

# Data responsibilities in DT: An open discussion through scales

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EuroSDR WORKSHOP on « STATE-OF-THE-ART 3D MAPPING AT  
NATIONAL AND REGIONAL MAPPING AGENCIES »  
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# Geospatial Data Science and City Information Modeling

## GeoScITY

The “Geospatial Data Science and City Information Modeling” Lab is a research group specialising in spatial information modelling. Its activities cover both theoretical aspects (qualitative spatial reasoning, spatial ontologies, etc.) and operational developments (use of AI methods in geospatial data processing, development of spatial data infrastructures, etc.). Research focuses mainly on urban applications, from the territorial to the building scale, without excluding other themes such as digital heritage.

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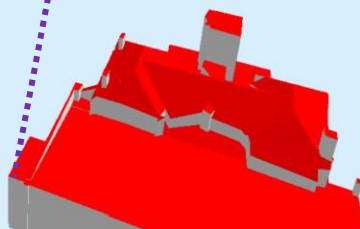
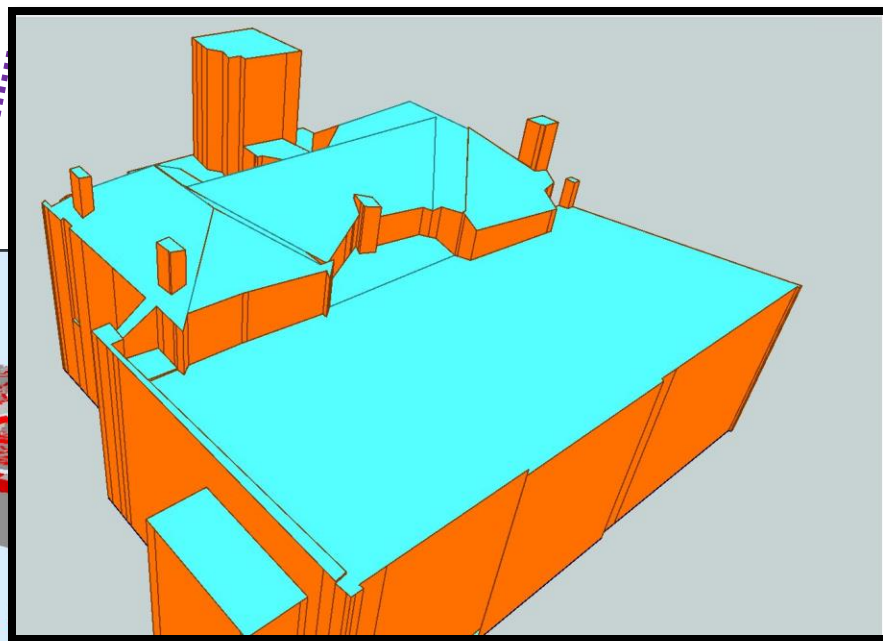
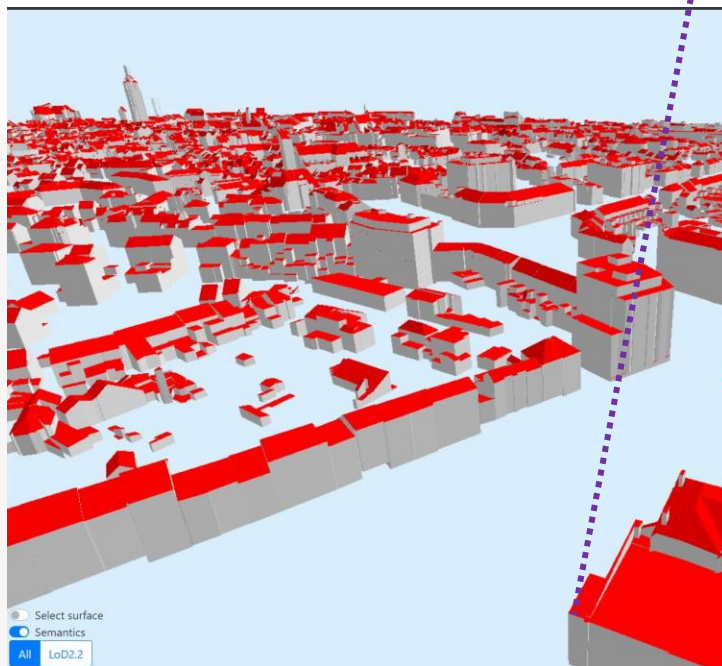
## Some DT's projects at GeoScITY

- ▶ At Regional level – Regional mapping agency
  - WaLOD2 - Optim3D
- ▶ At City level
  - SEM 3D – Optim3D
  - City2Twin
- ▶ At site level
  - Rail3D
  - Forthcoming ULiège campus DT

**Video Sem3D -**

**[https://www.geoscience.uliege.be/cms/c\\_12742331/en/geoscience-videos](https://www.geoscience.uliege.be/cms/c_12742331/en/geoscience-videos)**

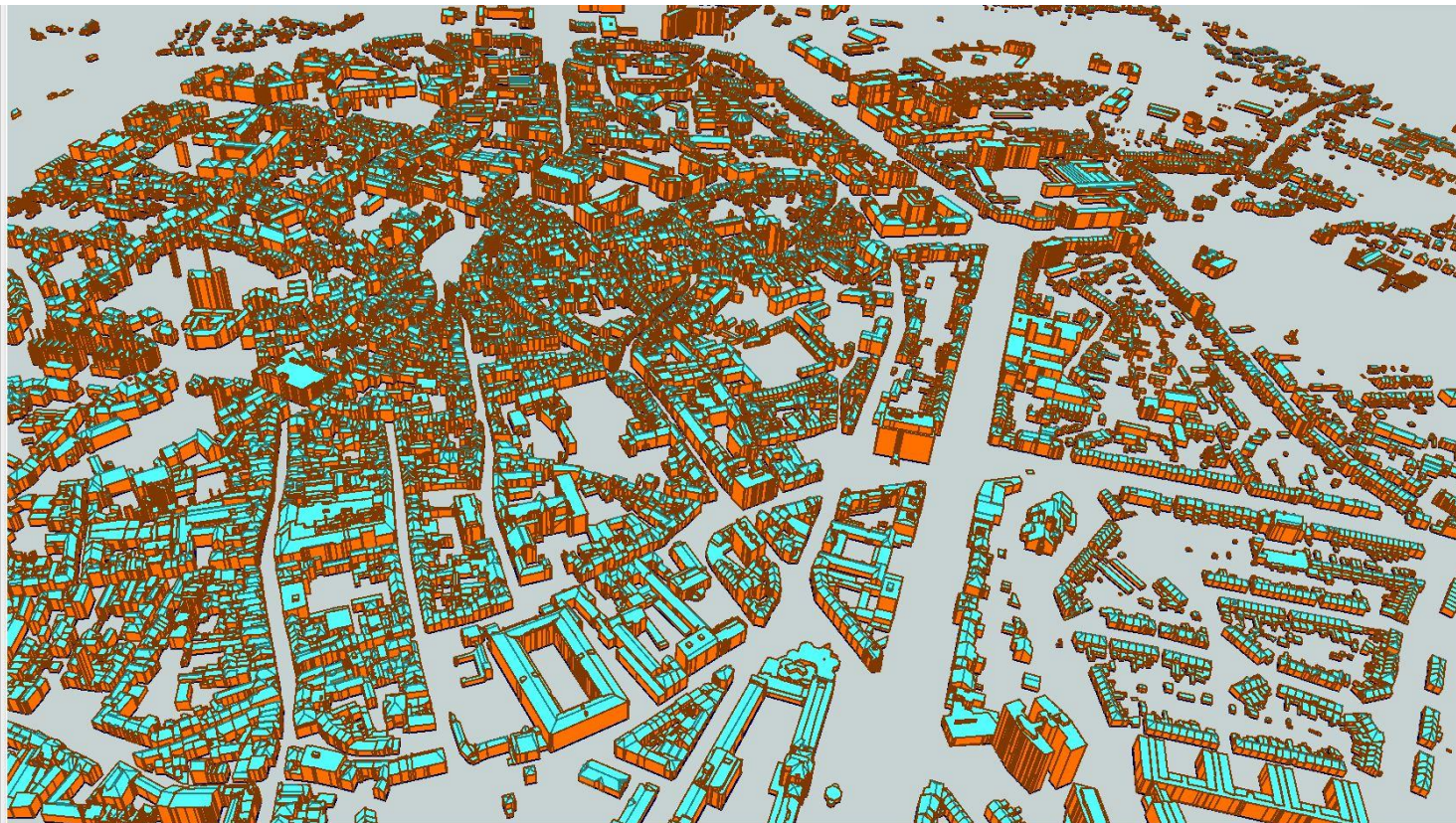
# WALOD2





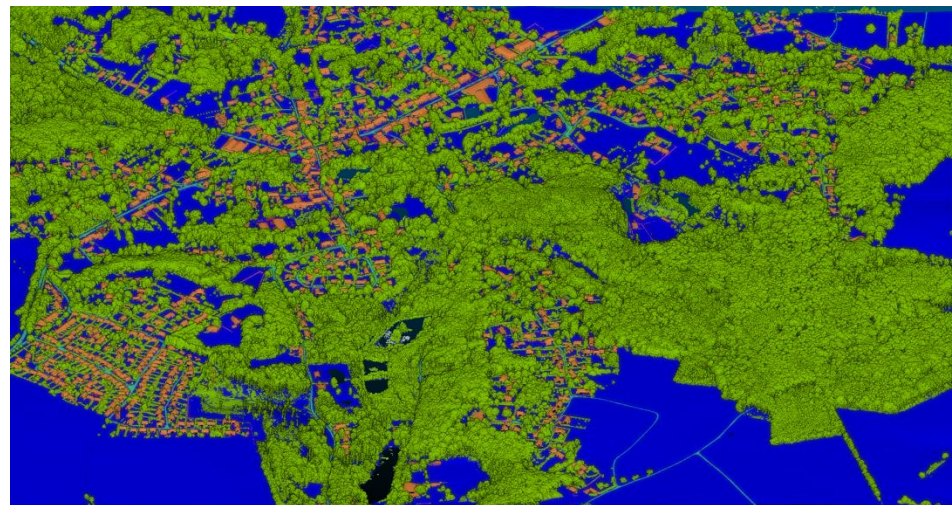
# WALOD2

- sw 1 (123241)
- test10\_new [CITYGM] (123241)
- Building (22416)
- BuildingPart (22416)
- CityModel (1)
- GroundSurface (22208)
- RoofSurface (22218)
- WallSurface (33982)





# WALOD2



Buildings High Vegetation Traffic Roads Cars Walls

**Video City2Twin -**

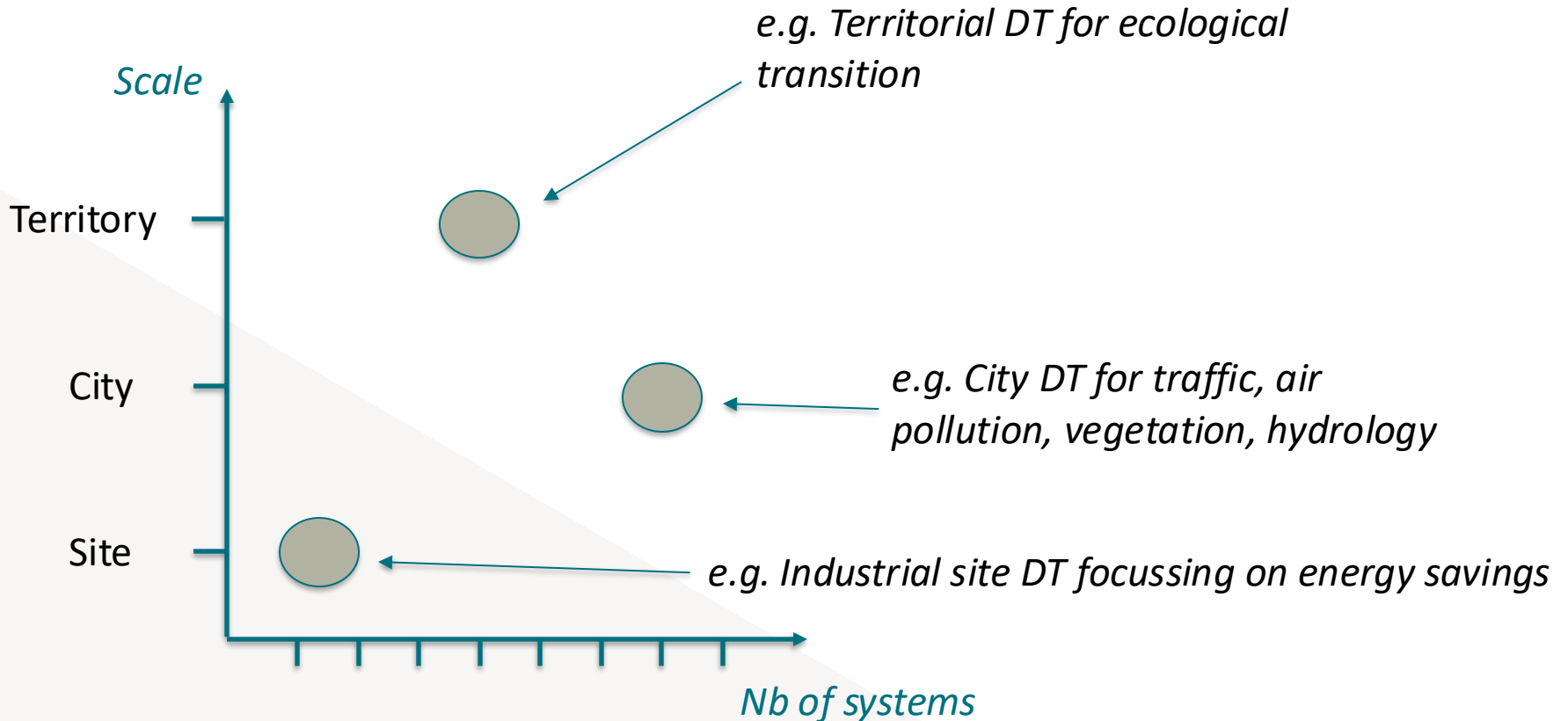
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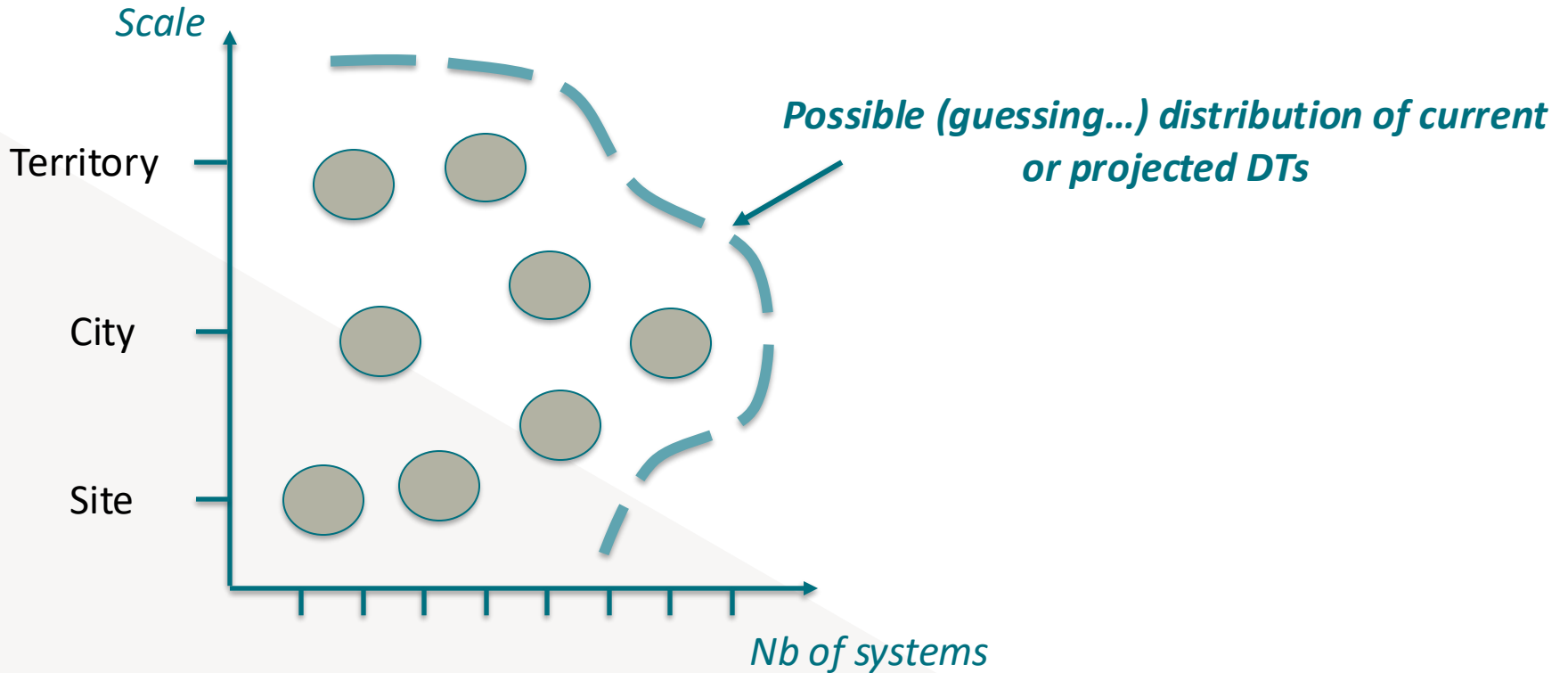
## From our experience ...

- ▶ DT projects involve new stakeholders who are not familiar with geospatial data challenges ... questions about data ownership and management arise
  
  - ▶ Amongst the non-technical challenges (The combined list of challenges identified from the literature review and the Delphi survey (Lei et al., 2023))
    - Ownership → permission
    - Management → clarify responsibility
- } DATA « responsibility »
- ▶ “... we plan to focus on a particular stakeholder group in the Geospatial community, i.e., National Mapping and Cadastral Agencies (NMCAs), to understand their role in DTs ... »  
(Characterizing the Role of Geospatial Science in Digital Twins (Metcalf et al., 2024))

# DT classification

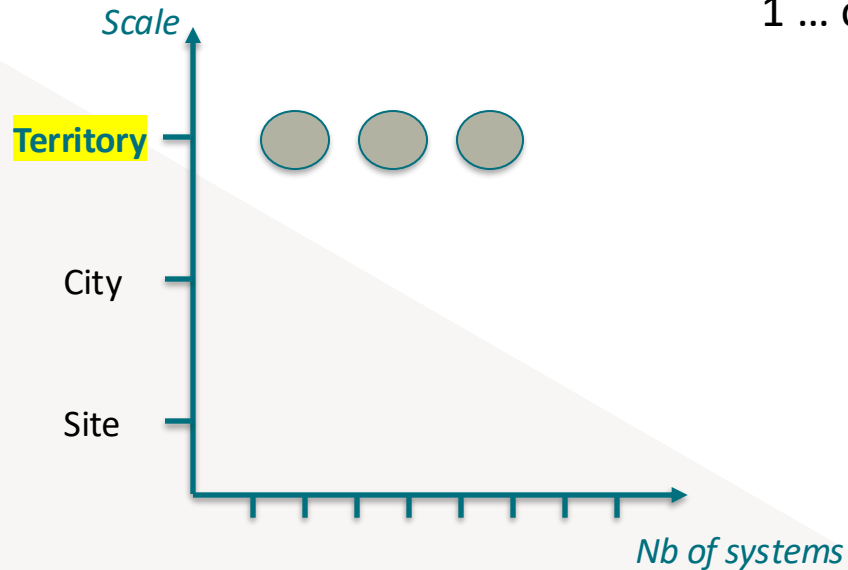


# DT classification



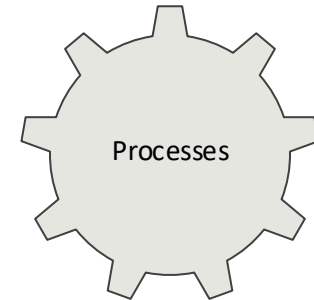
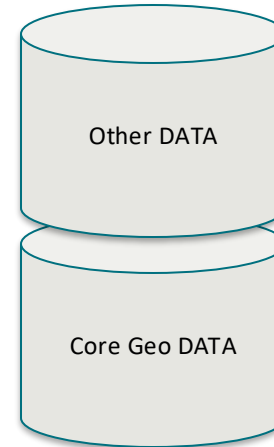


## ...who is “responsible” ?



1 ... or many ?

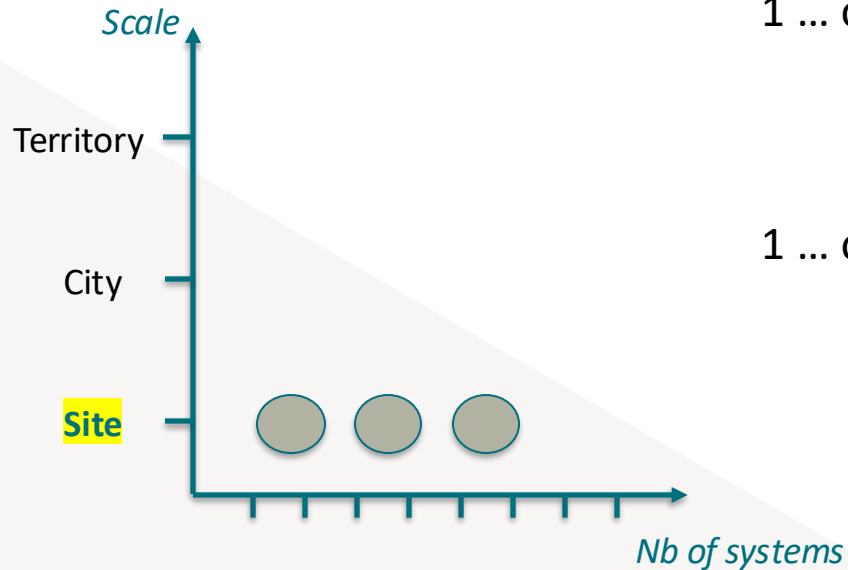
1 ...



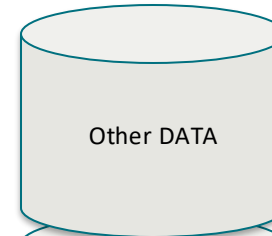
NMAs play a major (unique ?) role as  
”responsible of the data (at least for Core  
Geo Data)

Thematic data ... it depends on the nb of  
systems

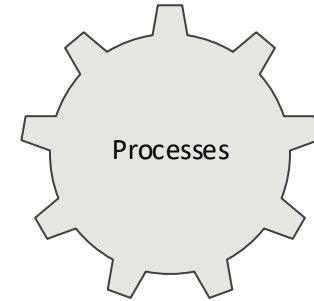
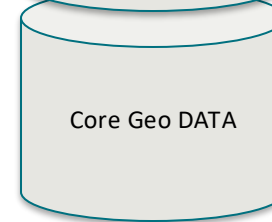
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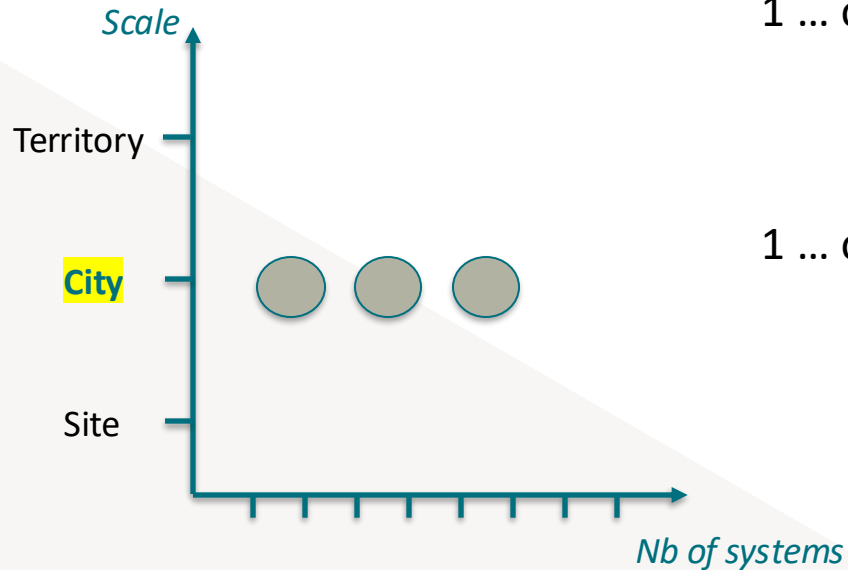
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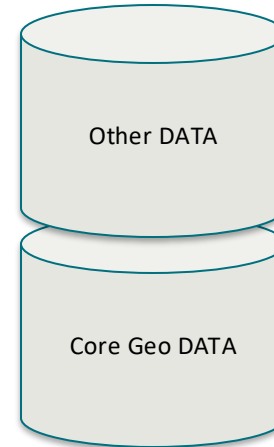
Core Geo Data include BIM, NMAs play a minor role

Thematic data under various responsibilities (e.g. energy providers)

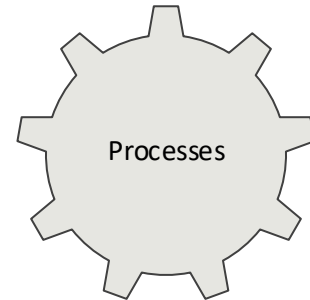
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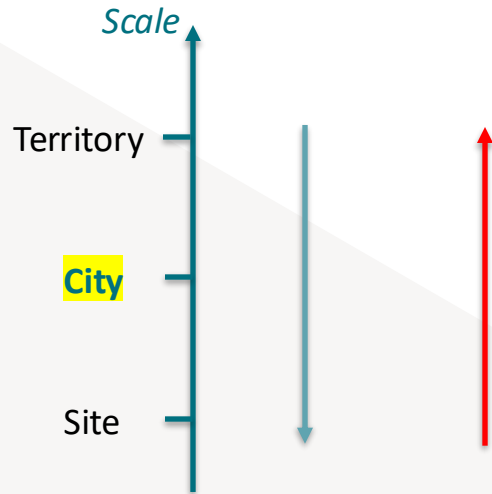
Core Geo Data : Specifications (up-to-date / LoD / other Core geo data ?) → shared responsibilities (NMA, City, private sector...)?

Thematic data under various (a lot of...) responsibilities

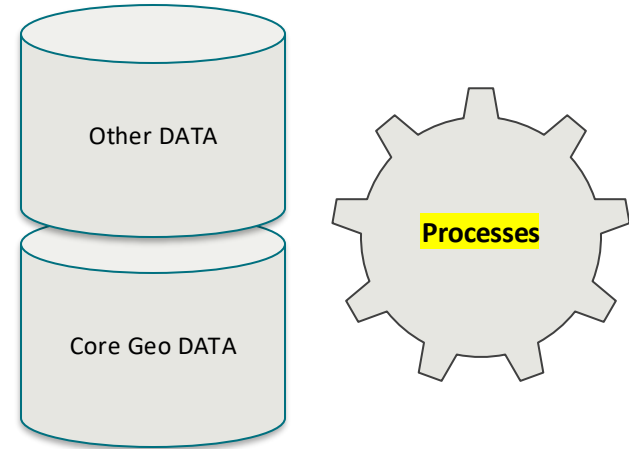


## Furthermore...

Data sharing / integration



- “Traditionally” top-down
- What about Bottom-up (notably from City to Territory level) ?



What about the ownership / responsibility on data or data enrichment after the DT processes ?

# Conclusions

- In June 2023, we presented a paper title “Digital Twin Hype: Threat or Opportunity for PMAs?”
  - 3 strategies ... “Keep it as usual” / “Promoting City level” / “Reshaping PMAs’roles”
- Roles and responsibilities of all stakeholders are interesting points to discuss and vary depending on the type of DT’s level (Territorial / City / Site)
- Not just an academic matter... it is very important when developing City or Site DTs with new stakeholders
- Looking forward to your feedback! Open to discussion and developing a survey to go further

# Thanks for your attention



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