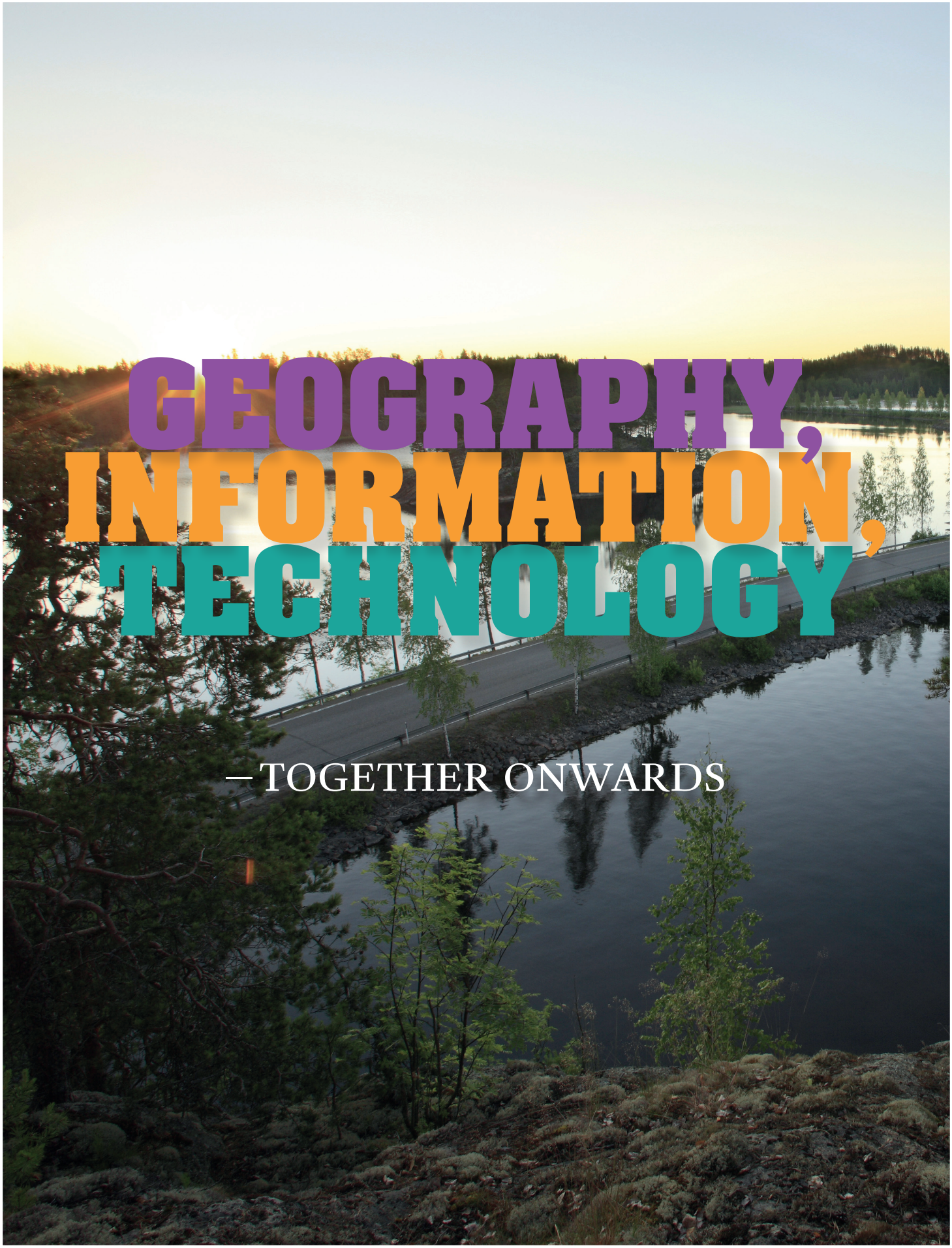
GEOGRAPHY,
INFORMATION,
TECHNOLOGY
– TOGETHER ONWARDS

NLS

- In 2013, the National Land Survey conducted 20,951 cadastral surveys
- 213,402 registry issues were solved in 2013
- Personnel: 1,702
- Female 56%
- The average age of the personnel approximately 51 years
- Offices in 35 localities
- Work-related travel by car 2,530,588 km (2013)
- 54 video-conferencing rooms
- Did you know that there are 37 employees named Riitta at NLS!

FGI

- In 2013, six researchers from the Finnish Geodetic Institute received their doctoral degrees
- One office and one research station
- Personnel: 94
- 40% of the personnel have doctoral degrees
- Females 35%
- The average age approximately 41 years
- 49 workrooms with one, two or three people in each
- 4 refrigerators
- 0 lunch restaurants within 200 metres from the Masala office
- Did you know that FGI has three employees named Virtanen and three employees named Chen!

TIKE

- In 2013, Tike, the Information Centre of the Ministry of Agriculture and Forestry maintained 96 information systems owned by customers
- In 2013, Tike completed 26 information system projects of its customer agencies
- Tike provides IT services also for the administrative branch of the Ministry of Social Affairs and Health
- Personnel: approximately 200
- Male 52%
- Average age 44 years
- Tike's offices are located in Helsinki, Lapinjärvi, Pori, Seinäjoki and Tampere.
- Did you know that Tike has four employees named Petri and one of them is Tike's director general.

Merger
increases competence and improves development opportunities

Let's get together in 2015!

RISTO NUUROS
DEPUTY DIRECTOR GENERAL, NATIONAL LAND SURVEY OF FINLAND

UTILISATION OF KNOW-HOW AND INFORMATION TECHNOLOGY

Due to the unavailability of commercial applications, we at the National Land Survey of Finland decided to develop them for ourselves. These activities have given us a good ability to combine know-how in information technology and land surveying.

We have created information and production systems processing geographic information as tools for our core processes. We began with measurement and calculation programs, register storage, map digitalisation and automation of map drawing. In mapping, we introduced digital stereo workstations, digital aerial photography and laser scanning. The JAKO information systems based on survey and register production were constructed and information services were integrated with them.

We renewed the rest of the key production and information service systems related to real property and mapping duties and together with municipalities and the Ministry of Justice constructed the real property part of the national Land Information System. In addition, we reformed the land and mortgage register and created an Electronic Property Transaction System. Our archives are electronic.

Improved conditions

Information technology is key in improving productivity. Currently, we use over 700 person years less to perform more duties than before. Information technology has become a critical resource of quality, continuity and the functioning of the organisation as a whole.

We are open-minded in applying new technology and want to participate in building information society. Expansion of electronic services is a challenge we are currently facing. The basic level of data security has been achieved and the heightened level will be achieved in 2015.

Operations have been improved in cooperation with the responsible ministry with the help of performance management procedure. There is trust within the administration in our continuing success and we have received new duties (for example, duties related to the cadastre and its information system reform). The finances of the agency have been handled carefully and they have been good for a long time. This fact together with productivity-based funding has established a foundation for new investments.

Information system development has given rise to a productive project culture, which has been expanded to include all development. This has enabled us to get more results with limited resources.

The development will also continue in the future and the new organisational structure of the NLS. New competence and new experts will join us in our work. This way we can seek for better preconditions for our operations and customer service.

THE NATIONAL LAND SURVEY OF FINLAND 1 JANUARY 2015

Production NLS	**General administration** NLS FGI TIKE
Centre for ICT-services TIKE NLS	**Centre for Geographic Information** FGI NLS

Placement of existing personnel in the operational units of the National Land Survey.

AMIE AALTO
COMMUNICATIONS MANAGER, TIKE

GEOGRAPHY, INFORMATION AND TECHNOLOGY TOGETHER

This magazine has been created to help us get to know each other. After all, it is easier to move in together with someone when you know something about them. Of course, it would be ideal to get to know each other face to face but seeing as there is rarely a chance to do so, this magazine will have to suffice. After all, there is no physical move involved.

When planning the Yhteen2015 project we have been repeatedly faced with the infrastructure of geographic information. I am itching to dig deeper into it!

I've also come across geoportal.fi but what else is there? Information technology has its own issues that need to be clarified, for example how agile are agile methods?

Experience, competence, creativity and talent

Of course, we should again be reminded of why we are moving in together in the first place. We have heard the government-level explanations but the reasons we have found for ourselves are the most convincing. During the first visit between Tike and NLS employees, the benefits of joint utilisation of mobile technology became evident. There would no longer be a need to do separate background work, instead we could utilise each other's experiences and competence.

This is all geography, information and technology but we all approach the reform with feeling. This is why it is great to find each other's creativity and talent. During the first visit to the National Land Survey a flautist was discovered, a talented video photographer during the second. One of our systems designers has recently published a CD of his own music. You can only start guessing what we can find out about researchers who produce information from the Earth to space.

So, let's read, meet and listen!

Paula Litkey works as a Senior Research Scientist at Finnish Geodetic Institute and her work deals among other things with materials comprising aerial photographs and other information derived from remote sensing equipment.

"Lately, I've been participating especially in surface model research utilising change interpretation and time series. An example of this experimental work would be damages to forests caused by storms. We studied at which points the surface level has changed from high to low, or where it is likely that trees have fallen within the forest. Extrapolating from this, we presented the damage as a map in Google Earth. We wanted to demonstrate that it is possible to concretely show forest owners where in the forest groups of trees have fallen and what kind of damage the storm has caused."

The Finnish Geodetic Institute studies, experiments with and develops new kinds of measuring devices. For example, a hyperspectral lidar is an instrument that sends and receives pulses at various light wavelengths.

"My own work is primarily related to data processing. We are studying how new remote sensing materials can be saved in open file formats so that the data is not extremely exotic – the kind that only one person can open on their computer. The aim is that everyone who wishes to do so would have access to open materials."

Paula has enjoyed her time at the Geodetic Institute.

"The atmosphere is really great and there are plenty of recreational opportunities. I don't recall ever having worked in as nice a place. Here you can just walk up to anyone for help when you need it. We are such a small unit that practically everyone knows each other. There is also a dialogic connection with all department heads as well as the director general."

Paula is looking forward to the merger with the Land Survey and Tike with interest.

"My wish is of course that it will provide us with more expertise. From our part, the main benefit may be in learning how to proceed from this new research to practical processes and operations."

INTERVIEW AND PHOTO BY OONA LAVONSALO

PHOTO JYRI NÄRÄNEN

TIINA SARJAKOSKI
PROFESSOR, RESEARCH DIRECTOR, FINNISH GEODETIC INSTITUTE

FINNISH GEODETIC INSTITUTE: GEOGRAPHIC INFORMATION AND TECHNOLOGY

Finnish Geodetic Institute is a research institute under the Ministry of Agriculture and Forestry, which currently employs 94 people. Almost half of them have a researcher education.

The Finnish Geodetic Institute conducts research supporting geographic information infrastructures. The institute conducts international scientific research in departments of Geodesy and Geodynamics, Geoinformatics and Cartography, Remote Sensing and Photogrammetry and Navigation and Positioning. The Geodetic Institute offers a scientific foundation for Finnish maps, geospatial information and positioning.

The Institute maintains national reference systems and infrastructures: FinnRef® network consisting of permanent Global Navigation Satellite Systems (GNSS) receivers, coordinate and height benchmark networks, gravity field network, Metsähovi Research Station and Nummela Standard Baseline. The Geodetic Institute is also the national standards laboratory of length and acceleration of free fall.

Research funding comprises government budget appropriations as well as fee-based and jointly funded income. The most important funding bodies of research projects include the Academy of Finland, Tekes – the Finnish Funding Agency for Innovation, the European Union, the European Space Agency, the Ministry of Agriculture and Forestry and Scientific Advisory Board for Defence.

The Geodetic Institute studies and develops measuring, processing and utilisation methods related to geographic information and continuously aims to demonstrate the opportunities afforded by new technologies. The Academy of Finland, selected a research cluster coordinated by the Geodetic Institute as the Centre of Excellence in Laser Scanning Research for 2014–2019.

Research conducted at the Geodetic Institute covers the whole value chain of geographic information infrastructure from collection of data to user applications. An example of these user applications is the Tassu multitouch map, which is currently used at the Haltia –the Finnish Nature Centre to guide trekkers.

AMIE AALTO
COMMUNICATIONS MANAGER, TIKE

HANNA IKÄHEIMO
COMMUNICATIONS SPECIALIST, TIKE

SHARED LOCATIONS, INFORMATION AND TECHNOLOGY

When NLS experts, who have been assigned various duties during the transfer project, recently visited Tike, the Information Centre of the Ministry of Agriculture and Forestry, several shared geographical locations, information and technology were found. As the interaction continues even more are sure to be found.

After all, there are about 140 of us at Tike's ICT provision services. ICT experts create and maintain tailored information systems, Tike's customers need in the legislation implementation duties. Our customers include the Agency for Rural Affairs, the Finnish Food Safety Authority Evira and the Ministry of Agriculture and Forestry.

Systems owned by our customers are used, for example, by clerks at Centres for Economic Development, Transport and the Environment (ELY Centres) and Regional State Administrative Agencies, employees of municipal environmental healthcare and agriculture departments as well as agricultural and rural entrepreneurs. The systems have 50,000 registered users.

Ready-made application frameworks

Many organisations provide information systems, but Tike's specialty as the information centre of the Ministry of Agriculture and Forestry's administrative sector is providing central government organisations with information systems based on legislation. Tike is a non-profit organisation which only covers its expenses.

From the perspective of individual government agency, it would be truly cumbersome to start from the beginning whenever a new information system is required. When the new information system is built by the Information Centre, it may use an application framework, which already includes shared parts, as a building block. It only needs to build the new parts on top of existing ones. This saves time, effort and money.

Cooperation multiplies competence

Tike uses consultants as support for service provision and approximately fifty consultants work on information system implementation at Tike's facilities. Because Tike in its role as an information centre provides various systems, it can reserve its best experts for these purposes and elicit commitment from them by always providing them with work. According to the estimate of our Head of Client Solutions, Supplier management enables Tike to save up to 20% of government agencies' money.

Exchange of experiences and competence turned out to be the shared geographical location, information and technology when the experts of NLS and Tike met. Tike develops mobile control solutions for Evira while NLS provides fieldwork tablet PC solutions. Cooperation will prevent overlapping groundwork and multiply competence.

PHOTO JANNE LEHTONEN

Topi Laamanen describes his duties at Tike as varied. Whether it is a question of a role of service coordinator, software production process owner, project architect or technical coordinator, the work is characterised by planning, prioritisation and steering of various tasks and projects.

"I work on very diverse duties, which of course leads to me participating in diverse projects and meeting and helping many different people."

As his continuing duties, Topi mentions Tiira application framework which is used for constructing the tailored Java applications for the sector.

"Tiira application framework is a shared product, which is pretty much utilised by all our new systems. If a problem is revealed in some application version, it becomes my problem and it may apply to a large group of systems. Tiira is a reasonably critical component with regard to functioning of our systems."

E-service solutions are also increasingly topical in Tike's operations.

"Previously, we created systems for official use but now we have implemented e-services for end customers as well. Technology has developed in leaps and bounds and you must continue to keep up with it. Customer service systems can no longer look the way they did a while back."

Topi emphasises and positive attitude towards the merger of Tike, the Geodetic Institute and the National Land Survey.

"If I'm correct, the National Land Survey has previously created its own systems, while we have developed them for our various customers. In this sense, the merger is surely a big step for everyone involved. But I'm sure a positive attitude is what counts here, as in all reform projects. I believe that a larger unit will make it easier to find more extensive competences, which will benefit everyone."

INTERVIEW AND PHOTO BY OONA LAVONSALO

MARJA RANTALA
DEPUTY DIRECTOR GENERAL, NATIONAL LAND SURVEY OF FINLAND

NATIONAL LAND SURVEY IS A STRONG CORNERSTONE

The National Land Survey of Finland provides information related to land and maintains information on legal surveys, real property and maps as well as registrations of title to a property and mortgages. Approximately 1,850 experts are at your service. We maintain basic registers significant to the society: real property and topographic information systems. In all, our core and support functions use 140 systems.

The National Land Survey is a forerunner in the area of open data. On 1 May 2012, we made all topographic information freely available. Our online services are utilised extensively: Our real property information systems has over 12,000 professional users and our mature MapSite is a renowned and commended service.

Support and counselling related to geographic information to other authorities is also among our key duties. In addition to support and counselling, we are developing the Geographic Information service platform, administrative map service serving the central government as a whole and reference architecture for geographic information. We also possess standardisation competence and have active international operations.

New winds

From the beginning of 2014, the National Land Survey of Finland comprises three operational units: Production, General Administration and Support Services. We have good cooperation on all levels across operational, profit centre and area of responsibility boundaries. We have a single multiyear strategic performance agreement, which we have all drawn up together and for the realisation of which we are all jointly responsible. We invest in professional supervisor work and leadership. Competent and innovative personnel is our most important resource and high quality and equal implementation of our customers' needs throughout Finland guides all our activities.

All duties related to NLS's ICT management and development of geographic information infrastructure are gathered in the Support Services operational unit. Support Services employ approximately 200 ICT management, data security, information management, production support and geographic information experts.

We are currently investing in defining ICT management processes and services and putting them into practice. The clarity of processes, responsibilities and roles helps us all in future changes, such as this merger between FGI, Tike and NLS. Further development and clarification of the ICT management model is necessary not only for the success of the new National Land Survey of Finland but also administrative sector as a whole – if possible this should take place in 2014 and definitely after 1 January 2015.

Jani Kylmäaho has worked at the National Land Survey for about five years and enjoys his work as a Senior Expert. Working with geographic infrastructure is one of Jani's key duties.

"When I was asked to work here, I jumped at the opportunity, since the National Land Survey is a vantage point to my field in Finland. It was to be expected that I would get the opportunity to cooperate a great deal with various authorities. What is decisive when constructing a shared geographic information infrastructure is not only what is done at the Land Survey but largely also what is achieved through cooperation with others."

At the moment, Jani's time is taken up by the Oskari platform, which aims to provide open source tools for utilising geographic information.

"Various information providers, authorities and municipalities have gathered great amounts of materials, which have been linked with geographic information infrastructure and can be viewed using the geographic information portal geoportal.fi, which is based on the Oskari platform. For example, it is possible to visualise municipality-specific information directly on a map based on statistics provided by municipalities. In some ways, Oskari can be compared to the Tiira platform of the Information Centre of the Ministry of Agriculture and Forestry, which gives us an opportunity to avoid overlapping work."

Jani also commends the work culture at the National Land Survey, which he says is characterised by freedom and responsibility.

"The expertise of individuals is trusted at the National Land Survey. We have a house full of experts, who are also willing to help you when help is needed."

Jani sees the merger of the Geodetic Institute, Tike and the National Land Survey as the creation of a geographic information competence cluster unique in Finnish scale. On the other hand, the merger may also present challenges.

"I personally hope that everyone could approach the change with an open mind. I personally do not perceive any terrible threat scenarios in the merger, instead I see plenty of opportunities."

INTERVIEW BY OONA LAVONSALO

PHOTOS ANTERO AALTONEN

ARI TELLA
PROJECT MANAGER, NATIONAL LAND SURVYE OF FINLAND

THIS WILL BENEFIT EVERYONE

According to the Government budget proposal 2014, preparations for centralising development duties related to the Information Centre of the Ministry of Agriculture and Forestry, research and development duties of the Finnish Geodetic Institute, promotion of duties related to the shared use on the National Land Survey of Finland's geographic information and, if possible, other sector-dependent ICT development duties to the National Land Survey of Finland will commence at the beginning of 2015.

The new agency must include the Centre for Geographic Information in one form or another. At the same time, profitability must be ensured and expenditure must be transparent. Ensuring services and activities at the transition stage is important: they are to be transferred as entities ('as is') and at the same general administration and support services will be centralised. More extensive development of the operational model of the organisation will be commenced as a separate project.

'As is' means that at the transition stage, the current operational entities of Tike and FGI, which will not be merged with the Natural Resources Institute Finland or Government ICT Centre Valtori, will be merged with the National Land Survey of Finland. The personnel transferring to the National Land Survey of Finland will be placed in their various previous operational entities, the activities of which will continued in a normal manner.

Inspiring and attractive partner

Centralisation will create better than hitherto preconditions for the electrification, harmonisation of the architecture and use of central government's joint ICT services. Simultaneously, the link between geographic information research, development and support functions will be consolidated so that the clear overall financial benefit will be derived from gathering the duties together.

The merger of NLS, FGI and Tike also aims at ensuring that the increasingly comprehensive and multidisciplinary research environment will be an inspiring and attractive cooperation partner and a competitive employer. In addition, the new agency will require an extensive service point network.

Lighter administrative structures, removal of overlapping duties and rational organisation of operations will provide savings after the actual merger. More efficient operations also benefit our customers.

PIRKKO YLISELÄ
DIRECTOR OF COMMUNICATIONS, NATIONAL LAND SURVEY OF FINLAND

WAITING FOR NEXT YEAR

In speeches the National Land Survey of Finland is presented as being strongly on the receiving side. It simply means that the newcomers are welcomed to the National Land Survey. We are carefully preparing for the arrival of FGI and Tike while making sure that all of us are ready for this change in every possible way.

Careful preparation is one of the cornerstones of any organisational reform. Here at the National Land Survey, this is done as a project, the sub-projects of which consider and plan everything as carefully as possible up to the implementation. The Together2015 project has the following sub-projects: legislation, general administration, customer guidance and financing, duties and management, information systems, combining administrative information systems, and communications. HR management, training and orientation are an important part of the plan.

Close cooperation

All three agencies are represented in each sub-project and customer agencies are also represented in the customer guidance and financing sub-project. The personnel is likewise strongly represented. This is to ensure that information flows freely from agency to the next and within a work community.

Part of our strong commitment to the reception of our new colleagues is that we keep the current National Land Survey employees continuously aware of what is being planned. For this purpose, we will build a joint extranet website. The website www.yhteen2015.fi will be launched in February–March and it will contain much more information than just project memoranda.

You are warmly welcome!

Training and information events to be organised throughout the year will pave way to smooth transition to the National Land Survey. In this move, there is no need for removal vans, since all offices will remain in place.

We warmly welcome you all to the National Land Survey of Finland! To quote permanent secretary *Jaana Husu-Kallio* : Let's create together a new magnificent National Land Survey of Finland, where we all appreciate the work of each other.

ANSWERS TO GOOD QUESTIONS

During the Ice Age, the ice was at its thickest at Gulf of Bothnia and the land was consequently depressed the most there. I have read that because of this the land rise another 100 metres there. Does this mean that the whole Gulf of Bothnia will one day disappear, will it replaced by a mere river or what will happen and when?

Markku Poutanen, Professor, Head of Department, from the Department of Geodesy and Geodynamics at the Finnish Geodetic Institute answers

The remaining land uplift is approximately 100 metres. In Kvarken, the speed of the uplift is approximately nine millimetres a year. It is gradually slowing down but it will continue for several thousands of years. In fact, it is possible that the land uplift will not be completed before the next ice age.

At Kvarken, the sea is quite shallow, so eventually closing off from the Gulf of Bothnia making it almost an inland lake which is linked with the Gulf of Bothnia only through a narrow strait. This will take a few thousand years but the current accelerating global rise of water will slow the land uplift compared to the sea level somewhat. It is possible to monitor both the land uplift and the rise of sea level with accurate geodetic measurements.

Software development has moved from waterfall model to agile development. What does that mean for information systems procurers?

Topi Laamanen, principal coordinator from Tike, answers

The client and the implementation organisation cooperate closely in information projects using agile methods. No massive specification is performed at the beginning of the project, instead the project is advanced in small increments and specifications are continuously clarified. The main objectives are a functioning software, continuous communication and readiness for changing directions. This means that procurement cannot be done in the traditional way, where all characteristics of the end product are carefully specified in advance.

You can prove the right of ownership of your summer cottage location with "lainhuuto", a registration of title to a property. Where does the name "lainhuuto" originate? Couldn't it be simply "omistusoikeustodistus" (certificate of ownership) or "kirjattu omistusoikeus" (registered title)?

Taina Hiiri, Registrar at National Land Survey of Finland answers

Land and mortgage register system has a long tradition. Historically, real property registration has been part of the court system (circuit courts, city courts, after the lower court reform district courts) in Sweden-Finland ever since the Middle Ages. Land register aimed at primarily to safeguard the first refusal rights of relatives to inherited land by making the property transaction public especially in the countryside. According to the 1734 act, in order for a property transaction to become legally valid, a public notice of it had to be given in three consecutive district court sessions, which were held twice a year. Finally, when the deadline for presenting a demand for redemption (a year after the last public notice) had passed, the buyer received a land certificate in the next district court session. This is the origin of the name 'lainhuuto' in the registration procedure. It was felt that the old and established term "lainhuuto" should be retained in the Land Code, even though it no longer describes the registration procedure in any way. In practice, the term refers to registration of the reception of fixed assets.

www.yhteen2015.fi

www.fgi.fi
www.mmmtike.fi
www.nls.fi

COVER PHOTO BY ANTERO AALTONEN