3.12 SPAIN

ISOCHRONES AND CONTOUR MEASURES FOR LEISURE FACILITY IN SOUTHERN MADRID

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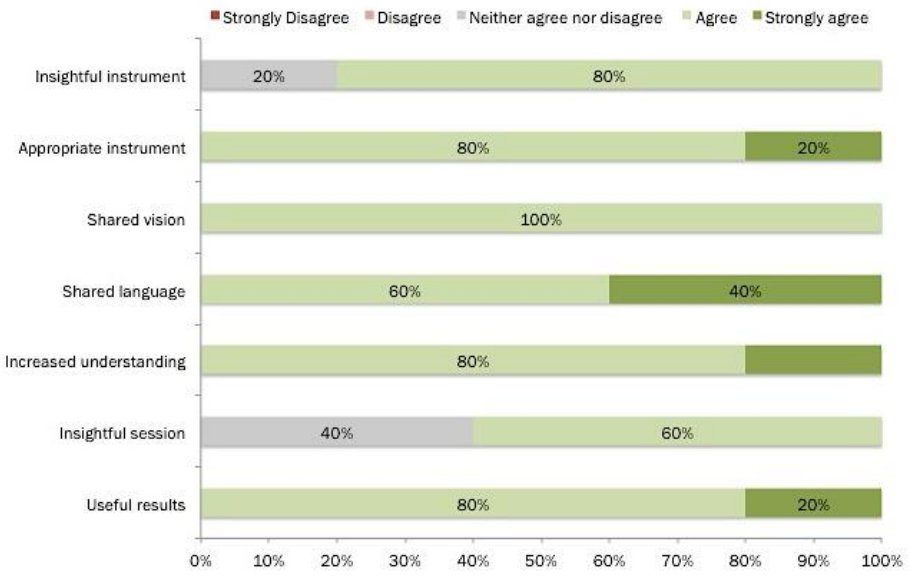
Participants' profile	# Participants: 5
Male | Female	3 | 2
31–45 | >60	3 | 2
Transport planner | Urban planner | Researcher	1 | 3 | 1
Public organisation	5

Views about the session and the instrument



Isochrones and contour measures

Isochrones are lines of equal distance or travel time to a particular centre of interest. These lines can be drawn for private transport, in the simplest case, but can also take into account public transport and slow modes. Isochrones are computed in GIS, thus allowing the estimation of a variety of indicators and contour measures, which provide information on the number of residents, employees, potential customers and others within each distance or travel time to a particular centre of interest (workplace, commercial centre, hospital, university, etc.).

They can be understood as a measure of accumulated opportunities considering the population or employment options within a certain distance or time threshold from one or several centres of interest. By taking into account the total population within these thresholds, the measure of accumulated opportunities provides an estimation of the potential demand.

Isochrones and derived indicators allow the identification of areas that fall outside the accessibility threshold as well as an estimation of the population or workplaces located within each accessibility threshold. Planning practitioners are particularly interested to find out exactly which populated areas have poor or non-existent accessibility to public transport.

The role of public transport in the study area was introduced to the participants at the pre-workshop meeting by distributing a copy of the publication 'Metrosur: Análisis SIG del transporte público y los cambios en la accesibilidad en el Sur de Madrid'. In this publication the authors analysed accessibility to hospitals and universities with the use of isochrones and related indicators before and after the Metrosur subway line connected southern Madrid with the city centre.

During the workshop, the working group developed an example of isochrones by private vehicles in order to generate a discussion about the implications of the development of a new mega leisure facility on the accessibility of Madrid. We explained how isochrones can be useful for measuring accessibility to a certain point of interest, and for counting and analysing the population that has access to it. The presentation included some examples of studies of accessibility showing isochrones maps and related tables.

Setting the scene

The participants included four members of the COST Action WU in Madrid (Enrique Calderón, Rosa Arce, Emilio Ortega Pérez and Maria Henar Salas-Olmedo). The other five participants had the following backgrounds: the urban planning perspective (Silvia Villacañas from Madrid City Council, and Manuel

Lázaro from Fuenlabrada City Council); the transport planning perspective (Ramón Cuvillo from Universidad Politécnica Madrid, Consultant on Urban Affairs, and Domingo Martín from the Madrid Regional Transport Consortium) as well as the transport research community (Floridea Di Ciomo from TRANSyT: Transport Research Center).

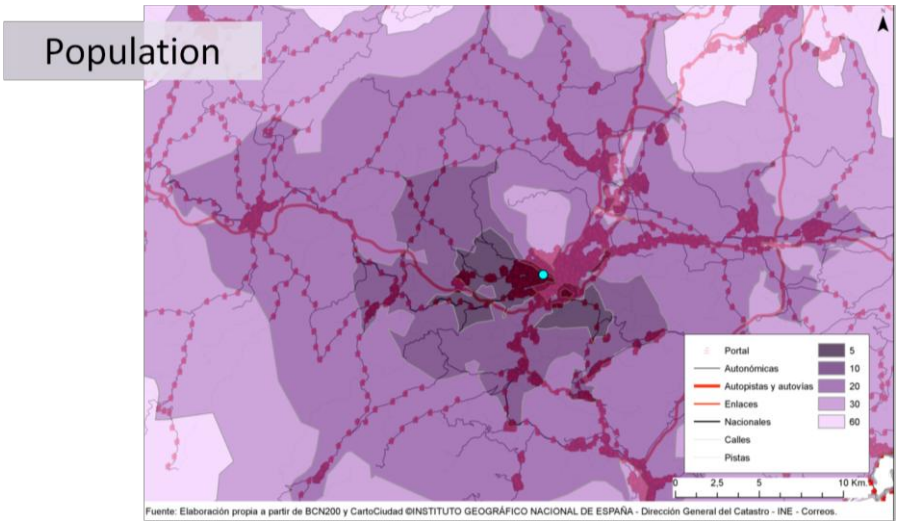


Figure 3.28: Screenshot of an isochrones output

Some of the participants had used accessibility measures in the past, particularly those coming from the transport planning and research fields, whereas others were interested in introducing the concept in their projects, and had only initial knowledge about the topic.

Describing the workshop

Step 1

The topic was first introduced in the pre-workshop meeting, where the participants were asked to outline potential accessibility questions that they would like to discuss. Based on their comments, the working group defined the final planning problem, which was presented in the workshop. The indicator was chosen based of previously completed work and data availability.

Step 2

In order to address accessibility needs, information regarding the types of people who would demand accessibility and the various activities (both in time and space) is required. After a debate about the profile of the persons who

would be travelling to the new leisure centre, it was agreed that the scenarios might change over time and that the discussion should continue on the basis of a jointly agreed hypothesis.

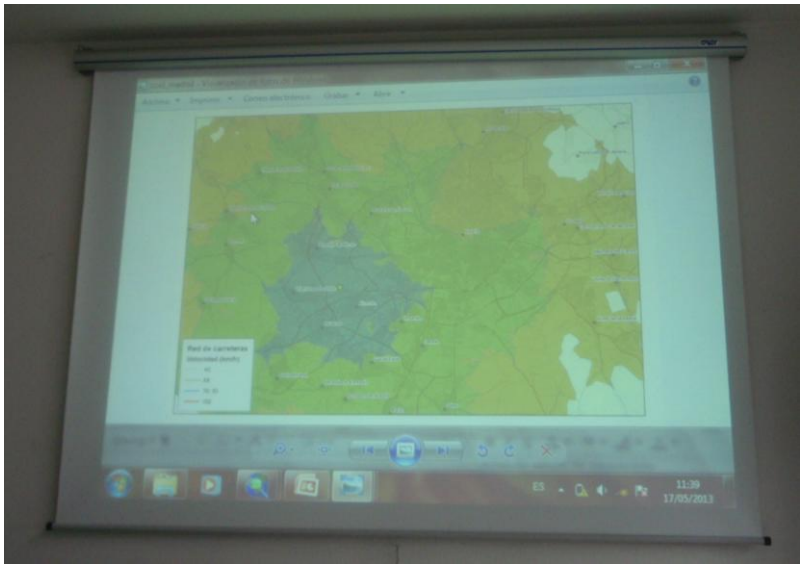


Figure 3.29: Presentation of the instrument at the Madrid workshop

Step 3

The public administrations need to estimate what investments would be required in order to provide accessibility to prospective users as well as to maintain the current accessibility levels for existing ones. Politicians will normally support this viewpoint if it is linked to economic development. An adequate level of accessibility needs to be provided both to workers and suppliers. It was agreed that clients and visitors might accept longer travel times than workers and suppliers.

The participants were asked to suggest measures that should be taken to improve accessibility to the new development, while avoiding an increase in the congestion level of the transport network of the metropolitan area. Different kinds of measures and viewpoints were shared by the participants, with the differences following the professional background divisions. For example, the participants with academic profiles emphasised the need to implement soft measures (i.e. road pricing vs. road construction), while urban planners expressed their concern regarding the efficiency of that type of measure.

The public administration should encourage developers to take part in funding the actions required to maintain or improve accessibility after the construction of the new mega leisure centre. This should be done in coordination with other

new developments in the metropolitan area (e.g. the new railway line). In absence of a regional planning document, the regional transport consortium plays a key role in coordinating new accessibility needs and solutions.

Figure 3.30: Set-up of the Madrid workshop

Step 4

The group had an intense debate on the measures that could help solve the problem of increasing accessibility to a certain location without worsening the current situation in other parts of the city. During the discussion, moderators provided examples of the results of the suggested measures, based on their own expertise. Therefore, the participants could evaluate the usefulness and the need to complement those measures with others in order to mitigate the undesired effects.

At the end of the discussion there was an agreement on some measures that would benefit future employers of the new development. These include encouraging the use of the currently underused infrastructure, for example, providing shuttle buses to connect Metrosur with the mega leisure centre; adding or reserving a BUS-HOV lane in the A5 highway; modifying current public transport fees, thus allowing public transport to compete with the private vehicle in periurban-to-periurban commuting.

Other proposed measures focused on preventing the overuse of local resources, for example, by imposing a fee on road traffic with touristic purposes or by developing a legal framework that requires developers to co-fund new public transport solutions for a specific time period. The later suggestion follows the example of Catalonia, where new developments have to comply with a sustainable mobility plan.

Lessons on usability

At the end of the workshop, all the participants put forward their main conclusions and lessons learned:

- Maintenance and eventual improvement of current accessibility levels should be a key goal, which may imply adding new lanes, modifying public transport fees, taking advantage of new railway investments, and other measures.
- The project will affect accessibility by all modes of transport, thus actions should consider all those modes jointly.
- There would be a large variety of uses, which makes transport planning particularly difficult. Intersectoral planning is a must, and GIS is an adequate tool to integrate information from different sources.
- Accessibility improvements should be negotiated with prospective developers prior to the granting of development permits.
- The analysis of accessibility could be enhanced with the inclusion of additional development options planned at a metropolitan/regional scale in the study area.
- Alternative soft solutions are the BUS-HOV lane along the A 5 and tourism-linked road pricing.
- The suggested indicator (i.e. isochrones) is deemed useful, albeit subject to improvements. The main strength is its simplicity and ability to be integrated with other datasets in a GIS. It should have been used prior to making the final location decision, and in relation to urban and regional planning strategies.
- Isochrones must be included in a sustainable mobility plan for this development. They are useful tool for other urban sustainable mobility plans as well as for urban and regional planning. They can be employed for identifying low accessibility areas.
- There is a need for closer integration of data sources from different departments in order to better analyse land use and mobility needs through a transversal perspective.

These are useful lessons both for the participants and for the workshop organisers. Our main lesson learned as researchers is the importance of providing a meeting place where stakeholders and academics can share their viewpoints, and thus foster knowledge transfer between different groups. The moderators can help summarise the ideas and take advantage of the synergies between the different solutions that emerge during the discussion. The main strength of the tool is that it is GIS-based and, thus, can be easily computed

(compared to transport models) and integrated with other datasets (e.g. population, credit card use, etc.).

However, even though the activity was enriching for all participants and the need for cooperation and coordination was unanimously acknowledged, there is still room for improvement. Especially the elaboration of a long-term plan for establishing the procedure that will bring this cooperation to life was seen as an important post-workshop step. There is room for improvement in the real-time capability of the instrument. Fortunately, real-time data availability is increasing, although it remains rather expensive, which limits is usability. Basic private vehicle isochrones maps for this particular study case were shown, followed by a discussion about the usefulness of this tool. It was agreed that the results would benefit from the inclusion of traffic data and the integration of the public transport system.