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STATUS
Strategic Territorial Agendas for 'Small and Middle-Sized Towns' Urban Systems

WP3 Inception

Output 3.7 Territorial Atlas based on GIS platform

Final Version

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Strategic Territorial Agendas for 'Small and Middle-Sized Towns' Urban Systems

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Title:

Atlas of plan and policies on GIS database

Author(s)/Organisation(s):

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Contributors: All territorial partners

Working Group:

WP3

References:

STATUS Final Application Form (INTRA-5108827)

STATUS Project and financial management handbook

Short Description:

This task is the seventh step of the Work Package 3 (Inception), where aimed at collecting data and recognising the actors playing a role in the city. This report will evaluate the state of art with Geo-data in the territorial partners areas both in order to graphically represent the Agendas and to understand how potentially ready for smart services they are.

Keywords:

data collection, data harmonization, GIS, GIS services, urban data, cartography, territorial atlas, online maps, WMS, WFS, web-services, Geoserver, Cesium, Javascript, HTML5, JQuery

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001	Eccher Matteo (Trento)	1. Draft		31/01/2014
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Version	Reviewer	Comment	Date

Table of contents

1. Summary

The aim of WP3 as an inception phase is characterized by different activities, i.e. analytical and cognitive ones, in order to achieve the objectives of STATUS project. Different methods of qualitative analysis (like stakeholders' analysis in report 3.1.) and SWOT analysis will be used not just in terms of networking but also as an opportunity for achieving a more in-depth knowledge of local urban issues' state of the art. Finally, all these activities will provide a clear framework of available data, current planning tools, and pools of local actors characterizing the partner cities planning areas.

The "Territorial Atlas based on GIS platform" report will explain the functionalities and the system architecture of the online platform developed by which the collected data, provided by territorial partners, will be expose and made available to the public.

It must be stressed that due to the bureaucracy delays, to the difficulty of some territorial partners to obtain and provide the geographical information and dataset requested, and the several changes in the composition of the project consortium, even the Territorial Atlas development has been delayed and released in different versions.

The following are the information about the first version of the atlas territorial developed in January 2014.

Although the architecture has not undergone significant changes, the features introduced during development will be significant from the point of view of map navigation, of the geographical data visualization and of the amount of data stored in the system.

The final version of the territorial atlas will be released during the month of September 2014.

2. Territorial Atlas Overview

An atlas is a collection of maps, traditionally collected in a book, but nowadays atlases are online platforms, interactive and interoperable systems with which the users can navigate the cartography, reach more detailed information about a particular aspect of the map, turn on and off different thematic maps and layers in order to understand in better way what the territory wants to tell.

This is the final aim of the Territorial Atlas of the STATUS project as well.

The Territorial Atlas is an online web tool for the freely accessible to the public that provide an overview of the actual urban planning policies and directives that the STATUS territorial partners follow.

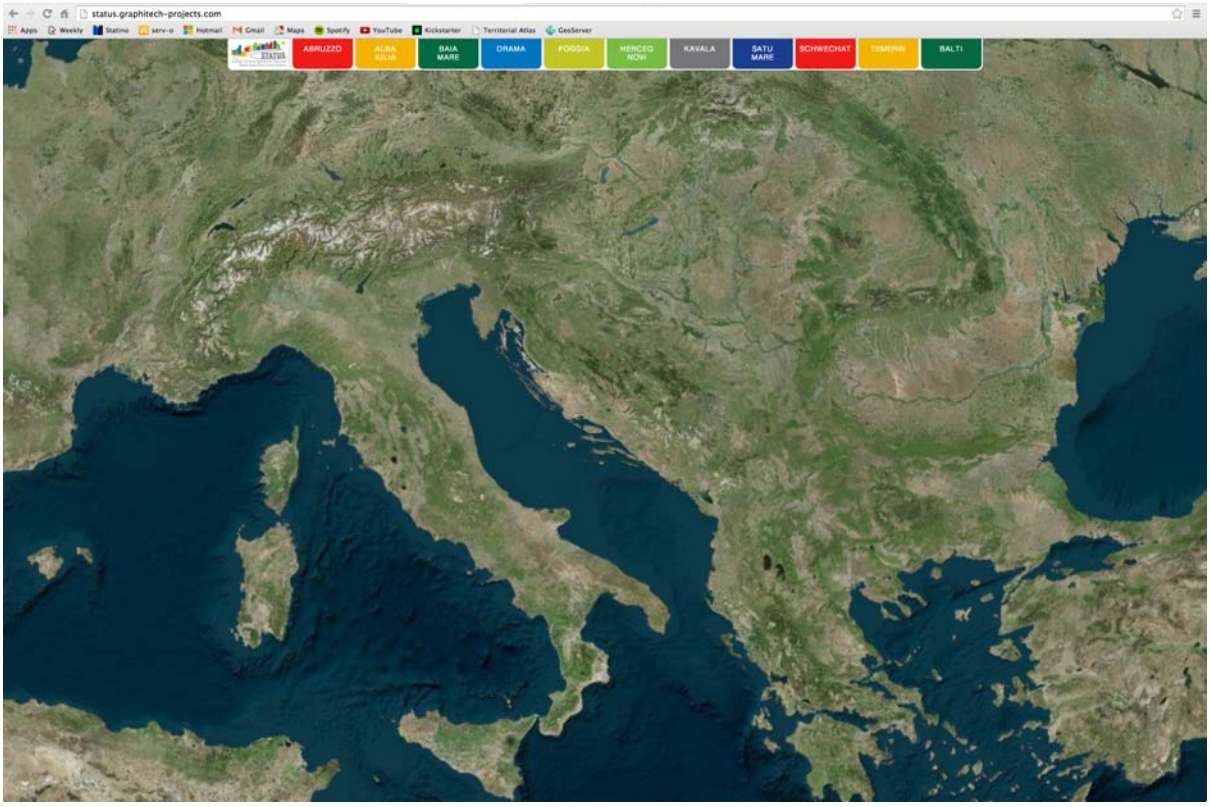

Figure 1 - The first Territorial Atlas Prototype

3. Hints on the System Architecture

The territorial atlas system architecture reflects a classic client-server architecture, in which the client is dedicated to visualize and display a virtual globe and the server is delegated to provide and stream the information.

The territorial atlas is can be reach through the most common Internet browsers that supports the WebGL library.

WebGL is a new web technology that brings hardware-accelerated 3D graphics to the browser without installing additional software. The combination with the HTML5 and Javascript languages and the exchange of data with this new library make it possible to add 3D graphics contents to an ordinary website.

From the union of these two elements has been developed Cesium.

Cesium is WebGL virtual globe and map engine. It is open source under license Apache 2.0, Javascript library based on the new directives of WebGL, designed for the creation of 3D and 2D maps in a web browser.

It is responsible for the visualization of the information on the map and for every interaction with the system.

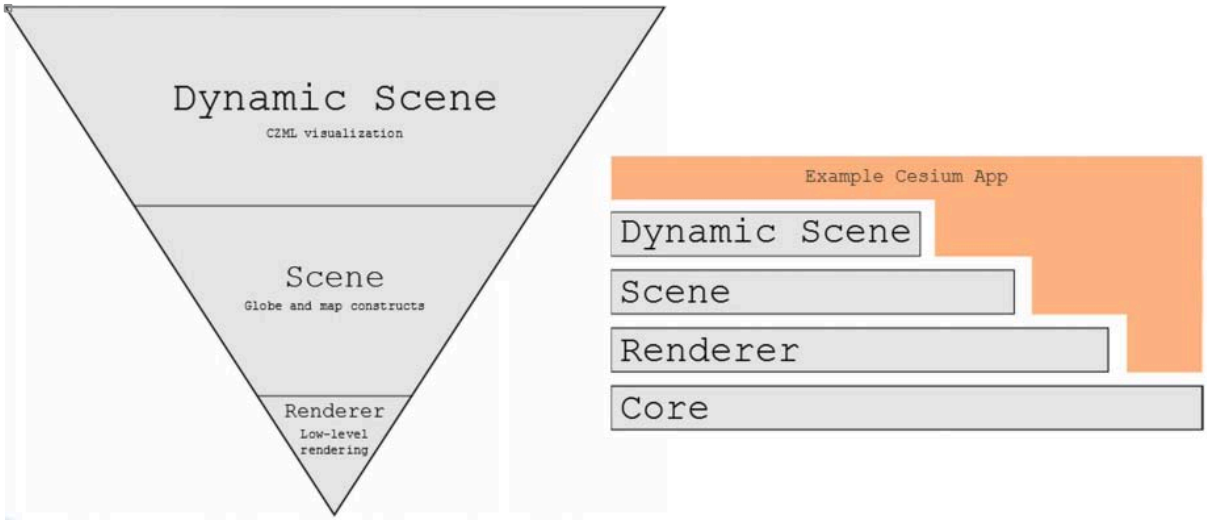

Figure 2 - Cesium Architecture

Cesium is a client-side virtual globe and map library written in JavaScript using WebGL. The Cesium stack is coarsely organized and composed of four layers and generally, each layer adds functionality, raises the level of abstraction, and depends on the layers underneath it. The layers are:

- Core - number crunching like linear algebra, intersection tests, and interpolation.
- Renderer - a thin abstraction over WebGL.
- Scene - globe and map constructs like imagery layers, polylines, labels, and cameras.
- Dynamic Scene - Time-dynamic visualization constructs.

if Cesium is the client-side, on the server-side we have the support of the Geoserver platform.

GeoServer is an open-source server written in Java that allows users to share, process and edit geospatial data. It publishes data from any major spatial data source using open standards. GeoServer functions are the reference implementation of the Open Geospatial Consortium Web Feature Service standard, and also implement the Web Map Service, Web Coverage Service and Web Processing Service specifications.

4. Territorial Atlas Basic Features

The purpose of the Territorial Atlas in the project is to display the information collected during the previous activities of the WP3.

In particular from the activities:

- 3.1 Collecting Data and Identifying Actors
- 3.2 Operational Analysis on Territorial Partners

The final system aims to display in an all-in one platform different format of information: textual, geographical, documents and multimedia contents.

The Territorial Atlas graphical user interface is composed by a top, bottom and right-side menu:

- Top menu - Selecting a specific pilots from the top menu, the atlas will move and focus on the area of interest of a particular location.

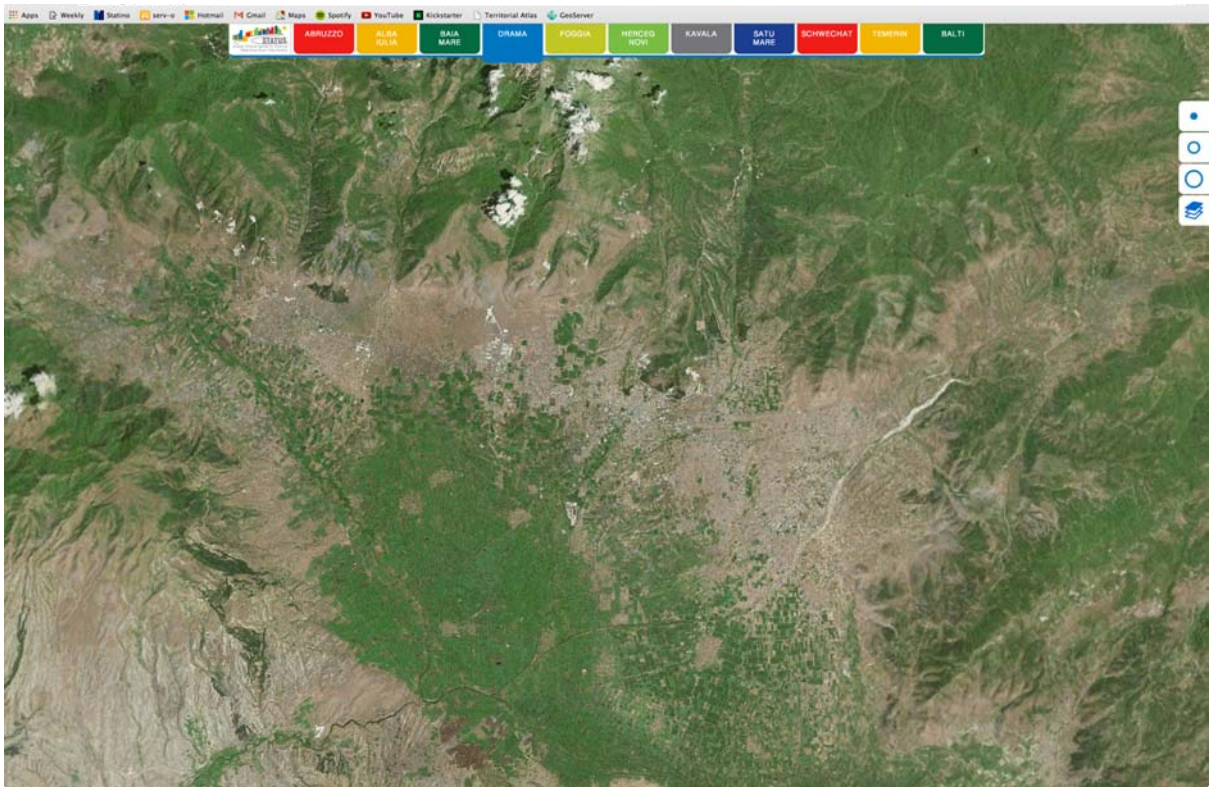

Figure 3 - Selection of the Drama pilot

- The bottom menu - Selecting a specific category the user will display a dialog box with the information available provided by the territorial partner for this specific topic.

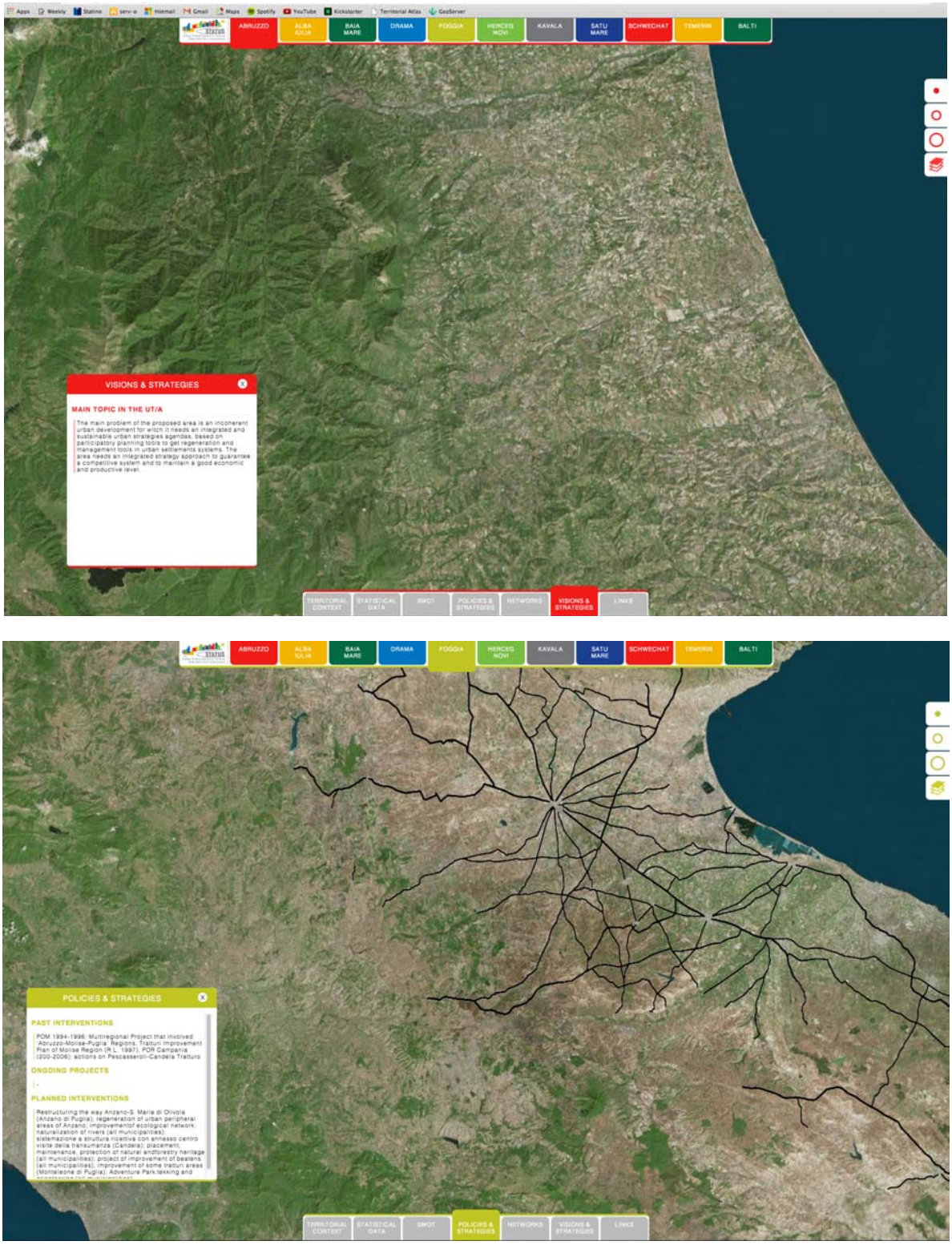

Figure 4 - Textual information visualization

- The right menu - The 3 different dots are dedicated to change the zoom level on the map. The layers button below display the list of the available maps and layers for the pilot selected.

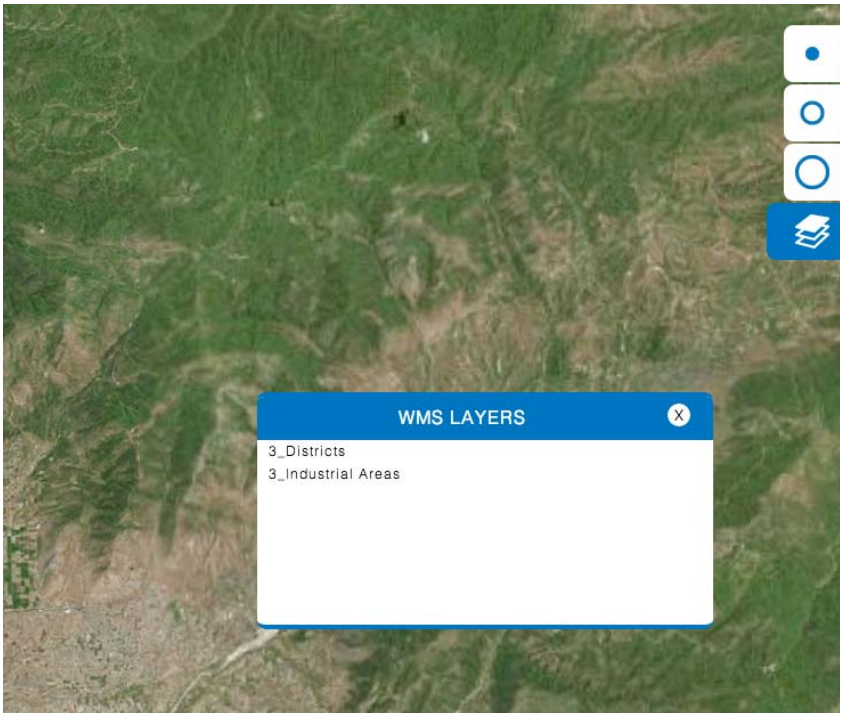

Figure 5 - Layers and thematic maps selection

5. Link

Link to the current draft version of the atlas: status.graphitech-projects.com

The website address of the Territorial Atlas will remain the same even after the release of the final version.