GOVTECH CHALLENGE SERIES 2.0

HOW TO CREATE A REAL TIME SATELLITE IMAGE OF LITHUANIA?

The Department of Statistics

GOVTECH LAB

CONTEXT

CURRENT SITUATION

- Currently, the Department of Statistics, when preparing agricultural statistical indicators, is using data collected from questionnaires and registries;
- There is a possibility to use free satellite data to prepare the satellite map of Lithuania, however, quality is deteriorated by clouds.

SCOPE

- Freely available satellite data used by European institutions responsible for statistics is updated every few days. To automate the removal of cloudiness, combining images from different days is thus the solution.

PROBLEM

- Present data collection methods (through questionnaires and registry inquiries) guarantee quality but lack speed, efficiency and granularity:
  - the indicator is not up to date and its frequency is low;
  - information is not extensive, since not everyone registers their crop lands;
  - granularity is low – when studying crops there is no precise locations associated with data points, which decreases the value of statistics.

THE DEPARTMENT OF STATISTICS

CHALLENGE

We seek to have a full and almost real-time satellite image of Lithuania without obstacles such as clouds, to ensure updated, extensive and granular statistics.

THE DEPARTMENT OF STATISTICS

SOLUTION

KEY FUNCTIONS

- Using satellite data (i.e. Sentinel2), assemble separate images into a full, coherent map of Lithuania;
- Automatically recognize clouds and replace the obstructed places with other recent images;
- Keep the map up to date with the latest satellite images.

METRICS FOR SUCCESS

- Increased relevance and granularity of statistical data:
  - possibility to automatically and precisely identify land with crops;
  - sufficient quality to be used in formulating official statistics.

IMPORTANT ASPECTS

- Statistical data collected with the tool will have to meet elevated standards in the international context;
- Data must be presented or convertable to standard data formats.

THE DEPARTMENT OF STATISTICS

OPPORTUNITIES

INSTITUTION

- The solution will be used to complete and better present current statistical information;
- The solution will decrease the load for questionnaire respondents;
- The solution will be used to evaluate extreme situations (droughts, floods, etc.).

MARKET

- Tools that assemble maps from images and suppress images exist – nonetheless they require manual effort for cloud recognition and the substitution of obstructing elements. Full maps without clouds also exist, but their updating is usually limited to once a year. There is thus a gap in the market for a tool that would solve the challenge presented beforehand;
- The product is easily scalable and demanded by foreign institutions collecting statistical data.

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