Zooming in on the Details

Today's political trends focus on smart cities, sustainable mobility, quality of life and enhancing local features supposed to be unique in the world. Qatar, for instance, has major plans to host global sporting events. Shanghai is embracing its status as the world's largest harbour, while Hong Kong has surpassed Memphis as the world's busiest airport in terms of cargo traffic. The governing of metropolises and other densely populated areas calls for decisions which rely heavily on authoritative geodata. Since the resolves will shape the urban landscapes for years to come, the data has to be accurate, detailed and recent. In the meantime – to keep pace with political ambitions – the search for novel technologies to collect, store and spread geodata rushes on at breakneck speed. The resulting trends are: (1) rising collection of detailed data about buildings, infrastructures and agricultural land as well as their 2D and 3D property boundaries; (2) rapid increase of small-scale surveys focused on a specific use; (3) blending of a diversity of geo datasets, and (4) providing focused services built on top of geodata. Such services are in great demand by planners, constructors, businesses and the general public. For example, inputting accurate spatial data into a Building Information System (BIM) requires detailed surveying of sites and objects. In turn, the need to raise output and cut costs is triggering the advance of innovative methods such as indoor positioning, unmanned aerial surveys and oblique aerial photogrammetry. At times these technologies are used on their own, but they may also be added to proven techniques such as terrestrial laser scanning. Indeed, governments want to gather more and more facts about buildings and other constructions within their jurisdiction. The UK, for example, has defined six attributes (sub-structure, roof type, walls, age, land use and number of floors) for classifying commercial premises, community facilities and other kinds of non-residential buildings. The majority of this information can be derived from visual inspection of oblique aerial imagery.

The penchant for details is not limited to bricks and mortar alone. Foresters, for instance, are also keen to go down to the level of a single tree to monitor growth, health and logging. Full-waveform airborne Lidar combined with multi-spectral satellite imagery may satisfy that need. As the quality may be scant due to coarse resolution, an aerial survey which combines Lidar and multi-spectral imagery captured by (oblique) cameras may bring relief. Services that go beyond geodata are also in demand, as shown by British Geological Survey's recent launch of maps derived from the core geological dataset to serve planners and environmental researchers. Indeed, the way we collect, manage and use geodata is changing rapidly. Hence, geomatics will undoubtedly endure as a stirring expert field for researchers, practitioners and students alike, fuelled by the ever-growing call for zooming in on the details.

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