

How can 3D GIS be used to better store, integrate and communicate results of Environmental Impact Assessments?

Monika Swiderska & Claire Ellul, UCL

Background

Development of an Interactive 3D Digital Environmental Impact Assessment

Monika Anna Swiderska
MSc in Geographic Information Science 2016-2017

Supervisors: Dr Claire Ellul (UCL) and Alistair Walker (Quod)

This project was undertaken in partnership with Quod



Scottish Government report
“Use of Digital and 3D Technology in Planning for
New Development” (Miller et al, 2016)

Environment

Assessment

Screening

Scoping

Preparation

Making



Problem?

- Data – fit-for-purpose in terms of: visualization, integration and georeferencing
- Tools for best 3D GIS visualisation

Data

32 environmental
datasets

Assessment

3 chosen:

1. Noise
2. Air Quality
3. Bats' Flight Paths

Software

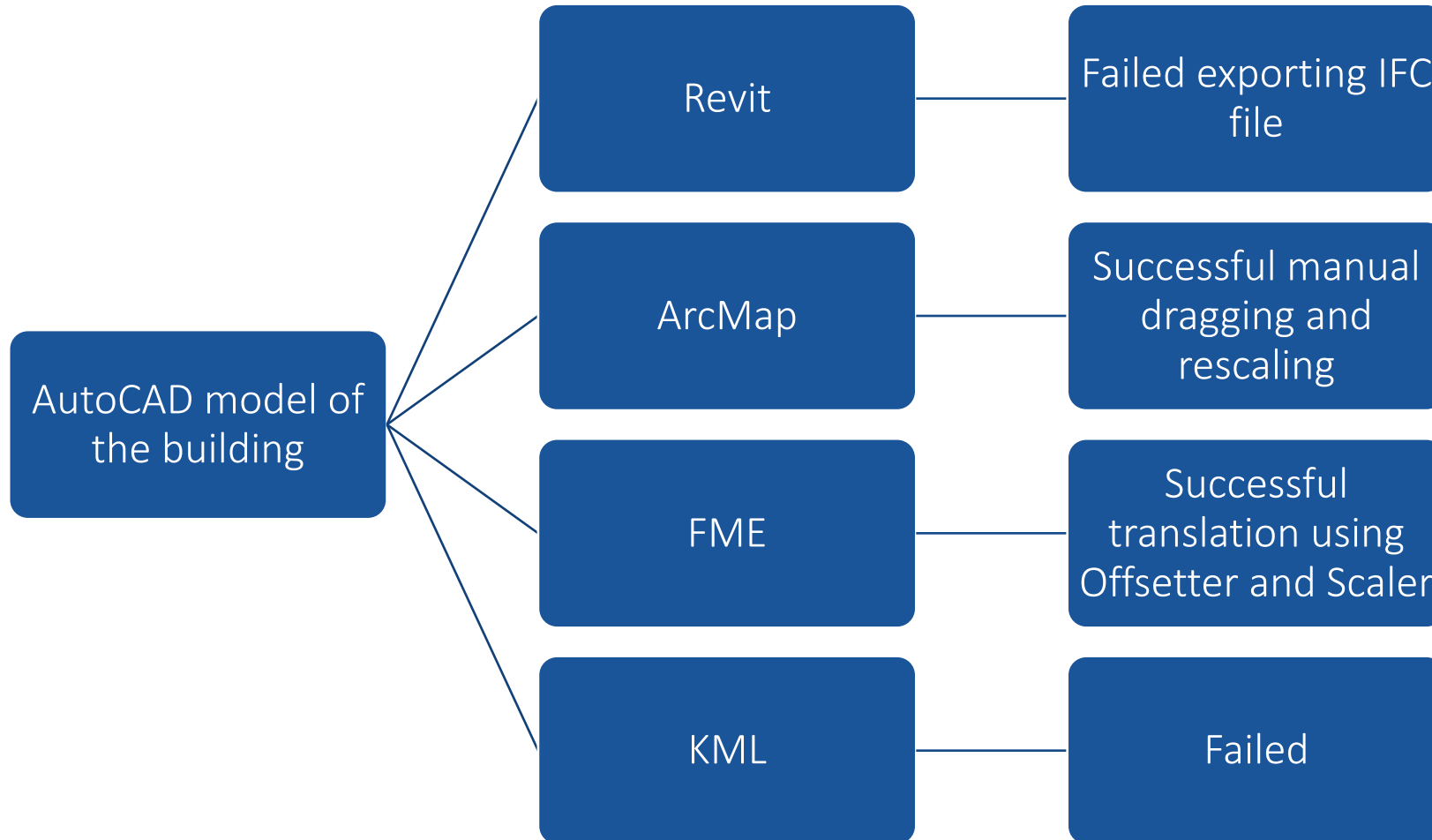
3D Extension
Ease of Use for non-GIS specialists
Installation of specialist software required
Availability of instructions/courses/trainings
Reads different data formats
License (free vs paid)
Options to style the data
Ability to switch layers on and off
Integration with future online platform
Type of output
Quality of output
Cost (including training of staff, additional license etc.)
Time to prepare the model

ArcScene

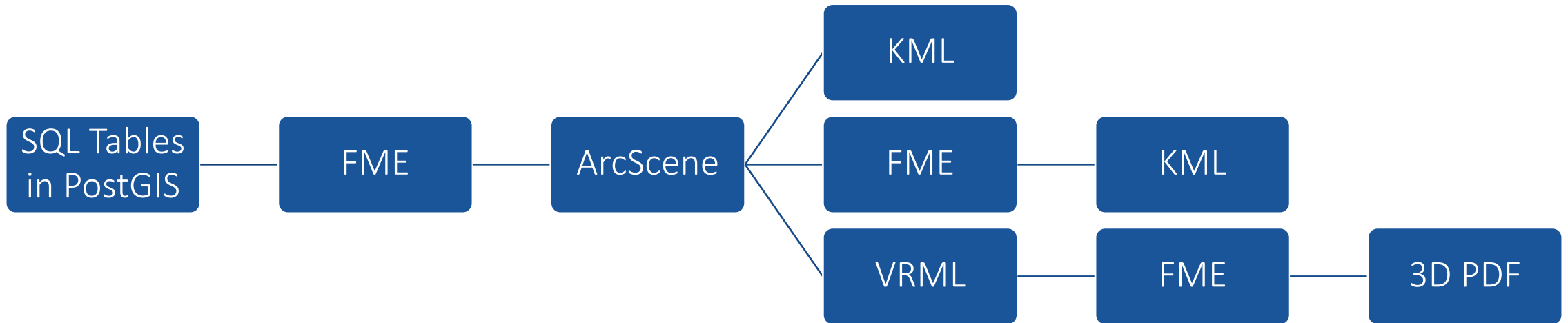
Google Earth

3D PDF

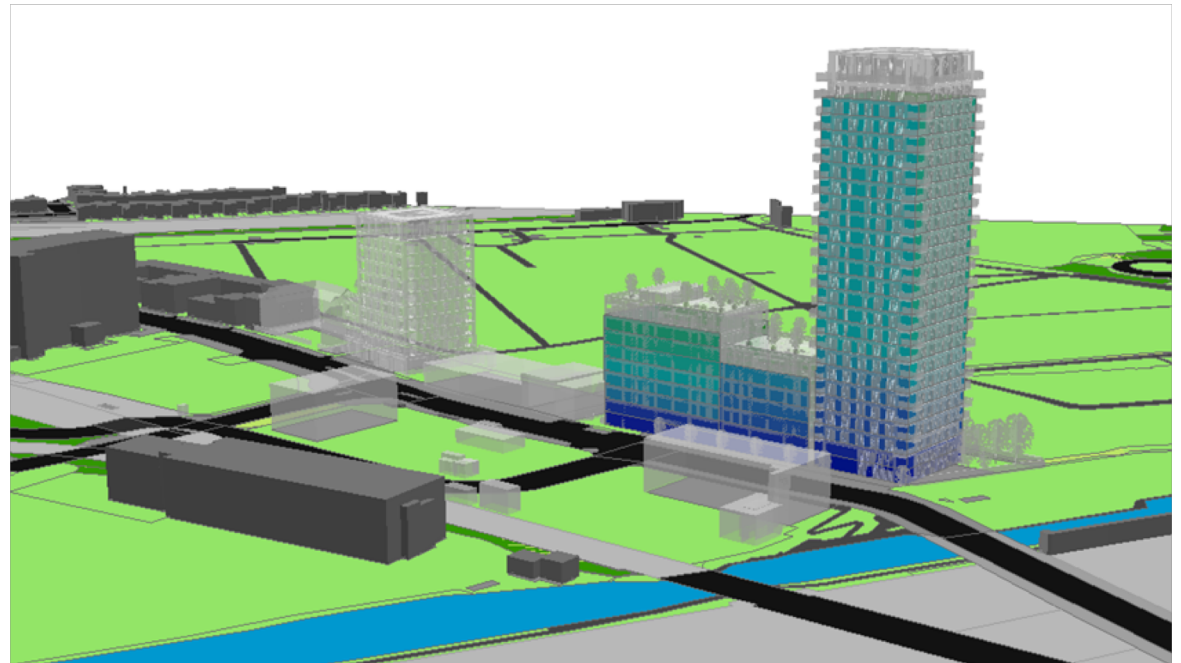
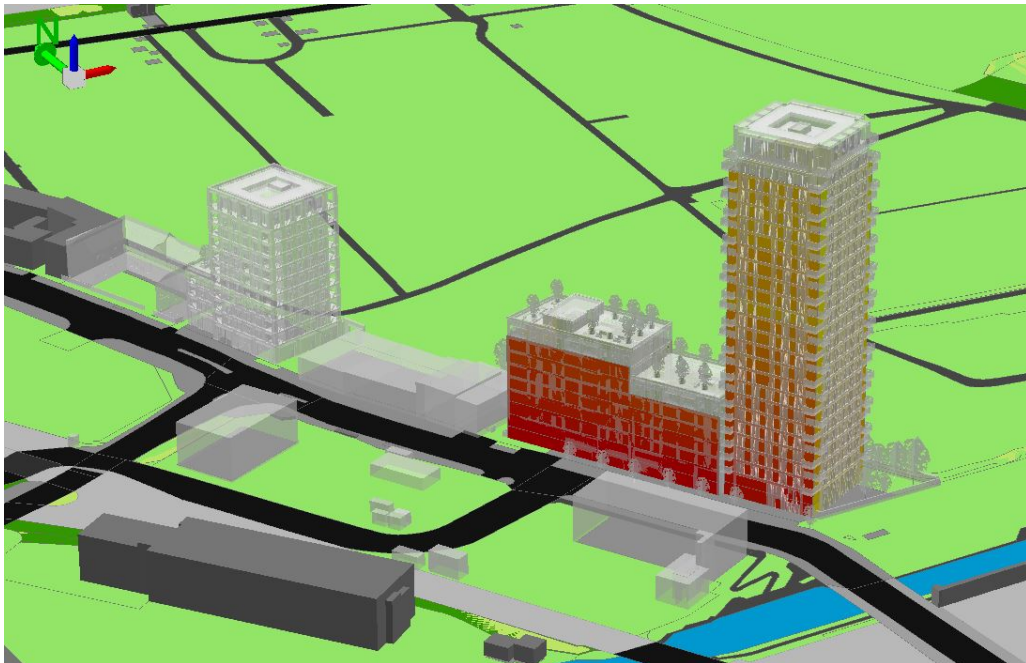
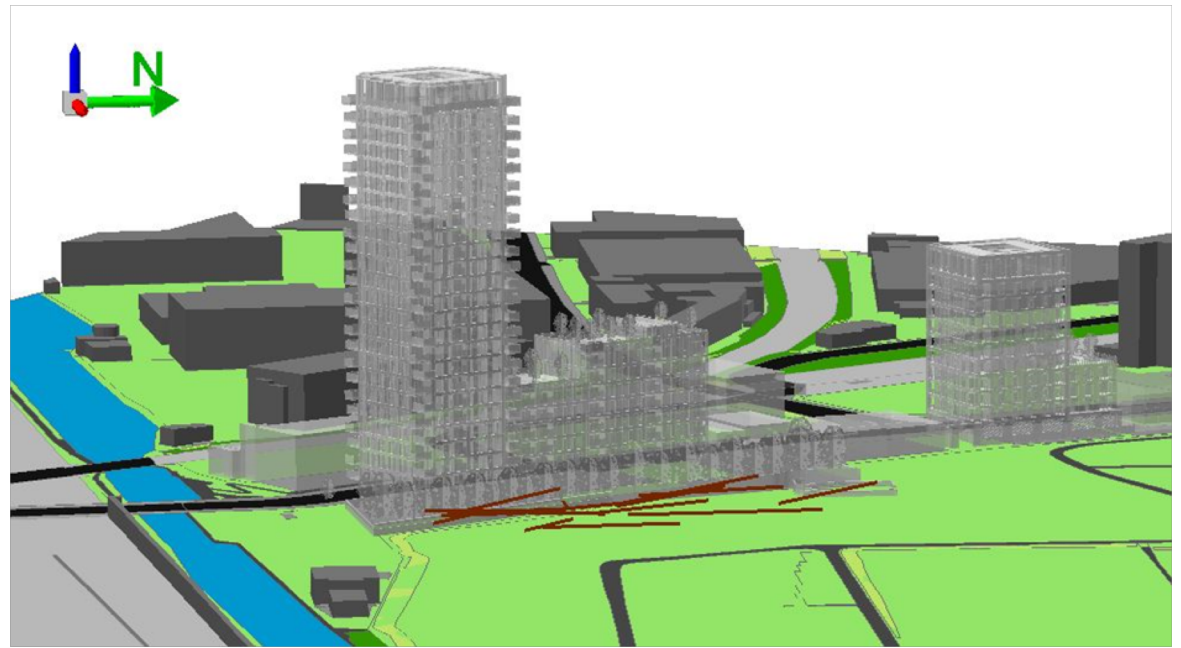
Models – AutoCAD to GIS



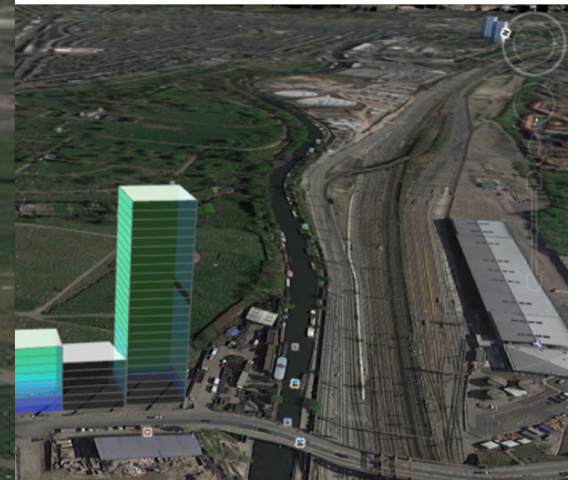
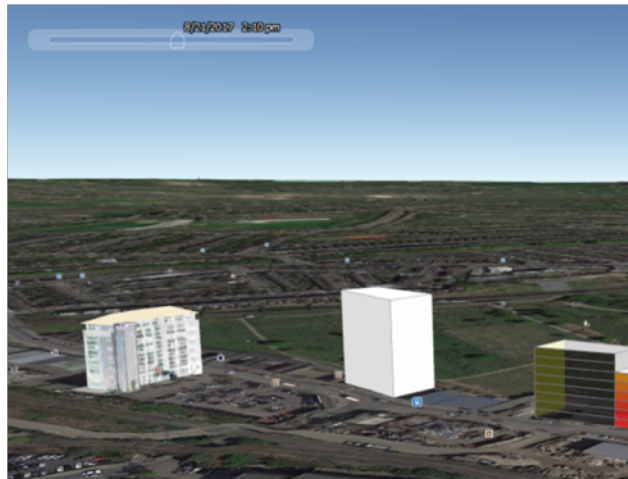
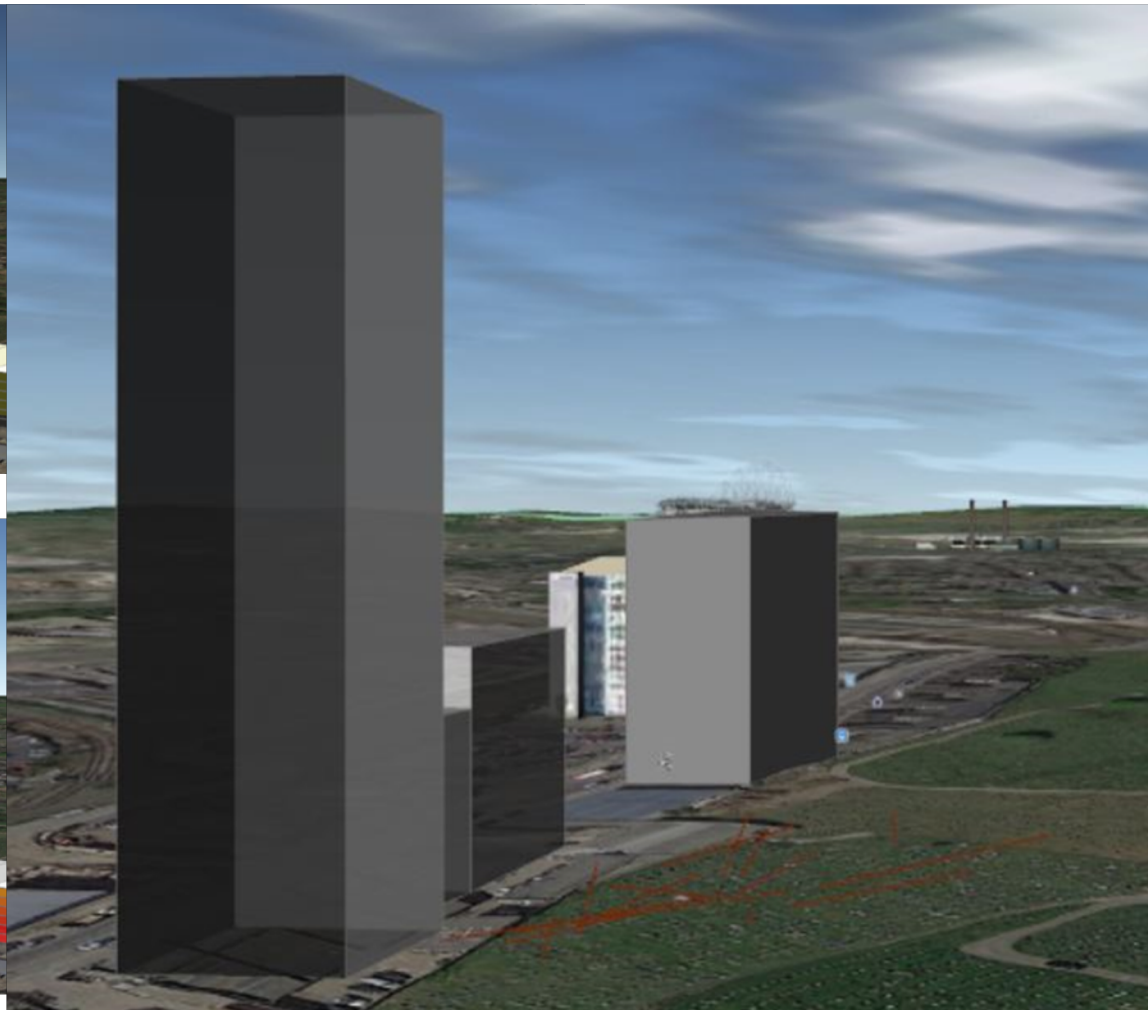
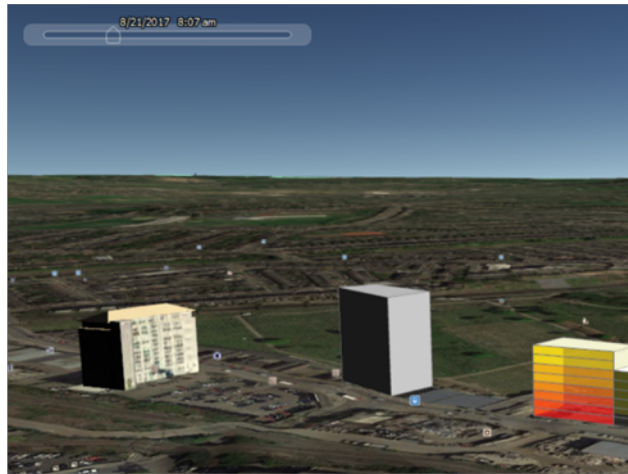
Models – Datasets



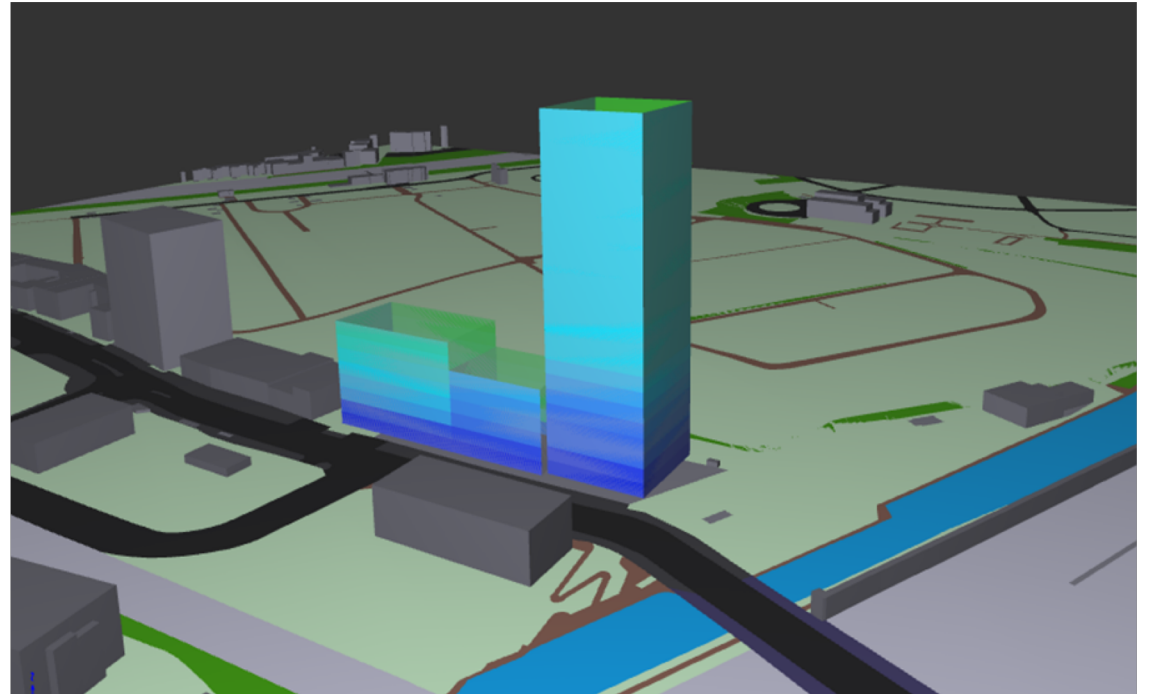
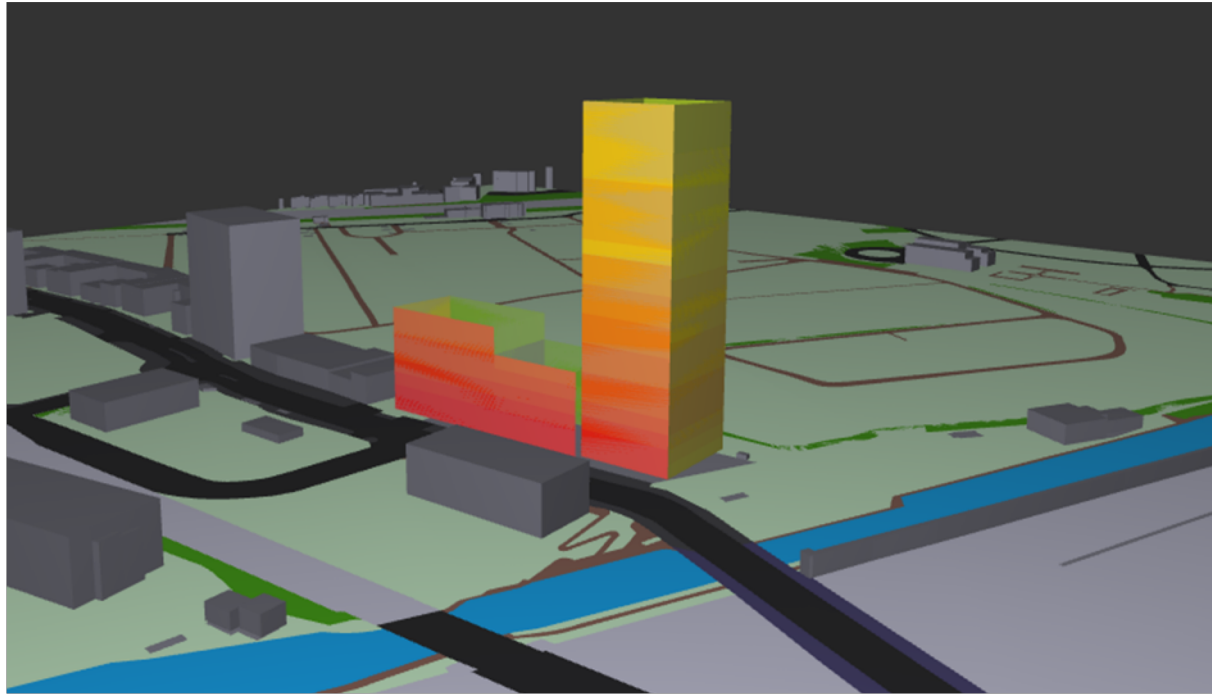
ArcScene



Google Earth



3D PDF



Conclusions

A lot of potential, but...

- Standards for data collection
 - AutoCAD model inclusion
 - Limited software interoperability
 - None of the software met all requirements
-
- Future work: JavaScript-based Cesium, libraries, QGIS 3.0

Thank You

Questions?

monika.swiderska.16@ucl.ac.uk