Discovering Wooden Poles using Object Detection

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https://tageoforce.com

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Agenda

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Introduction

T.A. Geoforce is a company specialized in:

- Big Data analytics,
- AI services,
- Spatial Intelligence solutions

It follows three (3) basic principles:

1. Openness
2. Interoperability
3. Sharing

Current status

- There are around 6 million wooden poles installed on the land area of Greece.

- The client wants to discover the exact location of these wooden poles, using innovation techniques.

- The wooden poles are having 6 meters height and the length of the cable from the main switch is known.

Project proposal & main objective

T.A. Geoforce can provide an innovative way to discover wooden poles using earth-observation imagery.

It will be developed an Artificial Intelligence solution, where using deep learning techniques will be created an automate process of wooden poles identification.

The objectives of this project are:

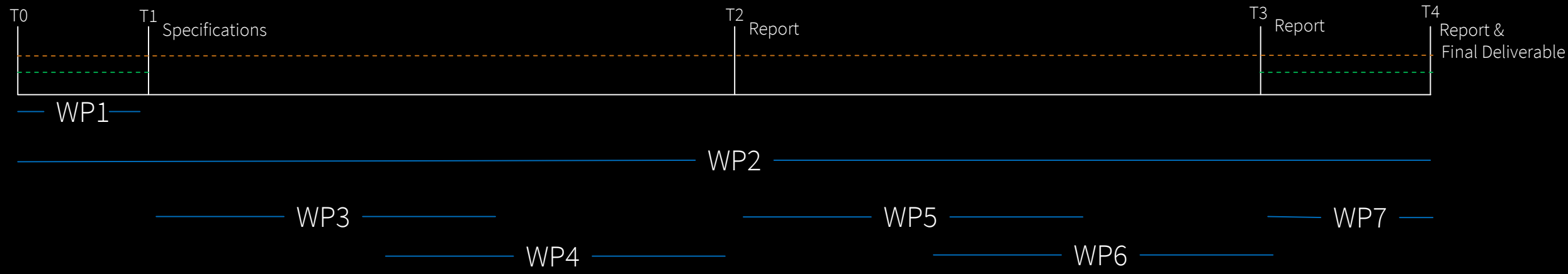
- To be delivered a point dataset of the wooden poles. (as completed as possible)
- To be created new knowledge of discovering objects using earth observation imagery.

Working packages

1. Developing technical specifications
2. Management & coordination
3. Implementation architecture
4. Collecting datasets
5. Developing experiments & models
6. Evaluation
7. Dissemination

Working members

- T.A. Geoforce
- Client

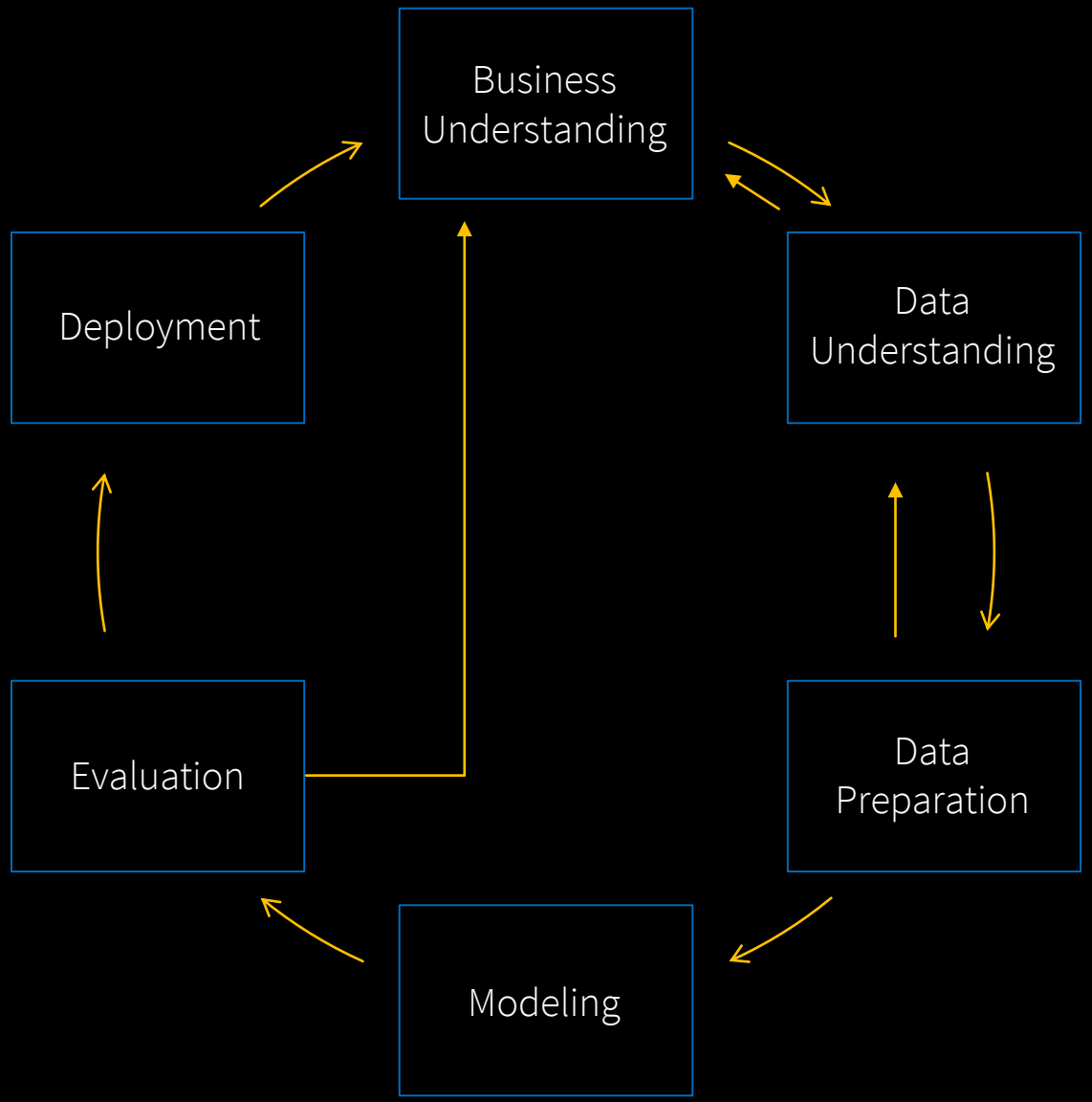


Advantages & disadvantages

- New knowledge will be created
- Faster than the traditional implementation
- Easy to be re-executed (partial/ total)
- New imagery can be used to monitor the status of the poles

- Challenging project
- Bleeding cutting-edge technologies
- Risk of many False - Positives
- In-situ validation difficulties

Methodology



Excepted results

- ✓ True Positives
- ✗ False Positives
- ? False Negatives

Validation

Post extraction phase

It can be created a web GIS application with the scope of validating the poles positions by the employees.

Characteristics:

1. The web application will be secure using the authorization services of the client.
2. There will be at least 2 layers (basemap and a WFS-T layer of wooden poles)
3. The employees of the client will validate the poles by set a property to T or F, using a popup widget.

Deliverables

After the validation:

1. geojson point file will be delivered with metadata (INSPIRE).
2. Reports, source code and models will be delivered as repository.
3. Dissemination & exploitation activities (in-house seminars, conferences).

Thank you
&
Questions

Source code: https://github.com/TA-Geoforce/Wooden-Poles-Object-Detection