Come together

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As the world?s leading cities create 3D models, Michal Konicek argues that authorities and modelling companies should act as partners to take the technology forward

It would be difficult to imagine how architecture and construction could operate in a global city such as London, with its various planning restrictions, if there weren?t any 3D modelling data. As cities such as Hong Kong, Berlin and Singapore take the lead on the availability and quality of their 3D city models, it is a good time to evaluate how these initiatives work, and whether having a city authority own and provide the model is the way forward.

Drawbacks

The local authorities in <u>Berlin</u> and <u>Hong Kong</u> created their own models, and these are available to download from their planning websites. But this seemingly most efficient approach ? in which a model is built once by the city and is then free for all users ? has several drawbacks.

- 1. **Cost:** the creation and management of the data set, especially a highly accurate and detailed one, costs money. It could be argued this expense should be borne by developers, not city councils.
- 2. **Useability:** both Berlin and Hong Kong created their models to standards that have not been adopted by the construction industry in the UK because they do not meet its particular needs. These models would therefore be of very limited use in, for example, UK rights of light studies, as they are not sufficiently accurate or include only generalised terrain.
- 3. Lack of competition: having cities create, or commission, their own models often leads to limited competition, as the rest of the market is not big enough to support multiple data providers. Public authorities in London and many other UK cities have by contrast benefited from competition between suppliers of 3D city models to architects and building consultancies as they have from the market for laser scanning surveyors or suppliers of mapping data ? an industry-driven approach has given us models that are affordable to the industry and often cost nothing to a local authority to produce and use. But it also means the latter do not own the 3D data for their cities, have minimal control over its quality and accuracy, and rely heavily on suppliers not to create barriers to new entrants to the market.

To overcome some of these shortfalls, the National Research Foundation of Singapore commissioned a state-of-the-art <u>3D model of the city</u>, linking this to a variety of city data, enabling easy citizen access and providing a test bed for any future technologies, experimentation and connection to the Internet of Things. This represents the most open and innovative approach to 3D city modelling in the world, but cost \$73m. Despite its undoubted value to both industry and citizens, this is way beyond what current suppliers, customers or local authorities can afford.

Partners

There should be a way for local authorities to have some control of their 3D city model data on behalf of their residents and businesses while not having to spend tens of millions. They should also not have a single company control their access to their own 3D data. Of course, modelling companies want to protect their intellectual property ? we are businesses that have spent a considerable effort developing these data sets, and this data helps our customers to add value to all aspects of their work. But such companies should not see local authorities as customers, rather as users and partners.

Working with local authorities, 3D model providers should offer at least parts of their data sets as test beds for any novel and experimental use. Given the potential for technologies such as augmented reality for underground utilities, simulations of autonomous cars, 5G telecoms and delivery drone navigation, experts should be able to test their ideas in realistic 3D environments. Local authorities should assist these projects while ensuring that their 3D model development strategy does not impose unnecessary limitations on other users by preferring a specific platform or format.

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Further information

- Related competencies include <u>GIS (geographical information systems)</u>, <u>Mapping</u>, <u>Remote sensing and photogrammetry</u>
- This feature is taken from the <u>RICS Land journal</u> (June/July 2018)
- Related categories: <u>Mapping</u> ; <u>Planning</u>