

How Might a Level of Detail Logic Framework Help to Close the 3D Cadastre Research-To-Practice Gap?

Jantien Stoter (Netherlands), Serene Ho (Australia) and Filip Biljecki (Singapore)

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SUMMARY

3D digital cadastre solutions for multi-level property situations have been studied for more than 20 years. However, adoption by land registries and governments is still rare.

Multi-level property has existed for quite a while in practice and is therefore expected to be supported in legislation. The problem has been that surveying drawings have had to evolve to keep up with architectural complexity. This includes the increasingly liberal use of various legal instruments (e.g. easements, common property) to help ensure a multi-ownership building can be lived in and enjoyed reasonably independently by its tenants.

Over the years, solutions to register and clarify the legal situation have been sought, varying from (optional) verbal descriptions and sketches in deeds to - legally prescribed - floor plans and cross sections for apartment rights respectively strata titles, and tags on 2D cadastral maps to cross sections or isometric overviews in other documents.

Most jurisdictions contain a variety of real rights to establish multi-level property but there is no clear framework for multi-level properties, specifically since there are many different types of multi-level properties. Therefore, most solutions are ad hoc, and thus different for similar situations, which makes it non-trivial to reconstruct the multi-level property situation from the cadastral registration.

To adopt a 3D digital cadastre approach in practice is not straightforward: there are multiple types of multi-level property situations and resulting property rights to be considered; there are standardised mandated legal prescriptions in current legislation to be considered as well as non-standard individual interpretations; and then there are the non-legal representations to be

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considered (e.g. the cadastral map) that enables cadastral data to be understood by the broader community.

These multiple considerations reflect different needs, perspectives, and expectations and 3D cadastre solutions may be still rare in practice because there is not a single definition of what a 3D cadastre should be and the use of one, single term obscures a wide variety of problems and needs.

We present a Level of Detail framework to provide a uniform, refined definition of the 3D cadastre concept that addresses the degrees of legal possibilities and (even more) degrees of technical possibilities of 3D cadastre implementations. The framework will offer specific 3D cadastre solutions to a specific legal and technical context and will allow us to talk more clearly about policy/regulation implications. And this leads to the ability to have a discussion around more feasible implementation routes.

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