

## Sharing innovations in challenging times

Kadaster is extremely proud and excited to be part of FIG2021, the first fully online, fully digital FIG Working Week. We see FIG as one of our key international platforms for enabling and inspiring sharing, learning, and developments, all things relating to national mapping, land registration, and cadastres.

FIG2021 connects Dutch surveying, mapping, and spatial innovations to the international community. Smart approaches to land and water management is something the Dutch are proud of. High-quality geo-information, national registration approaches, and responsible data management are fundamental to this.

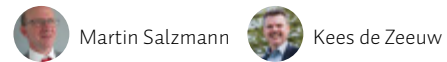
Kadaster manages almost 10 petabytes of data and 160 open datasets. These were viewed over 20 billion times in 2020 - over 6 billion more than a year earlier. We think these are impressive figures. We exchange knowledge and lessons with governments and businesses from all over the world, be it on artificial intelligence, point-clouds and image generation (for the cadastral map) - or how Kadaster deals with data security, governance, and other digital challenges.

During FIG2021 we will discuss the issues, solutions and dilemmas we encounter in advancing our cadastre in a world where data are at the heart of society's needs and our operations. We will provide insight into how a cadastre can develop in this data-driven world. How we contribute to sound decision making and recording in the spatial domain and the land market in particular and remain relevant to users. This requires that the data ecosystem of a cadastre is linked up with the data of other domains.



We will also update on our latest R&D on Artificial Intelligence. It has been used to rebuild the cadastral map. The existing map had so-called graphic quality (standard deviation of boundaries is 20 cm for urban areas and 40 cm for rural areas), so we have started a research programme to develop a map where the location of borders is so accurate, that the map is more in line with future requirements. For this purpose, we need to process almost all (historical) field sketches: an enormous challenge. We investigated whether it is possible to automatically extract the original measurements from the fieldwork reports, to combine this information and re-determine the boundary locations.

Hopefully, our experiences with data driven developments can be inspiring to the world.



Martin Salzmann Kees de Zeeuw



Rijkswaterstaat  
Ministry of Infrastructure and the Environment

'Challenges in a new reality': this is the motto for the FIG e-Working Week 2021. This also applies to Rijkswaterstaat (RWS), one of the main organisations that manage the relationship between people and water in the Netherlands. We are looking forward to join FIG2021 - to share and to learn. Smooth operation of highway and waterway networks, and related infrastructure, require effective and efficient data management. RWS is one of the main geodata suppliers in the Netherlands, constantly innovating to meet the demands of our partners and the community. Our current innovations are fully country-covered high resolution altitude data (AHN4), Building Information Management (BIM), application of artificial intelligence (AI), internet of things (IoT) in our asset management. Also, RWS develops with partners the digital framework for the Environmental Planning Act, supporting one of the main legal transformations in Dutch legal history RWS is very keen to share its experiences with colleagues all over the world during the e-Working Week!



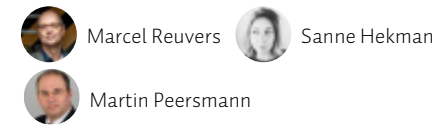
Roel Luis Paul van Asperen

## Digital Twins deep dive

Digital Twin concepts and implementations continue to garner interest within the geospatial information and surveying communities. FIG2021 includes dedicated sessions on the topic. We will take a deep dive into developments at national and city levels, connecting it to National Spatial Data Infrastructure developments, and the importance of government, private sector, and academic collaboration.

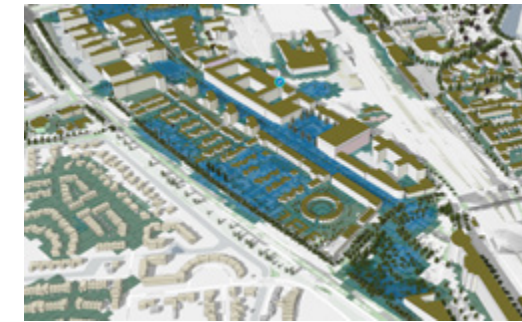
Key stakeholders will share their point of view on innovative approaches and the economic benefits of working with Digital Twins. Participants will experience the Dutch 'polder' approach, where we aim for consensus in decision-making and collaboration in design and development.

The role of international bodies is also crucial in delivering Digital Twins. The session will explore how these bodies, including FIG, are providing a platform for sharing best practices and developing international policies and standards.



Marcel Reuvers Sanne Hekman

Martin Peersmann



## What else is in store?

In this Abroad we give you a sneak preview of what you can expect from the Netherlands and Kadaster during the FIG e-Working Week. The fully packed programme offers you the latest insights and techniques in the domains of surveying, geospatial data and land administration.



Check the full programme and proceedings afterwards on



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# abroad

SPECIAL EDITION



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In 2021, FIG again brings the community together. This time virtually. Together, with the Dutch organisers Geo-Informatie Nederland (GIN), Kadaster and ITC (University of Twente) a jam-packed and interactive programme is planned. After more than a year of being locked down locally, this is your chance to get inspired, (re)connected, energised, and to once again feel part of the FIG community.

## FIG e-Working Week 2021 and the Dutch touch

FIG has a long and proud history of sparking the surveying community and the development of our profession. It has brought many opportunities and developments. Now, more than ever, we want to make sure that the FIG Working Week takes place.

### Global networking opportunities

FIG2021 will host sessions in different time zones with presenters at different locations. This will allow the whole FIG community, with over 250.000 members from 120 countries, to join the event from behind their (home)desks. Encourage your colleagues and students to join the event to network one-on-one, break out into group sessions, watch keynote presentations, send chat messages, take part in polls, and explore the interactive exhibition space.

### Dutch touch

In the Netherlands, our surveying and spatial information domain is acknowledged for new and innovative approaches to support society's changing needs. It is this attitude and energy that is needed right now to turn the virtual FIG Working Week into a successful event. We look forward to share with you the latest innovations and developments in the geo-spatial sector in the Netherlands. To get a sneak preview, check the articles in this special edition of Abroad!



Paula Dijkstra (co-conference director) on behalf of GIN, ITC (University of Twente) and Kadaster



## How to attend an international conference within seconds?

“This month, or more exactly on 20 June, the FIG e-Working Week 2021 will begin. As President of the International Federation of Surveyors (FIG) I am more than happy to welcome you to this event.

Where does it take place? Well, that is an excellent question. It is jointly organised by our Dutch colleagues together with FIG. The official location is the Netherlands, but, because of the COVID-19 situation, it will be an online event. However, there will be a strong Dutch flavour in all our activities during the week. FIG2021 will be a real global event, over all our times zones.

The actual place where it happens is where you switch on your electronic device and connect with our virtual conference system called ‘Hopin’ - and I promise you - it was never so easy and inexpensive to join and take part actively in a FIG working week! Once you have registered (for a much lower price compared to a normal working week) you login, dependent on your time zone in the morning, the afternoon, the evening, or (unfortunately) at night. Within seconds you can network, meet, listen to or discuss with your friends or new colleagues from all over the world. You don’t have to fly to a destination far away. You don’t even have to leave your home!

Yes, it is sad that we cannot meet in person, but I think we should see the current situation also as an opportunity for testing this online format. This will help us find the best way for our yearly event in the future!

Stay healthy and positive! I hope to meet you next month during the FIG e-Working Week!”

Rudolf Staiger | President of FIG



## Fit-For-Purpose Land Administration future directions



Being on the FIG agenda for almost a decade now, FIG2021 is a great moment to reflect on the successes, challenges and future prospects of the Fit-For-Purpose Land Administration (FFPLA) approach.

Globally, especially in the developing countries, large numbers of land rights are unaccounted for in formal land administration systems. This undermines equity, equality and the achievement of the Sustainable Development Goals. Conventional surveying approaches face diverse challenges in costs and time. Over the last decade, FFPLA has been challenging these approaches with lower costs, less recording time, and appropriate spatial data qualities.

In the FFPLA keynote, we will have contributions from the land administration field, including keynotes of Stig Enemark, Amy Coughenour, and Emmanuel Nkurunziza that illustrate best practices, and uptake by the spatial industry. In the workshop we aim to identify and share knowledge on strategies, methods, and tools for scaling up FFPLA.



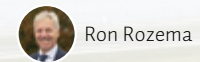
Chrit Lemmen



GIN is excited that FIG2021 is almost at our doorstep! Every year the Working Week presents the latest innovations in surveying, geodesy, mapping and geo-informatics. Content wise, the programme is packed with interesting developments relevant to each of our members.

We know the local organising team has been working very hard for a couple of years to make this event happen. As GIN we are proud it is going to happen in our backyard. Last year we learned that not even a pandemic can deviate us from this goal.

Within GIN we notice some major changes in the sector, new technologies are coming up, more people interact with our work than ever before. The largest challenge we are facing is how to manage this growth. By coming together in events like this, we can learn from each other, strengthen our networks and contribute to a better geo-information world.



Ron Rozema



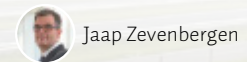
At ITC, the Faculty of Geo-Information Science and Earth Observation of the University of Twente, the Netherlands, we are very excited for FIG2021 after five years of preparation work.

Although based in the Netherlands, ITC is a truly international community, with students and staff from all over the world, and over 22.000 alumni.

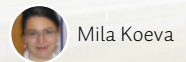
In nearly every FIG event, we have shared our works through projects, PhD and MSc students’ work. This includes development and testing of the latest geospatial tools for documentation and mapping of people-to-land relations. We also shared the teaching essentials on responsible land administration, developed as part of the Global Land Tool Network. This supports efficient, transparent, upscaled and responsible ways for land tenure mapping in broader programmes on land surveying, geo-informatics and land management.

Innovations in 3D geo-information, 3D cadastre, valuation and automatic feature extraction or boundary delineation are also key within ITC R&D projects.

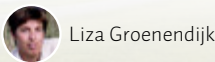
ITC will continue to work on ‘empowering society through capacity development’ with partners everywhere in the world. We are looking forward to compare and exchange ideas with other worldwide scientists and collectively contribute and monitor the progress on the Sustainable Development Goals.



Jaap Zevenbergen



Mila Koeva



Liza Groenendijk



Our university is active in many aspects of spatial information, most prominently in applied geo-information sciences, but also in agriculture, food and living environment curricula.

Looking ahead to FIG, we would like to show how education can improve connections with the (spatial) data approach and the SDGs. Our students and employees are also curious about the developments inside the international FIG community. We are keen to see how research, applications and education can still flourish during the COVID-19-pandemic. Doing everything only virtually makes it difficult to include the social and human touch, so larger online events like these are much appreciated.

Our major challenge is helping students to develop sustainable knowledge with an open attitude for lifelong learning, together with enthusiastic, experienced lecturers with relevant results for companies and society. We hope that the FIG e-Working Week will help with this goal.



Marinus de Bakker



As a media outlet, we, at GIM International, are particularly focused on sharing FIG 2021 experiences with our worldwide-based audience. FIG 2021 is going to provide us with many new stories and lots of inspiration.

We still have the challenge to make others aware of our profession and the role geospatial data and geospatial technologies play in our society.

I think Lea Bodossian’s keynote will be worth everyone’s attention. Geospatial will be a key pillar in many challenges, and I am convinced EuroGeographics has an increasingly important position here.” The mapping and surveying industry can provide many solutions to overcome the societal challenges of today and tomorrow.



Wim van Wegen



Together with Efi Dimopoulou, David Martin and Chrit Lemmen, we will organise a workshop on the Land Administration Domain Model (LADM)/ 3D Land Administration. We will have content presentations and also discuss the revision of LADM and the roles of the FIG commissions. In the revision, LADM will be wider (valuation, spatial plans, marine geo-regulation) and not only cover the conceptual model but also its implementation.

I am really looking forward to discuss my teams’ paper about developing the refined survey model for the LADM revision, supporting interoperability with Open Geospatial Consortium’s LandInfra - because exciting new survey-related content is added to LADM, and also because of the good collaboration with the OGC team behind LandInfra.

My hope, expectation, and dream for the future is that we can realise the LADM revision and reach consensus among a wider community. Bridging the related domains of land registration, spatial plans, valuation and marine geo-regulation will offer new opportunities to work better together and organise more efficient and new workflows, better serving society.

Also, I am looking forward to meet colleagues and friends from all over the world at FIG2021, such as my friends from the FIG 3D Cadastres working group. But I also look forward to meet new people who are working on innovative solutions.



Peter van Oosterom



## Geo-ICT Training Center, International

At Geo-ICT, we are excited to take part in FIG2021, getting to know potential partners and to share our GIS expertise. The Geo-ICT Training Center is an education platform for Geo-ICT professionals. We offer training courses, online support and MOOCs internationally.

We have had a busy year, despite the ongoing COVID-19 pandemic. The digital and networks infrastructure made it possible to continue our work as an education center and for our employees to continue to work at various companies. We have seen an increase in digital teaching in comparison with previous years. The future of teaching might become increasingly digital. As it takes away the factor of distance, it provides a greater range of teaching people.

With the opportunities for ‘at distance’ now well recognised, we are looking forward to meeting and connecting with GIS-professionals from all corners of the world. We see a lot of chances to create international relations in the GIS and related fields.



Anton Schutte