

OneGeology Digital Twin Working Group Meeting

DATE: 01 February 2022

VENUE: <https://ukri.zoom.us/j/91083679096>

INVITED:

Ricky Terrington	BGS
James Passmore	BGS
Steve Hill	GeoScience Australia
Shinji Takarada	Geological Survey of Japan
Lars-Kristian Stolen	Geological Survey of Sweden
Matt Harrison	BRGM
Lars Kristian Stolen	Geological Survey of Sweden
Daniel Madeiro	CPRM

AGENDA

ITEM	TIME	TITLE	LEAD
1.		Introductions	Ricky Terrington
2.		Discuss and Finalise ToR	ALL
3.		Define Digital Twin	Matt Harrison
4.		Discuss - Environmental Digital Twin / Digital Twin for Geosciences	Ricky Terrington
5.		Summary and Actions	Ricky Terrington

Meeting notes from OneGeology Meeting (01/02/2022)

Compiled by Ricky Terrington

Attendees:

Ricky Terrington (RT) BGS
James Passmore (JP) BGS
Shinji Takarada (ST) Geological Survey of Japan
Lars-Kristian Stolen (LKS) Geological Survey of Sweden
Matt Harrison (MT) BRGM
Christelle Loiselet (CL) BRGM
Kate Royse (KR) BGS

Apologies:

Steve Hill GeoScience Australia
Garry Baker BGS

Main discussion points

1. Noticeable lack of participation in the first meeting and how to improve this in the future
2. Decision on Chair and Co-Chair of group
3. Definitions of a Digital Twin including the acceptance of the draft ToR
4. Discussion around the various options about how an Environmental Digital Twin (EDT) or a Digital Twin for Geosciences DT4G should be approached and what the short to mid-term objectives should be for this working group including a new landing page on the OneGeology website, a catalogue of EDTs/DT4Gs around the world, questionnaires to increase participation and a workshop within the next three to four months based around sensor/telemetric data.
5. Actions relating to point 4 above. Agreed to maintain momentum and meet within the next 8 weeks

For the time being Ricky Terrington was nominated as the Chair of the group and a Co-Chair of the group was discussed in that it would be preferable for the group dynamics to have non-European based Co-Chair. This will be raised at the next meeting but can be discussed before.

After the introductions (stating background interest in DTs), MT gave a brief overview of what a DT encompasses and the types of things that should be considered when thinking about DTs (see below). This can be used as a reference point for future discussions and applies to what we think a DT is for the built environment, but also how environmental data fits in with this and how can we combine the two (or more importantly thinking of them as one thing). MT mentioned that objectives could be prioritised around the diagram but initially we should really be initially asking is; what is happening and where it is happening and how it is happening?



RT led a discussion around EDT/DT4G. In summary:

- There was a brief discussion around levels of detail or scales of an EDT although it seemed at this stage that this is a discussion for the future and the groups initial focus should be elsewhere for now. There are initiatives in the DTs for the built environment that have considered this:
 - CDBB [National Digital Twin](#)
 - CDBB also has an [Information Management Framework](#) that might be a future aspiration of the OneGeology DT group when thinking about EDTs
 - There is a nice link to [COP26 involvement](#) about DTs
- Discussed different angles that an EDT can be approached:

- Climate change or Climate Science (JP) – looking at different ways Digital Twins are emerging for coastal erosion or different products that exist (e.g. [GeoClimate](#))
- Optimising the use of natural resources which could be renewables such as geothermal or for minerals/energy
- Geohazards are another that could be potentially targeted in this and is particularly relevant to ST
- Sensor/telemetric data was also discussed, and this seems like a subject area in which to attract participation in this group.

MT mentioned the OneGeology DT flyer (which is two or three years old) but is still relevant:

<https://onegeology.org/docs/newsEvents/digital-Twin-leaflet.pdf>

There are pilot studies that could be followed up, and the content could be used as a landing page on the OneGeology website for this working group. Alongside, other similar groups that have an interest in this of DTs should be engaged at an early stage to see where the synergies are and also reduce the chances of duplicating efforts. RT mentioned that the [Urban Group of the EuroGeoSurveys](#) are doing stuff in this area and should be approached. A recently released white paper discussed BIM geotechnical data by the group and several authors from around the world (Digital continuity for Geotechnics at the BIM era. January 2022)

From these discussions, the following objectives were drawn up:

1. Increase participation in the OneGeology DT group
 - a. **Action** - Create a landing page on the OneGeology Website similar to the flyer mentioned above.
 - b. Create a catalogue of EDTs or DTs from across the world on the OneGeology website. **Action** on all in working group to investigate and create this list. Amount of information required is to be discussed. LKS mentioned Kiruna as a good example.
 - c. Questionnaire to whole working group about DTs – **Action** is the creation of the Questionnaire
2. **Workshop** – based on the discussions above we thought a workshop around sensor/telemetric data in EDTs would be a valuable exercise for the OneGeology working group to steer, possibly in partnership with the Urban Geology Group (EuroGeoSurveys).

Ownership of these activities is to be confirmed.