Open tools and methodology for the development of a web-based transportation platform

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Circular Economy and Sustainability, July 2021

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Introduction

A transportation platform aim to deliver the supply chain solutions required for excellence in transportation sourcing, execution and management.
Usually tranportation platforms offer functionality based on:

- Proprietary GIS systems.
- Proprietary updates on network and data.
- External, proprietary web applications.

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Usually tranportation platforms offer functionality based on:

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- External, proprietary web applications.

✓As a result, such platforms heavily depend on their proprietary software.

Alternative approach

An alternative approach on building a web-based transportation platform is presented.

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Platform based exclusively on free/open source data and tools.

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- Open Data
- Open source tools for building the platform
- Open Maps

Why open tools?

Why a platform based on open tools?

- Ensure sustainability of the system.
- Maintained by the community - no dependencies on proprietary tools.
- Data checked and maintained by community.

Theoretical Background

Basic blocks for building a web transportation platform:

1. Maps and geospatial data vizualization tools.
2. Data and tools for data selection and process.
3. Set of functionalities offered through a web interface.

Abstract Methodology

For the alternative platform to be developped the following steps applied:

- Maps collected and integrated to the platform.
- Data collected from various sources.
- Data organized and integrated to the platform.
- Data visualizations offered (through charts/pies and maps).
- Extra functionalities developped combining the data collected with geospatial information.

Conceptual Architecture of the Platform

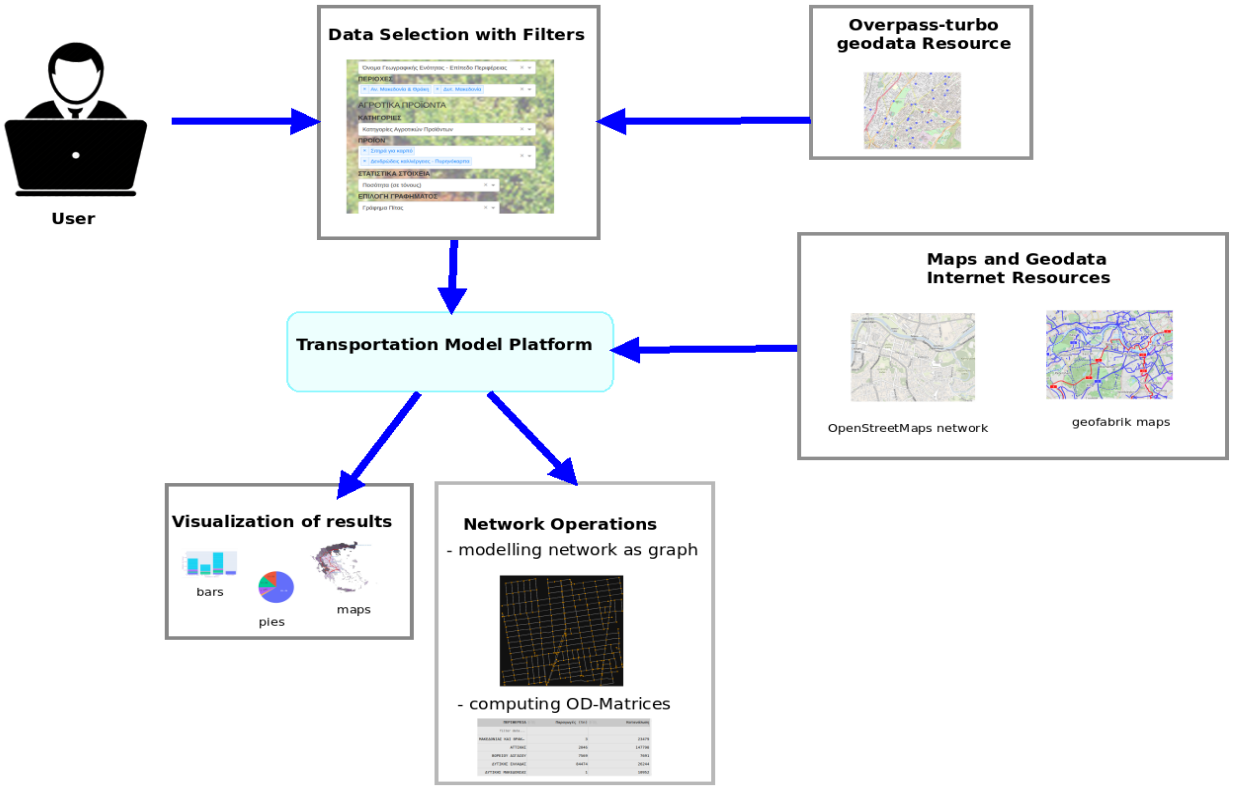


Figure 1: Conceptual Architecture of the Platform.

Maps

The maps selected for the platform are the OpenStreetMaps (OSM). OSM is a collaborative project that creates a free, editable map of the world.

OpenStreetMaps

- It covers the world.
- It is supported by OpenStreetMap Foundation (non-profit organization).
- Open Database License (ODbL)

Platform Data

- Data has been collected from many, different sources (elstat, eurostat, et al)
- Data has been normalized and filters may be applied to create a custom configuration.

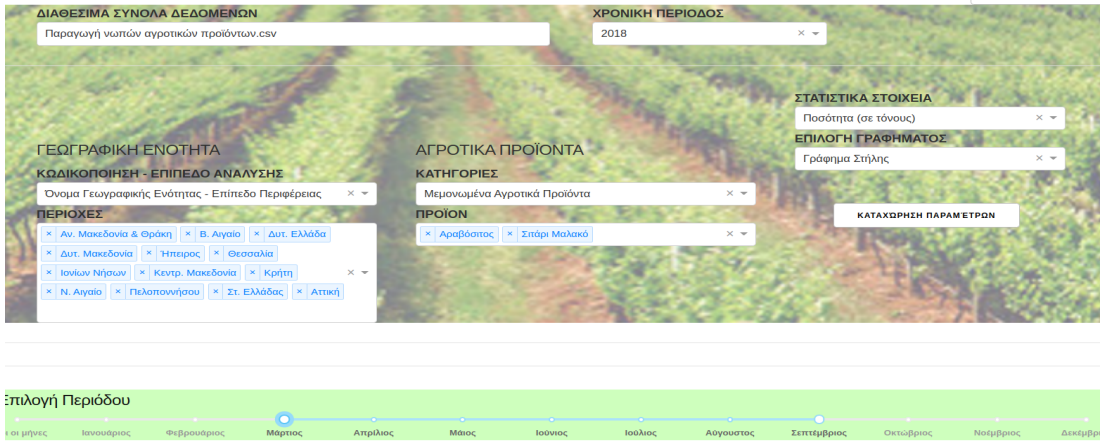
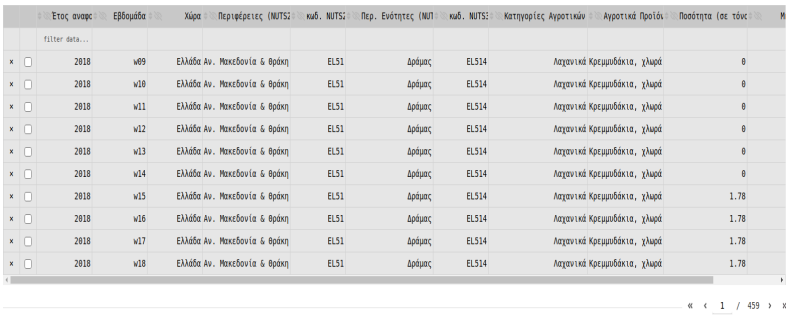


Figure 2: Filters applied to data available.

Data Visualizations

Visualizing data

Data selection is visualized through tables, charts, pies and choropleths.



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2018	w17	Ελλάδα Αν. Μακεδονία & Θράκη	EL51	Δράμας	EL514	Λαχανικά Κρεμμυδάκια, χλωρά		1.78
2018	w18	Ελλάδα Αν. Μακεδονία & Θράκη	EL51	Δράμας	EL514	Λαχανικά Κρεμμυδάκια, χλωρά		1.78

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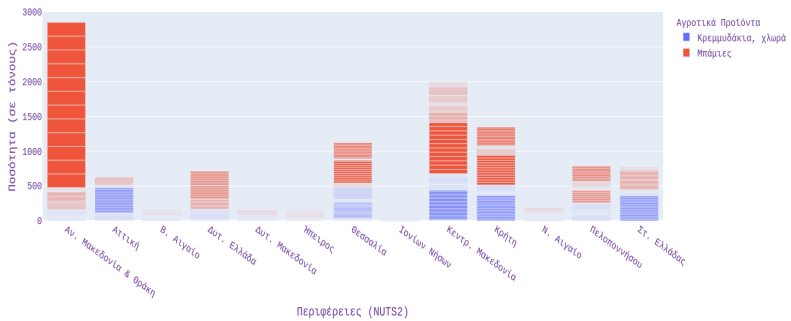

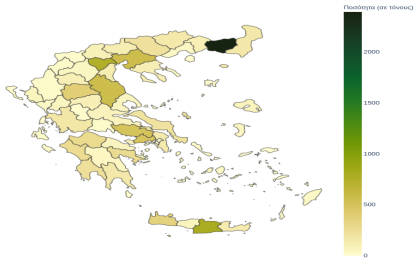

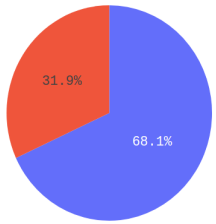

Figure 3: Data visualization.

Applications on selected data

By selecting a custom data sub-set the user may further use the platform for valuable insights.

Four Step Model app

The user may execute a four-step-model on the selected data and get the results.

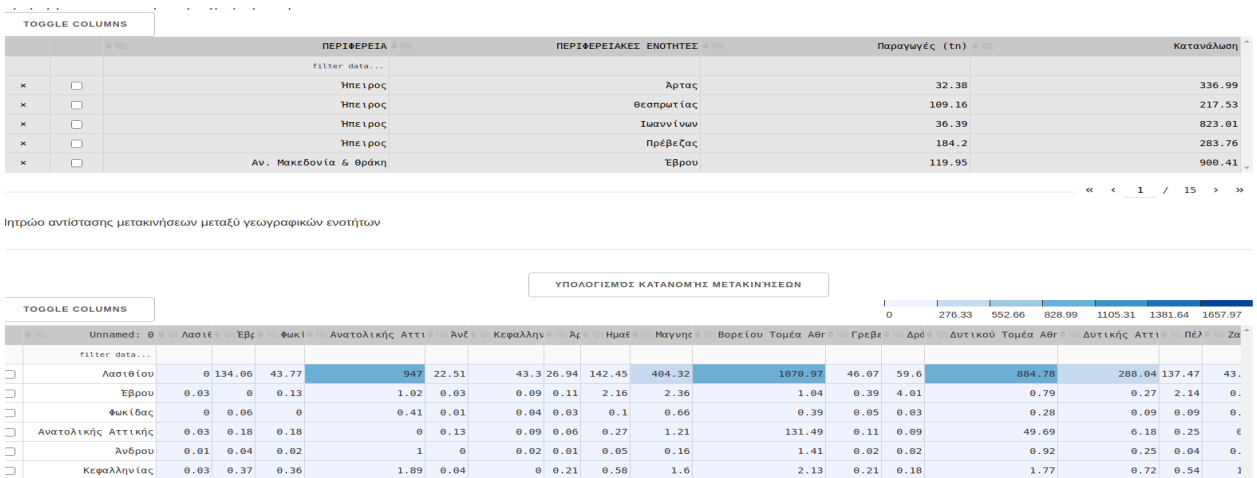

Figure 4: Four Step Model Execution based on user data selection.

Conclusions - Added value

Platform created as Proof of Concept.

- A web-based transportation platform can be built solely on open tools and data.
- Such a platform offers functionality and apps restricted only by its community.
- No proprietary software ensures sustainability of such a project.

Restrictions - Future Work

- Such a platform is heavily-bound to its users and the community.
- It can develop only so much as its users are interested to.
- Challenge: Platform integration to open geodata ecosystem.