Examples
Intermodal interchanges are points where transport modes join with other modes and allow passengers to change easily between, for example, rail, metro, buses, cars or bicycles. They are key infrastructure elements that provide seamless transport, making public transport an appealing option when commuting or planning a trip. A key is to create nodes (points in a network where lines or paths intersect) that make transferring from one transport mode simpler, more accessible and friendly.

A coordinated service between transport managers and operators is crucial, as is providing good information to passengers related to the options they have when transferring from one mode to another.

Results
Intermodal interchanges minimise overcrowding and congestion; use space more efficiently; and optimise the design and location of key facilities. They also increase passenger satisfaction, and get more people using public transport.

The experiences of different cities show that transport interchanges perform a key public transport function, and ensure that transport infrastructure is well connected to the public transport network.

Technical and Financial Considerations
The cost of constructing interchanges is very flexible, depending on the measures included in the project – but constructing them in consolidated urban zones needs large investments. Interchanges should improve travel times and boost the number of travellers on the public transport network, and cities should consider these factors when calculating the costs.

The possibility of obtaining direct profits from managing interchange station adds a dimension of economic profitability to the investment's already existing social benefits. Using space efficiently and renting commercial retail space can save money or generate income.

The principal technical determining factor is the enormous surface area that is required. In addition, the design should respond to three types of needs: those of the transport interchange station, those of the users and those specifically of the transport modes servicing the station.
POLICY/LEGISLATION
Interchanges are crucial in getting more people to use public transport, which makes their city more liveable—a major objective of cities across Europe. National, regional and local policies should also take into account sustainable transport and urban planning, and cities should implement them in legislation at different levels. Specific regulations on important issues such as fire safety, ventilation and air extraction, safety and permitted uses are also required for interchanges.

INSTITUTIONS
The institutions involved in the process depend on the stage of the project. However, the main stakeholders are the interchange owner/manager; the local authority; public transport operators; and the city planning department.

Political support is crucial to initiate this kind of project, or at least commitment to the required finances. The infrastructure usually belongs to the local or regional authority and in many cases to the transport operator. Therefore, this kind of investment could be an initiative of the service providers or other stakeholders. However, the authority should make the final decisions together with the transport operator (or the infrastructure manager). Whether or not the infrastructure and public transport services are in different hands, they make decisions in strong cooperation and usually involve third parties to collect the possible benefits to the project and provide solutions for the financing.

TRANSFERABILITY
This kind of infrastructure is transferrable to other cities, considering that is flexible and has to be adapted to the specific needs and requirements that may arise. These infrastructures have a very positive impact in the city and urban transport.

As part of the EU CIVITAS programme’s ELAN project, intermodal terminals were studied in Ljubljana (Slovenia), Ghent (Belgium), Zagreb (Croatia), Brno (Czech Republic) and Porto (Portugal) to create a platform for the exchange of experiences and good practice. These kinds of initiatives are very important to reproduce these measures in other cities around the world.
CASE STUDY: THE PLAZA ELÍPTICA IN MADRID (SPAIN)

Context
The city of Madrid has a long tradition on making intermodality work, with efforts that clearly pay off. In 2004, the Madrid Regional Transport Authority (MRTA) licensed a public tender for the construction, operation and maintenance of six intermodal interchanges. The Plaza Elíptica was one of them.

The proposal was to build a new underground transport interchange station that would optimise the connection with metro lines 6 and 11 for close to 60,000 bus travellers, particularly once the latter line extends to the city centre. This removed street-level bus services, completed the reorganisation programme of all the bus terminals around the Circular metro line, and improved waiting times and transfers of bus users.

In action
The transport interchange station divides into three levels; the first two of these are for the interurban bus services and the last is for connection with the metro through a general services area.

On each bus levels, 10 bays for 15-metre long buses are located around a triangular area or “island” - a layout based on the 14 bus lines that ended their routes in the station on a daily basis.

As the heaviest flows of people are passengers getting off buses and going to the metro station, the interchange is designed is away to channel these flows as directly as possible, without prejudicing other passenger movements. Based on this and the triangular form of the platform, there is a main nucleus in the centre of the triangle, with stairs for reaching the metro on level 3 from levels 1 and 2, to channel the flow of passengers descending to the metro. To provide continuity without changes of direction or pointless journeys for transit between levels 1 and 3, on level 2 there is an additional stairway that connects to level 3, continuing the stairway from level 1 to level 2.

The work cost €60.7 million ($66 million), paid for by private financing through an administrative concession for the construction and operation of the transport interchange, which was granted to the company for a period of 35 years.

Results
The new Plaza Elíptica intermodal hub gives a glance on a new generation of intermodal interchanges. It combines attractive architecture with convenience and efficiency, and supports Madrid’s goal of encouraging more people to use public transport in Madrid and the region.

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The SOLUTIONS project consortium, consisting of partners from all over the world, brings together a wealth of experience and know-how from organisations, consultants, cities, research and technical experts involved in transport issues and solutions.