CIVITAS
Sustainable and smart mobility for all
2030

CIVITAS indicators

Modes covered by trip planning applications (TRA_MM_FI1)

DOMAIN

Transport	Environment	Energy	Society	Economy

TOPIC	**Multimodality**	
IMPACT	**Functional integration of transport modes** *Increasing the number of modes covered by multimodal trip planning applications*	**TRA_MM**

Category

Key indicator	**Supplementary indicator**	State indicator

CONTEXT AND RELEVANCE

Functional integration of transport modes refers to the coordination of different transportation systems to into a cohesive network where various modes complement one another. This involves unifying ticketing, trip planning and booking platforms to enable seamless travel across all urban mobility modes. By functionally integrating transport modes, cities can significantly enhance the convenience and efficiency of their mobility systems. Coordination between services makes multi-modal journeys more intuitive and time-efficient for users, ultimately improving the accessibility and appeal of public and shared mobility modes.

A functionally integrated system supports as shift to sustainable mobility options, reducing car dependency and promoting environmental and social benefits such as lower emissions, safer streets, and more efficient land use.

This indicator provides a measure of the functional integration of transport modes. **This is a relevant indicator when the policy action is aimed at improving the functional integration between different modes of transport. A successful action is reflected in a HIGHER value of the indicator.**

DESCRIPTION

This indicator is the ratio between the number of public transport and shared modes which are covered by at least one multimodal trip planning application and the total number of public transport and shared modes available in the city. The indicator is **dimensionless**.

METHOD OF CALCULATION AND INPUTS

The indicator should be calculated exogenously based on direct observation and then coded in the supporting tool.

Method	
Estimation of the index based on information retrieved from trip planning applications	Significance: **0.25** 

INPUTS

The following information is needed to compute the indicator:

a) The number of public transport and shared modes that are covered by at least one multimodal trip planning app. All multimodal trip planning applications active in the experiment area must be considered.
b) The total number of public transport and shared modes present in the experiment city.

The experiment would result in an increase in the number of public transport and shared modes covered by multimodal trip planning applications.

METHOD OF CALCULATION

The indicator should be computed exogenously according to the following steps:

- **Retrieval of the number of public transport and shared modes which are covered by trip planning applications** active in the experiment city. This datum can be obtained from the trip planning applications themselves.
- **Retrieval of the number of public transport and shared modes available in the experiment city**.
- **Estimation of the index** by computing the ratio between the number of modes covered by trip planning applications and the total number of modes.

To allow for comparability across experiments, it is recommended that the indicator accounts for the following **predetermined set of public transport and shared modes**: 1) shared bikes, 2) shared scooters, 3) shared motorbikes/mopeds, 4) shared cars, 5) bus, 6) tram/metro/train.

EQUATIONS

The equation computing the index (last step of the method of calculation) is the following:

$$\boldsymbol{AppModesIndex} = \frac{\boldsymbol{AppModes}}{\boldsymbol{TotModes}}$$

Where:

$AppModes$ = Number of public transport and shared modes covered by at least one multimodal trip planning application

$TotModes$ = Total number of public transport and shared modes available in the experiment city.

ALTERNATIVE INDICATORS

This indicator measures the share of modes covered by trip planning applications. In this framework, there are 5 alternative indicators to assess functional integration of transport modes: TRA_MM_FI2, TRA_MM_FI3, and TRA_MM_FI6, relate to multimodal trip planning applications, while TRA_MM_FI4 and TRA_MM_FI5 evaluate fare integration.

TRA_MM_FI2 considers the number of users downloading trip planning applications, while **TRA_MM_FI3** measures the share of transport operators whose services are covered by multimodal trip planning applications. Lastly, **TRA_MM_FI6** evaluates the share of multimodal trips managed through trip planning applications. Except for TRA_MM_FI6, the indicators related to trip planning applications are relatively simple to calculate, as they rely on straightforward computations and data that can be easily obtained through observation or by requesting information from application developers. However, their significance is limited as **they measure app downloads and modal/operator coverage rather than actual usage.** In contrast, TRA_MM_FI6 has higher significance since it assesses the extent to which multimodal trip planning applications are used. However, its calculation requires conducting a sample survey, making data collection more costly and time-consuming.

Concerning fare integration, **TRA_MM_FI4** counts the number of different transport modes accessible using a single travel pass, while **TRA_MM_FI5** consists of the share of transport operators whose services are accessible using a single pass. Both metrics are relatively simple to calculate and have similar significance.