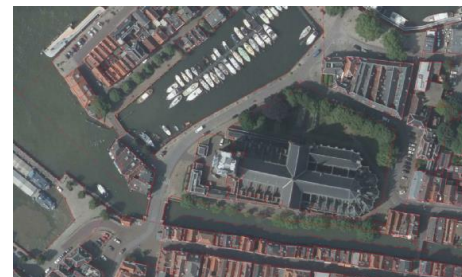
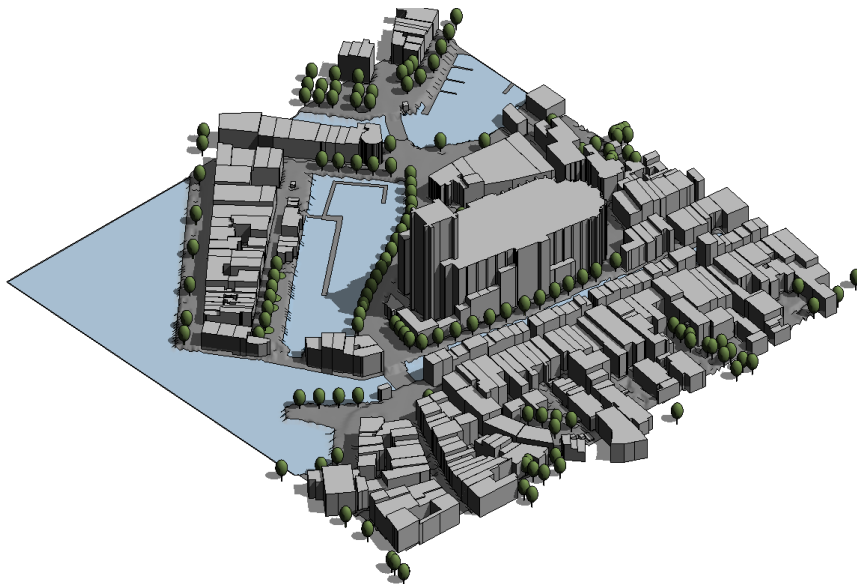
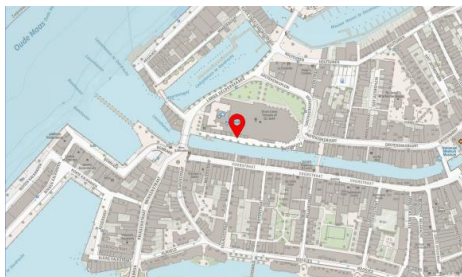


**DOMERA**  
Thuis op het water

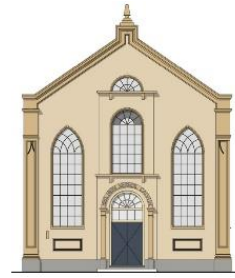
# GIS for architects



Maarten Vroegindeweij

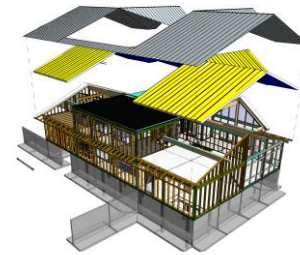
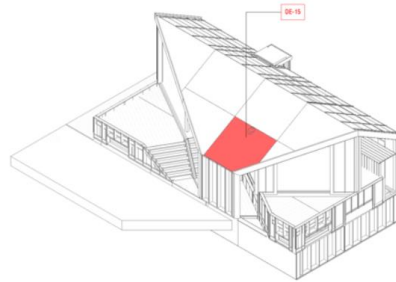
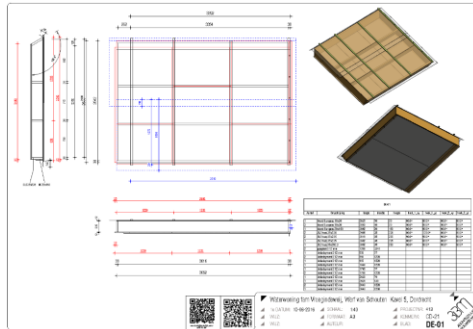
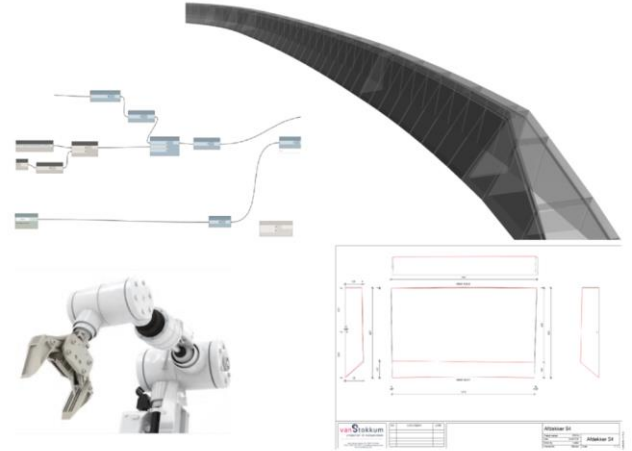
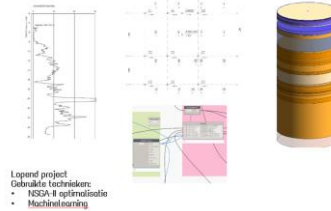
# About 3BM

- Consulting engineers since 2009
- [www.3bm.co.nl](http://www.3bm.co.nl)
- Structural-, Wood Framing, Façade and Prefab Engineering, Monuments



# About 3BM Labs

- Digital Fabrication/Drawing Automation
- Software Development
- Computational BIM
- Optimisation
- Dynamo Consultancy



# To learn

GIS for architects

1. **What** is GIS?
2. **Which data** is available in the Netherlands?
3. How to use GIS in your **daily life** as architect?

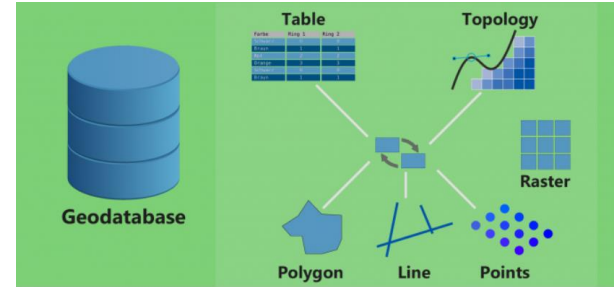
# 1. What is GIS



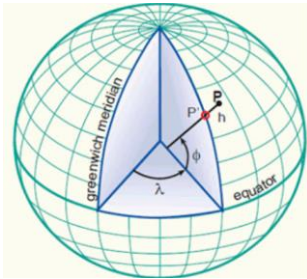
Maps

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<wfs:FeatureCollection xsi:schemaLocation="http://www.opengis.net/wfs/2.0 http://
service=WFS&version=2.0.0&request=DescribeFeatureType&typeName=bag%3A
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- <wfs:member>
  - <bag:pend gml:id="pand.318800">
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    - <bag:bouwjaar>1965</bag:bouwjaar>
    - <bag:status>Pand in gebruik</bag:status>
    - <bag:gebruiksdoel>winkelruimte, woonfunctie</bag:gebruiksdoel>
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    - <bag:oppervlakte_max>175</bag:oppervlakte_max>
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  - <bag:geometrie>
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        - <gml:Polygon>
          - <gml:exterior>
            - <gml:LinearRing>
              <gml:posList>106496.561 434466.171 0 106500.4
                106505.9 434472.5 0 106500.9 434472.9 0 10
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            </gml:exterior>
          </gml:Polygon>
        </gml:surfaceMember>
      </gml:MultiSurface>
    </bag:geometrie>
```

Webservers



Geo Databases



Coordinate Reference Systems

EPSG network WGS84  
Foss4G WFS  
interpolation Ogc  
irregular Grass  
GDAL GIS Spatial  
Shapefile Qgis  
Inspire ArcGIS PDOK  
Esri Infraworks  
PostGIS Ogr2ogr CRS

# 1.1 GIS data types

## Part

Geographical **Vector**

Geographical **Raster**

**Metadata**

Lidar, pointcloud

Sensordata

## Example

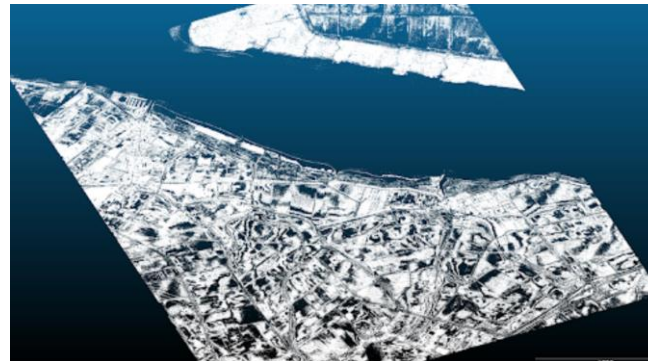
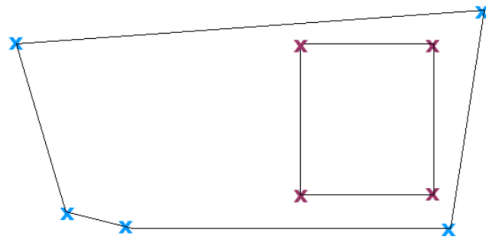
kadastergrens

luchtfoto 2018

sectie kadaster

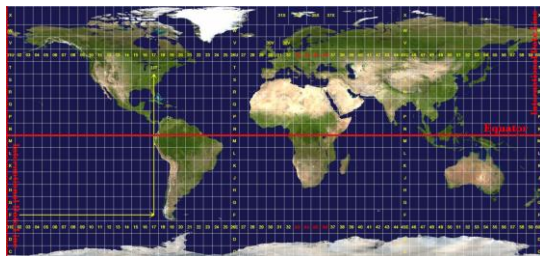
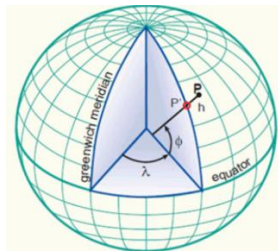
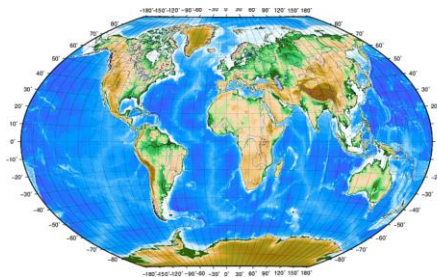
AHN3

[waterinfo.rws.nl](http://waterinfo.rws.nl)



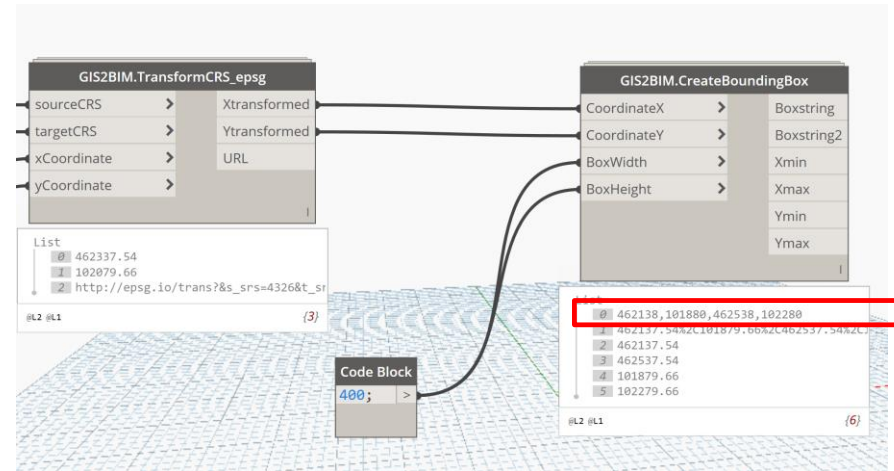
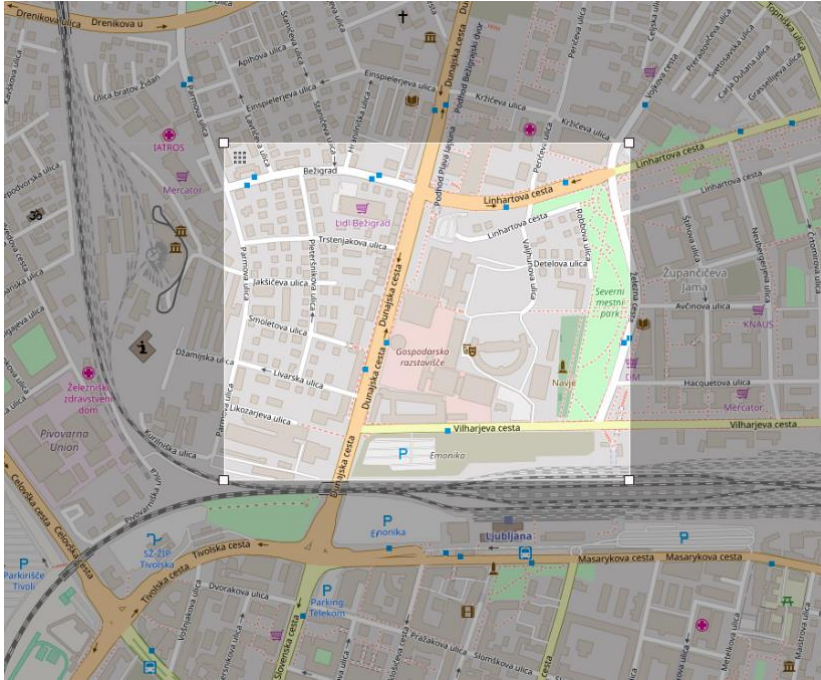


# 1.2 Coordinate Reference Systems(CRS)Map projection



- Geographical CRS
  - Sphere
  - Latitude, Longitude
- Projected
  - Flat Plane
  - X, Y
- Mercator
  - Global Map Projection

# 1.3 Where on earth?





# 1.4 software/workflow



DWG



AUTODESK®  
INFRAWORKS™ 360

EXPORT



Autodesk Desktop Connector  
(Link Topography)



AUTODESK®  
REVIT® 2019



ArcGIS®

ESRI



Dynamo



# 1.5 The two planets

- GIS: Geographic Information System
- BIM: Building Information Model/CAD



GIS	BIM
User defined structure	More and more standardized
Server based	File based
File & webservice	File based exchange
Large numbers of users	Small number of users
Data driven	Geometry&Data driven

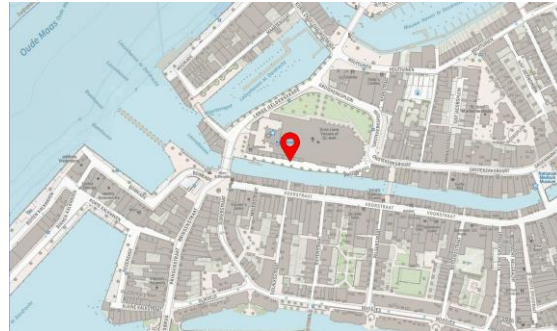
## 2 Available data sources

	Link
Ruimtelijkeplannen.nl	<a href="http://www.ruimtelijkeplannen.nl">www.ruimtelijkeplannen.nl</a>
Kadaster+BAG	<a href="http://www.pdok.nl">www.pdok.nl</a>
Basis Grootchalige Topografie	
Actueel Hoogtebestand Nederland	<a href="https://pdokviewer.pdok.nl/">https://pdokviewer.pdok.nl/</a>
Topo tijdreis	<a href="https://www.topotijdreis.nl/">https://www.topotijdreis.nl/</a>
Rijkswaterstaat Rijksdienst voor cultureel erfgoed Provincies Gemeenten CBS	<a href="http://www.nationaalgeoregister.nl">www.nationaalgeoregister.nl</a> 7216 datasets

# 3. 2D Location Analysis

- Use a lot of WMS, WFS, WMTS services together to create a location analysis report inside Revit

-OPEN IN DYNAMO/REVIT-

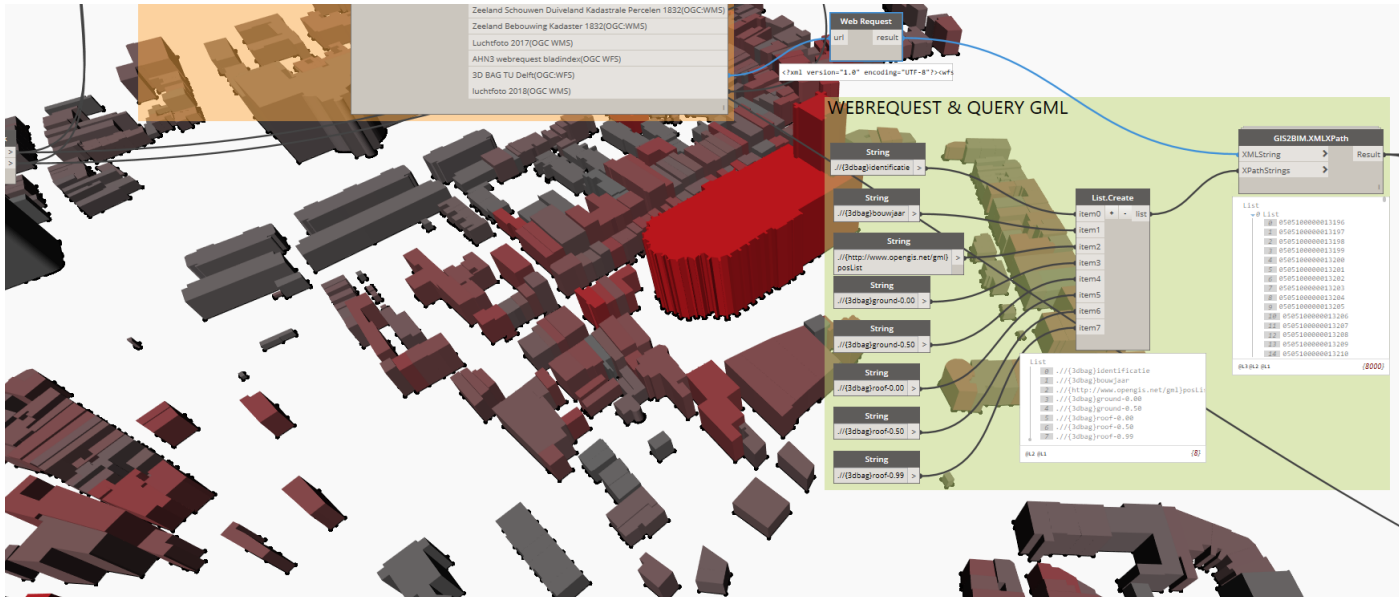


### 3. Other applications ;-)



# 3. Vectordata: 3D BAG

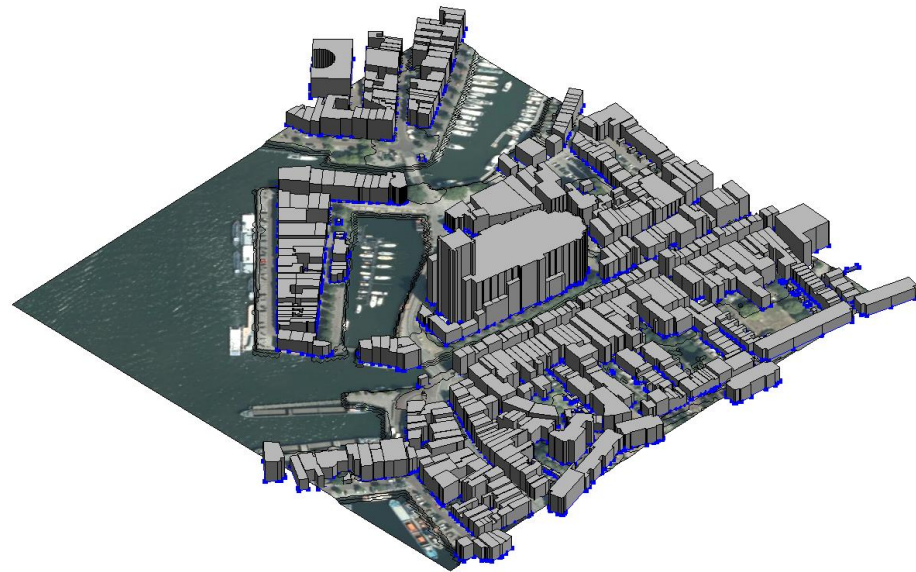
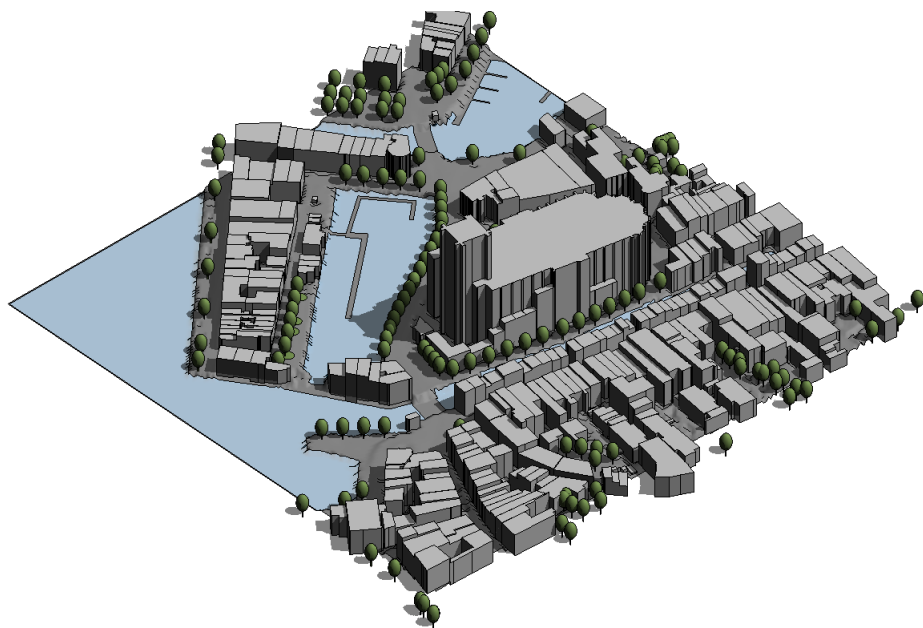
- 3D BAG: server TU Delft: <http://3dbag.bk.tudelft.nl/>





### 3. Combine AHN3 & 3D BAG & WMS & BGT

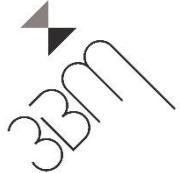
- Live Dynamo/Revit



# To remember

GIS for architects

1. The available **datasources**.
2. **Save time** using GIS.
3. Use **dynamo** to load GIS data into Revit.



**DOMERA**  
Thuis op het water

## Questions?

Find me at: [github.com/DutchSailor/GIS2BIM](https://github.com/DutchSailor/GIS2BIM)

Larger presentation, datafiles from: [github.com/DutchSailor/blog](https://github.com/DutchSailor/blog)

