

IS 3D CADASTRE REALLY NEEDED?

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Context

- Current worldwide property cadastral registries use 2D parcels to register ownership rights, restrictions, and responsibilities (RRR) on land.

2D registration
for a 3D world?



- Overall, these have been adequate and acceptable to many cadastral purposes – e.g. to give clear information about the legal status of a given real estate.

The problem...

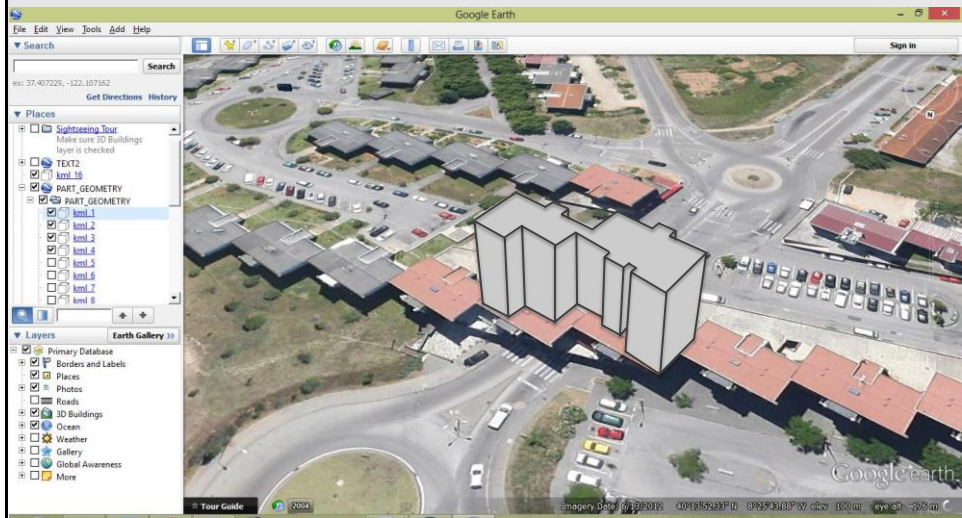
- However, the growing density of land use - e.g. in urban context, with complex developments above and underground - has been resulting in:
 - Increasing situations of vertical overlapping ownership RRR.
- As such, 2D data models are unable to handle:
 - The actual use of 3D space,
 - 3D measurements & 3D spatial queries,
 - Visualisation of both infrastructures and RRR.



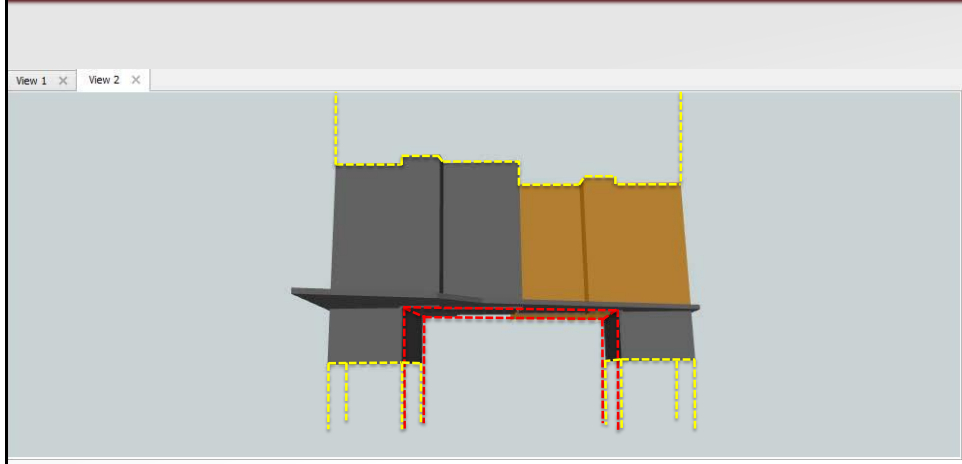
The need for a 3D modelling approach

- To materialise legal concepts that humans may well be aware of in a 3D space, but a 2D computerised system is in principle incapable of discerning.
- To link two kinds of objects:
 - The geometric infrastructure (physical object);
 - The legal infrastructure describing different sorts of stratified ownership RRR (legal object).
- Awkward to establish the link above because overall ownership rights (legal object) do not actually coincide with the geometric infrastructure (physical object)
 - > 3D representations of open airspace and subterranean blocks are required for purposes above.

Complex 3D cadastre occurrences: arch-building (*flying freehold*)

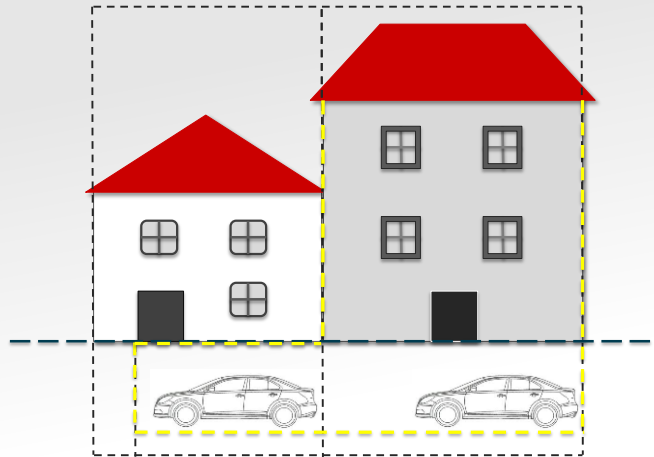


Complex 3D cadastre occurrences: *flying freehold*



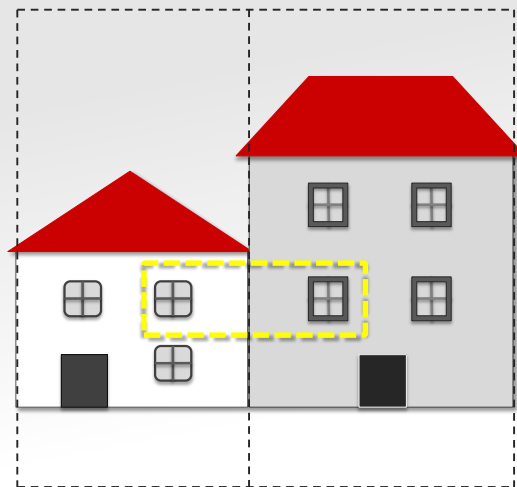
**Complex 3D cadastre occurrences:
*creeping freehold***

FIG

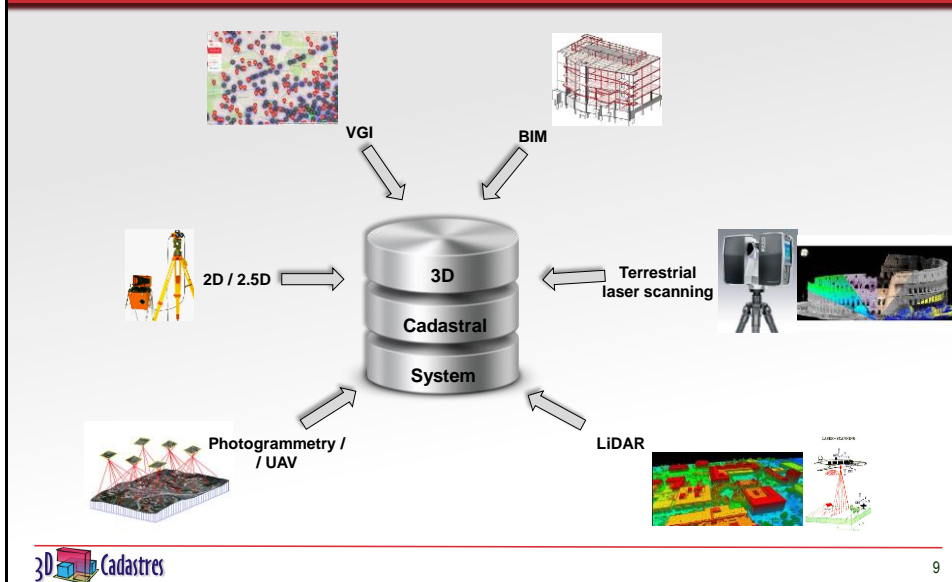


**Complex 3D cadastre occurrences:
*creeping freehold***

FIG



Cadastral data



3D Cadastre working group

- FIG joint commission 3 & 7
 - 1st International Workshop - Delft, Netherlands (2001)
 - 2nd International Workshop - Delft, Netherlands (2011)
 - 3rd International Workshop - Shenzhen, China (2012)
 - 4th International Workshop - Dubai, UAE (2014)
 - 5th International Workshop - Athens, Greece (2016)
 - **6th International Workshop - Delft, Netherlands (2018)**

<http://www.gdmc.nl/3DCadastres/>