CIVITAS
Sustainable and smart mobility for all
2030

CIVITAS indicators

Public transport connectivity index – Version 1 (TRA_PT_PTC1)

DOMAIN

Transport	Environment	Energy	Society	Economy

TOPIC	**Public transport**	
IMPACT	**Public transport connectivity** *Improving the connectivity of public transport*	**TRA_PT**

Category

Key indicator	Supplementary indicator	State indicator

CONTEXT AND RELEVANCE

Public transport is generally more environmental-friendly than motorised private transport because it facilitates the efficient use of resources by transporting a larger number of passengers in a single vehicle, thereby reducing overall energy consumption and emissions per person compared to individual private vehicles. It is therefore desirable that public transport is widely used. A requirement for the use of public transport is its connectivity: if a limited number of destinations can be reached, especially within a reasonable time, public transport cannot be an attractive or even feasible option for personal urban trips.

This indicator provides a measure of the connectivity of public transport. **It is a relevant indicator when the policy action is aimed at improving the number of destinations reachable by public transport within a certain time considering a specific area of the city as the starting point. A successful action is reflected in a HIGHER value of the indicator.**

DESCRIPTION

This indicator measures the **number of public transport lines stopping in the experiment area.** The unit of measurement of the indicator is the **number of public transport lines**.

METHOD OF CALCULATION AND INPUTS

The indicator should be calculated exogenously, building on a set of required inputs, **and then coded in the supporting tool.**

Method	
Calculation of the index based on PT timetables and stops	Significance: **0.25** 

INPUTS

The following information is needed to compute the indicator:

a) A map of the public transport stops and stations in the experiment area.
b) The timetable of public transport services available from stops/stations in the experiment area

The experiment would be reflected in the indicator by changing the timetable of public transport lines. This would result from an increase in lines stopping at stops and stations in the experiment area, due, for example, to the addition of lines or the alteration of existing ones.

METHOD OF CALCULATION

The indicator is simply computed by counting the number of public transport lines stopping at stops and stations in the experiment area according to the timetable of the public transport services and the map of stops and stations of the experiment area.

EQUATIONS

The quantification of this indicator does not require any equation. The value of the indicator $\boldsymbol{PTConnIndex}$ to be coded in the supporting tool is just the observed number of public transport lines stopping at stops and stations in the experiment area according to the

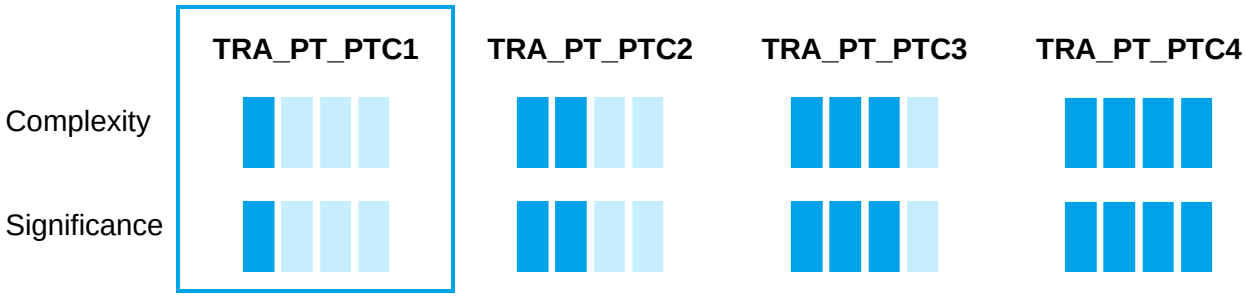
timetable of the public transport services and the map of stops and stations of the experiment area.

ALTERNATIVE INDICATORS

Alternative indicators for measuring the same impact in the experiment area include **TRA_PT_PTC2**, **TRA_PT_PTC3**, and **TRA_PT_PTC4**. All these alternatives are more significant in describing public transport connectivity, and more complex to compute.

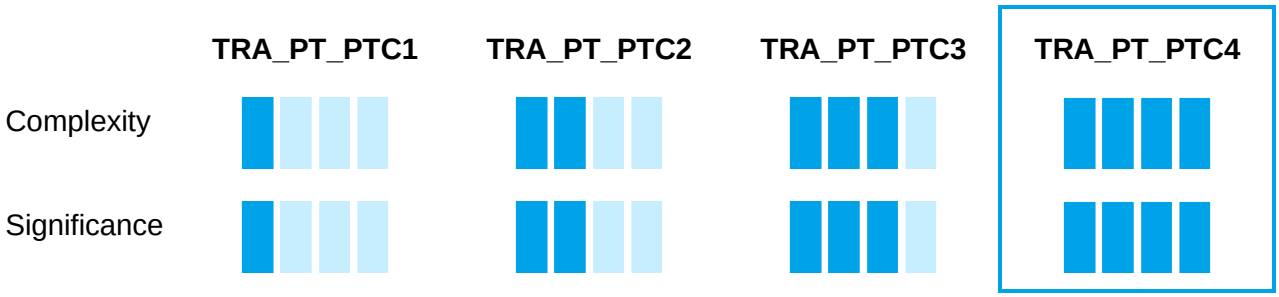
TRA_PT_PTC2 counts the number of stops and stations that can be reached using public transport from one stop or station of the experiment area without changing public transport line. TRA_PT_PTC3 provides a more comprehensive measure by considering the number of stops and stations reachable within 20 minutes from any stop or station in the experiment area. This makes it a more meaningful indicator in comparison to of TRA_PT_PTC2, which only accounts for direct trips without connections. Both alternatives are more significant than the indicator described in this factsheet (TRA_PT_PTC1), which only provides a rough estimate of connectivity by counting the number of public transport lines stopping in the experiment area.

TRA_PT_PTC4 is the most complex but also the most meaningful. In addition to evaluating the supply of public transport in the experiment area, it also considers whether key urban functions—such as offices, educational institutions, healthcare facilities, grocery stores, and recreational spaces—are effectively connected by public transport. By accounting for the spatial distribution of services, TRA_PT_PTC4 offers a more comprehensive view of accessibility. However, its calculation is more demanding, requiring detailed spatial data on service locations.



If the experiment area is the whole city, there are three alternative indicators to measure PT connectivity: **TRA_PT_PTC5, TRA_PT_PTC6, TRA_PT_PTC7.** These three indicators are of growing complexity and significance**.**

It should also be noted that public transport connectivity is one of the three components of **TRA_FC_AC1**. This indicator combines public transport connectivity, bike connectivity and road congestion to assess overall accessibility. The online tool automatically computes **TRA_FC_AC1** if the three sub-indicators have been calculated.



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