

# Nordic Working Group for Land mapping (LMWG)

## Scope / role of the working group

The purpose of the Nordic Working Group for Land mapping is to actively share knowledge and work together on following topics:

- **Topographic and remote sensing data**
- **2D, 3D and 4D perspectives on topographic data**
- **Machine learning and Artificial intelligence in topographic data production**
- **Methods for data collection, storage and dissemination**
- **Usage and value of topographic data in the society**

The LMWG discusses the current activities and future trends regarding topographic and remote sensing data. Changing user requirements, maximizing added value for the society as well as data lifecycle management are part of discussion within every topic. In addition, use cases from each country are presented in virtual meetings.

## Specific LMWG tasks for 2022 – 2023 are:

- 1) 3D and BIM
- 2) ML and AI development
- 3) Knowledge exchange on remote sensing data production
- 4) Knowledge sharing on rule-based generalization
- 5) Knowledge sharing on use cases for topographic and remote sensing data

The focus during 2022 - 2023 is on 3D/BIM and ML/AI, with specific subgroups on the two topics.

### The 3D/BIM subgroup tasks will be:

- Developing of methods for maintaining and production of 3D buildings
- Verifying use cases and customer needs
- Specifying suitable products and delivery methods
- Investigating into interoperability issues with data integration from BiM models and building permit processes

### ML and AI subgroup tasks will be hands-on cooperation on:

- Implementation of deep-learning models for object detection
- Development of methodology for change detection using satellite data
  - Work of the group will be carried out in sprints, which target pre-defined issues. Each sprint will end with a conclusive workshop.

The Nordic + Baltic Remote sensing network deals with topics that are closely linked to LMWG tasks, but there is no formal coordination of activities between the groups.

## What are the outcomes, what do the organizations gain from the group

The participants are members from the Nordic countries. Outcomes from the meetings are:

- 1) Sharing of knowledge, experiences, and concrete solutions
- 2) Facilitate the work of subgroups and ad hoc groups within the WG
- 3) Prepare report on progress and results of the WG and its activities to Lilla Chefsmöte

**Outcomes of the 3D/BIM subgroup will be:**

1. Maintaining and production
  - 3D capabilities in national topographic data
  - How to maintain the 3D-model in the most appropriate way
  - Maintaining 2D/3D data
  - Production and updating of data, co-creating 2D and 3D data
2. Products and delivery
  - Products and services as per user needs
  - How to distribute – in which format etc.
  - Delivery formats and services, standards
3. BiM and building permit processes
  - National BiM infrastructure
  - Integrating data from municipal building permit processes

**Outcomes of the ML/AI subgroup will be:**

- Improved deep learning models in a Nordic context gained from knowledge exchange
- Increased understanding of the options for change detection using satellite data
- A common template for documentation of deep learning models
- Increased understanding of the prerequisites for implementation in actual production

### **Organizations belonging to the group, the chair and meetings**

- Kartverket, Norway
- Landmælingar Íslands, Iceland
- Lantmäteriet, Sweden
- National Land Survey of Finland, Finland
- Styrelsen for Dataforsyning og Infrastruktur, Denmark
- Umhvørvisstovan (Environment Agency), Faroe Islands

The chair and hosting of the meetings is circulated among the participants. The group arranges two physical meetings per year, one in spring and one in late autumn. Between physical meetings, 2-3 virtual meetings are arranged to follow up on progress of activities and for knowledge sharing purposes.

The chair is selected for a two-year period. From 05/2022 to 05/2024 the chair is Jani Kylmäaho from the National Land Survey of Finland.

During the two-year period, Sweden is the ML/AI subgroup lead and Norway is the 3D/BIM lead.

The LM group has a close collaboration on some topics with the IT & Development group, such as open source solutions for topographic data production and data delivery.

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Færch-Jensen Anders [afj@sdfi.dk](mailto:afj@sdfi.dk) (NOTE: Anders has informed he is retiring in a couple of months, we urgently need a new contact/member from SDFI)

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