



Geotechnical Data Standardization for BIM

From MINnD UC8-GT to IDBE Geotech

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5th European Geomodeling Meeting – Bern, May 24th

› A French collaborative program to extend Open BIM methods and standards from building to infrastructure modeling

- Season 1: 2014 – 2018
- Season 2: 2019 – 2021

› Organized by themes and use cases

- UC: Bridge, Rail, Road, Underground Infrastructures
- Themes: Change management, experimentation, law aspects

› 71 partners in Season 1

- Contracting
- Research
- Engineering
- Software Editors
- Owners



Modélisation des Informations INteropérables pour les INfrastructures Durables



- › Topic: Applying openBIM philosophy to Geotechnical data (GT) in Underground Infrastructure project (UC8)
- › Requirement: Being able to offer to the project actors to get the best possible information about the environment of the tunnel during its lifecycle
- › Team: 40 people from 13 organizations

- Research / Public institution



- Engineering



- Contracting



- Freelance experts

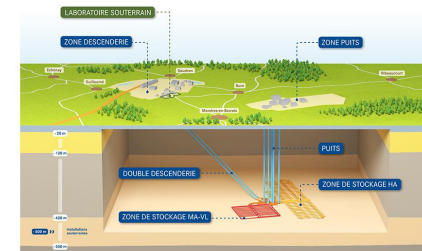
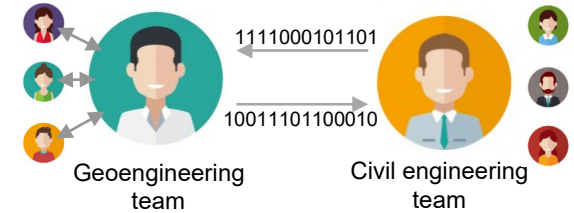


› Better Information Management (BIM?)

- For geotechnical engineers work from data collection to proposition of interpretations / results
- For geotechnical engineers and civil engineers collaboration at the BIM age

› Proposing standards for geotechnical data expression and exchange

- Based on French NFP 94-500 and AFTES guides, members experience and current projects

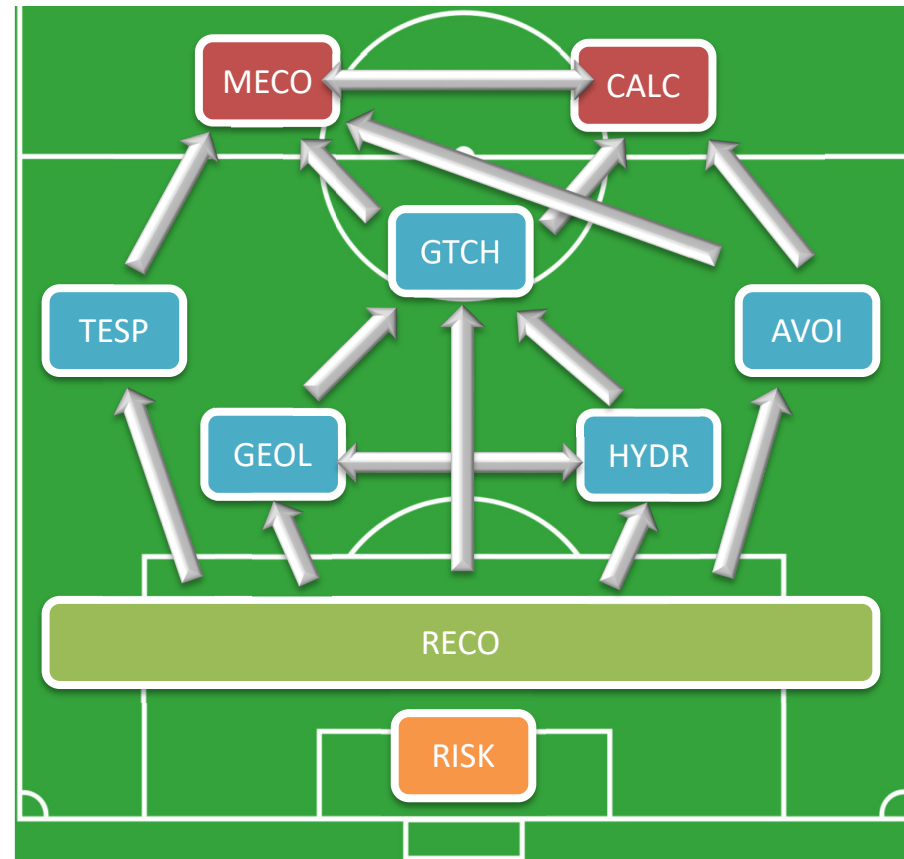


Designation	Id
Structure sizing and definition of the geotechnical influence zone	CALC
Construction methods	MECO
Geological modeling	GEOL
Hydrogeological modeling	HYDR
Geotechnical modeling	GTCH
Anthropic environment modeling	AVOI
Excavations and Site Pollution modeling	TESP
Observations and Measurements	RECO
Risk and uncertainty assessment	RISK

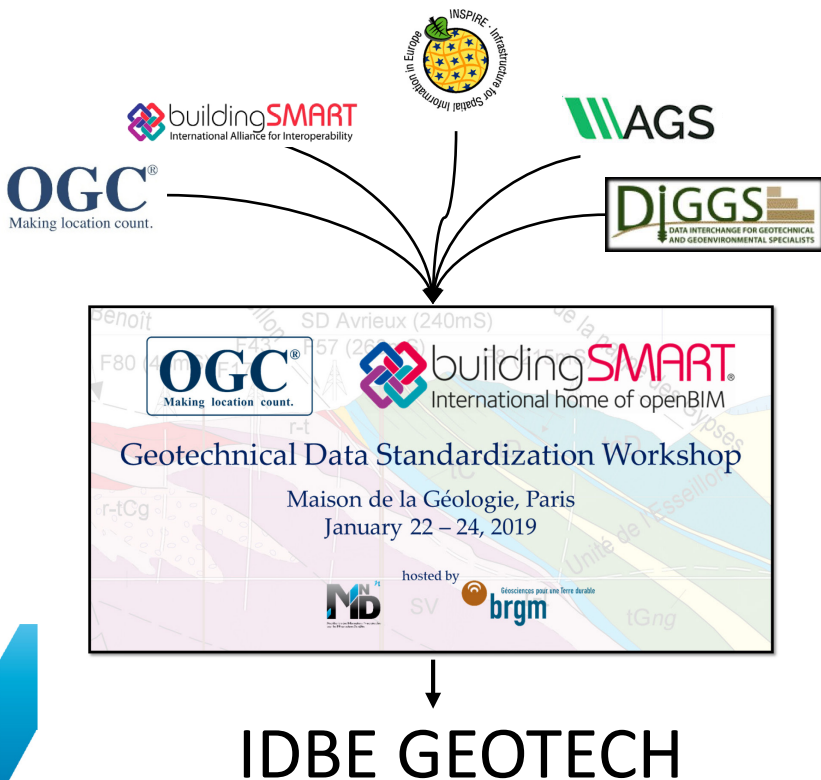
Book C:
Draft
Conception Plan
(including RISK)

Book B:
Environment
Modeling
(including
uncertainties)

Book A:
Factual data
collection



Concepts to address	Helpful existing models
Observations on the field	ISO O&M / OGC GeoSciML Outcrop / AGS
Measurements	ISO O&M / AGS
Results of calculus / estimations	ISO O&M
Lab analysis	OGC GeoSciML / AGS
Geology logs	OGC GroundWaterML2
Boreholes	Borehole IE (on going activity)
GeologicUnit / GeologicStructure and specializations	OGC GeoSciML
Aquifer, fluid bodies, void, flows	OGC GroundWaterML2
Existing buildings	OGC CityGML / INSPIRE BU
Existing infrastructures	OGC LandInfra / InfraGML
Existing networks	OGC CityGML + UtilityNetwork ADE / INSPIRE UN
Risk zones	INSPIRE NZ
Survey / Campaign	INSPIRE Geology>Geophysics>Campaign
Geomodel	OGC GeoSciML>Geophysics package (O&M)

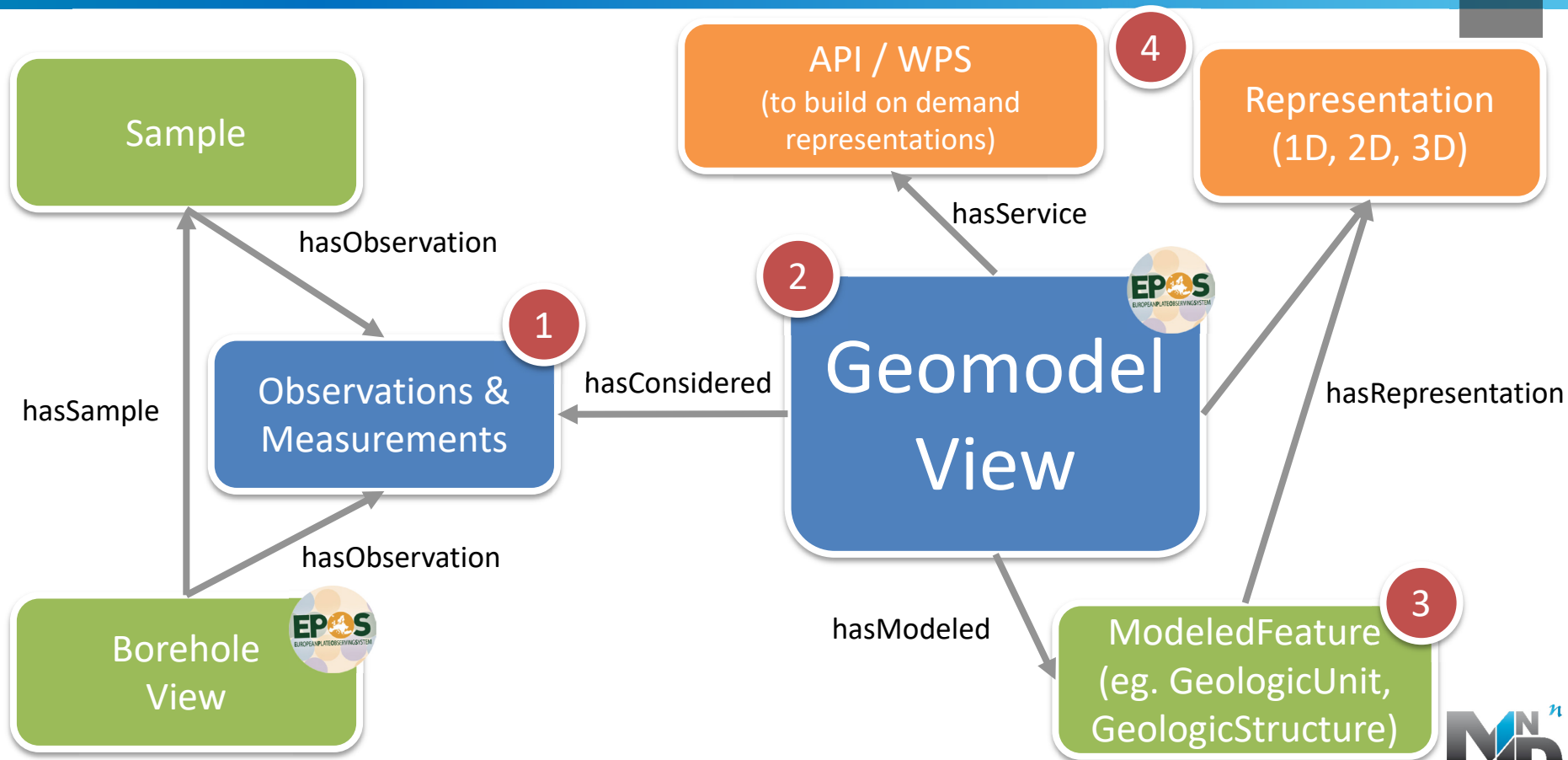


› Geotechnical Data Standardization Workshop

- 60 participants from all around the world
- Presentations available on: <https://github.com/opengeospatial/IDBE-Geotech>
- Main resolutions:
 - OGC and bSI to officially collaborate on the standardization of geotechnical data for BIM in the **IDBE Geotech** project
 - **IDBE Geotech** is mostly based on MINnD UC8-GT work to be extended to the international level
 - **IDBE Geotech** kick-off and definition of actions and groups during Düsseldorf bSI Summit (March 29th)

› MINnD Season 2 for Geotechnics

- French chapter of IDBE Geotech
- Focus on experimentation / prototype development
- To be started on early July 2019



1

Standardization of the factual data is a clear worthwhile investment for facilitating geomodel construction (and data maintenance)

2

Description of the data used to build the geomodel is a necessary information to track to envisage model update but also a good clue for its quality assessment

3

Metadescription of the content of the model will help model discovery, model comprehension and interpretation

4

The native format of the model is probably the best candidate for model update
 Services to convert model from native format to the expected representations should be defined

- › Definition of standards for geomodeling is happening now
- › Geological Surveys and the geotechnical engineers have common needs
- › Join MINnD Geotechnics Season 2 and IDBE Geotech working groups!

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Geotechnical Data Standardization Workshop

Maison de la Géologie, Paris
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hosted by

MnD SV brgm
Géosciences pour une Terre durable