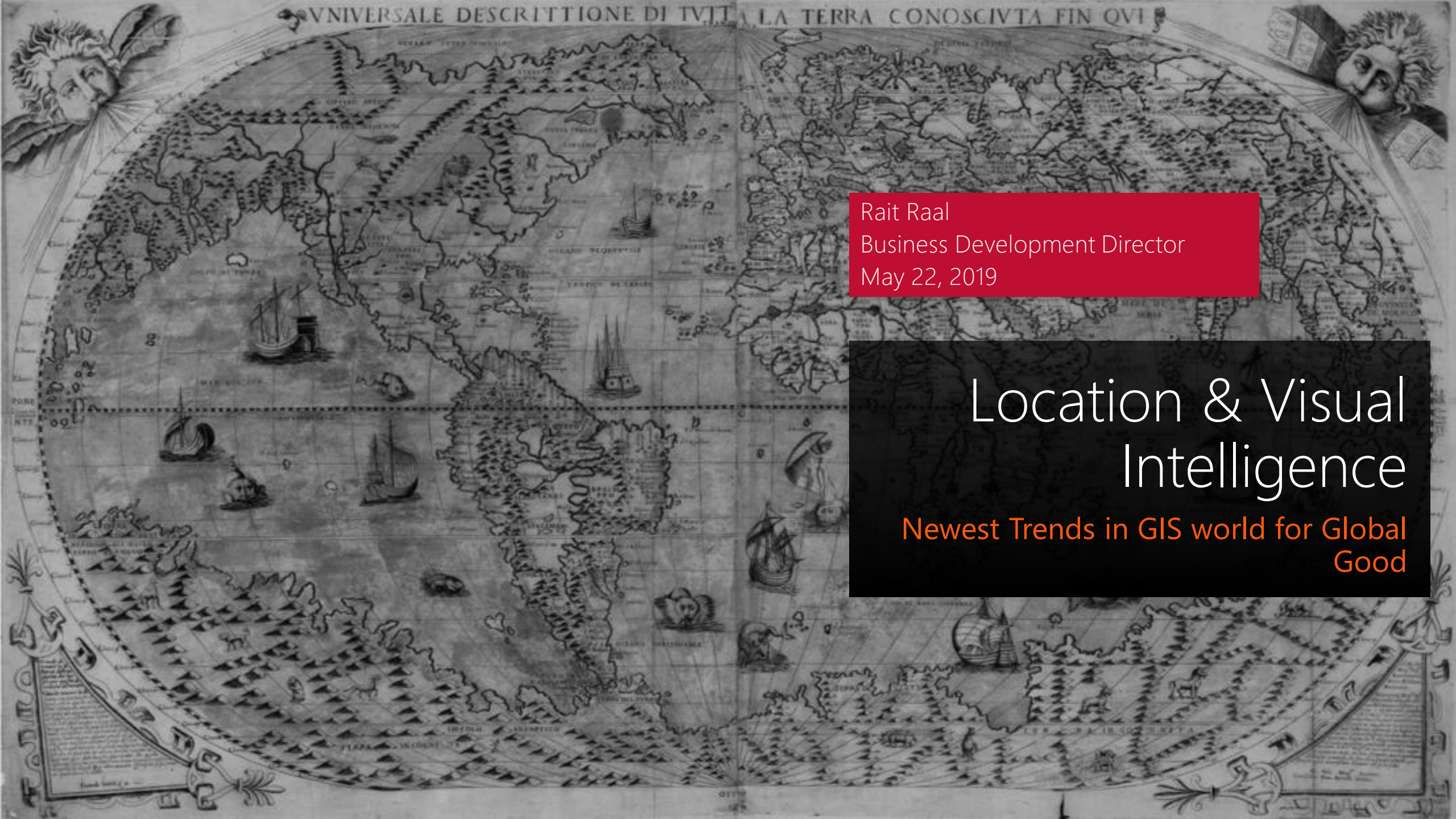


Rait Raal
Business Development Director
May 22, 2019

Location & Visual Intelligence

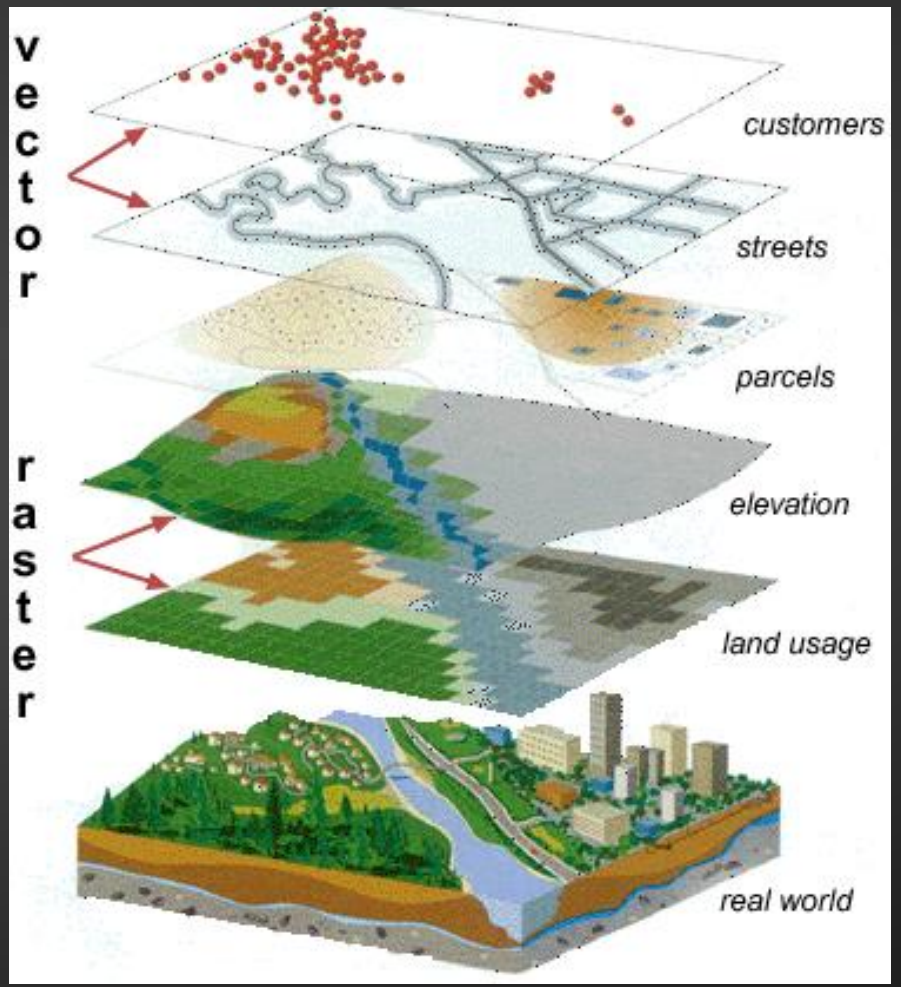
Newest Trends in GIS world for Global Good

Birth of GIS

Humans have understood the value of visualising data long time ago

In the beginning GIS was just a way to do existing things in a new, digital, way.

- 1637 – coordinate system was introduced in mathematics
- 1781 – first layered maps usage in Battle of Yorktown
- 1819 – first choropleth map/first statistical map in France
- 1855 – first usage of dot map in England
- 1963 – development of first GIS in Canada



Source: https://www.gislounge.com/gis-timeline/

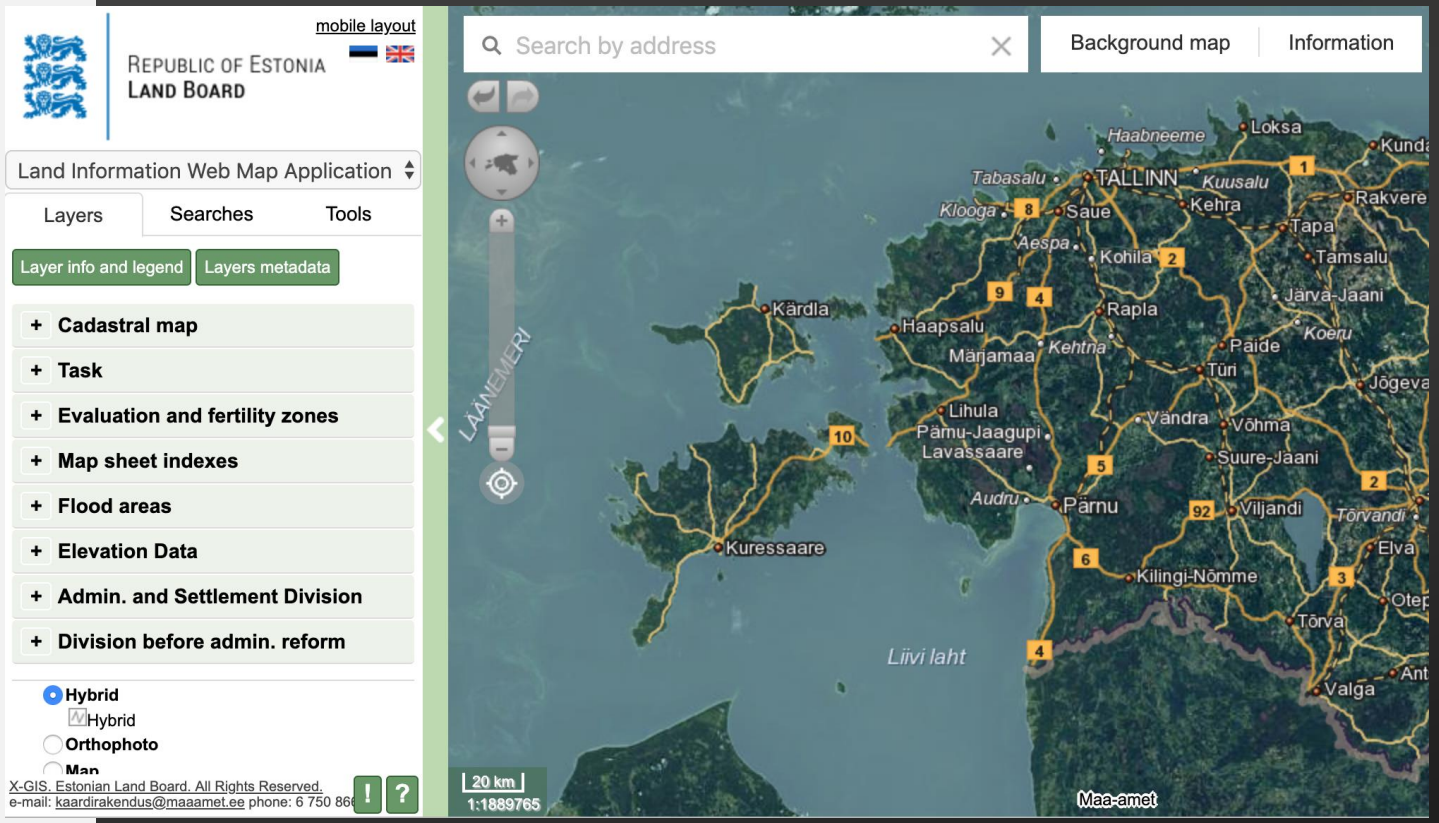
In 1980's GIS was pushed from displaying to analysis

Major Breakthrough

Of GIS in 1990's

Due to increase in computing power and decreasing hardware prices, GIS solutions plummeted, especially in country/city planning area

- Today:
  - Almost every planning and/or analysing solution involves a GIS component
  - GIS is not anymore about static objects but involves changes over time
  - Combination of time and location has become one of the most valuable data source in decision-making



As a result of decades work different data layer are available to all stakeholders online

Big Data Area

Journey of endless possibilities

GIS solutions become more and more powerful by integrating several layers.

New technologies emerge that can reshape how we work with GIS

- Smart City sensors:
  - Weather, noise, pollution, street lights etc.
- Simulation models:
  - Traffic, origin-destination matrix, impact analysis
- Machine learning and AI
  - Automatic detection, assets database creation

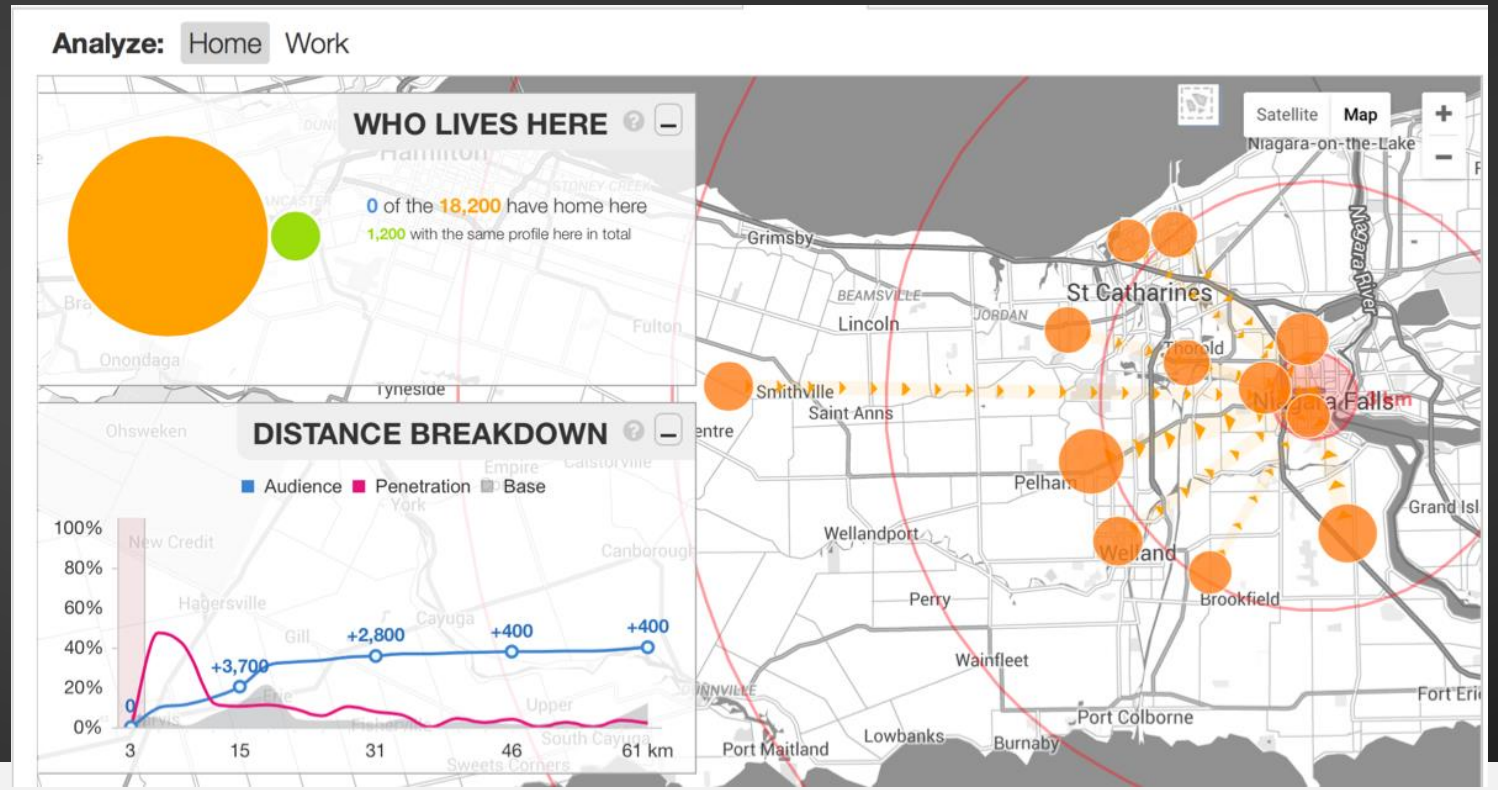
Data is generated everywhere and in quantities that is beyond the capabilities of human processing.

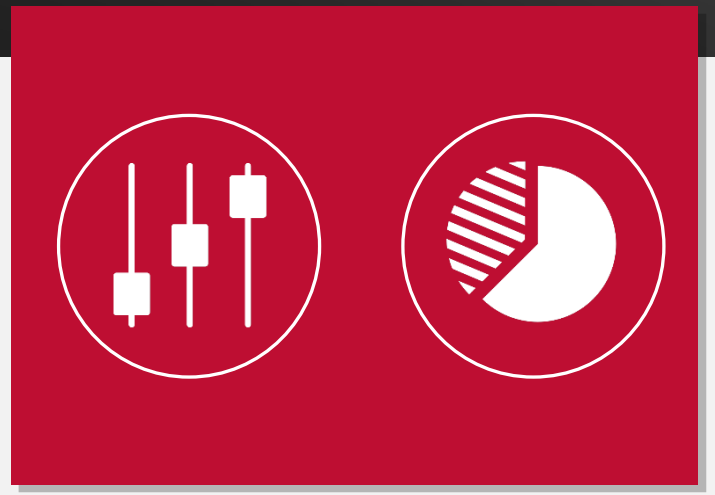

Reach U
Location Intelligence
Valuating small footprints

Reach-u

Where are people coming from?

Dynamic information for City planners to solve urbanization





Location Intelligence enables decision-making based on actual situation, near real-time data, and can be accompanied by predictive analytics


Reach3u

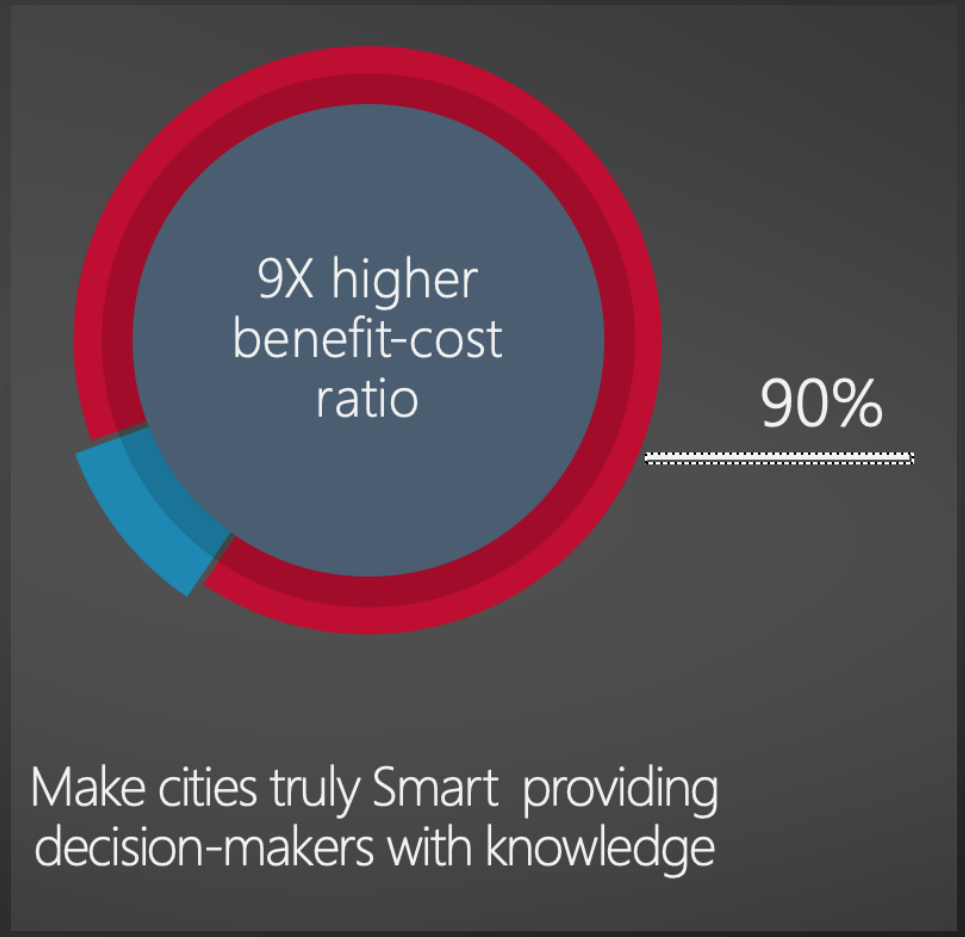
Outcome in Chile

From utilizing Location Intelligence

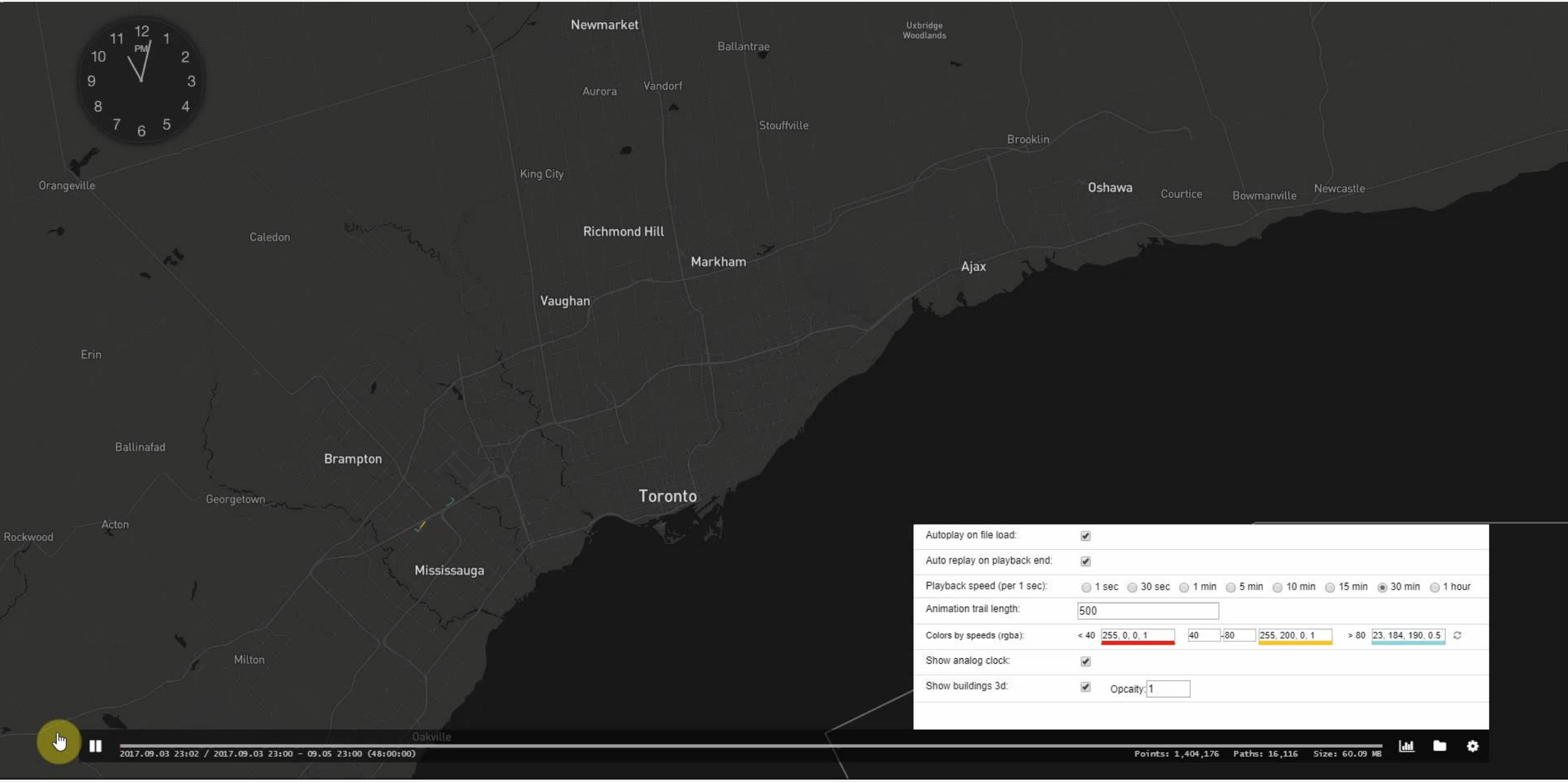
Location analytics was used to conduct a regular survey carried out after each 10 years.

The results were used in:

- Infrastructure development planning
- Traffic routing
- Public transportation (metro) ticket pricing
- Detailed analysis of some areas



Statistical survey was conducted with 10% of the costs and several times faster.


Newmarket
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Courtice
Bowmanville
Newcastle
Caledon
Richmond Hill
Markham
Ajax
Vaughan
Erin
Ballinafad
Brampton
Georgetown
Toronto
Acton
Rockwood
Mississauga
Milton
Oakville
Autoplay on file load:
Auto replay on playback end:
Playback speed (per 1 sec):
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10 min
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30 min
1 hour
Animation trail length:
500
Colors by speeds (rgba):
< 40
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> 80
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Show analog clock:
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1
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Points: 1,404,176
Paths: 16,116
Size: 60.09 MB


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Visual
Intelligence
From Virtual Reality towards
Artificial Intelligence

Biggest GIS trends

Industry is working towards creating a “second “Earth.

Earth that can be observed from our computers like being on-site; our cities, fields and forests will be available from the desktop – actually from our tablet and smartphone.

Data Collection

Satellite images, car mounted equipment and UAV’s are the trend. Accuracy is a key question

Data Entry

Digitally collected data minimizes data entry costs at least 10 times

Automation

Automated generation is one of the key areas for further optimisation

3D Reality

Tomorrow, we can perform many of our tasks behind our desk, automated as much as possible

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Data Collection

Automated systems to maximise ROI

- 360 degree camera
- High precision GPS
- LIDAR scanner

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PANORAMA view

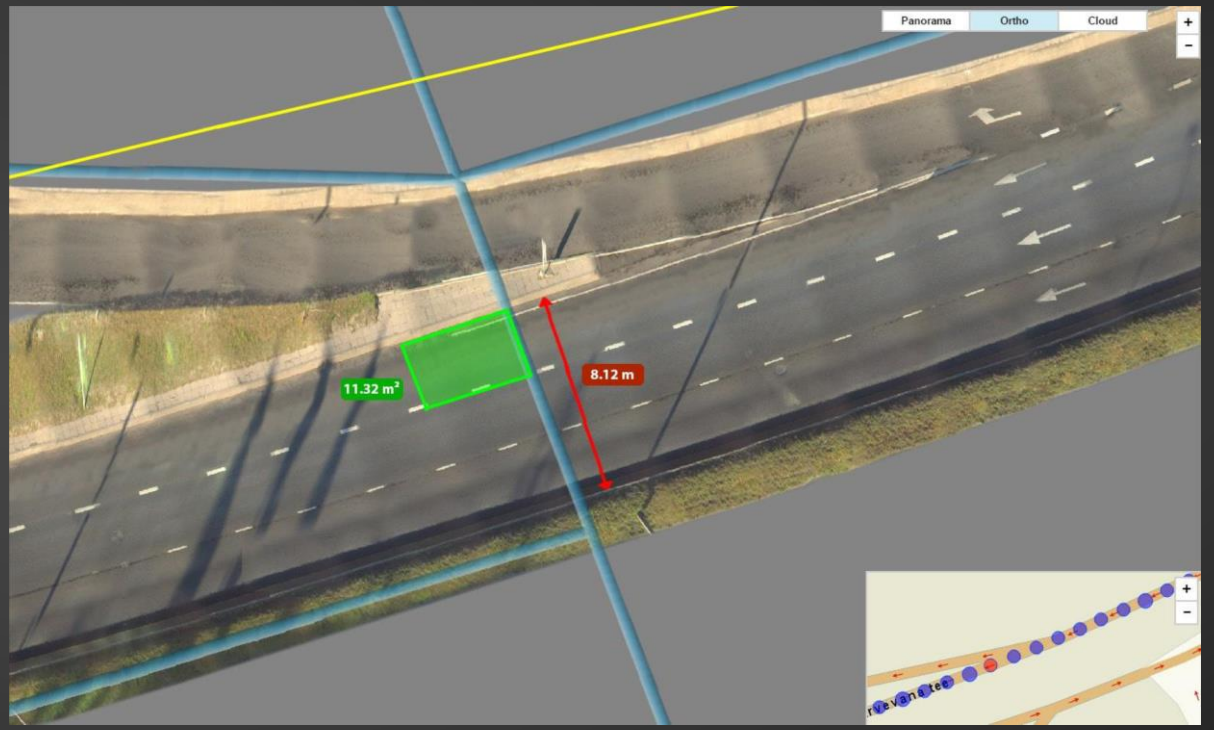
Measure your city from the office

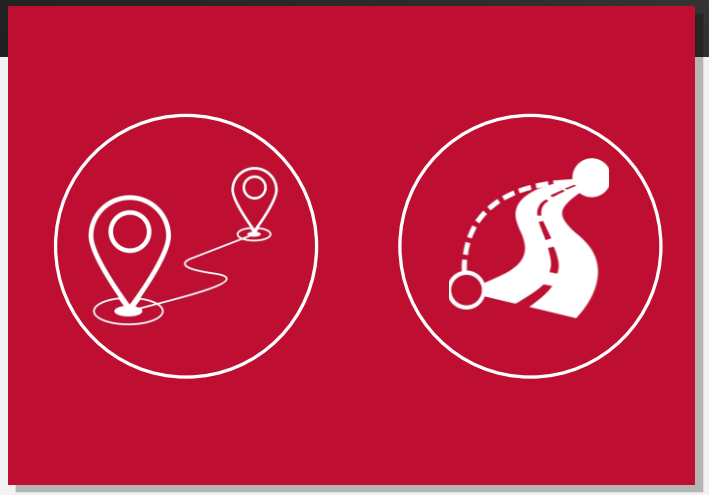
Collect the visual information and add it to the data you have imported from your database or entered from orthophoto and pointcloud views.

Inspect the streets and its surrounding, mark and label everything that needs a second look and export the information together with exact addresses, cadastre data, road information and images.

ORTHOPHOTO view

Without flying a plane





Perform simple 2D measurements (length, distance and areas) and export the results together with additional data.

Collect spatial data with good accuracy in x, y coordinates and add attribute information from image view.

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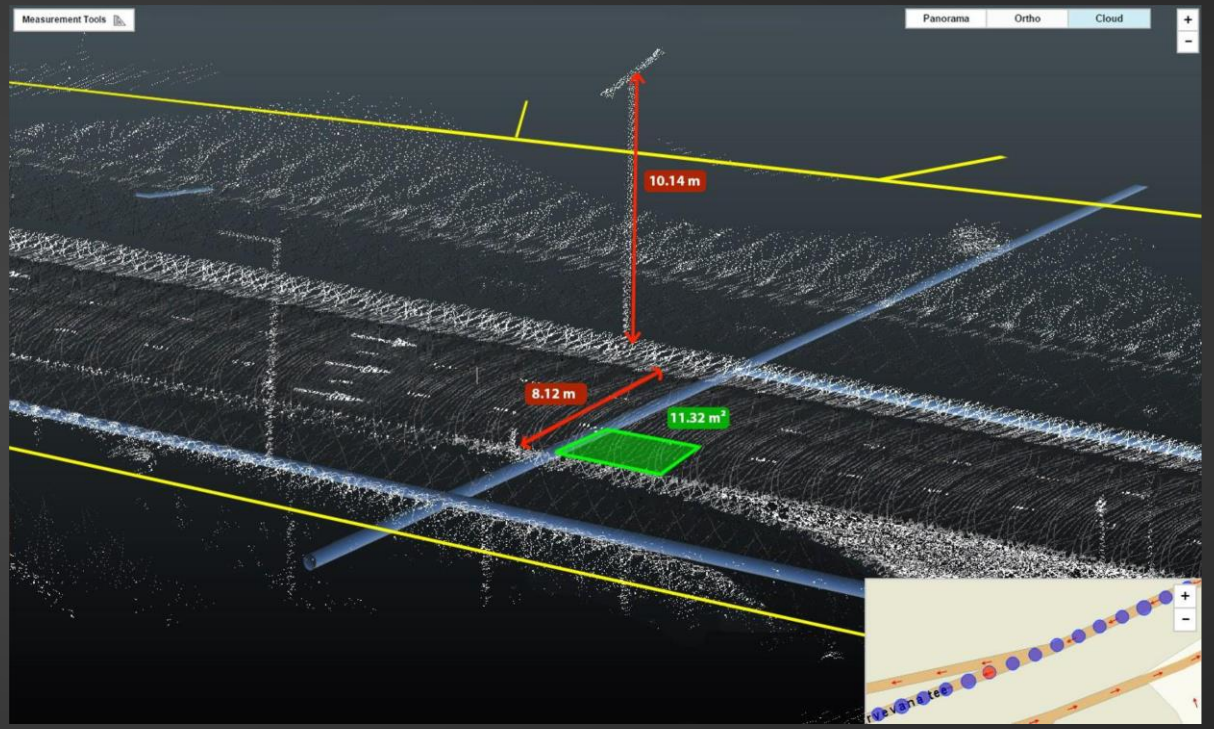
POINT CLOUD view

To maximize accuracy



Perform high accuracy 3D measurements (distances, lengths, areas, heights) and export the results in various data formats.

Collect the data with x, y, z coordinates and add attribute information to them from image view.

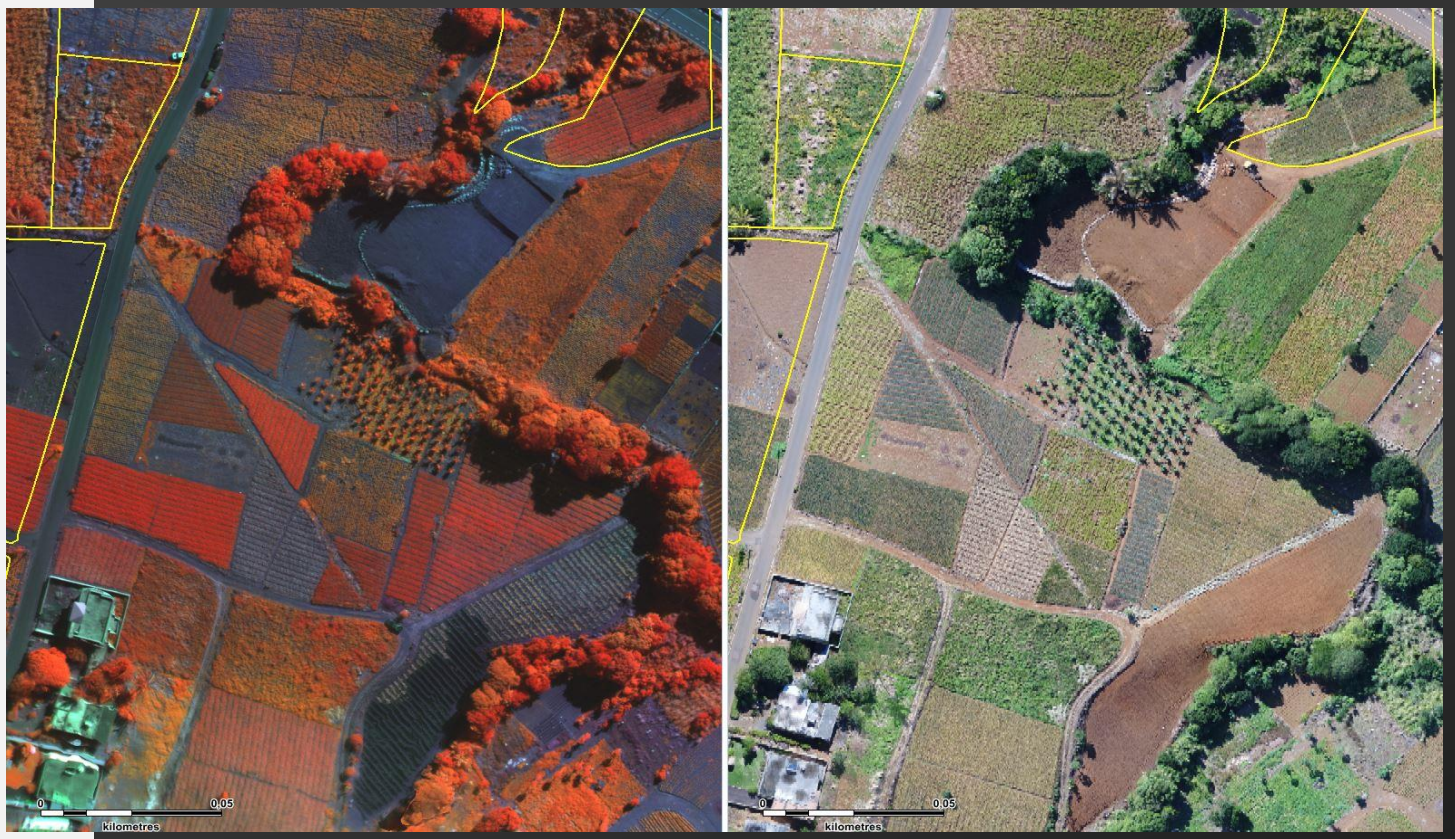
And agriculture…

Example of Mauritius

Get an overview of the status of sugar cane plantations

Estimate the status of the crops and analyse various parameters related to it

- Maximising sugar cane production by providing information about the status of the sugar cane plantation and relevant guidelines to the planters;
- Disseminating relevant information and analytical reports to different stakeholders;
- Expanding the solution implemented for sugar cane plantations to other agricultures



Evaluating soil conditions based on multispectral images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Future of GIS based solutions
Planet in your Smartphone

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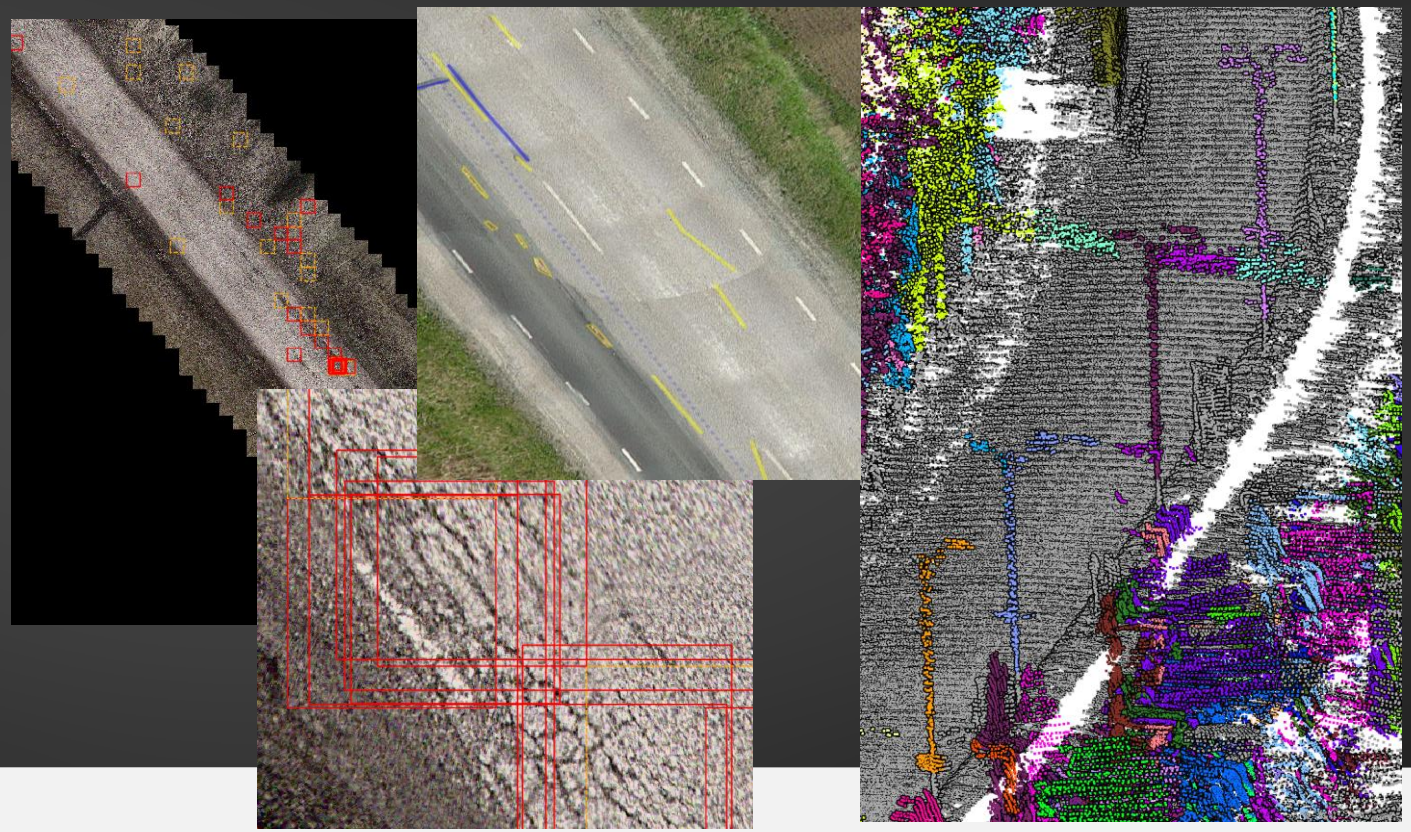
Generation of Geo Base Data

From Point Cloud

Classified, colored and accurate 3D point cloud dataset produced from MMS and UAV input.

Automated detection of objects

By combining different inputs



Automated objects, information and attributes detection solutions based on panorama, ortophoto and point cloud input

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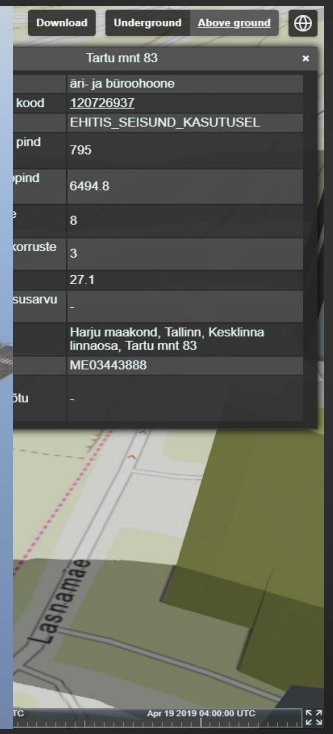
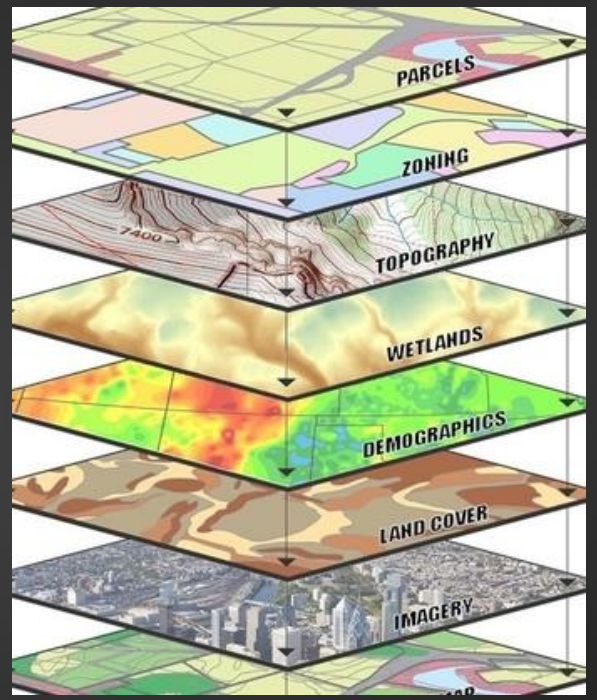
3D City Modelling

To make decisions from the office



Automated 3D modelling process with different quality levels from point cloud input



Integration with existing datasets

A. Existing GIS will be combined with Virtual Reality

B. It opens up a whole new area for analysis

Thank you!

The way to reach us

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