

The topographic database of the future is being built right now

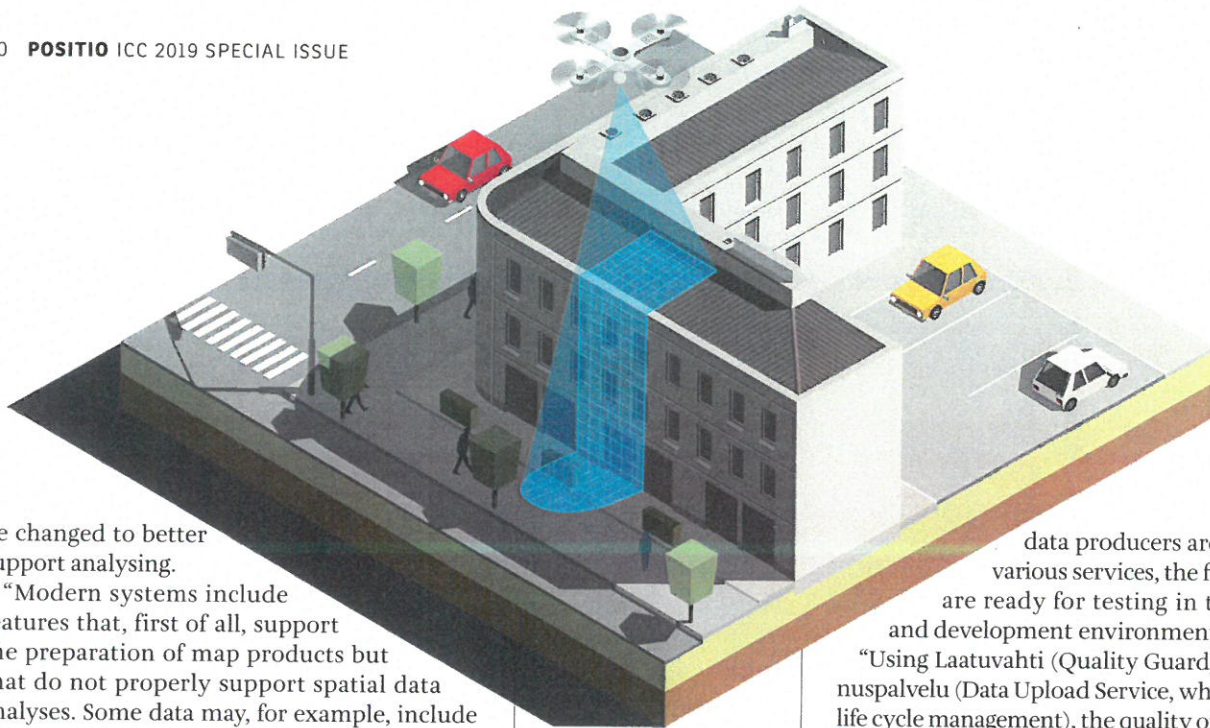
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The National Topographic Database is an extensive cooperation project led by the National Land Survey of Finland. It aims to harmonise Finland's key spatial data and transfer it into a single database. There is much work to be done, requiring thoroughness, as the data reserve is a valuable national property. The work that is done right now extends far into the future.

The National Topographic Database brings together building, transport network and land cover data, as well as hydrographic data, and later also infrastructure networks and geographical names.

"Aerial photos, elevation models and laser scanning data are also saved in the National Topographic Database. Data is produced in a shared data ecosystem. Its goal is to eliminate any overlapping work and ensure interoperability", says **Risto Ilves**, leader of the National Topographic Database programme. Data modelling will also





be changed to better support analysing.

“Modern systems include features that, first of all, support the preparation of map products but that do not properly support spatial data analyses. Some data may, for example, include “data spaghetti.” This means vector data without any topologies or property data, in which case it is impossible to analyse spatial data”, Ilves says.

Towards a harmonised data ecosystem

The data ecosystem is made on pieces, the management and coordination present a challenge. In addition to the National Land Survey, members of the network of data producers include Finnish municipalities, the Finnish Transport Infrastructure Agency (former Finnish Transport Agency), the Finnish Environment Institute, the Finnish Food Authority and the Finnish Forest Centre. And, yes, you guessed it – each of these use their own systems and technologies and have their own ways to produce and share data. The harmonisation process started by defining standard conceptual models.

“It is absolutely essential that every party produces data in the same way and that we apply a shared set of rules to the management and maintenance of data. We will define national basic products and services, on top of which municipalities and companies, among others, can build value added services”, says Ilves.

The parties have already defined 2.5D and 3D conceptual models for buildings and structures, and conceptual models for terrains, addresses, hydrography, and transport are nearly complete.

The world is changing – data remains permanent

In addition to having harmonised conceptual models, it is important that data is not lost at any stage.

“We will provide objects with a permanent ID, so they can be monitored starting from their creation. Even if a building disappears from the cityscape, its data will remain in the National Topographic Database, indicating what happened to it”, Ilves says. Municipalities and other

data producers are assisted by various services, the first of which are ready for testing in the training and development environment.

“Using Laatuvahti (Quality Guard) and Tallennuspalvelu (Data Upload Service, which includes life cycle management), the quality of spatial data and its storage in the National Topographic Database can be tested. We are currently developing new data products and services, together with data producers, and we will offer these to customers to ensure the best possible service”, says Ilves. As the interfaces to be built are based on international standards, they can easily be connected to the data systems of customers.

Eyes set far into the future

Future technologies will be deployed during the project, for example, in Laser scanning software. The project parties will keep a close eye on international development and work closely with the Nordic and Baltic countries. Special attention will be paid to data protection and opportunities to merge data.

“The National Topographic Database has long-term goals, for example, regarding 3D data. Starting from 2020, the national laser scanning programme will produce point cloud data of the whole country more densely, quickly and effectively. Ilves says. The National Land Survey will produce 3D models of buildings over the whole of Finland using laser scanning data

“This is a significant investment in increasing the effective use of spatial data in society.”

KMTK.PAIKKATIETOALUSTA.FI

The development of the National Topographic Database can be monitored at kmtk.paikkatietoalusta.fi. Services of data producers are available at beta.paikkatietoalusta.fi. Currently, all services are available in Finnish only.