Understanding the solar potential through spatial urban infrastructure analysis

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NATIONAL ENERGY CONFERENCE – MALTA

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Scope

Building polygon extraction

- To finalise the DSM/DTM generation, data cleaning and Building Polygon extraction

Building of a GIS-Based model

- The creation of the spatial layers

- overlays of the layers in a workspace linked to the different datasets provided by EWA

Solar Potential Determination

- determine the technical potential, in terms of energy (capacity and generation), separately of rooftop and facade solar PV in Malta using tools inc of QGIS and the UMEP tool

The path we travel…

Building a Spatial Model: before we start investigating the current elec and pv resources

- Understanding the complex Maltese special constructs – from 3D to 2D to 3D

- Sourcing the data: PA basemap, SIntegraM LiDAR

- stepwise approaches: vector to raster to vector to raster to vector

- LiDAR pointcloud

- Digital Surface Model – Digital Terrain Model

- Roof extraction

The Simple things in life...

And the more complex ones

Could we use a quick basemap run?

Or a more modest methodology
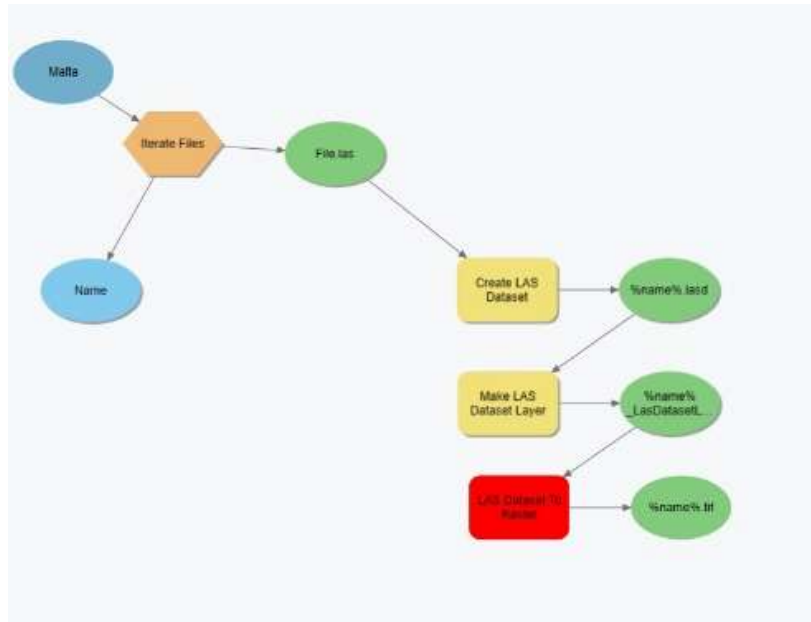
Space from space…
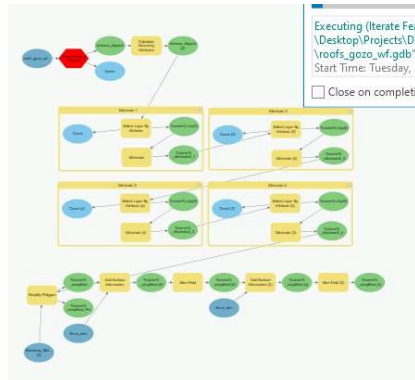
LiDAR and its anomalies

Space from space…

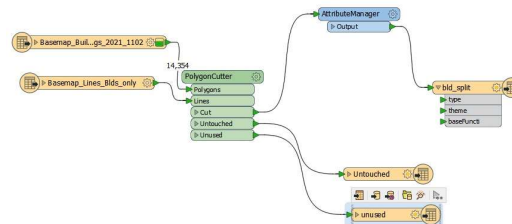**LiDAR and its anomalies**

Space from space…

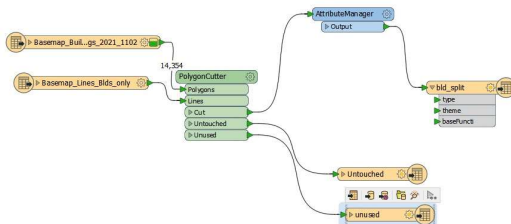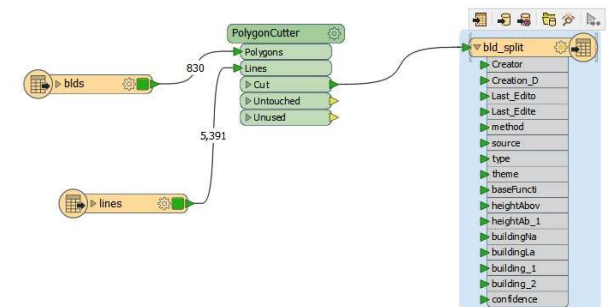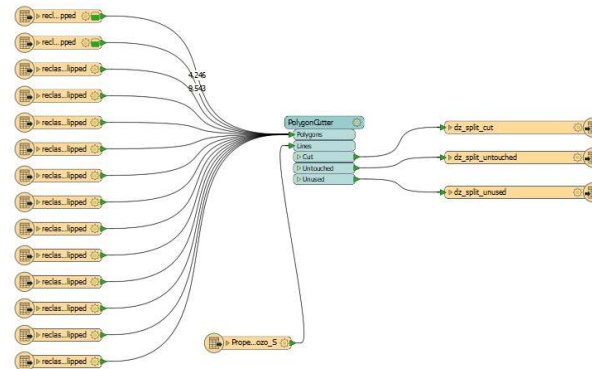**Processing to DSM-DTM**

DTM
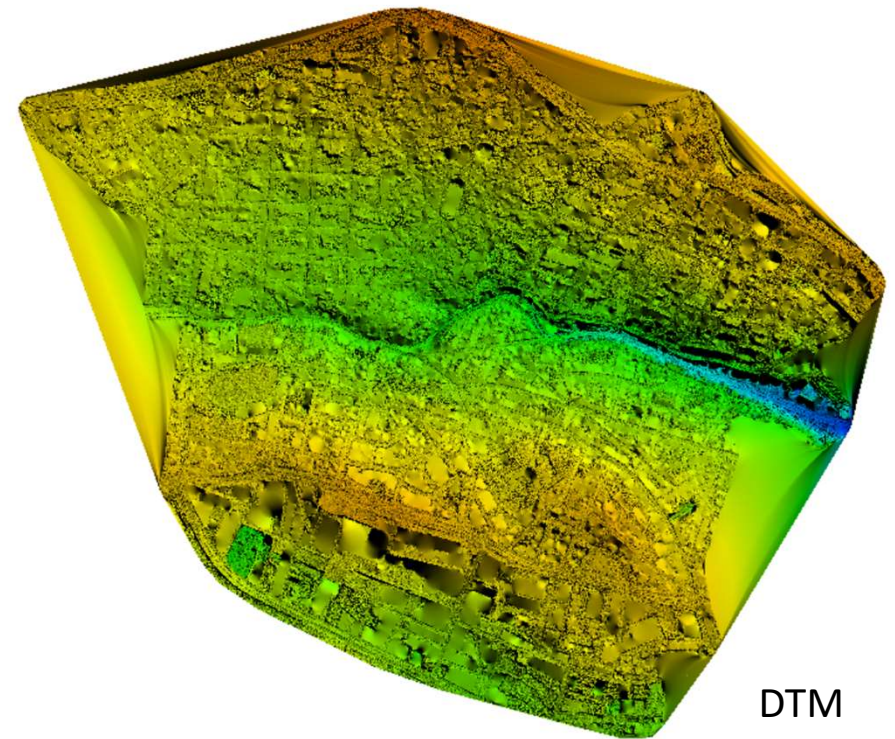
Space from space…

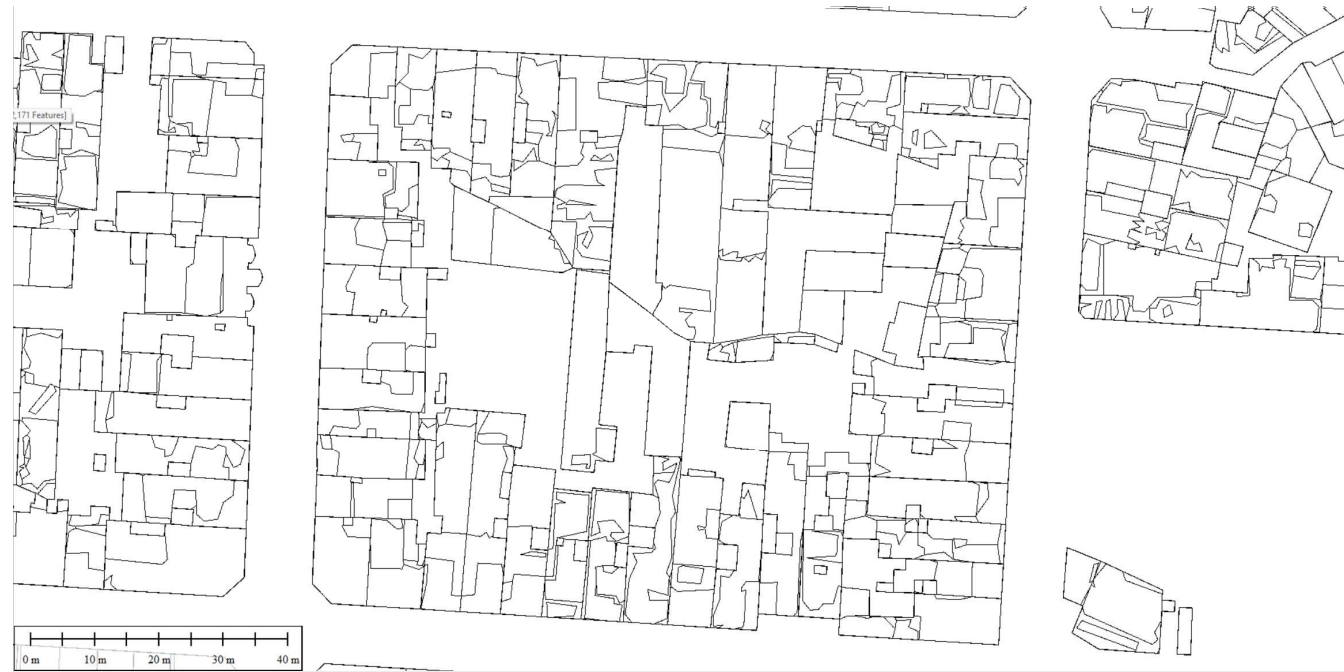**Processing to Extract Roofs**   **Processing: Splitting and Cutting to DSM-DTM**
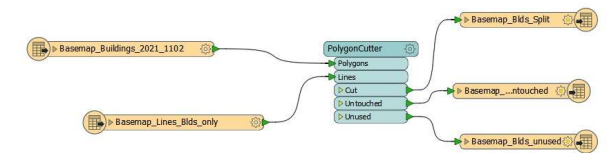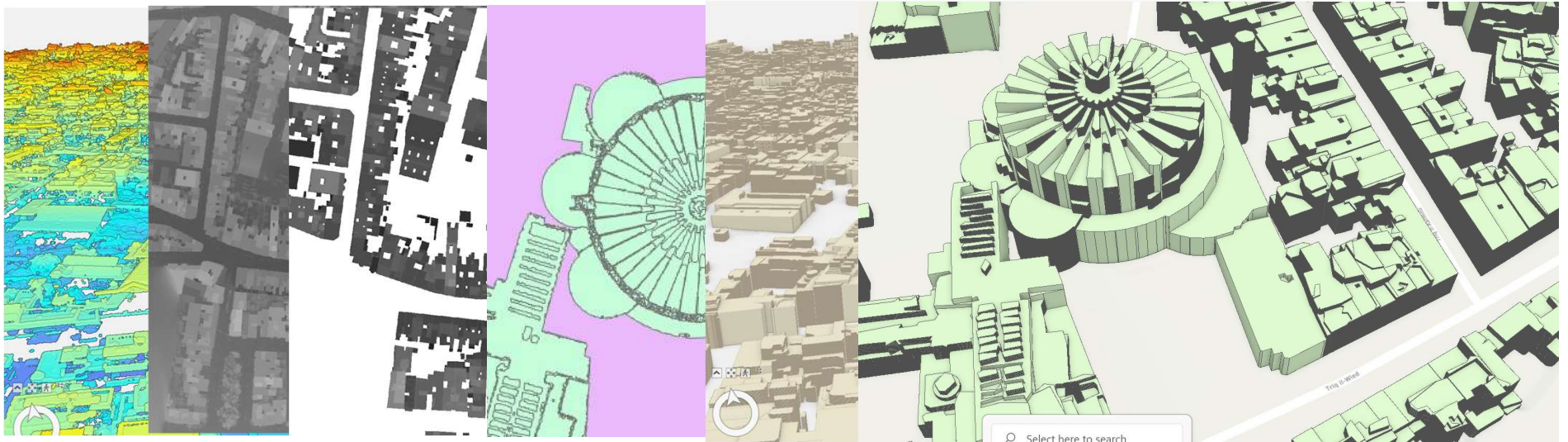
Splitting blocks…

Processing: Revisiting the methodology

Viewing the outputs…

Processing: 3D visuals

Splitting blocks…

Processing: Thematic Overlays – elec and pv meters

Splitting blocks…

Processing: Thematic Overlays – elec and pv meters
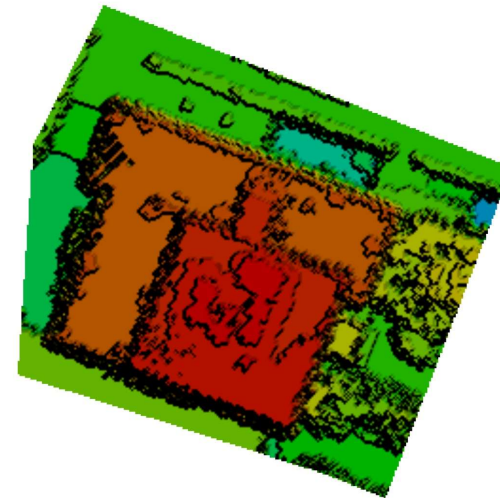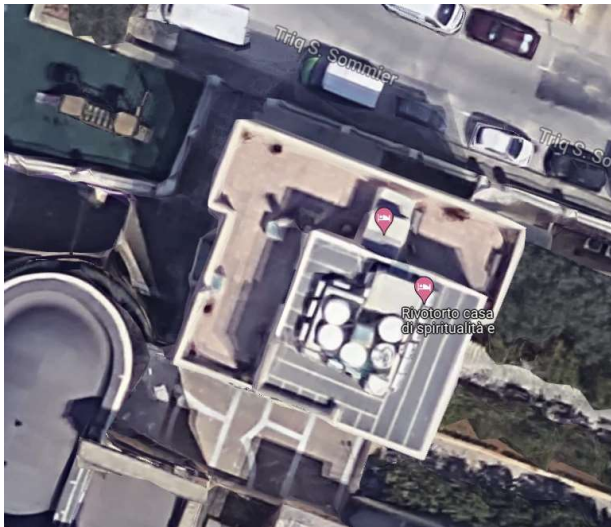
Splitting blocks…

Processing: shadow analysis

testing... next phase

Next steps in determining solar potential – QGIS – UMEP - SEBE

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