CIVITAS indicators

Share of logistics operators applying advanced management systems (TRA_FR_FC2)

DOMAIN

Transport	Environment	Energy	Society	Economy

TOPIC	**Freight**	
IMPACT	**Efficiency of urban freight distribution** *Increasing the number of operators applying advanced management systems*	**TRA_FR**

Category

Key indicator	**Supplementary indicator**	**State indicator**

CONTEXT AND RELEVANCE

Motorised freight transport is widely used to deliver goods in urban areas, but it contributes significantly to energy consumption, emissions, noise, and space occupancy. These externalities are exacerbated by inefficiencies in the distribution systems, such as sub-optimal routing and the presence of multiple operators with overlapping delivery areas. These weaknesses may be addressed by fostering the adoption of advanced operations management practices and co-operation across logistics providers.

This indicator provides a measure of the usage of advanced management system by logistics operators in the experiment city. **It is a relevant indicator when the policy action aims to increase the efficiency of urban freight distribution. A successful action is reflected in a HIGHER value of the indicator.**

DESCRIPTION

This indicator represents the **proportion of logistics operators in the experiment city that utilize advanced management systems**. These systems leverage **technology**, such as specialized software, to increase the efficiency of urban logistics. For example, they support operators in optimizing the routing and allocation of freight to delivery vehicles to improve van utilization and reduce distances travelled within urban areas.

The indicator is a share; therefore, it is **dimensionless**.

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 of the index based on direct observation	Significance: **0.25**	

INPUTS

The following information is needed to compute the indicator:

a) The number of logistics operators in the experiment city applying advanced management systems
b) The number of logistics operators in the experiment city.

The experiment would result in a modification of the number of logistics operators applying advanced management systems.

METHOD OF CALCULATION

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

- **Retrieval of the number of logistics operators in the experiment city applying advanced management systems**.

- **Retrieval of the number of logistics operators in the experiment city.**

- **Estimation of the index** by computing the ratio between the value obtained in the first step and the number of logistics operators retrieved in the second step.

EQUATIONS

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

$$EffFreight = \frac{LogisticsOpAdvMgmt}{LogisticsOp}$$

Where:

$LogisticsOpAdvMgmt$ = Number of logistics operators in the experiment city applying advanced management systems

$LogisticsOp$ = Total number of logistics operators in the experiment city

ALTERNATIVE INDICATORS

This indicator quantifies the proportion of logistics operators applying advanced management systems in the experiment city. Other indicators assessing the provision of facilities and conditions promoting efficiency in urban freight distribution are **TRA_FR_FC1** and **TRA_FR_FC3**. TRA_FR_FC1 measures the presence of urban logistics platforms, while TRA_FR_FC3 assesses the number of operators participating to optimization schemes. For all alternatives, data collection and computation are equally simple. The choice among the three indicators depends on the scope of the experiment being evaluated.

To assess efficiency of urban freight transport as the average load factor of delivery vehicles, the framework provides indicators **TRA_FR_EFB** (B2B deliveries) and **TRA_FR_EFC** (B2C deliveries).