

Surveying Profession in Transition - FIG Congress 2018



James Kavanagh has given a report on the FIG Congress with particular reference to UK interests. Here we look at some of the wider issues from the technical sessions.

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 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. 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.

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 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.

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.

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).

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