MOBILE POSITIONING DATA

Population and its mobility in the Olomouc region

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The acquisition of **accurate information regarding population distribution and mobility** is imperative for various aspects associated with urban and regional planning and management. Conventional data sources, typically derived from national registers, offer a predominantly static perspective centered around individuals' residences or workplaces. Such an approach is notably imprecise and can be inherently misleading.

This Story Map explores the **use of mobile positioning data (MPD)**, derived explicitly from mobile phone usage, as a means to improve the accuracy of population distribution estimates and, more importantly, **to explain patterns of population movement between different cities and regions.**

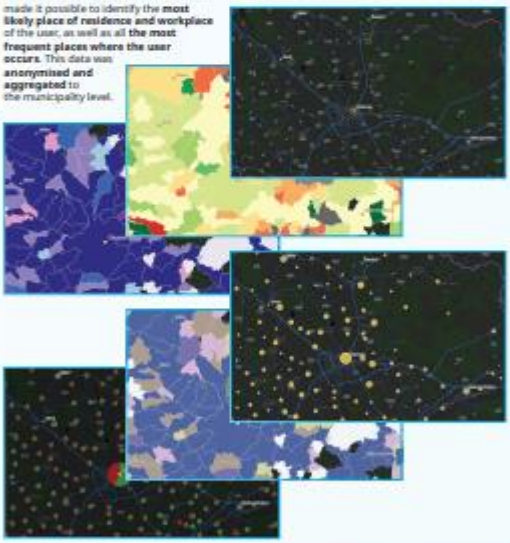
The data used were provided **by Vodafone** and therefore represent the **number of SIM card holders** of this mobile operator. The data were **aggregated to the level of municipalities** (for municipalities within the Olomouc Region and its immediate surroundings) and to the level of municipalities with extended jurisdiction for the rest of the Czechia. The data were **extrapolated to the whole population** according to the **respective market share** and represent the aggregation for the period **10. 10. – 6. 11. 2022.**

The StoryMap is divided into four parts:

- **Residents, commuters, visitors**
- **Day vs. night**
- **Major movement flows**
- **Major commuting flows**

Residents, commuters, visitors

From each user's location data, **three types of anchor points** were created, i.e. locations visited by the user on multiple days within a period, at least once for more than 30 minutes. This made it possible to identify the **most likely place of residence and workplace** of the user, as well as all **the most frequent places where the user occurs**. This data was **anonymised and aggregated** to the municipality level.

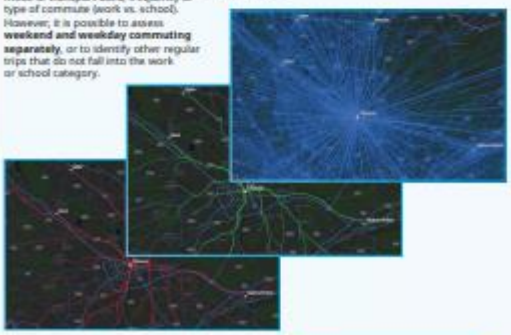


Major movement flows

MPDs allow to assess **the most important traffic flows** (directions of population movement) between the region or individual municipalities. This makes it possible to identify the **main commuting or travel directions**, including more precise identification in **selected time periods** (e.g. morning, afternoon or night).

Major commuting flows

MPDs may be aggregated over a longer period (in this case, **October / November 2022**). This allows the **most significant commuting directions and trips to work and school** to be identified in aggregated form. Compared to the commuting data from the census, it is not possible to distinguish the mode of transport used, frequency or type of commute (work vs. school). However, it is possible to assess **weekend and weekday commuting separately**, or to identify other regular trips that do not fall into the work or school category.



Day vs. night

The great advantage of MPD is the possibility of capturing the population at **almost any day and hour**. Thanks to this, it is possible to compare **population changes during the week and during individual days** (e.g. day, night, peak, off-peak) and to better plan e.g. the operation of public services.

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