ESPON

EUROPEAN UNION

Co-financed by the European Regional Development Fund

Inspire Policy Making with Territorial Evidence

TARGETED ANALYSIS //

IMAGINE

Developing a metropolitan-regional imaginary in Milan-Bologna urban region

Scientific annex 6 // Visual Platform

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1 Visual Platform

The IMAGINE Project implemented a Visual Platform (VP), to support the process of development of spatial imaginaries of the Milano-Bologna urban region. The general purpose of the VP is to increase the accessibility of the spatial analyses and elaborations developed in IMAGINE and support the debate regarding the exploration and selection of key indicators for the targeted analysis.

The visual platform is a key tool in the development and sharing of new metropolitan-regional spatial imaginaries. Spatial imaginaries are important because they are a special kind of social imaginaries: they are collective social constructions that enable communities to imagine themselves as such (Davoudi2018)1. In this perspective spatial planning tools and visualization methods play a key role in the same processes of social construction of spatial imaginaries. According to Fedeli (2020)[2] "from the point of view of spatial planning, spatial planning processes and arenas are those under which spatial imaginaries are still largely produced, both at the national or local level [..] the production of spatial imaginaries grounded on traditional understanding of spatial planning and the legal and normative framework under which spatial planning works could hinder rather than enhance a post-metropolitan vision. To challenge the hegemony of traditional spatial representations, IMAGINE introduced a visual platform as an additional tool that could support the debate over the regionalization of the Milano Bologna urban region.

The VP aims to offer spatial visualizations at regional level, adopting methods capable to overcome traditional boundaries of spatial representations. For this purpose, the VP offers macro-regional visualizations of data aggregated at municipal and at provincial scale, allowing to explore the impact of relevant socio-demographic phenomena a large amount of data available at different scales.

The VP is expected to expand the opportunities for interactions of a variety of social and technical actors using a common and accessible analytical tool. In this manner IMAGINE expects to enable new hybrid spatial planning arenas where different kind of spatial knowledge can find a common ground to establish a dialogue.

In IMAGINE the platform is implemented along with the development of the Regional Portrait

During the development of the regional portrait the VP enabled and made accessible early spatial visualisation of the key indicators (starting from the initial list presented in the inception report) and supported the selection of key indicators and synthesis maps that compose the portrait itself.

Once the regional portrait consolidated, the VP has been organized consistently with its structure and data models, to offer visualization of both key single indicators and synthesis maps (cfr. Scientific annex // Report-atlas presenting the functional characteristics of Milan Bologna urban region).

The VP has been a pivotal instrument during the phase of development of new imaginaries and scenarios of development of the Milano bologna urban region, providing a common base of accessible spatial knowledge and supporting stakeholders and territorial actors in the debate.

Finally, the VP supported the Imagine project from the beginning throughout the final stages t and now remains as a repository of the elaborations and outputs of IMAGINE, accessible by stakeholders and by the public interested in exploring the main urban and territorial dynamics of the Milano-Bologna urban region.

The VP is created and managed through the Esri ArcGIS Online platform. It is implemented using the ArcGIS Dashboard service to collect different typologies of geographical information.

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[1] Davoudi, S. (2018). Spatial imaginaries: Tyrannies or transformations? *Town Planning Review, 89*(2), 97–125.

[2] Fedeli, V., Feiertag, P., Harrison, J., (2020). Invoking New Metropolitan Imaginaries: What Type of Metropolitan Region for What Kind of Metropolitan Planning and Governance?, in: Zimmermann, K., Galland, D., Harrison, J. (Eds.), Metropolitan Regions, Planning and Governance. Springer International Publishing, Cham, pp. 173–192. https://doi.org/10.1007/978-3-030-25632-6_10

The VP can be explored through two different tools:

- the IMAGINE Dashboards (based on ArcGIS Dashboard)
- the IMAGINE WebApp (implemented and edited using the ArcGIS webapp builder application)

1.1 Imagine Dashboards

The ArcGIS Dashboard allows to display multiple thematic maps, data as well as interactive charts and graphs. Thus, it is not only an informative tool but can also act as explorative platform via actions and selectors. All the elements in the dashboards are linked together, providing dynamic results as the users explore and move inside the maps and charts.

The platforms proposed are seven and are organized in the main analytical dimensions structured in the regional portrait:

1. *What makes the urban region?*
2. *Living like an urban region?*
3. *HSR corridor as a regionalisation machine?*
4. *Growing Like an urban region?*
5. *Resources?*
6. *Seeing like a region?*
7. *Transitioning like a region?*

Hence, it is offered a distinct dashboard for each key indicator.

The Imagine Dashboards are organised with the maps as main elements. They are located at the centre of the window together with their legends. The key map shows the synthesis indicator followed by the maps representing the key indicators selected to calculate the index, according to the methodology presented in the Imagine Regional Portrait. The indicators values are graduated using diverse classes and methodology following the composition of the regional portrait. Furthermore, it is possible to interact within the maps by selecting and filtering data, to turn off and on proposed spatial layers. Finally, to select the preferred basemap. The dashboard is fully integrated with GIS technology and enriched with external content, graphical and textual elements.

Consequently, charts and graphs are organised together with the maps with the possibility to visualise and compare data. Overall, the dashboard allows the following actions:

- *Filter*—Reduces the number of features available to the target element or operational layer when it's rendering;
- *Set Extent*—Sets the extent of a target map element;
- *Zoom*—Causes a target map element to zoom to a specified location;
- *Pan*—Causes a target map element to pan so a specified location is centred;
- *Show Pop-up*—Displays an information window on a target map element;
- *Turn on- off layers* —Turn on and off target map layers to personalise maps visualisation.

Data and maps can be filtered following two types of aggregations:

- official classifications (regions, province, municipalities);
- interpretative taxonomies and clusters referred to: urban typologies, peripherality levels, diverse administrative hierarchies, demographic size as well as distance from the corridor.

For example, it is possible to apply a filter to the map by simply clicking on a chart, allowing to display only the spatial elements consistent with the selection and based of the aggregations proposed, the data will change following the selections. In addition, it is possible to move and zoom to display data values directly selecting items from the map.

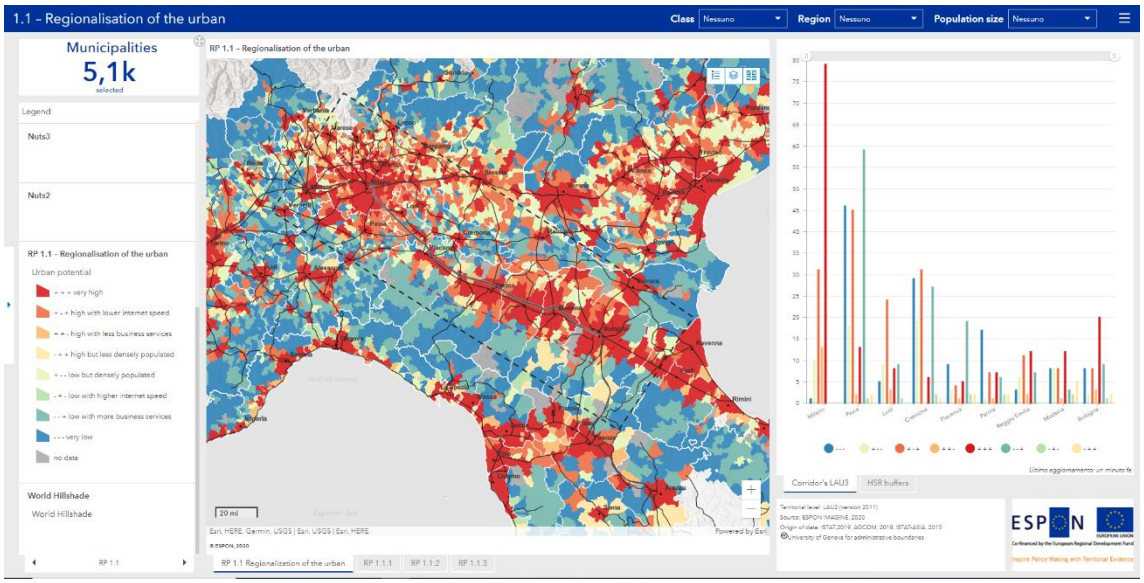

Figure 1 - Imagine Dashboard

1.2 Imagine Web-app

To conclude, it is also proposed an Imagine Web-app as a second visual product. The webapp is implemented and edited using the ArcGIS webapp builder application and ensures the visualisation to the analytical data, the territorial base and all the indicators collected through the research. It is designed and structured with the objective to be a map atlas that guarantees the possibility to display thematic maps and customise them with different spatial layers and base-maps. Finally, it allows to query and select features from the layers, to use widgets and visualise data from pop-up windows

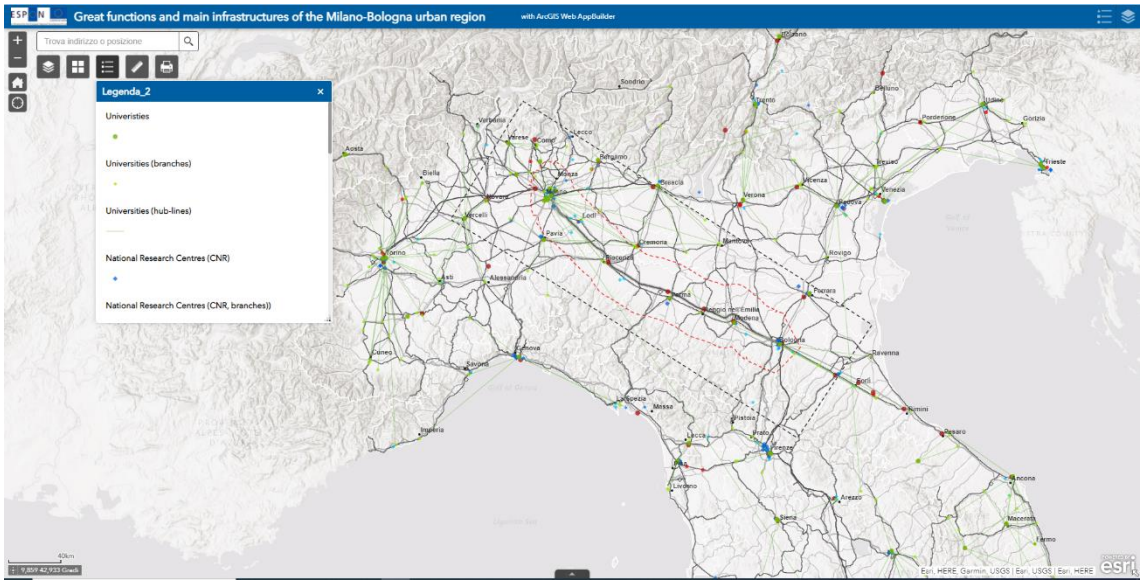

Figure 2 - Imagine WebApp

1.3 Links to the Imagine Dashboards

1. *What makes the urban region?*

• **RP 1.1 Regionalisation of the urban**

Link: https://polimi.maps.arcgis.com/apps/dashboards/b0602f8f63eb47efa2475f63bddbfc40

2. *Living like an urban region?*

• **RP 2.1 – Regionalisation of mobility**

Link: https://polimi.maps.arcgis.com/apps/dashboards/f27a1d67b57449ed95703c2009bdb276

• **RP 2.2 – Potential accessibility to railway services**

Link: https://polimi.maps.arcgis.com/apps/dashboards/078e835f84bb4493ac0efc950b321c61

• **RP 2.3 – Change in potential accessibility to railway services**

Link: https://polimi.maps.arcgis.com/apps/dashboards/af69783f6cbe49ceb8fcf00ea88bd9e1

3. *HSR corridor as a regionalisation machine?*

• **RP 3.1 – Regionalization dynamics**

Link: https://polimi.maps.arcgis.com/apps/dashboards/3d0ec7d58f214b4d96e56cf8d7be5340

• **RP 3.2 – Regionalization dynamics (change)**

Link: https://polimi.maps.arcgis.com/apps/dashboards/c9b00e8e538f41c9a32920e06761efab

4. *Growing Like an urban region?*

• **RP 4.1 – Regional competitiveness**

Link: https://polimi.maps.arcgis.com/apps/dashboards/79e4282350984a5e8202e0fe7b6a12b0

5. *Resources?*

• **RP 5.1 – Public investments and resources**

Link: https://polimi.maps.arcgis.com/apps/dashboards/0bce69c11b4a46fd828551ce2185cd14

6. *Seeing like a region?*

• **RP 6.1 – New spatial imaginaries need**

Link: https://polimi.maps.arcgis.com/apps/dashboards/09a3b36b3d4d409f9d0bb461a453362c

• **RP 6.2 – Institutional cooperation potential**
Link: https://polimi.maps.arcgis.com/apps/dashboards/6e2349f2392c4b889a5a581b219b1432

7. *Transitioning like a region?*

• **RP 7.1 – Environmental fragility**
Link: https://polimi.maps.arcgis.com/apps/dashboards/1a18806092e84578b0f8c0d4304b07fe

1.4 Link to the Imagine Web-app

• Great functions and main infrastructures of the Milano-Bologna urban region

Link:

https://polimi.maps.arcgis.com/apps/webappviewer/index.html?id=04bd48cda7444d4e9e9b58a3f3b2f508

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