

Leveraging GeoBIM for Smarter Health and Safety in Construction

ESRI Geodesign Summit 2021

George Floros, GIS Lead, Skanska UK

Anita Soni, Senior BIM Manager, Skanska UK

Agenda

- **Motivation**
 - Health & Safety in Construction
 - Digital Transformation
- **CDM**
 - What is CDM?
 - Roles and Responsibilities
 - CDM data acquisition
 - Challenges
- **Role of Digital**
 - GIS & BIM
 - GeoBIM & Data Integration
 - Case Study: A Proof of Concept
- **Discussion & Future Work**

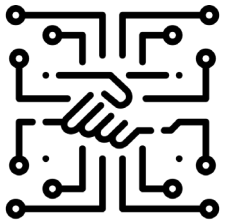
Motivation

Health and Safety in Construction

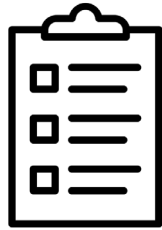
- Protect workers, reduce accidents, eliminate risk of injuries and death
- Health and Safety breaches can result in
 - Fines
 - Legal action
- Skanska
 - Care for Life
 - Injury Free Environment
 - We work safely or not at all



Digital Transformation in H&S



BIM



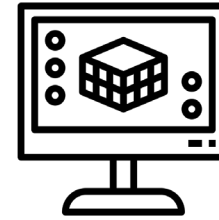
Standards



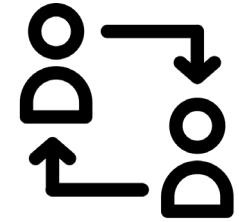
Empowerment



Efficiency



Visualisation

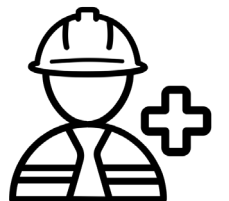


Collaboration

CDM

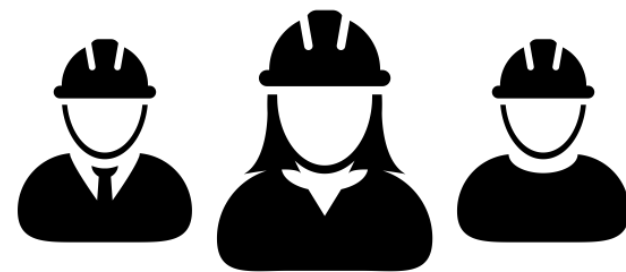
What is CDM?

- Construction (Design & Management) Regulations 2015
- Derived from EU Directive for minimum health and safety standards
- Carefully plan projects to any risk to health and safety is minimised
- For temporary and mobile construction sites
- To reduce risk to those who have to build, use and maintain structures
- Required from design stage



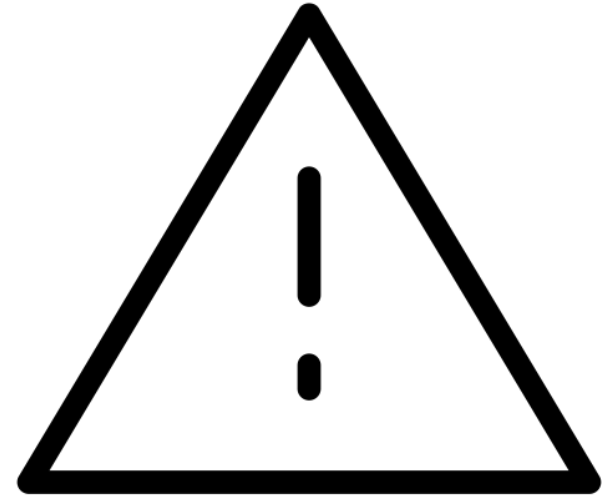
CDM Dutyholders

- Everyone involved in a construction project has legal duties under CDM
- Client, Designer, Principal Designer, Principal Contractor, Contractor, Worker
- In general all dutyholders must have the relevant skills, knowledge, experience necessary to fulfil the role in a manner that secures the health and safety of any person affected by the project, including general public



CDM Risk Register

- Hazard & Risk Description
- Current Risk impact – RAG list
- Design Mitigation Action
- Risk Owner
- Residual Risk



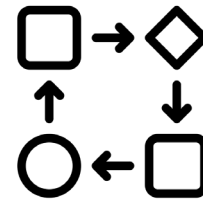
Challenges



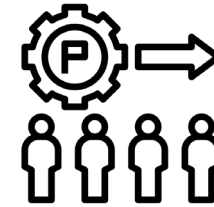
Lack of geospatial
awareness



Data
Integrity

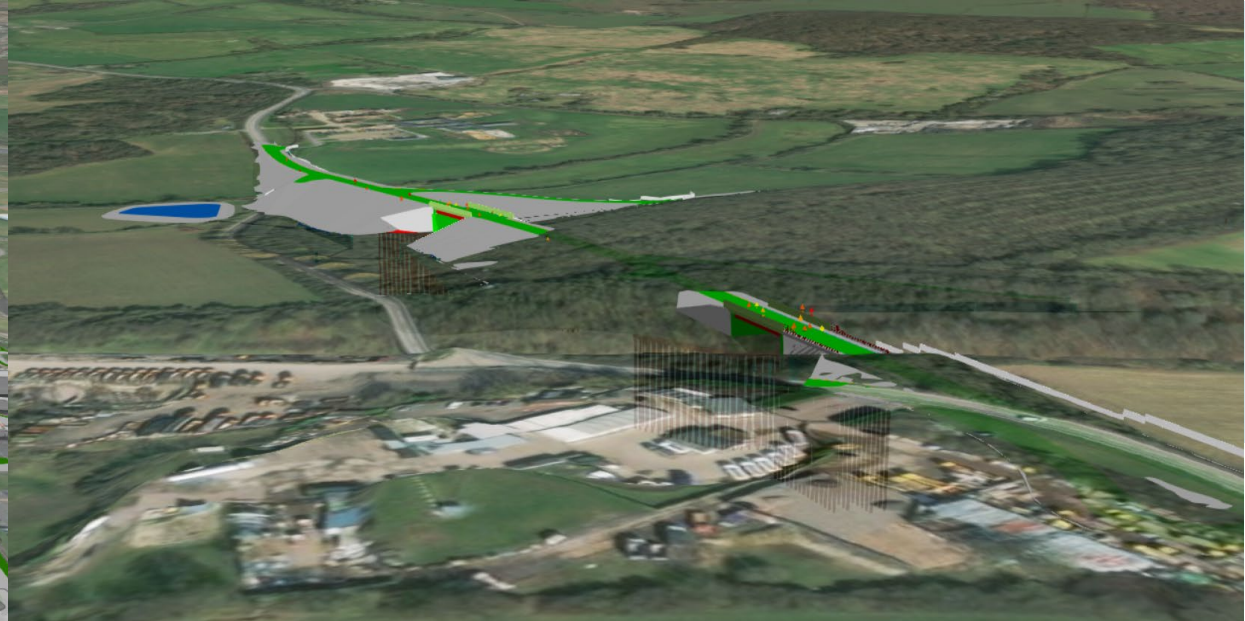
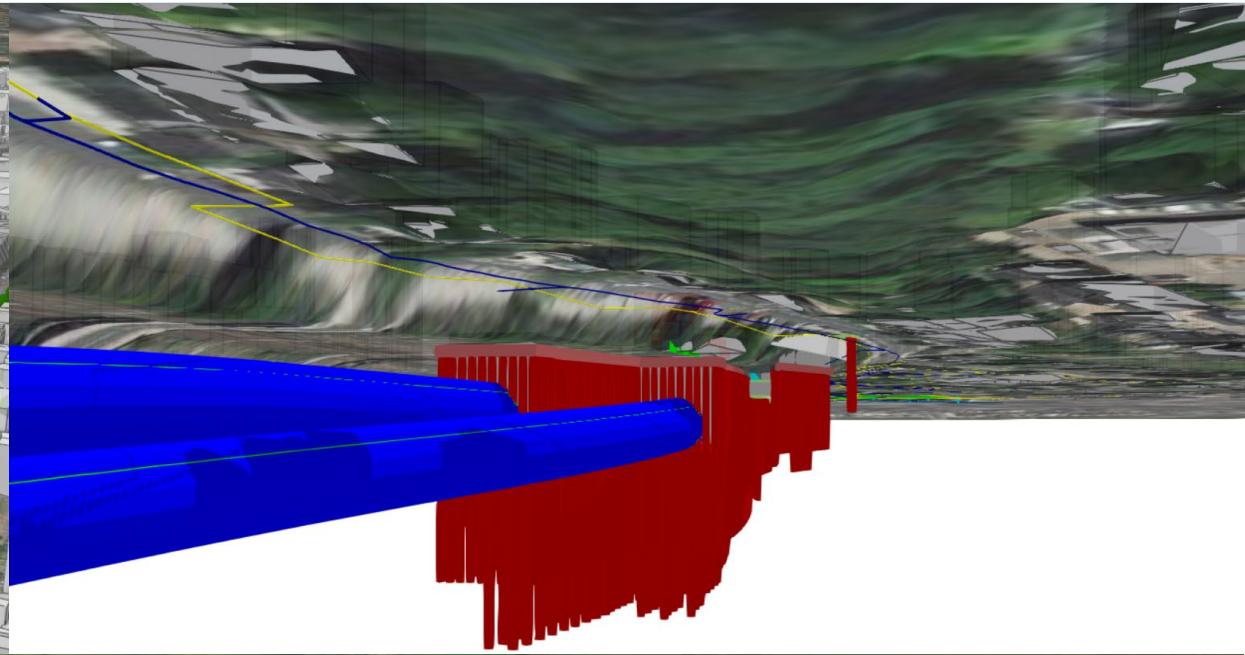


Lack of
Workflows



Cultural
change

Role of Digital



Understanding of GeoBIM

GeoBIM

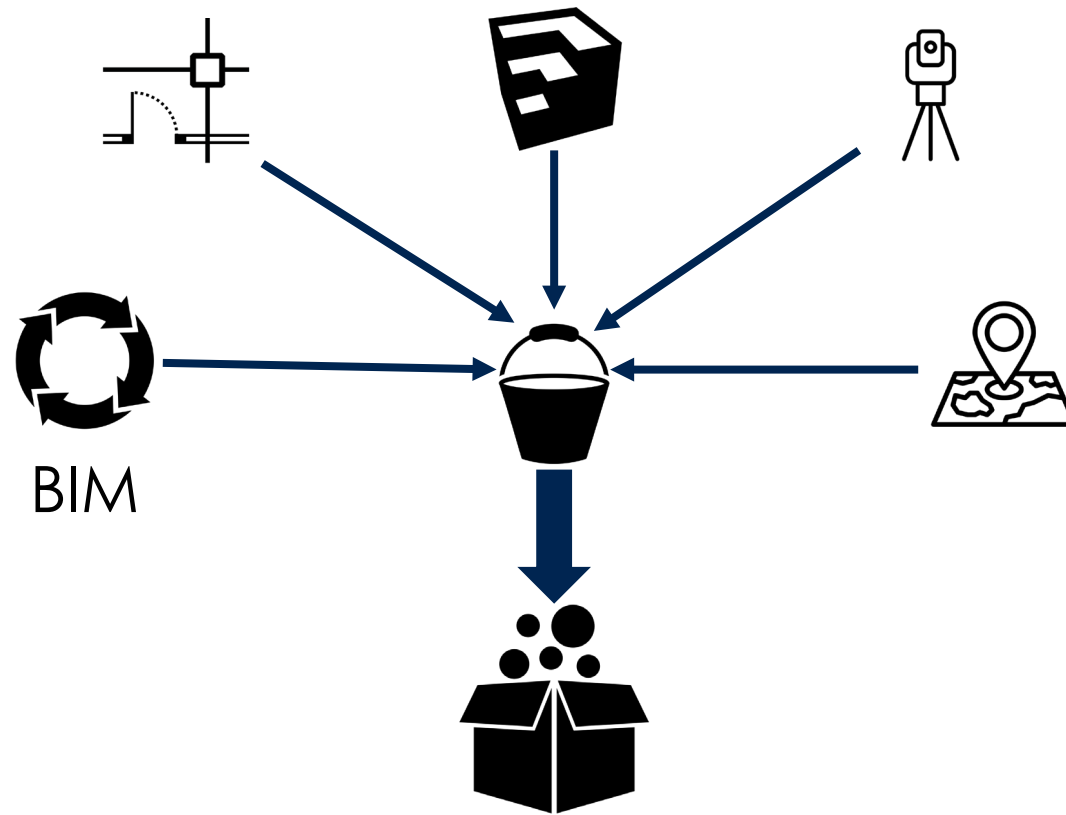
is a concept

is format agnostic

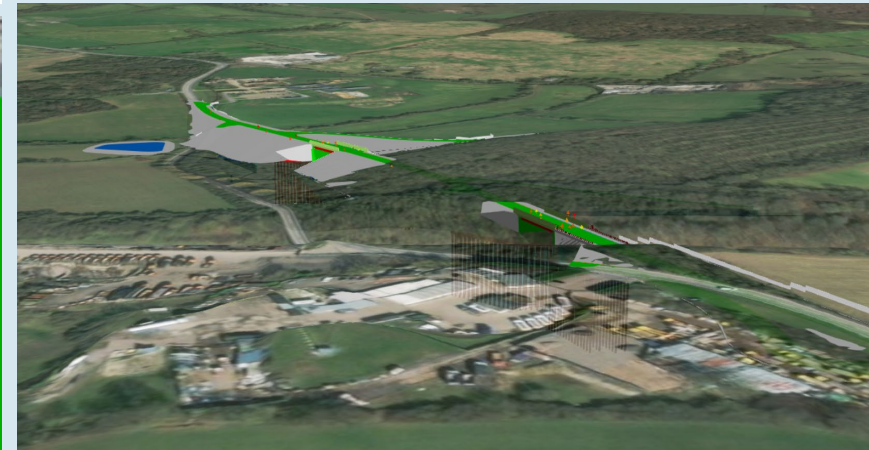
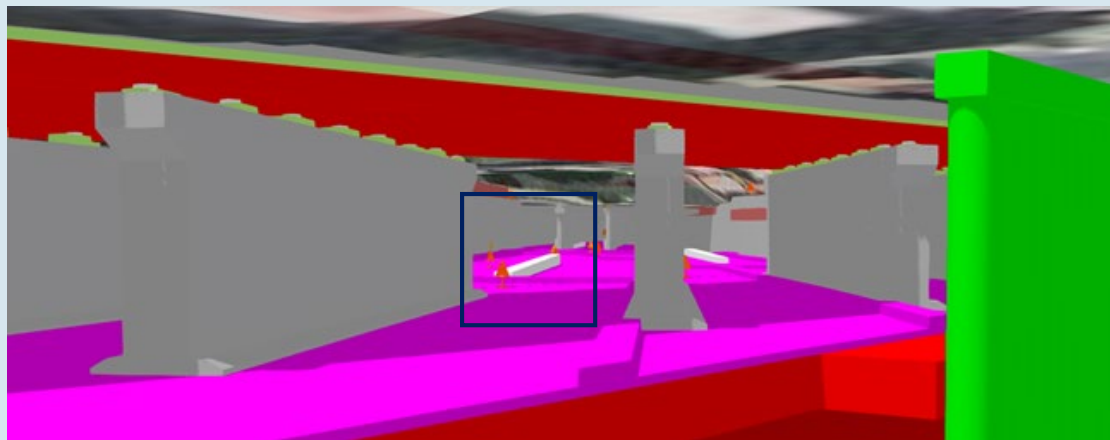
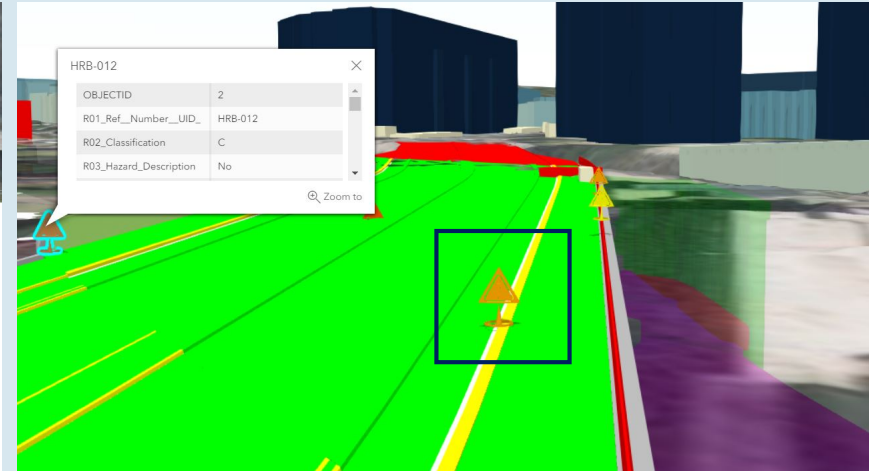
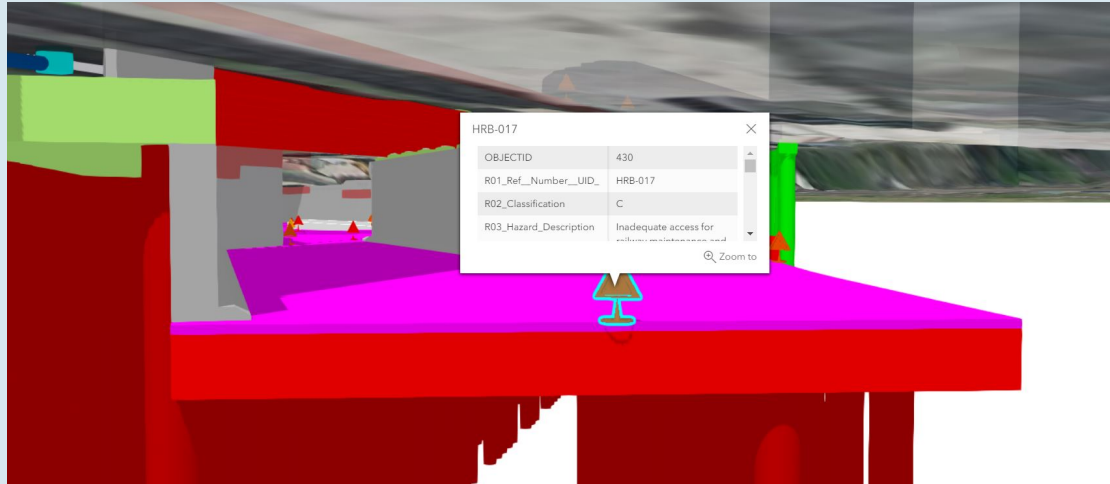
but data oriented

and people oriented

Data Integration



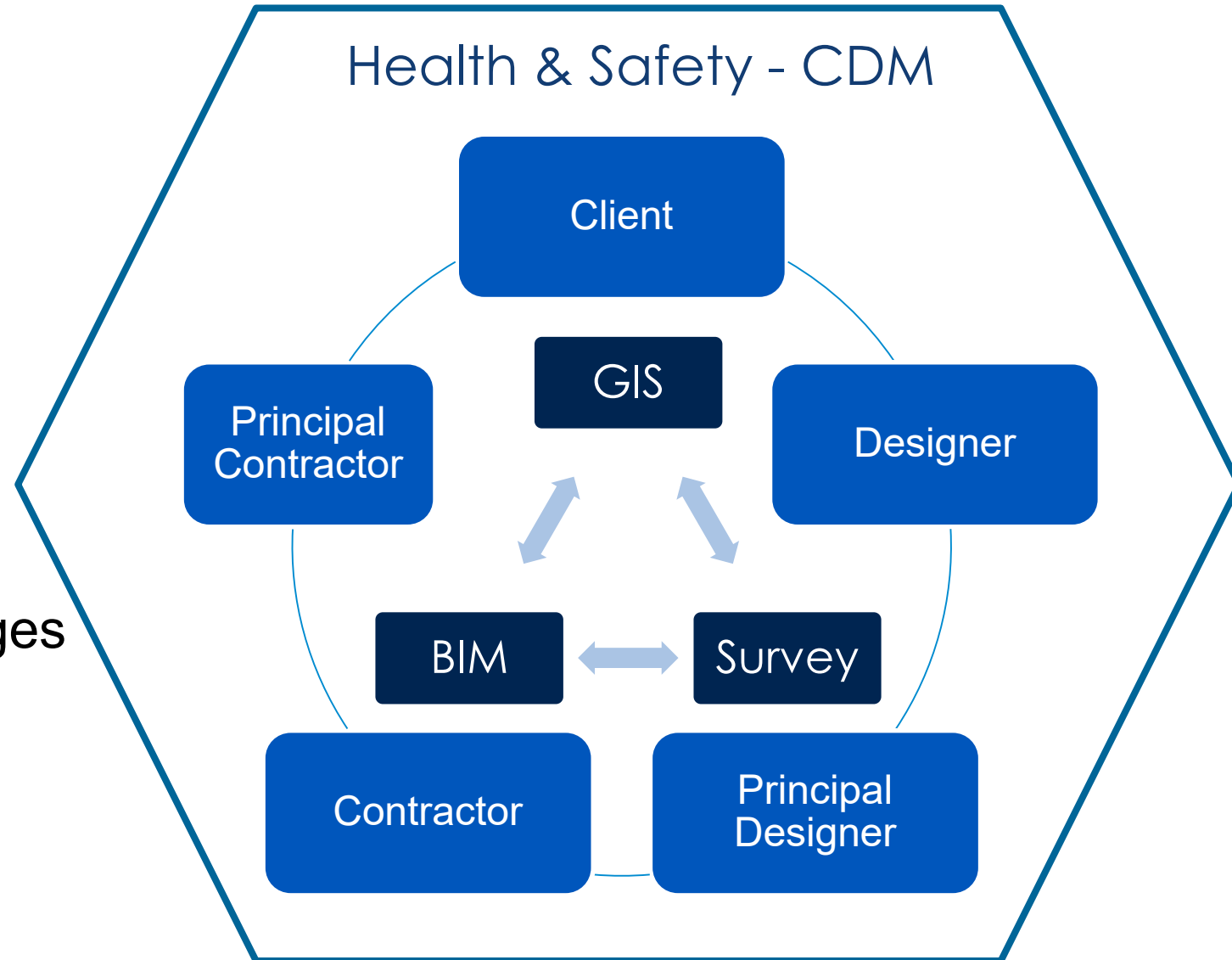
A Proof of Concept



Discussion & Future Work

Discussion

- Geo-designing efficiently
- Connecting data
- Implementing GIS from early stages leverages H&S resilience



Looking forward

- Smart Evacuation Systems
- Indoor Navigation Tools
- Optimise GIS & BIM for H&S Handover

A photograph of two people, a man and a woman, sitting at a desk in an office environment. The man, on the left, is wearing a blue and white plaid shirt and a yellow lanyard, smiling and looking towards the woman. The woman, on the right, is wearing a yellow top and is looking down at a document or device on the desk. The background is slightly blurred, showing office partitions.

Thank you

Georgios.Floros@skanska.co.uk
Anita.Soni@skanska.co.uk

More information

 www.skanska.co.uk

 [@skanskaukplc](https://twitter.com/skanskaukplc)

 [skanska](https://www.linkedin.com/company/skanska)