

# 3.7

## ITALY 2

### INVITO FOR MEASURING ACCESSIBILITY OF NEW DEVELOPMENT AREAS IN NORTHERN TURIN

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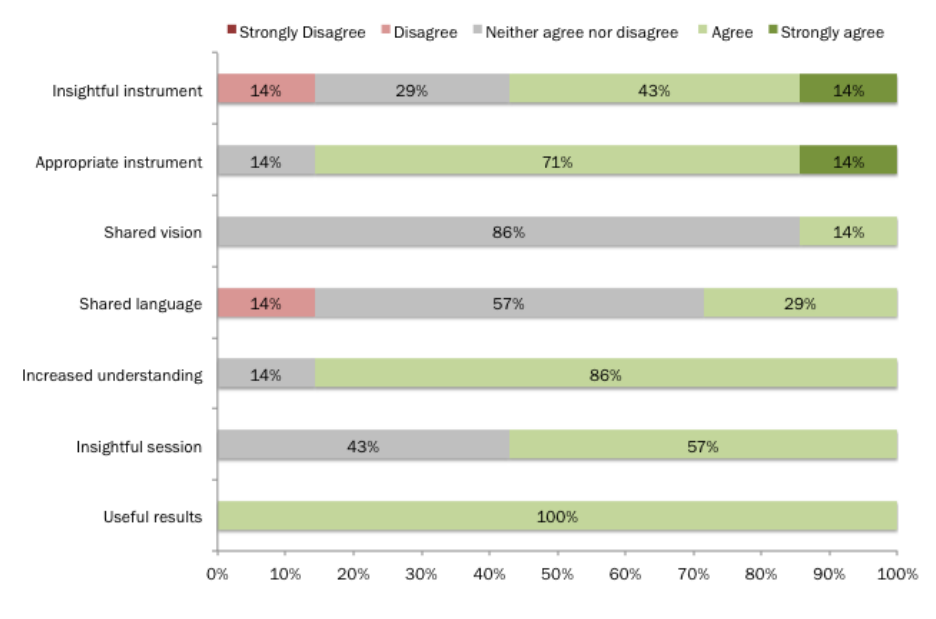
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Participants' profile	# Participants: 7
Male   Female	5   2
46-60   >60	5   2
Transport planner   Urban planner   Architect	3   2   2
Public organisation   Private organisation	5   2

Views about the session and the instrument
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### **InViTo**

The Interactive Visualisation Tool (InViTo) is a decision-support instrument that uses visualisation in real time to explore geo-referenced databases, in order to assist decision-makers in understanding the spatial effect of their choices. It invites users to configure various indicators to define planning choices and generate new spatial maps. The output maps are displayed in real time, so that users can easily comprehend the connections between their choices and the corresponding spatial effects. Furthermore, these outcomes can be combined with a versatile range of two- and three-dimensional visualisations, which can be again modified through interaction with users.

The instrument tested during the workshop is a new web-based version (InViTo 2.0), developed with the free Google API (Application Programming Interface). This web platform makes it user-friendlier and more intuitive compared to the previous version. It increases, as requested by users, the freedom of the individual users in choosing the spatial elements to be analysed. For example, users can choose to analyse only a transport mode or can modify the importance (weight) of a railway station. At the same time, it is more flexible in managing GIS data and improves interactive features, as users can now individually decide the setting of spatial parameters. It is also compatible with various data collection methods and multi-criteria analysis.

The purpose of the instrument is not to compete with other instruments based on GIS or transport models, but to collect and synthesize different elements in order to create maps based on the concept of accessibility. In particular, it aims at facilitating the discussion and the acquisition of information during decision-making. By calculating different scenarios, the tool provides a simple visual interface for the comparison of alternative planning options.

The tool is particularly useful in decision-making processes because it displays real-time data (collected during the discussion) and visualises the effect of the participants' choices—thus facilitating the discussion and the exchange of information among the participants. InViTo allows for the creation of a common mental model through visual communication. In fact, it shares information in the common language of maps, thus overcoming the difficulties linked to the different levels of technical skills among decision-makers.

### **Setting the scene**

The local workshop carried out by the WU took place in Turin on 10 July 2013, with the participation of twelve land use and transport experts, supported by four members of the WU.

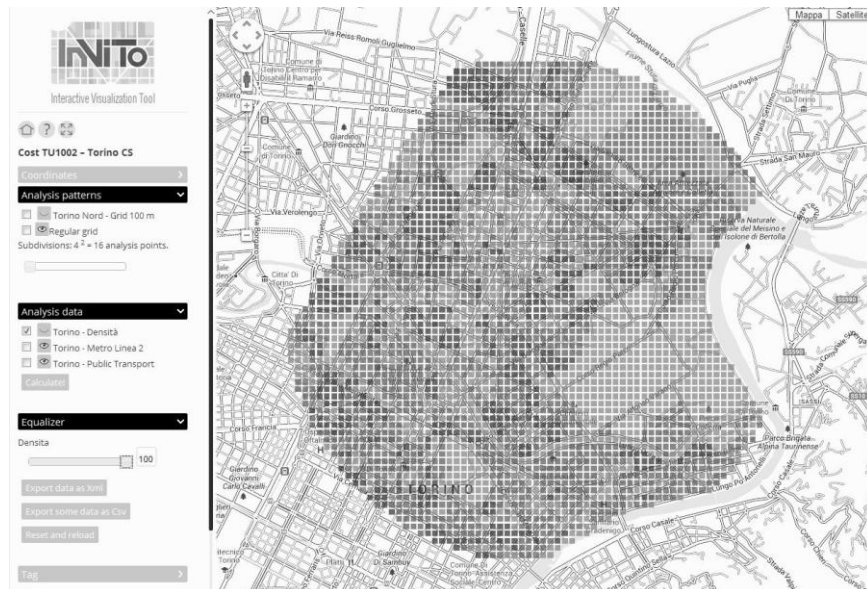


Figure 3.16: screenshot of InViTO

The participants were chosen based on their background and expertise. In order to guarantee a mix of public and private practitioners, half of them were selected because of their experience in urban planning and the other half because of their experience in transport planning. The participants are all high-level practitioners, used to being involved in decision-making processes and aware of the issues considered in the workshop. As the case study selected is in the northeast area of Turin, at the border with another municipality (Settimo Torinese), both municipal administrations were invited. The expert panel consisted of the following participants:

- [Enzo Corrado Bason](#), transport planner, Turin Metropolitan Mobility Agency;
- [Antonello Camillo](#), Urban Planning Director, Municipality of Settimo Torinese;
- [Mario Carrara](#), transport expert, former President of Turin Airport;
- [Franco Corsico](#), urban planning professor, former City Planning Commissioner;
- [Daniela Grogardi](#), Urban Planning Executive, Municipality of Turin;
- [Domenico Inaudi](#), transport models expert, consultant at SiTI;
- [Cristina Pronello](#), transport planning professor and COST TUD Chair;
- [Matteo Robiglio](#), urban planner, professor at Polytechnic University of Turin.

Prior to the workshop, only some of the participants had experience with accessibility indicators in their daily work. The participants with a

transportation background know accessibility indicators well and use them in their daily work; they were more focused on studying the issue from a mobility point of view. At the same time, urban planners were seen to be more concerned with the concept of connections and relations, but not in relation to specific numerical indicators about accessibility.

Playing with the instrument in a next-to-real-life exercise, the workshop aimed at evaluating the impact of new infrastructure (a metropolitan railway system, a new subway line, etc.) on accessibility in the northeast quadrant of Turin, with respect to the revitalisation of old industrial areas.

### **Describing the workshop**

The idea of running the workshop on the northeast area of Turin is due to the plans and projects for revitalisation of the area, two main urban infrastructure projects in particular: the second line of the underground mobility system and the Metropolitan Railway System. These projects have a big potential impact on the urban, metropolitan and regional system. They involve transportation and urban planning problems in a large part of the metropolitan area of Turin, and thus present an interesting case study for examining accessibility issues in urban planning practice. Also, it is a hotly debated topic in Turin, engaging various—often conflicting—opinions and interests. As a multi-faceted problem, it requires the contributions of different experts and stakeholders.

To discuss the planning topic by means of accessibility terms, different scenarios have been proposed. In particular, three different routes for the second underground line have been investigated in order to understand which one could fit the accessibility needs for the entire city better.

Since the planning problem was concerned with the public transport system, the accessibility indicators used to tackle the issue were defined on the basis of public transport facilities in relation to residential areas, according to places frequented on a daily basis (i.e. schools or primary needs facilities), on a weekly basis (such as shopping malls or urban parks) and occasional basis (as leisure parks). The accessibility indicators used in the workshop were based on distance, the basis measurement of the new version of InViTo. Currently, calculations of distance are made on linear distance and not on the length of the road network because of strict use limitations by Google Maps.

The indicators work on metric distance of places of interests from public transport access points and stops, classified in buses and trams stops, urban railway stations and future possible underground stations.



Figure 3.17: The setting of the Turin workshop

During the first hour of the workshop, the WU explained the research, the planning question, the concept of accessibility used to tackle the problem, and the instrument to be used for assessing accessibility. This introduction provided for the sharing of possibilities and limitations given by the InViTo tool in calculating accessibility. The presentation of the tool prompted a discussion on the concept and measures of accessibility (defined in different ways). Most of the participants defined accessibility in terms of time, so that the distance-based setting of the new version of InViTo was seen as incomplete. This step was very useful for thinking about new methods for calculating accessibility, and the participants showed their interest in contributing to the definition of new formulas to be used in InViTo. Since InViTo does not intend to provide numerical responses and is flexible to be adjusted in different ways, the participants accepted the distance-based setting and used the tool.

In the second part of the workshop, the participants used these indicators to create, in real-time, a number of maps, which were used to support the discussion about the alternative project options. The theme of the chosen planning question generated debate on some key issues strictly connected to Turin. It demonstrated the natural dynamics of real-life decision-making processes, but also highlighted the usefulness of interactive maps in supporting or dispelling arguments. Thus, the discussion returned again to the usability of accessibility indicators, highlighting the differences in disciplinary backgrounds. Transport planners showed a strong interest in formulas and numerical values in the accessibility calculations, while urban planners focused on the resulting urban system. The discussion continued regarding the outcomes given by the accessibility analysis, the resulting maps and their impact on the planning question. In this sense, InViTo showed its effectiveness in translating individual thinking into a shared model and in providing a way to flatten the different opinions and enable a discussion.



Figure 3.18: Participant with InViTo map

### Lessons on usability

InViTo proved both useful and usable during collaborative decision-making sessions. The participants expressed their satisfaction with the possibilities given by the instrument, which were seen as suitable for communication with stakeholders, policymakers and persons who are not technical experts. The Graphic User Interface (GUI) was quickly understood and implemented.

The tool was particularly successful in supporting decision-making processes, by providing a shared and common way to analyse the urban problem. The real-time capabilities of the tool proved fundamental for providing information to the participants. The ability to quickly visualise the effects of planning choices greatly improved the knowledge exchange among the participants. The concept of accessibility has been investigated and improved. Most of participants expressed interest to support the development of both the tool and the accessibility concept, measures and formulas.

Besides comments on the usability of the instrument, also useful suggestions for improving the instrument were collected:

- Prioritising public transport stops according to the number of lines and their frequency;
- Including urban quality as an element to be considered in the model;
- Integrating public transport with the bike sharing service;

- Including cost and time as parameters, seen as better indicators than distance when accessibility is measured as a generalised weighted cost on activities;
- Develop the tool on two different levels: a first level, easily understandable for anyone, in which the outcomes are already filtered by the experts; and a second level, more technical, with more detailed outputs to be used by experts.

