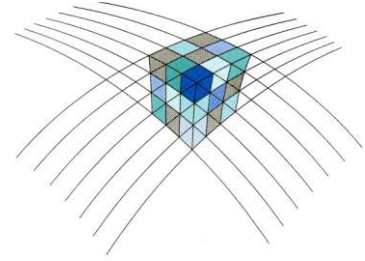


NCG



Netherlands Center for Geodesy and Geo-informatics

Abstract submission for the NCG Symposium 2020

Abstract submission deadline: **24 August 2020**

Please submit your abstract EasyChair

<https://easychair.org/conferences/?conf=nCG2020>

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Presentation title:

Semantic 3D city models as support for designing new development areas

Demo: no

Abstract

Semantic 3D digital city models based on international standards are being adopted more and more by municipalities all over the world. They represent a powerful tool to exploit detailed spatial and non-spatial integrated and harmonised data about all major objects in a city, such as buildings, vegetation, transportation, waterbodies, etc.

In the context of urban planning, the idea is to quantitatively analyse the city of today to help design the city of tomorrow. A number of Key Performance Indicators (KPIs) are computed to characterise all neighbourhoods of a city starting from a CityGML-based city model, and later used to provide a quantitative template that the urban designer uses as reference to create in Rhinoceros/Grasshopper different proposals of new development areas.

Each proposal is integrated back into the CityGML-based city model and can be further shared, explored and visualized online in CesiumJS. As a test case, a to-be-planned neighbourhood in Amsterdam, called "Sloterdijk One", has been chosen.

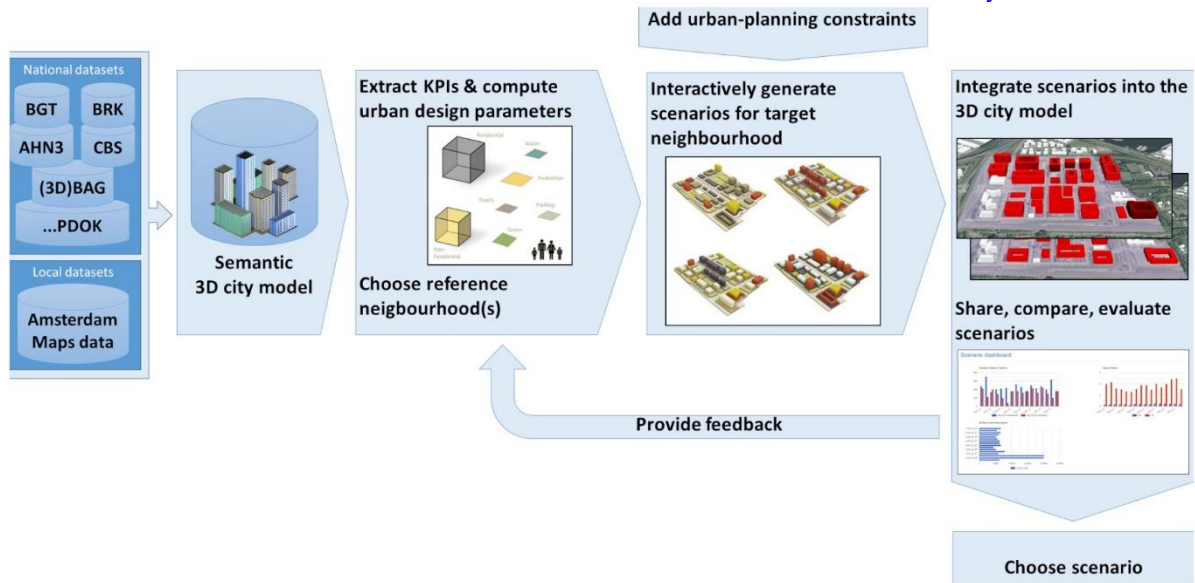
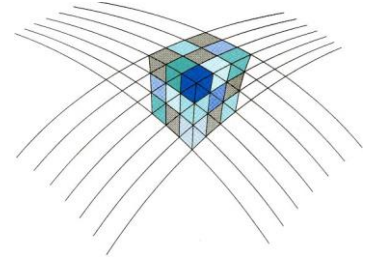


Figure 1 Overview of the developed methodology

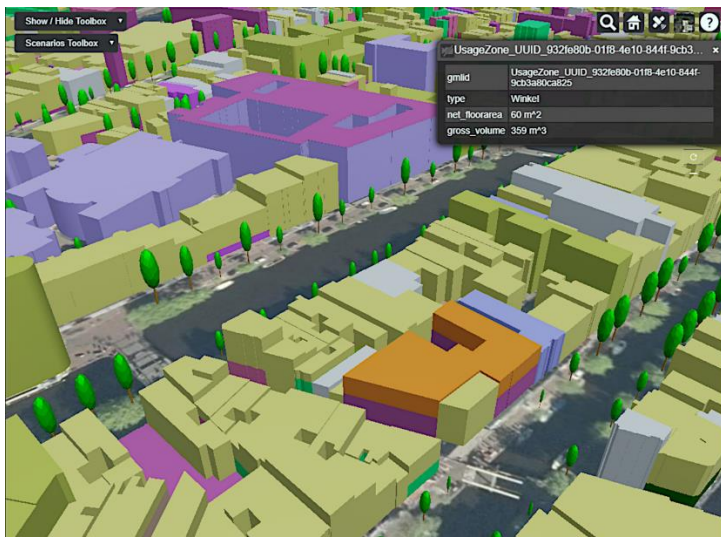


Figure 2 Excerpt of the 3D city model of Amsterdam where the usage zones of each building are represented as different volumetric objects

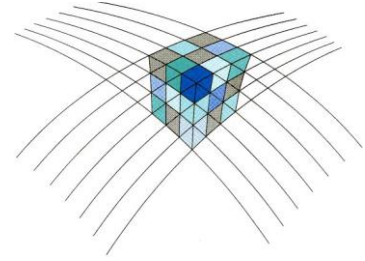


Figure 3 Example of visualisation of a development proposal (scenario) in CesiumJS

Scenarios window (requires login) Open in new tab Minimise Close

Grasshopper / Scenario comparison / Compare

Scenario comparison

[return to list](#)

Show differences Show all

| Scen id | scen_id_42 | scen_id_49 |
|----------------------|---|---|
| Project Area | Amstel | Amstel |
| Project Name | Project Highrise | Project Highrise |
| Name | Amstelkwartier Noord_01 | Amstelkwartier Noord_02 |
| Description | Scenario generated using living space parameter based on Elandsgrachtbuurt ... more | Scenario generated using living space parameter based on Elandsgrachtbuurt ... more |
| Class | NULL | NULL |
| N Hh New | 4000 | 4000 |
| N Work New | 3005 | 3127 |
| Vol Avg Hh | 240.00 | 240.00 |
| Vol Avg Hh Unit | m ³ /hh | m ³ /hh |
| Vol Avg Work | 210.00 | 210.00 |
| Vol Avg Work Unit | m ³ | m ³ |
| A Floorarea New | 492754.76 | 517217.84 |
| A Floorarea New Unit | m ² | m ² |
| N Sto Bdg Res | 5 | 6 |
| N Sto Bdg Nres | 10 | 8 |
| N Sto Bdg Mu | 7 | 10 |
| Image | | |
| | Remove from comparison | Remove from comparison |

Figure 4 Example of the Scenario comparison tool, embedded into the CesiumJS interface.