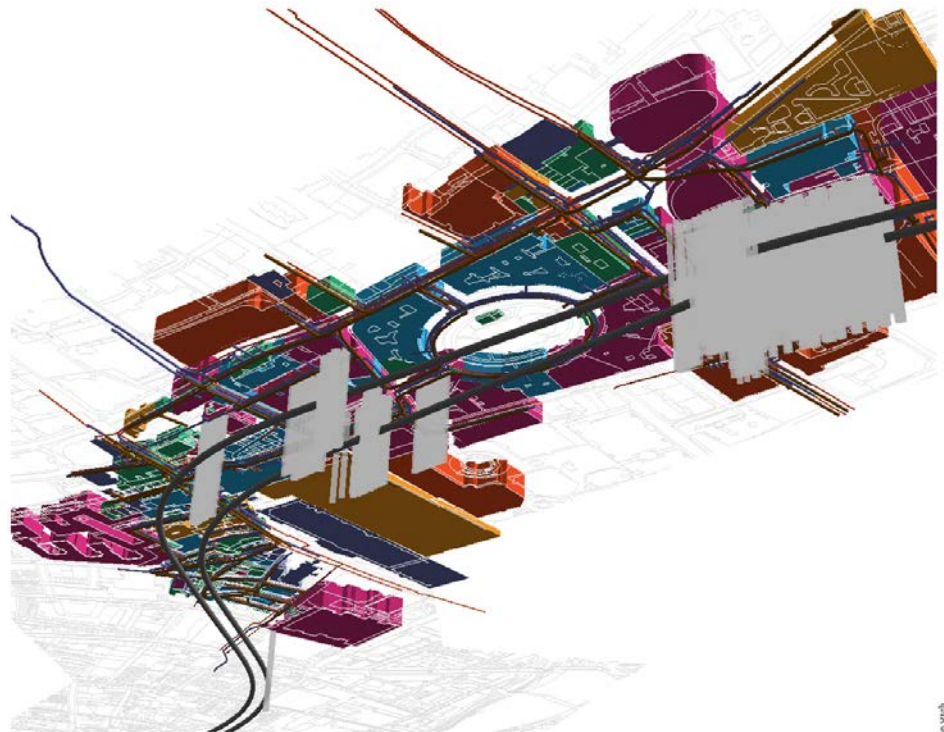


Application of BIM in Geotechnics

Case Study on a Deep Excavation Project

Chriswini Tanaka BEng MSc(Geo)
Geotechnical Engineer
Arup Singapore Pte Ltd
chriswini.tanaka@arup.com

4th November 2017



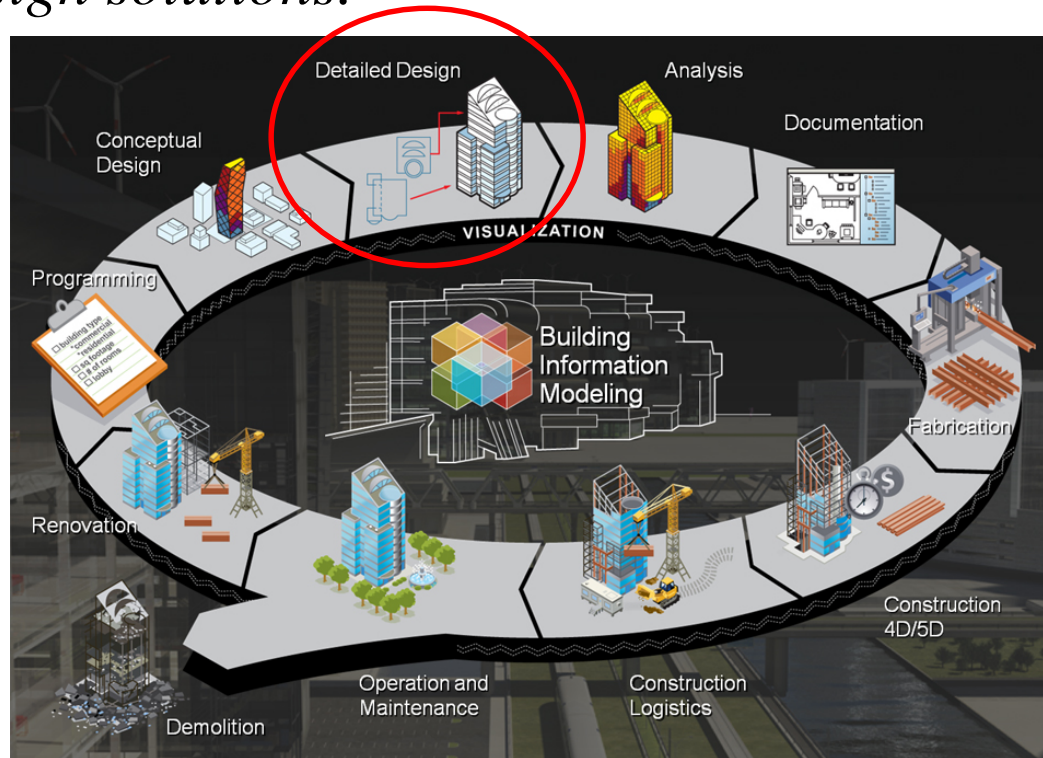
Presentation Outline

1. Introduction to BIM – What and Why?
2. Case Study
3. Benefits of BIM
4. Potential Applications of BIM in Underground Construction
5. Conclusion

What is BIM?

Building Information Modelling

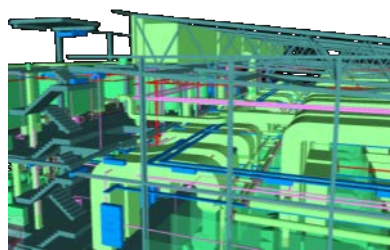
*BIM represents a range of technological advanced, collaborative and information-centric **processes** that enable delivery of better optimised design solutions.*



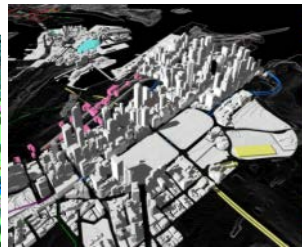
From buildipedia.com

Why BIM in Underground Construction?

1. Enormous Information
2. BIM is not new!
3. Improve Design & Construction Productivity



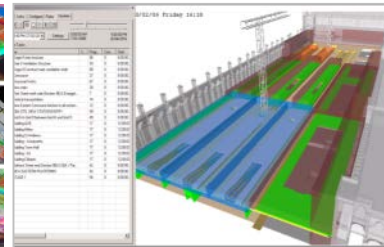
**Equinix Data
Centre, Sydney**



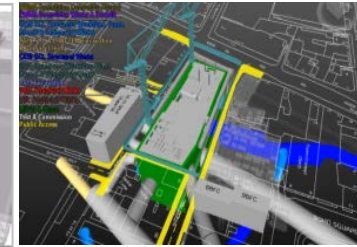
**CBD Metro,
Sydney**



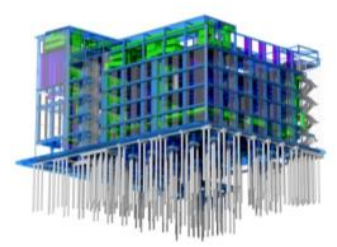
**St Pancras
International
Station**



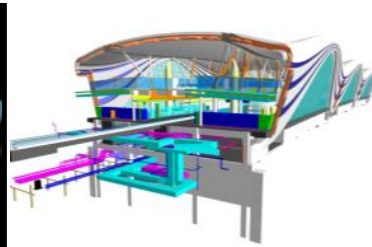
**Crossrail Station
Box, UK**



**MMU Art &
Design,
Manchester**



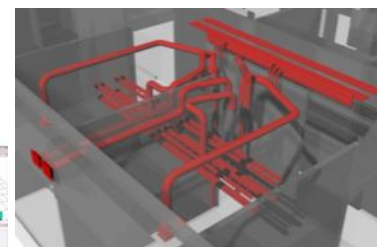
**Heathrow
Terminal 3, UK**



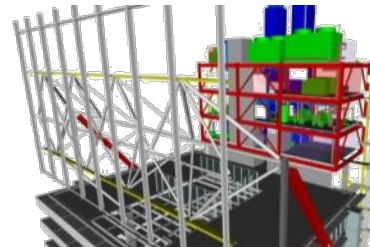
**Abu Dhabi
International Airport**



**Sydney Opera
House**

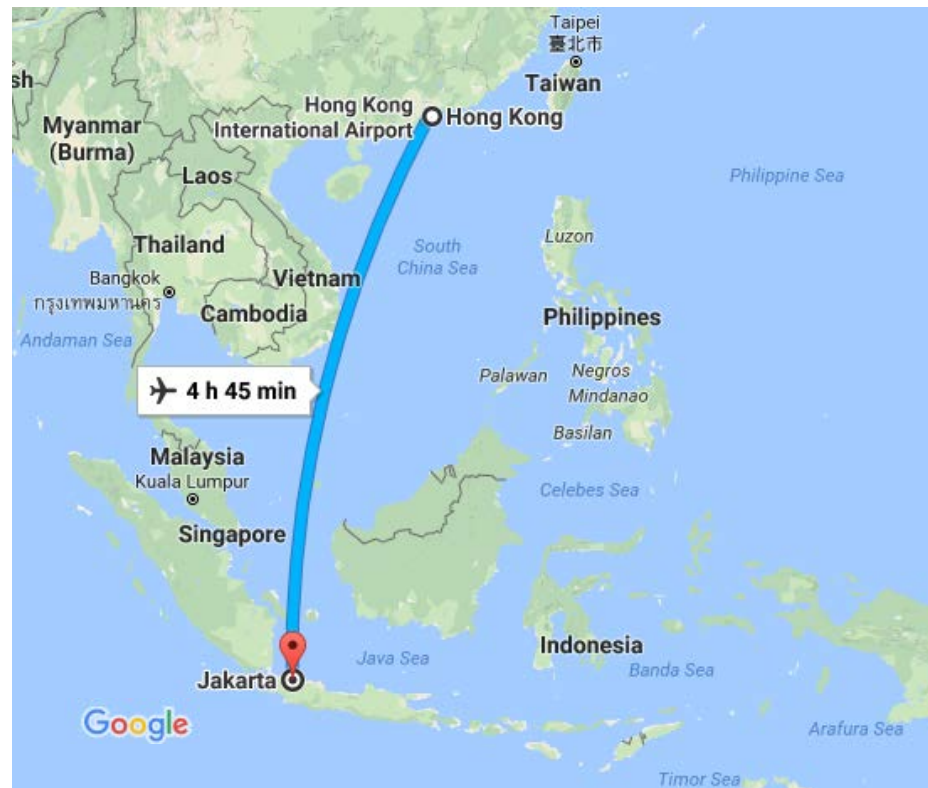


**Merseycare,
Liverpool**



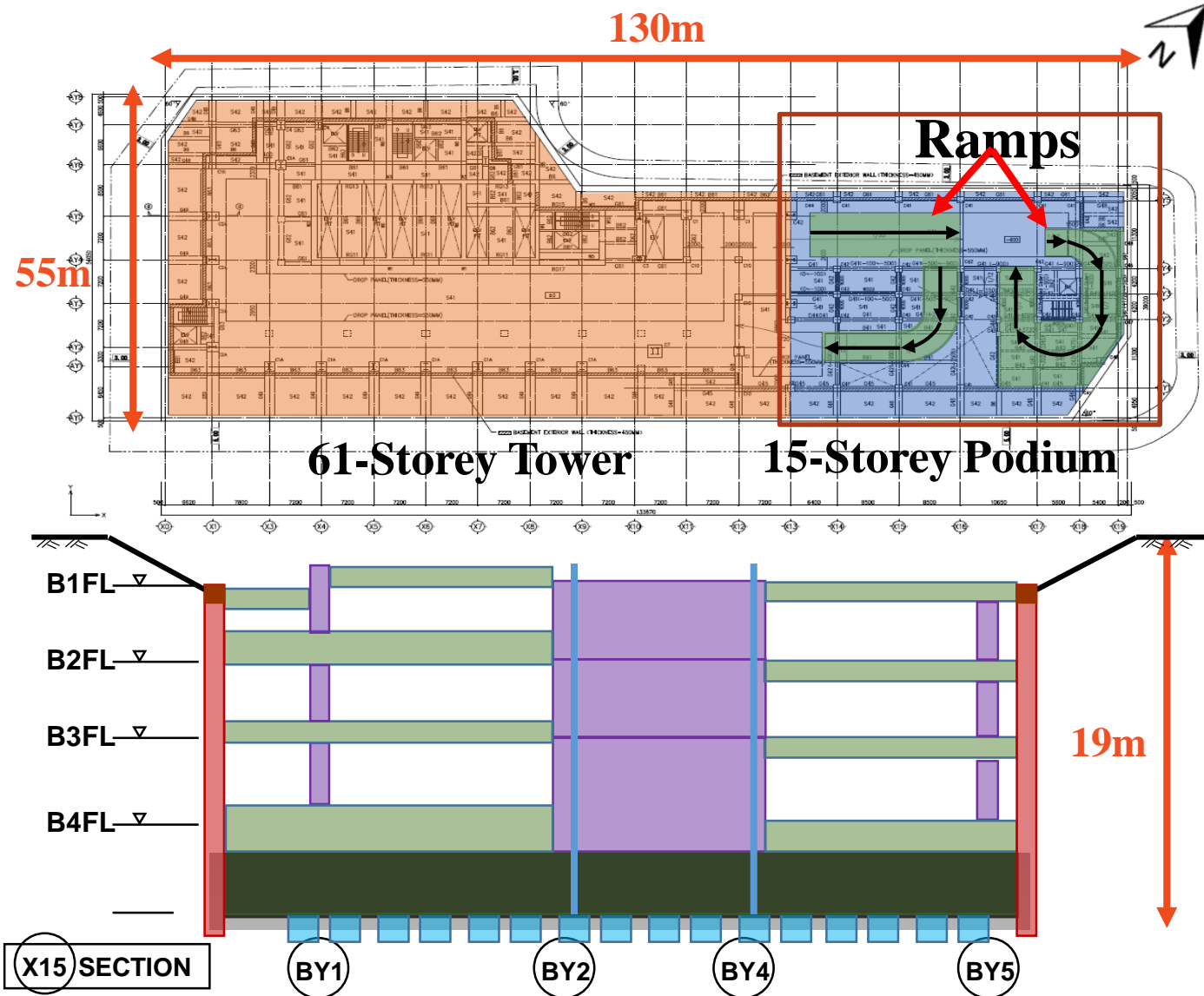
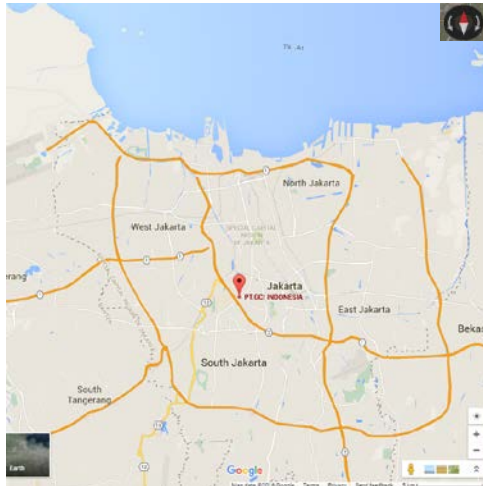
**Chiefly Square,
Sydney**

Case Study



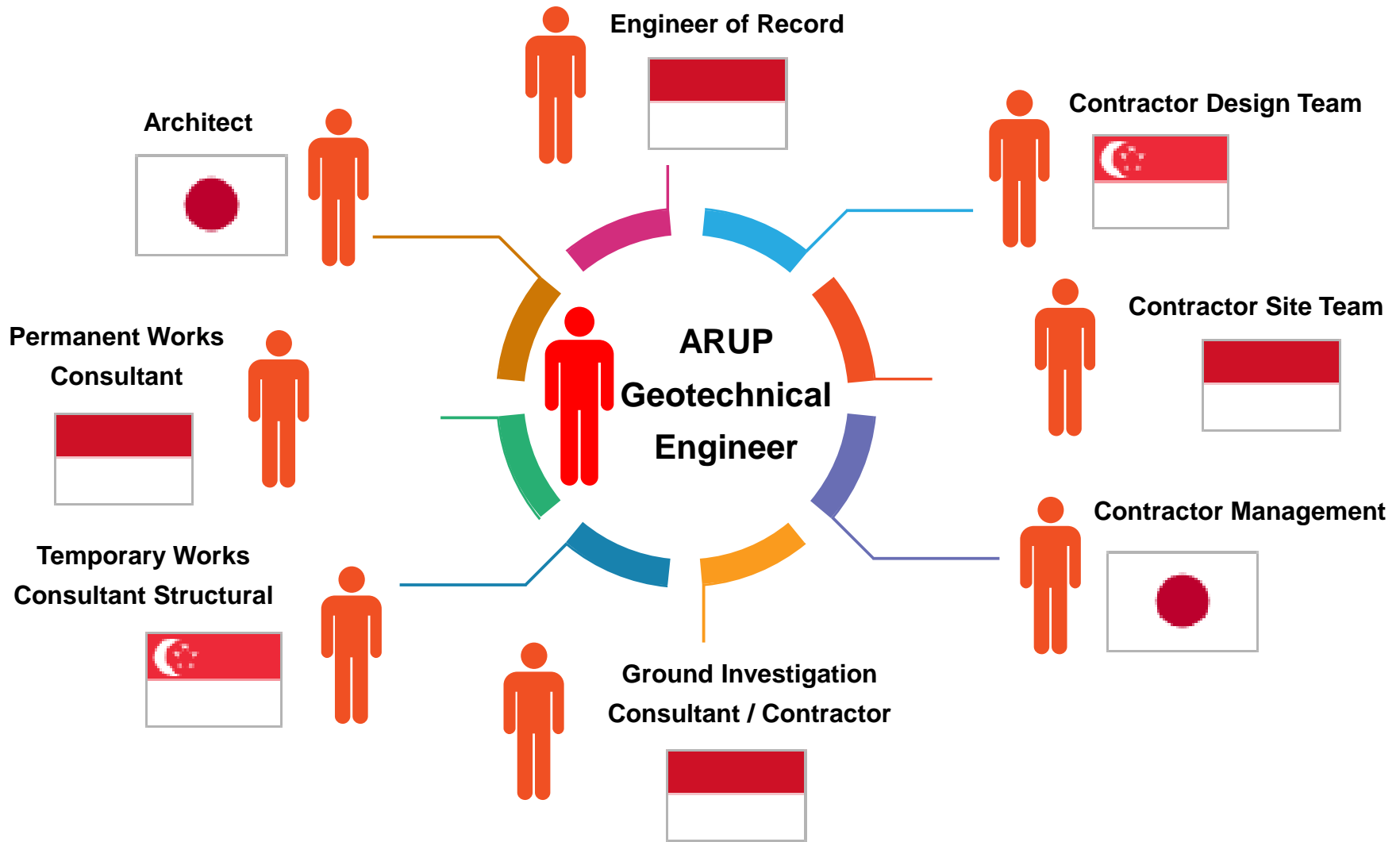
Map data ©2017 Google, ORION-ME, SK telecom, ZENRIN Hong Kong Terms Send feedback 1000 km

Case Study – Proposed Development

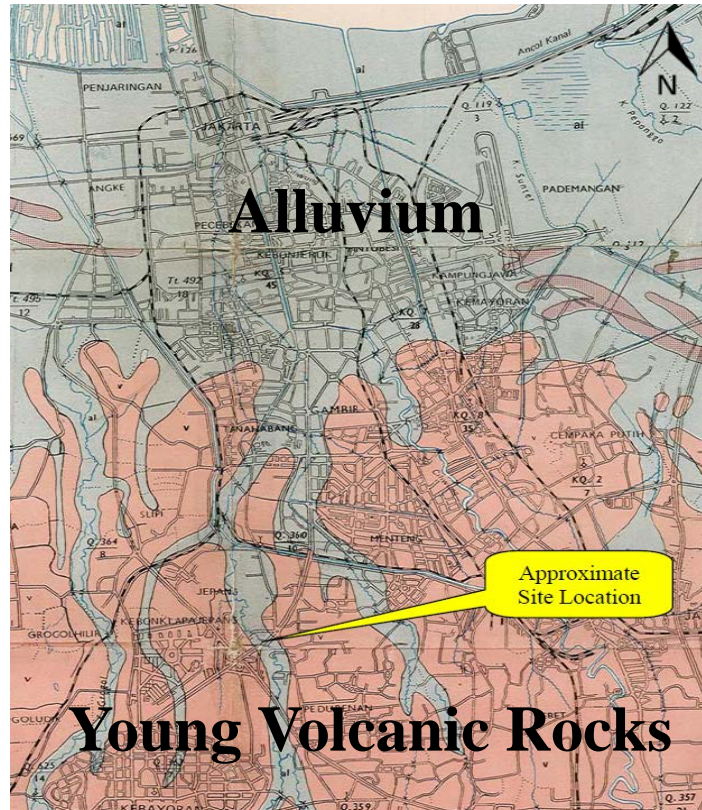


- D&B Project
- Dynamic
- Tight delivery & Submission Schedule

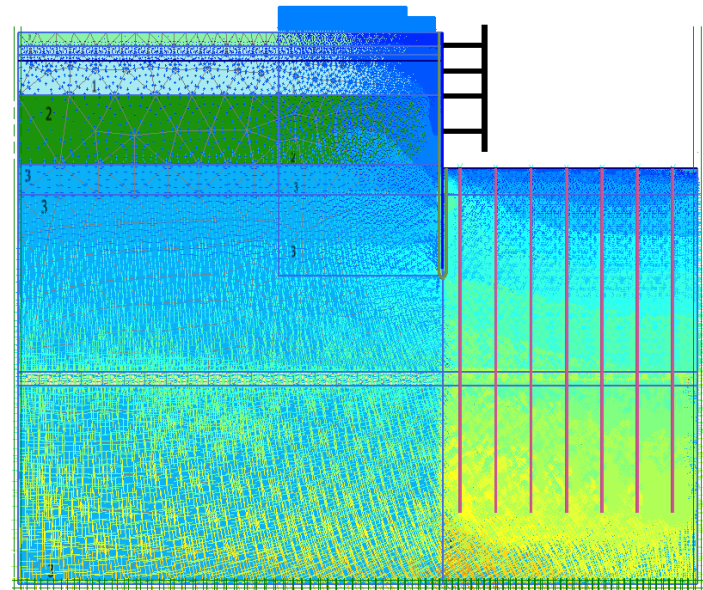
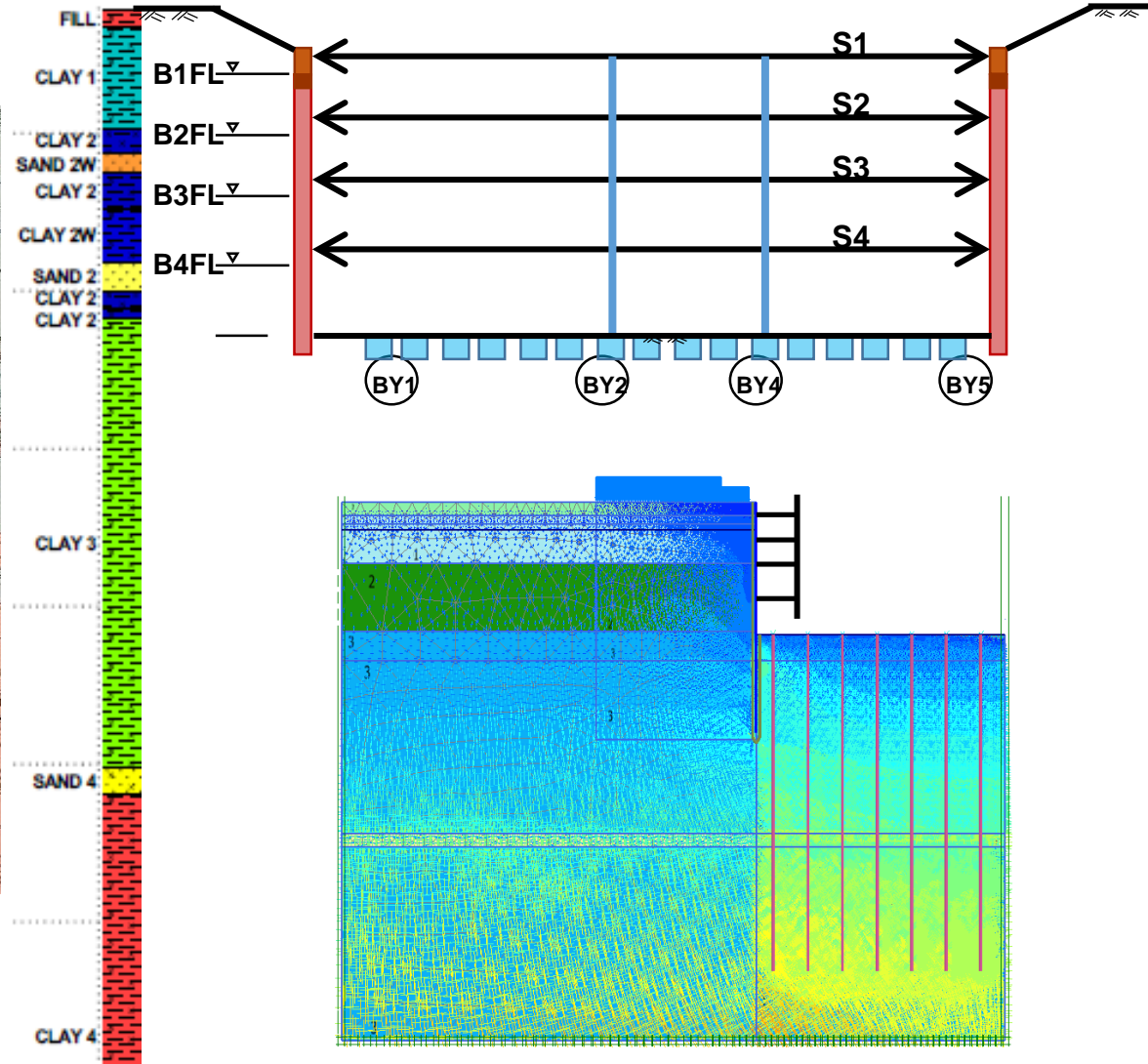
D&B Project Team



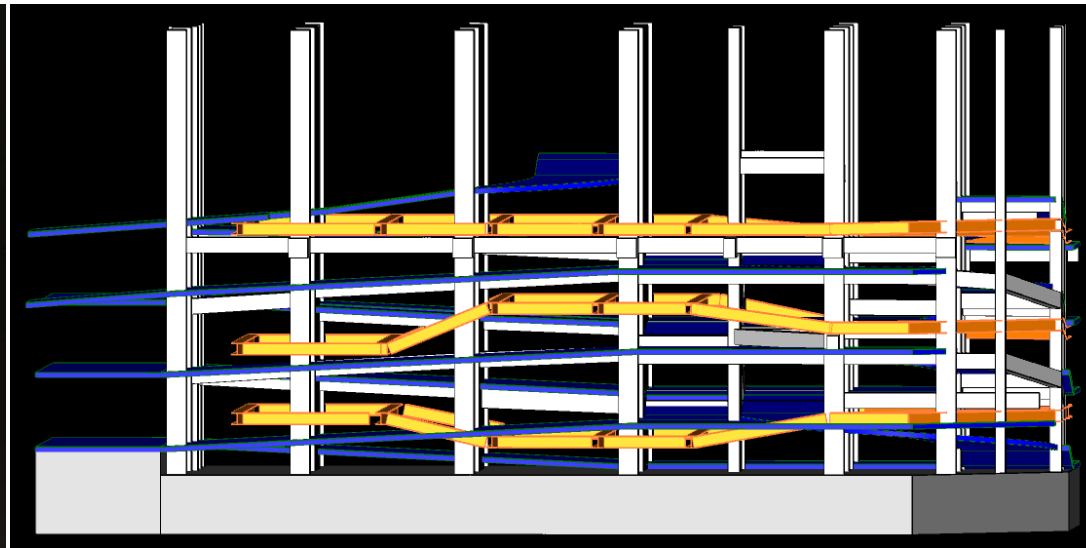
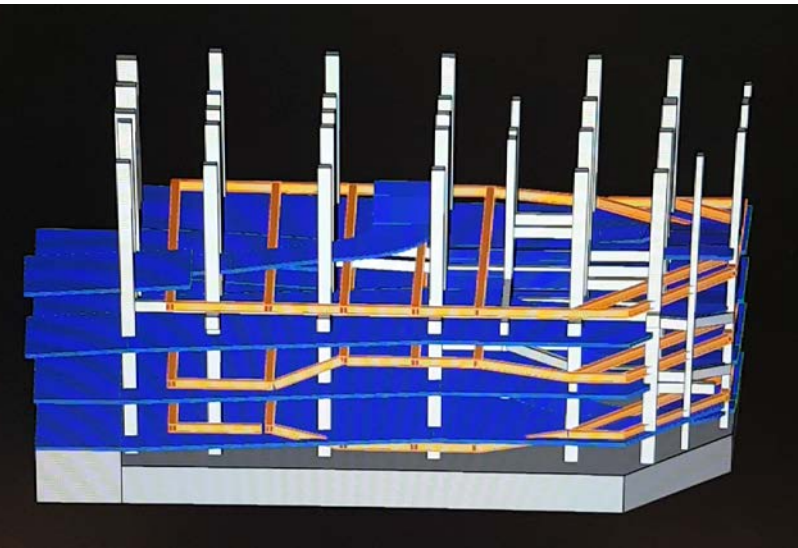
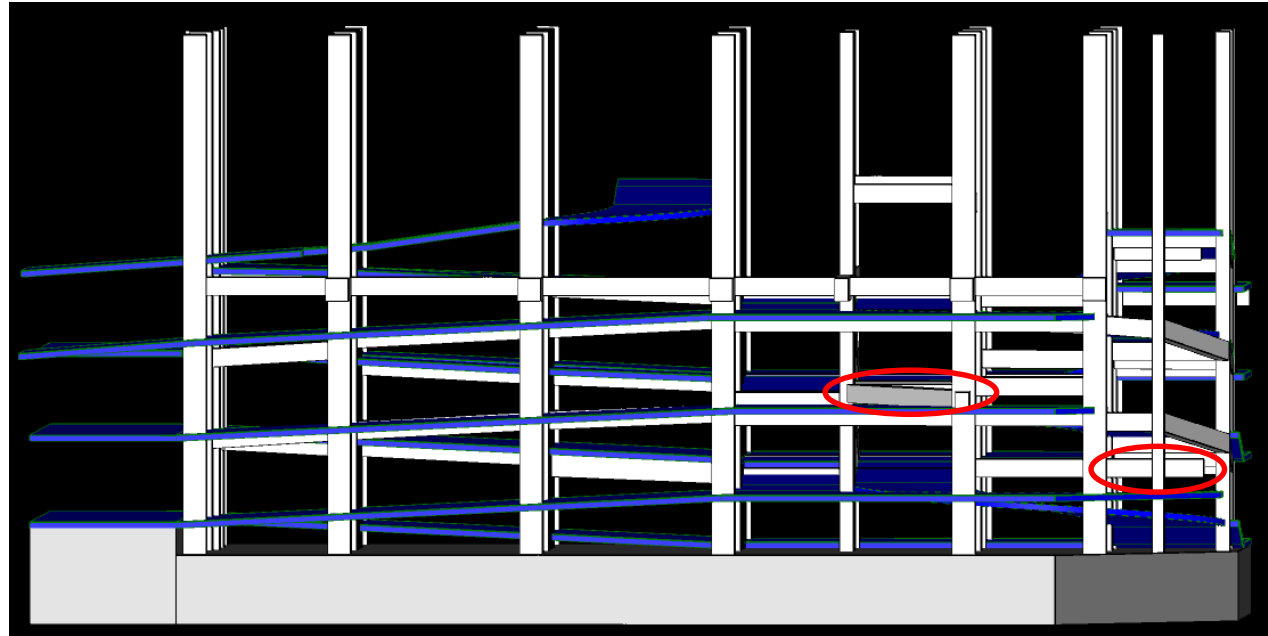
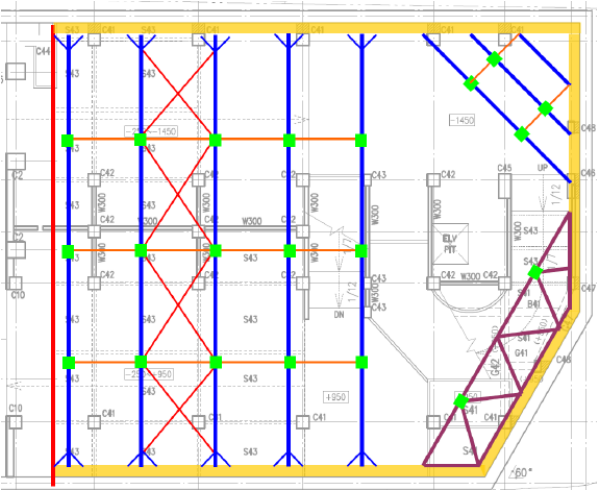
Geology



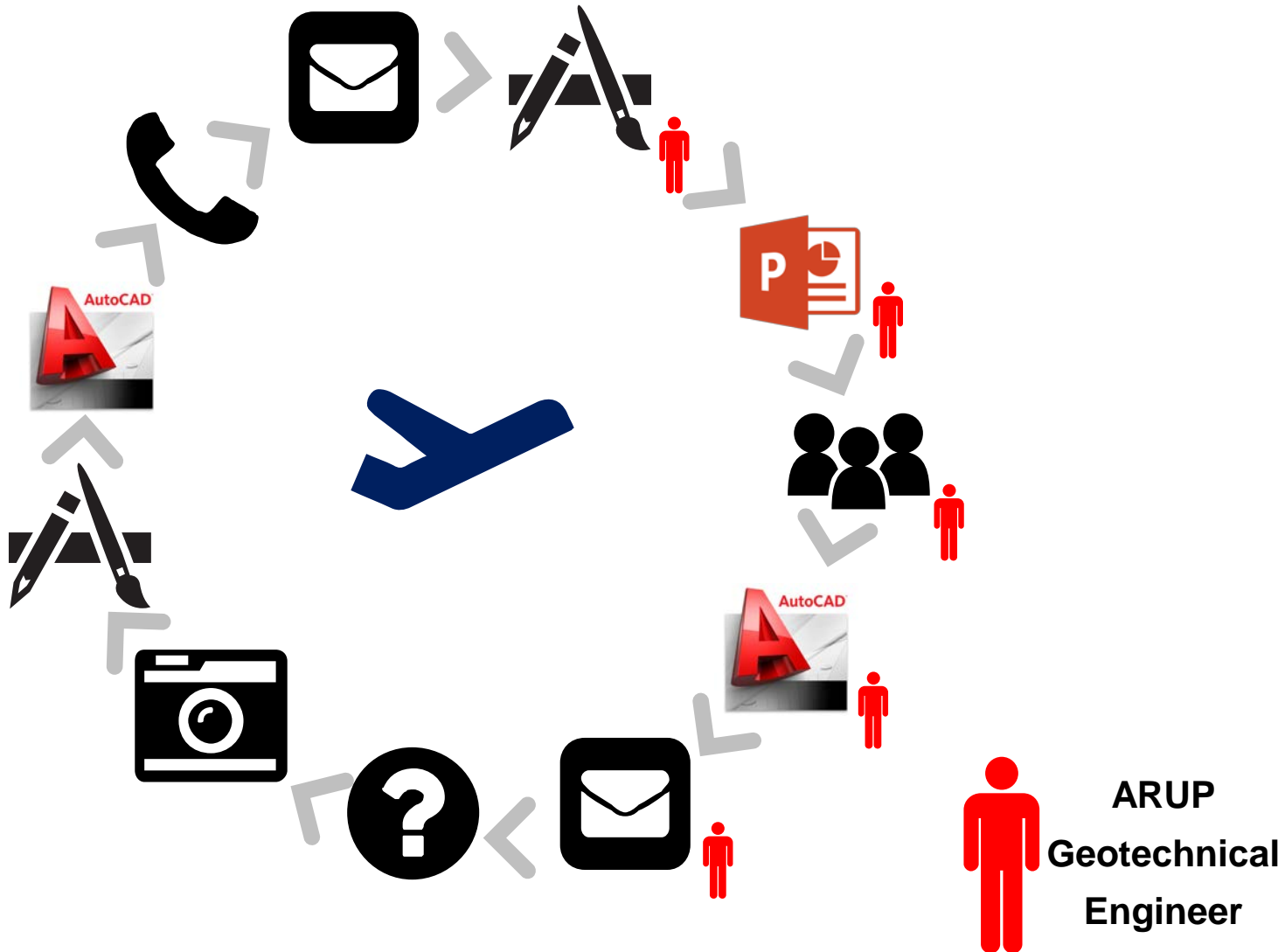
Location of the development on Engineering Geological Map of Jakarta and Bogor area (Indonesia. Direktorat Geologi.; Indonesia. Departemen Pertambangan., 1969)



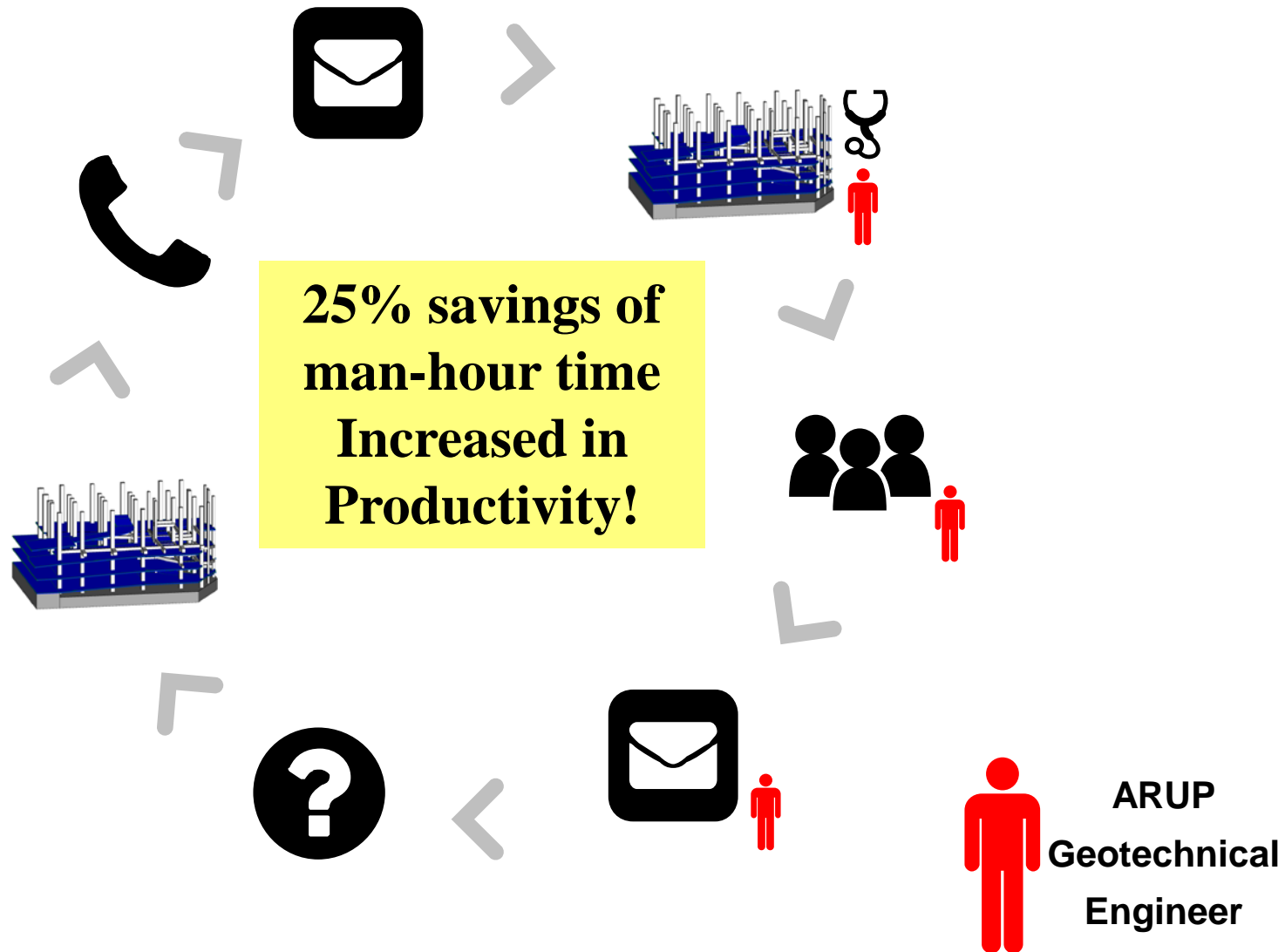
Challenges



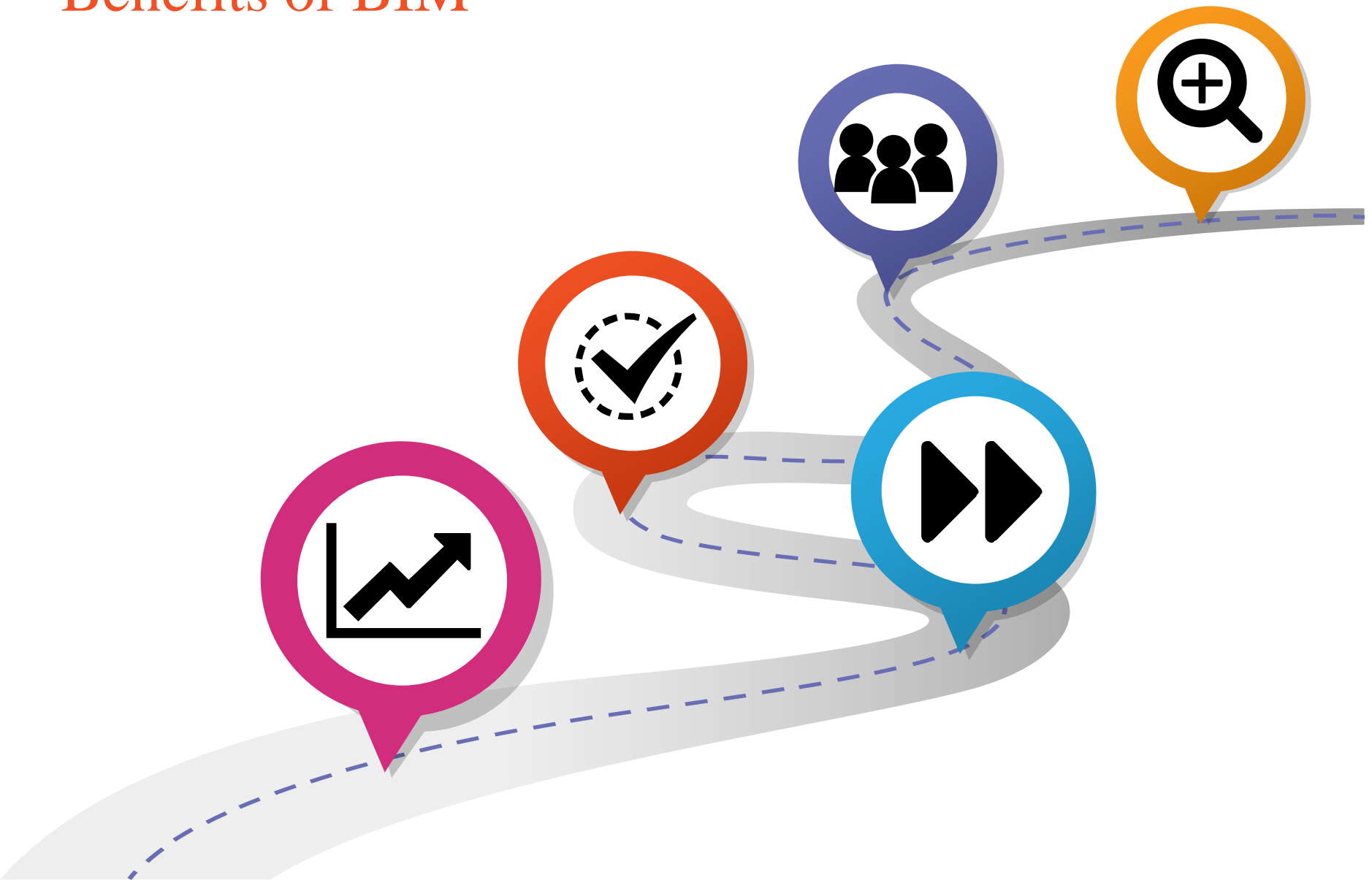
Communication / Work Flow Without BIM



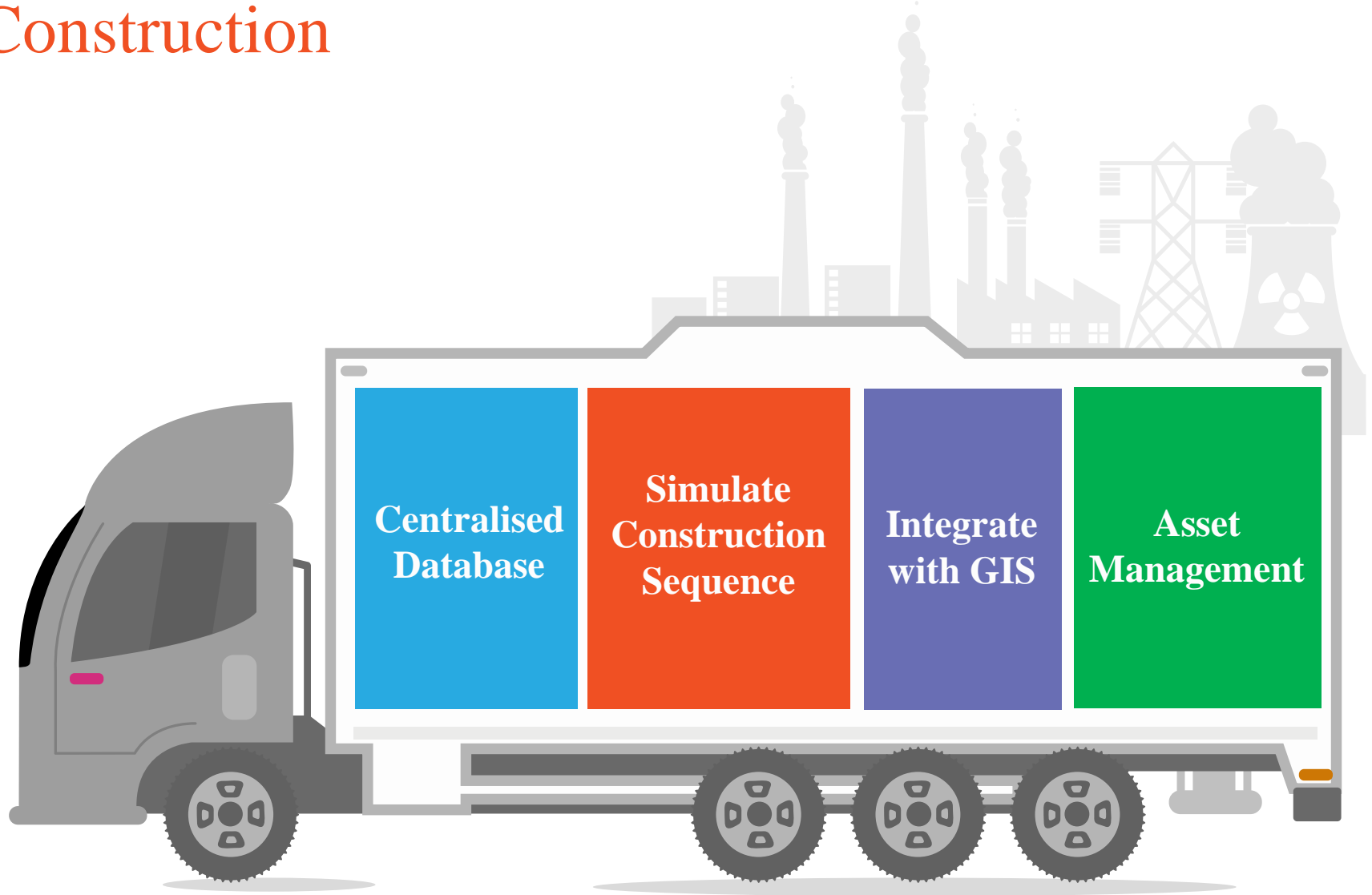
Communication / Work Flow With BIM



Benefits of BIM



Potential Application of BIM in Underground Construction



Conclusion



BIM aids in geotechnical design



BIM improves productivity



BIM – It is just a 3D model...isn't it?

Acknowledgement



香港岩土及岩土環境工程專業協會
ASSOCIATION OF GEOTECHNICAL &
GEOENVIRONMENTAL SPECIALISTS (HONG KONG)

ARUP

Thank you!