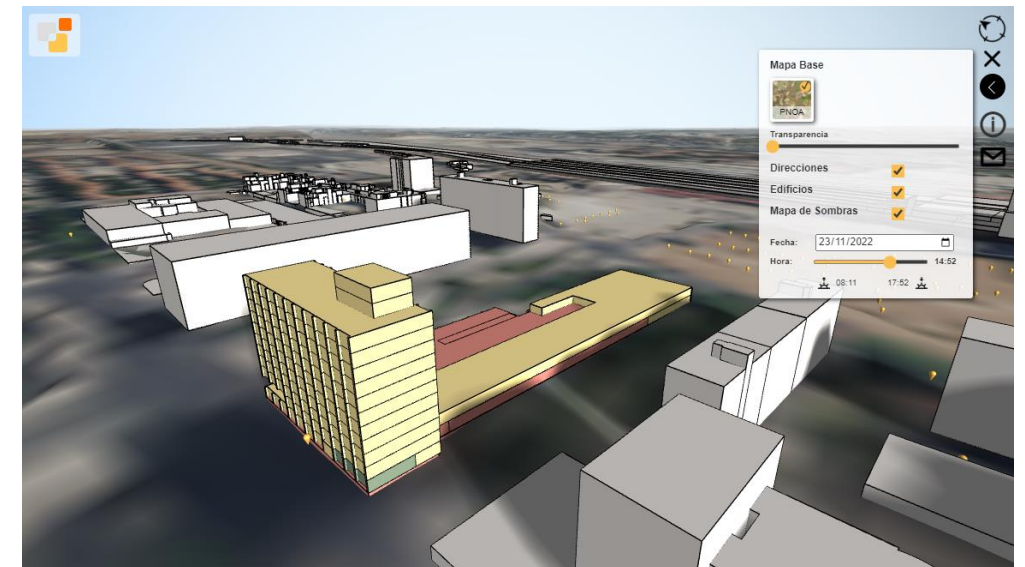
General Directorate of Cadastre, Spain
From November 2021 to November 2022

- **Topic I can offer for next webinar**
  - **Analysing addresses: comparison of addresses from SGDC and CDAU (IECA)**

News concerning Data Quality

# My indication of a geodata position, An innovation activity

- An opportunity to contribute with information about markings that demarcate properties

- Background and objectives with the innovation activity – and the test, possible gains

- The application; its information and design, supporting material

- First step – internal test, carried out during the autumn

- Second step – evaluation of the test – including results as to positional accuracy using a smart phone, reporting and proposal for next phase

- Co-operation with Finland, looking into their experiences as to a similar crowdsourcing project

Gärdesgård vid kyrkan i Vätö, Uppland.

Gränspunkt i Värmland.
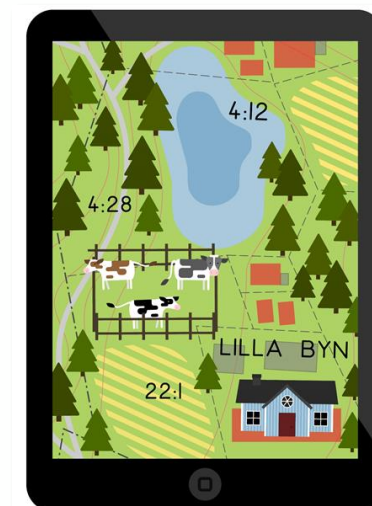
News concerning Data Quality

UAVs – now part of the surveyor's tool kit

From the website of *Gävle kommun,* one of Sweden's 290 local municipalities:

"Drones **complement** totals stations and GNSS receivers. To use a drone is, in some cases, **a much faster method** to capture geodata compared to traditional surveys. Drone-based technology also facilititates a **safer working environment** – especially in more challenging environments such as road areas, contaminated ground or otherwise unaccessible terrain."

Quality of drone-based data ⇨

- Flight height and speed
- Sensor resolution, focal length
- Image overlap, along-track and cross-track
- Height model accuracy
- Accuracy of ground control points (CGPs) or on-board RTK positions
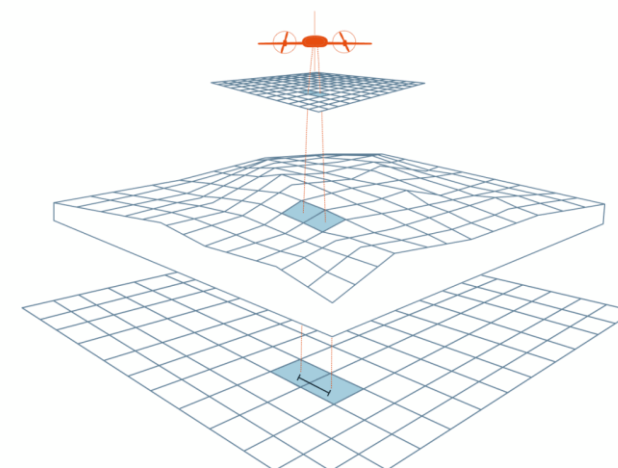
GSD = Ground sampling distance

What quality can be expected from drone-based data?

A recent project in Sweden has assessed the quality of drone-based coordinates from 2D orthomaps. Boundary markers were signaled as GCP's.

Benchmark:

- Conventional cadastral surveys, i.e. network RTK

- Network RTK surveys have an **expected standard uncertainty** in the Swedish national reference frame (SWEREF 99) ~ **0.05 meters**

Preliminary results (from analysis of 100 boundary markers):

- **Drone**-based and **RTK**-based 2D coordinates were **statistically equivalent**

- **Detecting gross errors** in drone-based data remains a challenge

- **Bonus benefits**: simultaneous collection for update of municipality maps

News concerning Data Quality

Reduction of lead times

- At the beginning of 2019 Process developers where tasked by Management of Geographic Information to review the lead times of the production processes from the time as an aerial photograph is taken until the time the geographic databases are updated.

- In addition to oversee this, a recurring measurement of the lead times where to be introduced to benchmark what effect future changes to the various production processes would have on the total lead time.

A proposal was drawn up and approved where the updating process for Geographic Base Data where to start at an earlier time, so instead of starting the updating in January, it will start in August/September the same year as the aerial photographs were taken.

To reach the goal, Lantmäteriet drew up and executed a plan on how we could catch up with 3-4 months of production.
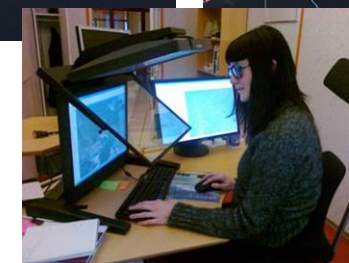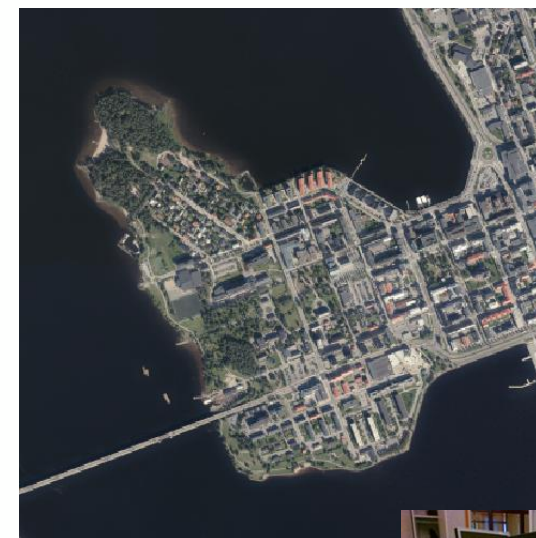
Other news that would be of interest for Q-KEN?

Informative films about what we do at Lantmäteriet

One focus area of the Swedish Educational Broadcasting Company is to make different kinds of programs for educational purposes.

15 short films feathering different aspects of Lantmäteriets mission are shown on streaming services at https://urplay.se

The films will be shown on the ordinary broadcast channel: 'Knowledge Channel'

Understanding recent history is a common approach to let the viewers understand why things are as they are today.

Themes:

- Archive investigation pool
- Easement and rights
- Mortgages and mortgage deeds
- Subdivision and property formation
- The history from 1628 of Lantmäteriet
- Geographical names
- SWEPOS - the Swedish RTK system
- Historical maps
- The Swedish glaciers
- Height measuring of mountains
- Restoration of the border to Norway
- Lantmäteriets international work

Lantmäteriet, Sweden
From May 2022 to December 2022

- **Topic I can offer for next webinar**

  - Reduction of lead times. Production processes – from aerial photograph is taken until the geographic databases are updated

  - Evaluation Drones for improving accuracy of property boundary points

Bundesamt für Landestopografie swisstopo , Switzerland
From 04 2022 to 11 2022

- **ESRI Switzerland ProSuite QA framework**
  - We run the QA framework on 3 server with load balancing
  - We can run the QA framework on a machine with ArcGIS Pro 2.9.x or 3.0.x
  - We use also the python API with XML Config an ESRI FileGeodatabase

Bundesamt für Landestopografie swisstopo , Switzerland
From 04 2022 to 11 2022

- **News concerning quality management**
  - **swisstopo has been successfully recertified and retains its ISO/IEC 27001:2013 certificate.**

Bundesamt für Landestopografie swisstopo , Switzerland
From 04 2022 to 11 2022

- **Any other news that would be of interest for Q-KEN?**
  - we are planning to automatise prosuite qa even more. e.g. users will receive a "daily" email with the issues.
  - Project-specific ArcGIS Pro projects should be prepared directly with the errors. This way, the user can start processing the issues directly in the morning.

Proposals for presentations at next plenary/webinar

Subject	Organisation
HD lidar data quality	IGN, France
Topographic data production system update	NLS, Finland
Reduction of lead times. Production processes – from aerial photograph is taken until the geographic databases are updated	Lantmateriet, Sweden
Evaluation Drones for improving accuracy of property boundary points	Lantmateriet, Sweden
Analyzing addresses: comparison of addresses from SGDC and CDAU (IECA)	Cadastre, Spain

Thank you for your work!