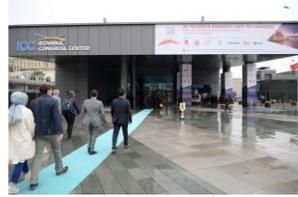


REPORT ON FIG CONGRESS 2018

Surveying Profession in Transition



The beautiful city of Istanbul in Turkey played host to the XXVI International Federation of Surveyors (FIG) Congress from 6-11 May 2018. With the theme of 'Embracing Our Smart World Where the Continents Connect: Enhancing the

Geospatial Maturity of Societies', the congress brought together more than 2,300 professionals, academics and specialists from over 90 countries to discuss the current and future challenges of surveying. More than 400 papers were presented in a hundred sessions, including joint sessions with partners such as UN-GGIM, UN-Habitat, FAO and World Bank. This article looks back on some of the key highlights of the event.

The welcome address was held by the former and elected presidents of the Chamber of Surveyors and Cadastre Engineers of Turkey, Ertuğrul Canda and Orhan Kasap. After a short video showing the role of FIG and the surveying profession in the growing world economy, they introduced the dynamic characteristics of Turkey's surveying sector. Dr Orhan Ercan, the co-director of the conference and vice-president of FIG, gave information on the preparations for and scope of the congress. Then Prof Dr Chryssy Potsiou, FIG president, reported on the strategic programme and efforts of FIG in cooperation with international organisations as well as the transformation of the surveying profession for the future. Last but not least Prof Dr Mustafa Öztürk, the undersecretary of the Turkish Ministry of Environment and Urbanisation, painted a detailed picture of the Turkish cadastre and land registry works past, present and future. He singled out real estate as one of the sectors driving the Turkish economy.

Surveying is Transforming

The congress provided an overview of the surveying sector as a whole, which is steadily transforming to meet future requirements. Although the precise circumstances vary from country to country, many of the presentations expressed the establishment of an open real-estate market as a common requirement in a globalised economy. Whereas the surveying market has been traditionally local and national by nature, and the professionals within the countries have been protected by local laws, this new development requires a cross-boundary and globally open approach.



Many of the presentations referred to Industry 4.0 and the general trend towards digitalisation. In the new digital reality and the world of the Internet of Things (IoT), data consumers are no longer humans but rather complex systems such as robots, autonomous vehicles and online devices. Several industry thought leaders highlighted the disruptive modern technologies that are changing the surveying landscape. In a smart, connected world, this emerging business environment is presenting new challenges and new opportunities that will transform the surveying business and take the profession to the next level. Numerous presentations showed the rich characteristics of data used by surveying professionals, ranging from remotely sensed imagery to mobile mapping, from GIS to

BIM, and from GNSS web services to indoor navigation. Results of various studies demonstrated the intersection of surveying with different sectors such as land management, construction, agriculture, transportation, water works, energy, mining and manufacturing.

The plenary sessions consistently attracted a large audience. Revisiting old problems as well as covering new challenges in surveying, the plenaries provided visionary views on topics including rural and urban development, the modern technology that is transforming the surveying profession and the impact of geospatial data on societal issues and smart societies. Delegates were particularly inspired by real-life projects in developing countries, allowing them to learn from experiences such as the urbanisation policies in Turkey, the sustainable development of rural and urban China, and the [role of geospatial data](#) and Spatial Data Infrastructure (SDI) in Singapore's development.

Land Management, Valuation, GNSS Services, UAVs and BIM

The congress focused heavily on the outcomes of new applications, methods and technologies for rural and urban development, land management, land consolidation, the position of land valuation in national economies and systems for mass appraisal. The sessions on geodetic surveying covered almost all fields to support surveying infrastructure, such as reference frames, geoid, datum unification, surveying deformation of big structures, improving GNSS positioning accuracy in urban forests, indoor positioning, sub-centimetre GNSS positioning services, IHO safe navigation, and the use of terrestrial InSAR and Lidar for inaccessible terrain. Various presentations on the applications of unmanned aerial vehicles (UAVs) in the fields of archaeology, construction and fit-for-purpose cadastre surveys in remote areas emphasised the prominent characteristics of UAV photogrammetry such as personalised surveying and better visual resolution.

Multiple technical sessions covered aspects of BIM surveying from design to construction, predictive maintenance and manufacturing. Besides that, more than 50 people attended the 'BIM for Surveyors' pre-congress event to learn about the latest approaches using BIM/CAD/GIS software. This was followed by a technical visit to Istanbul's new airport which is currently under construction.



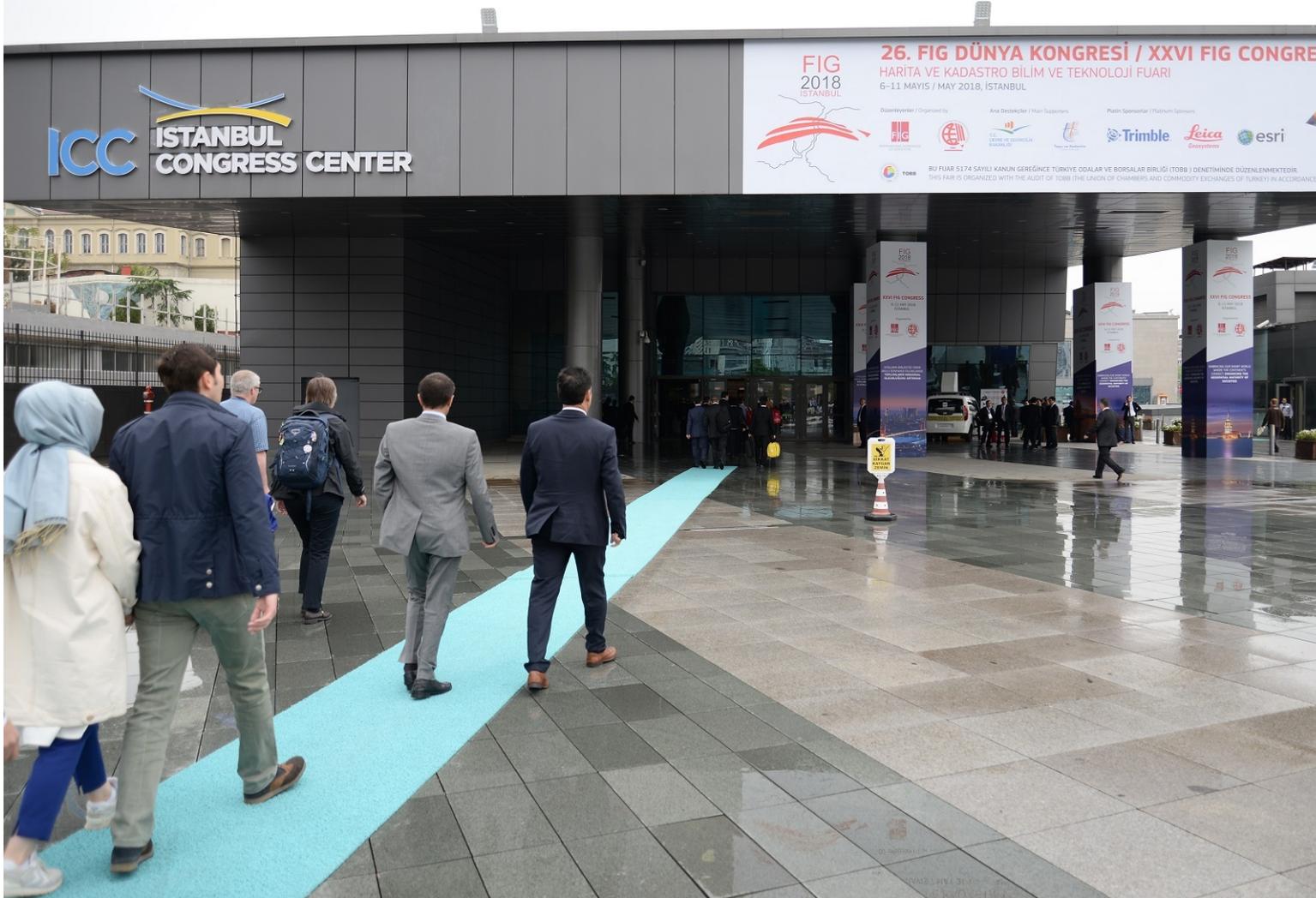
Fit-for-purpose Cadastre and Complexity in Land Ownership

National organisations for cadastre and land management gathered to talk about topics including the new role of national geospatial agencies in shaping modern society, SDIs, the availability of geodata for robotisation, autonomous driving, automated decision-making, the management and quality control/assurance of geospatial data and one-to-one partnerships, such as the collaboration between Afghanistan and Turkey which aims to re-establish a land administration system in Afghanistan.

Innovative applications, experiences and prototypes relating to the [Social Tenure Domain Model](#) (STDM) - a profile of the Land Administration Domain Model (LADM) developed within UN-Habitat's Global Land Tool Network (GLTN) to identify various kinds of land tenure in informal settlements or in customary areas - were presented in joint sessions with UN bodies, FAO and the World Bank. The outcomes of STDM efforts were described as outstanding where developed models responded to the practical needs instead of blindly complying with high-end technological solutions and rigid regulations for accuracy.

In the developed countries, on the other hand, definition and management of property rights in 3D as well as rights in the air and underground are making things more complex. As Lidar and dense image matching make data collection more affordable, 3D cadastre is becoming prevalent, ranging from database management system (DBMS) modelling to partial rights on surfaces and 3D components.

A few of the delegates reported the growing potential for surveying professionals due to global warming and climate change, such as pre-disaster surveying for calculating risk and insurance and post-disaster surveying for calculating hazard and quantity. Besides that, the congress witnessed the efforts of the UN's Food and Agriculture Organization (FAO), delegates and academics to yield satisfactory results for improving surveying protocols and standards on voluntary works for tenure of land, fisheries and forests within the context of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT).



Business Opportunities

The large exhibition area featuring 51 organisations, including the platinum sponsors (Esri, Trimble and Hexagon Leica Geosystems), was lively and busy during the congress. International technology companies mainly exhibited solutions for surveying, GIS and building information modelling (BIM), whereas local Turkish companies presented their consultancy, engineering and software services aimed at various verticals such as infrastructure, cadastre surveying, urban works and geospatial data management. The exhibition area enabled the delegates to meet and interact with companies in a friendly atmosphere while discussing potential business opportunities.

Parallel Events

This year's [Young Surveyors](#) Conference attracted more than 130 future surveyors to discuss the evolution of the surveyor role towards data management rather than data creation. They also explored the topic of volunteer work through the Volunteer Community Surveyor Program (VCSP) considering the GLTN needs. A training workshop was conducted to develop common surveying ethics, professionalism and technical skills to move a step closer to realising free movement of professionals across national borders and enabling joint work on global projects.

Local municipalities (Sisli and Gaziosmanpasa) supported the FIG Congress by sharing their experiences in urbanisation works as well as sponsoring the social events. Besides that, in line with the tradition of the Consul General of the Netherlands during all international events, professionals and representatives from the Dutch and Turkish associations of surveying societies gathered at Palais de Hollande, home to the first-ever Dutch embassy in Istanbul, where they shared their thoughts and exchanged ideas for future cooperation.



FIG Congress 2022: Cape Town

With attendance of 71 countries, the FIG General Assembly elected Rudolf Staiger from DVW (Germany) as the new president of FIG for the term of 2019-2022 until the next congress. Diane Dumashie from RICS (UK) and Jixian Zhang from CSSMG (China) have become new board members as vice-presidents. New chairs were elected for eight out of the ten Commissions. Furthermore, FIG welcomed two new members: the General Commission for Survey (GCS) of Saudi Arabia and the Afghan Surveyors Association (ASA) of Afghanistan.

After launching an exciting bid against Orlando (Florida), USA, Cape Town (South Africa) was elected to host the next FIG Congress in 2022. This will be the first FIG Congress on the African continent. Until then, FIG Working Weeks will be held each and every year, first in Hanoi (Vietnam) in 2019, followed by [Amsterdam](#) (The Netherlands) in 2020 and then in Accra (Ghana) in 2021. The local organising committees of the Working Week events were present in the exhibition area at the congress to promote their events and venues while also discussing delegates' expectations and proposals for content.

Between now and 'Cape Town 2022', members of the surveying profession are likely to face further challenges such as population growth, urbanisation, climate change and new demands in economies and societies. The next FIG Congress is expected to feature some mature solutions for management of geospatial big data, integral models for BIM and 3D cadastre surveying, integrated indoor and outdoor positioning, geodata needs of autonomous driving and robotisation, blockchain technology for democratisation and decentralisation of geodata, as well as some promising outcomes of fit-for-purpose cadastre and land management in developing countries.