








CIVITAS indicators

Parcel lockers for B2C deliveries (TRA_FR_ADC2)

DOMAIN

 <p>Transport</p>	 <p>Environment</p>	 <p>Energy</p>	 <p>Society</p>	 <p>Economy</p>
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TOPIC

Freight

IMPACT

Alternative urban freight transport

Increasing the availability of parcel lockers for B2C deliveries

TRA_FR

Category

Key indicator	Supplementary indicator	State indicator
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CONTEXT AND RELEVANCE

Motorised freight transport refers to the movement of goods using motor vehicles such as trucks and vans. This mode of transport is widely used to deliver goods to customers in urban areas, but it contributes significantly to energy consumption, emissions, noise, and space occupancy. These factors negatively impact environmental sustainability and quality of life in cities.

Alternative solutions for urban deliveries, such as cargo bikes, parcel lockers, autonomous bots, drones, and shared logistics, can help reduce the reliance on conventional motorized freight transport. These alternatives contribute to lower emissions, reduced noise pollution, and improved space efficiency in urban areas.

This indicator provides a measure of the number of parcel lockers used for B2C deliveries in the experiment area. Parcel lockers are self-service cabinets where parcels can be stored for pickup or delivery. They allow recipients and senders to collect or drop-off packages at their convenience, and may be often located in transportation hubs, gas stations, apartment buildings, and shopping centres. Parcel lockers are equipped with automated systems that allow access to the stored parcels through a unique code, and they are commonly used by delivery services to enhance user convenience and reduce missed deliveries.

This indicator is relevant when the policy action aims to increase alternatives to motorized road freight vehicles for transporting goods in urban areas. A successful action is reflected in a HIGHER value of the indicator.


DESCRIPTION

The indicator is the ratio between the **number of parcel lockers used for B2C deliveries in the experiment area** and the number of inhabitants.

The unit of measurement of the indicator is **parcel lockers per inhabitant**.

METHOD OF CALCULATION AND INPUTS

The indicator should be computed exogenously, by applying the method described and then coded in the supporting tool.

Method 1	
Estimation based on direct observation	Significance: 0.15 
INPUTS The following information is needed to compute the indicator: <ul style="list-style-type: none">a) The number of parcel lockers for B2C deliveries located in the experiment areab) The number of inhabitants in the experiment area. <p>The experiment would result in a modification of the number of parcel lockers in the experiment area.</p>	
METHOD OF CALCULATION	

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

- **Retrieval of the number of parcel lockers for B2C deliveries located in the experiment area.** If in the 'before' scenario no parcel lockers are present in the experiment area, this value equals zero.
- **Retrieval of the number of inhabitants within the experiment area.** This value can be obtained from census data.
- **Estimation of the index** by computing the ratio between the number of parcel lockers retrieved in the first step and the number of inhabitants obtained in the second step.

EQUATIONS

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

$$AltB2CFreightIndex = \frac{ParcelLockers}{Pop}$$

Where:

ParcelLockers = Number of parcel lockers for B2C deliveries located in the experiment area

Pop = Population in the experiment area

ALTERNATIVE INDICATORS

This indicator is a measure of the availability of parcel lockers for B2C deliveries in the experiment area. Other indicators to assess the availability of alternative B2C urban freight distribution modes are **TRA_FR_ADC1**, **TRA_FR_ADC3** and **TRA_FR_ADC4**. These indicators respectively measure the number of cargo-bikes, autonomous bots, and drones used for B2C deliveries. **TRA_FR_ADC5** tracks the number of users of shared logistics platforms. The choice of indicator depends on the scope of the experiment to evaluate.

If the experiment targets B2B deliveries, the relevant indicators are **TRA_FR_ADB1**, **TRA_FR_ADB2** and **TRA_FR_ADB3**.