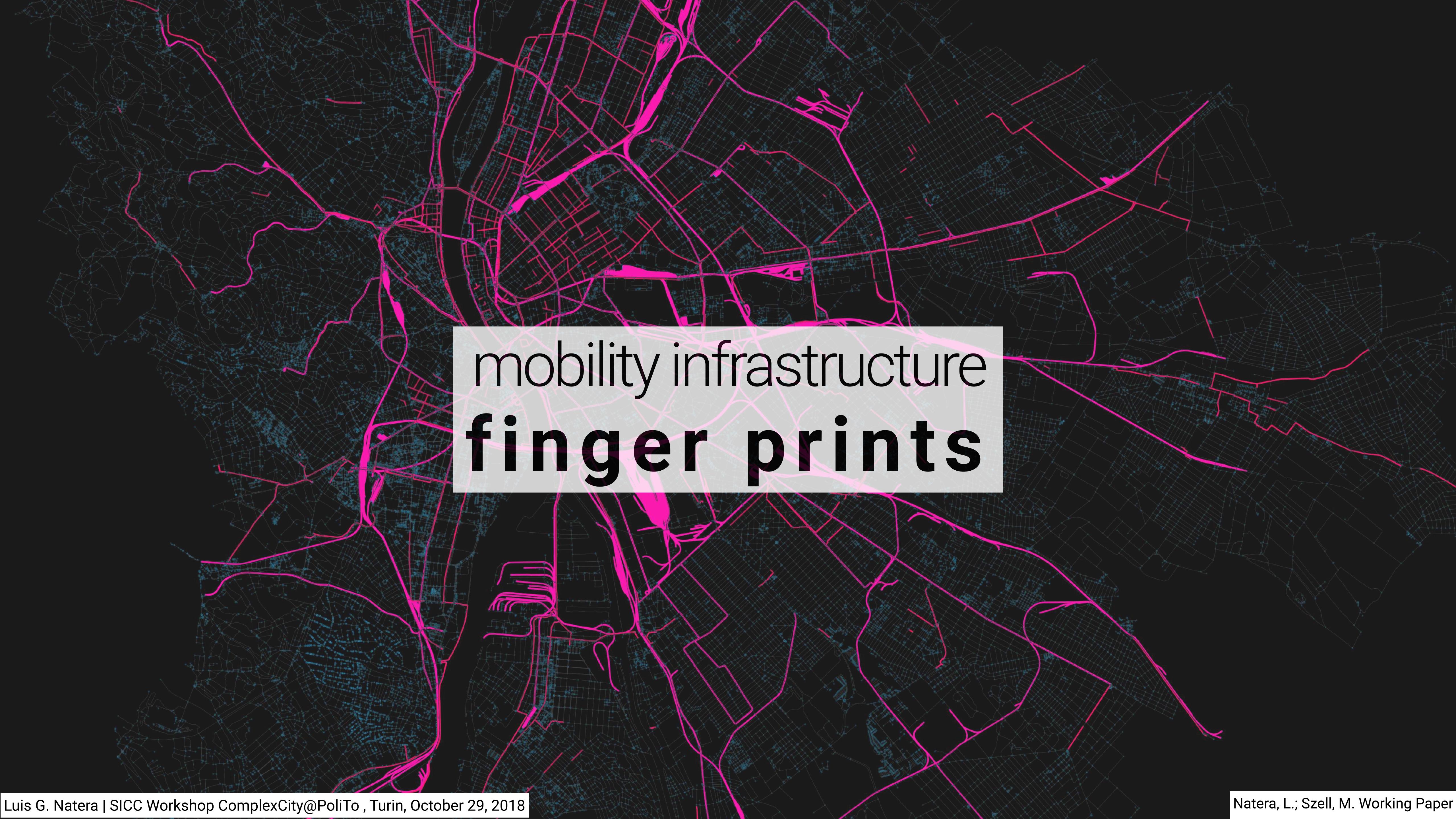


Characterizing cities from their multiplex infrastructure patterns

SICC Workshop ComplexCity@PoliTo , Turin, October 29, 2018

Luis G. Natera
@natera

with: Michael Szell



mobility infrastructure **finger prints**





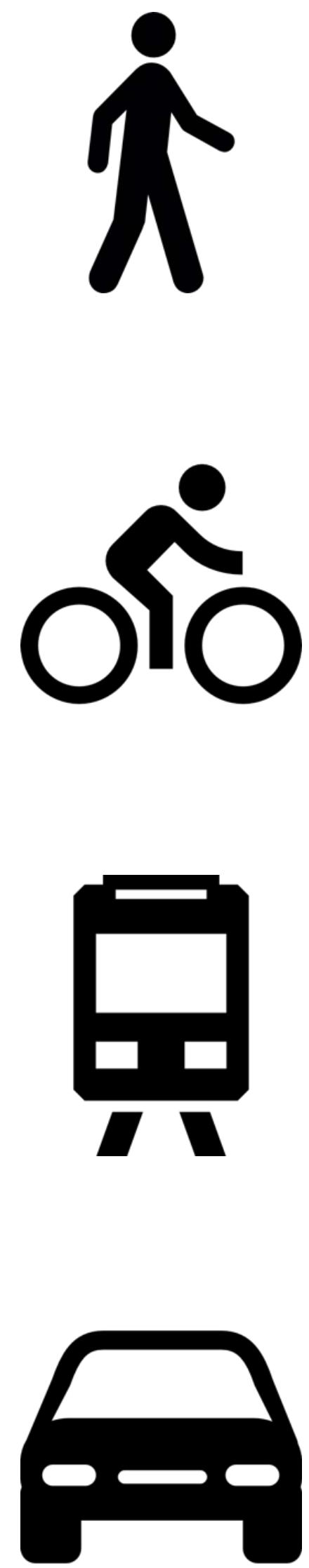
**“first we shape the cities –
then they shape us.”**

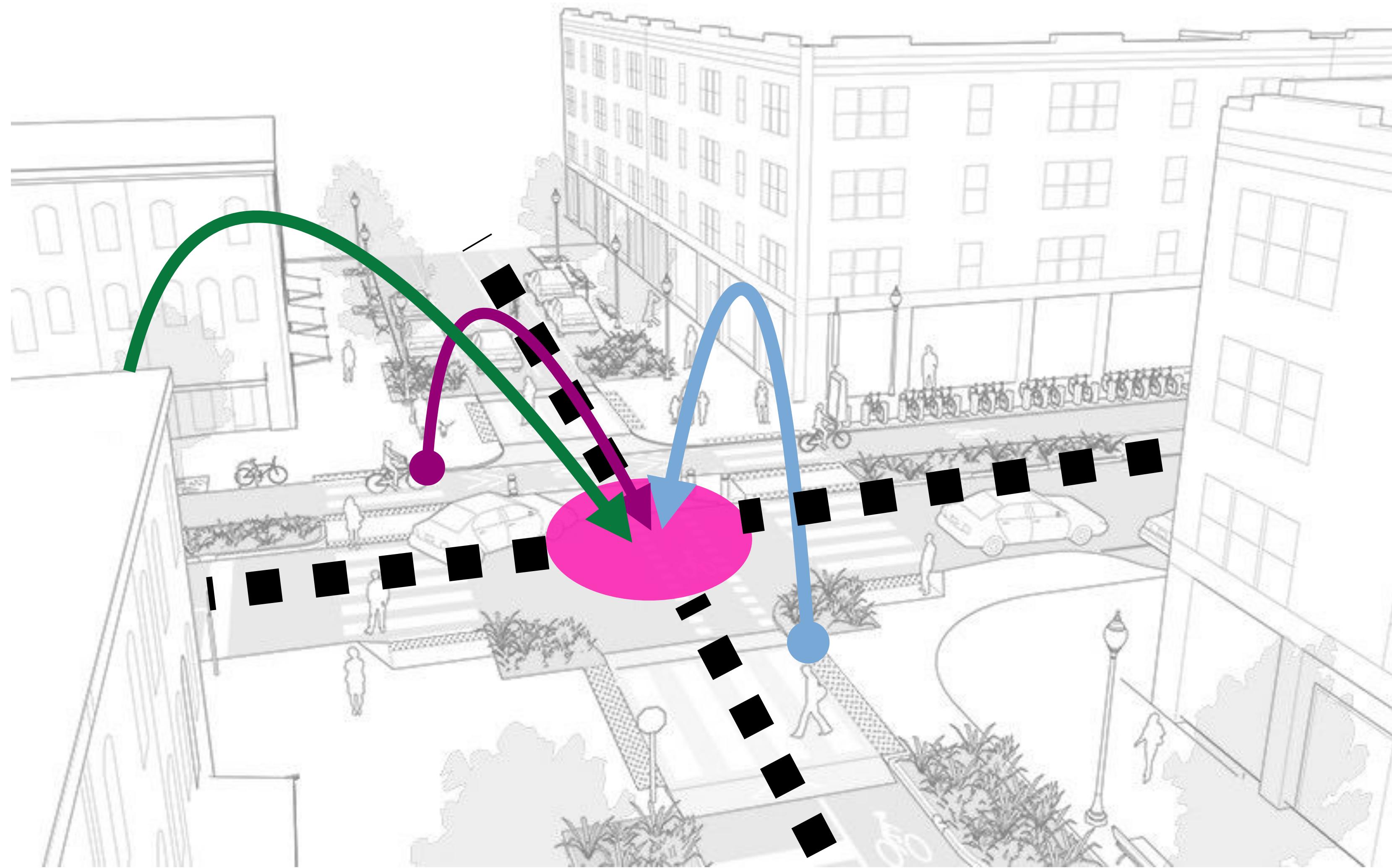
Jan Gehl

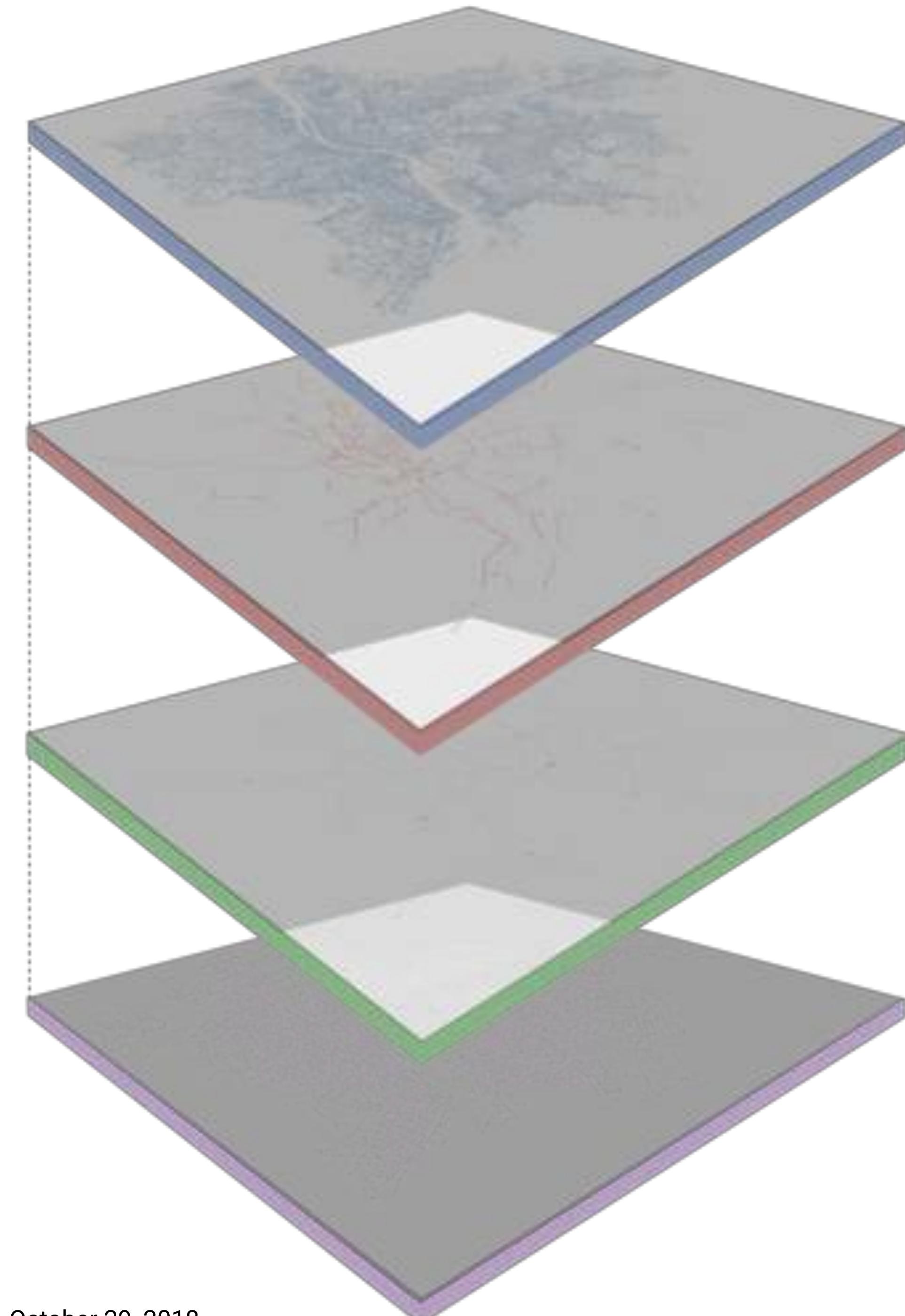


BUDAPEST | HUNGARY





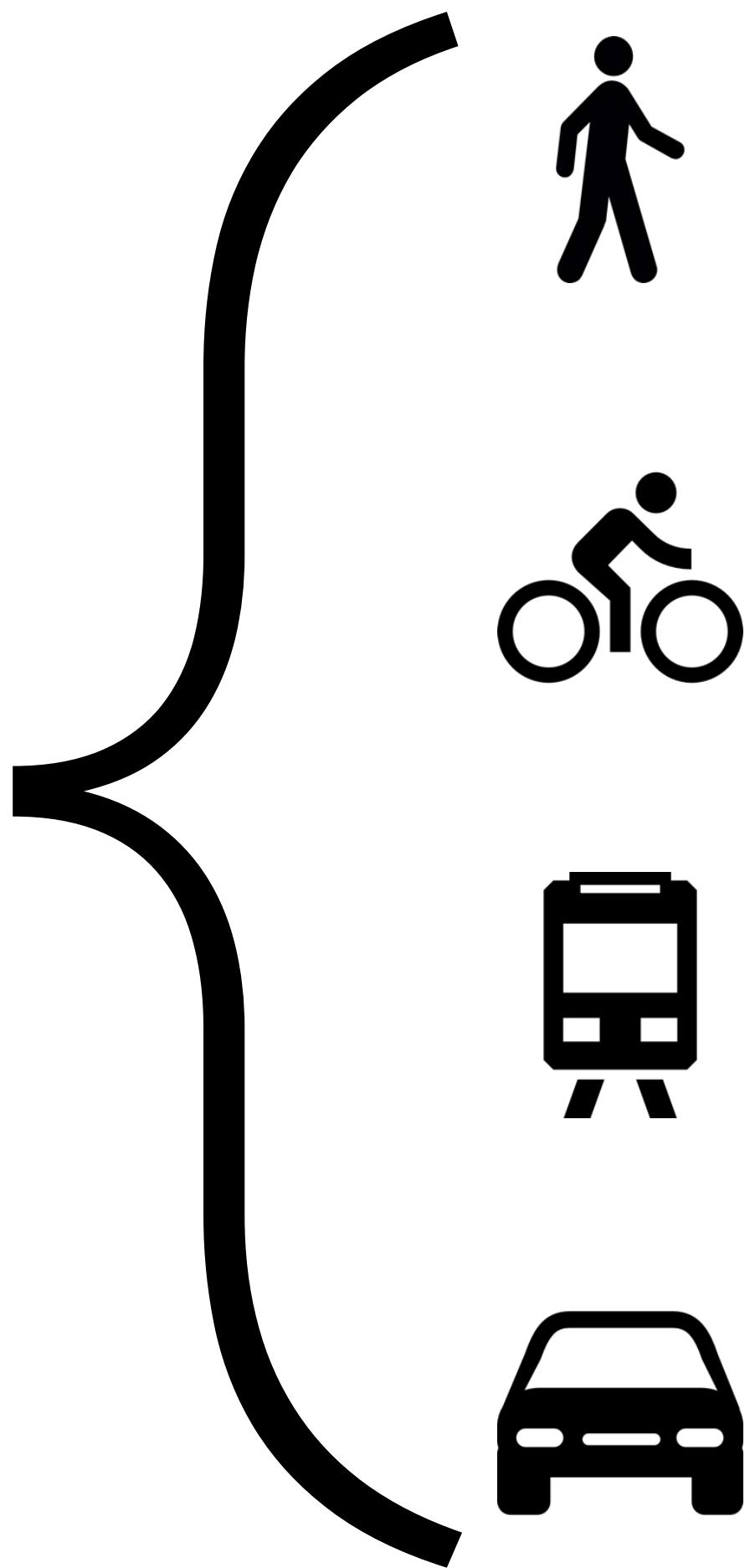


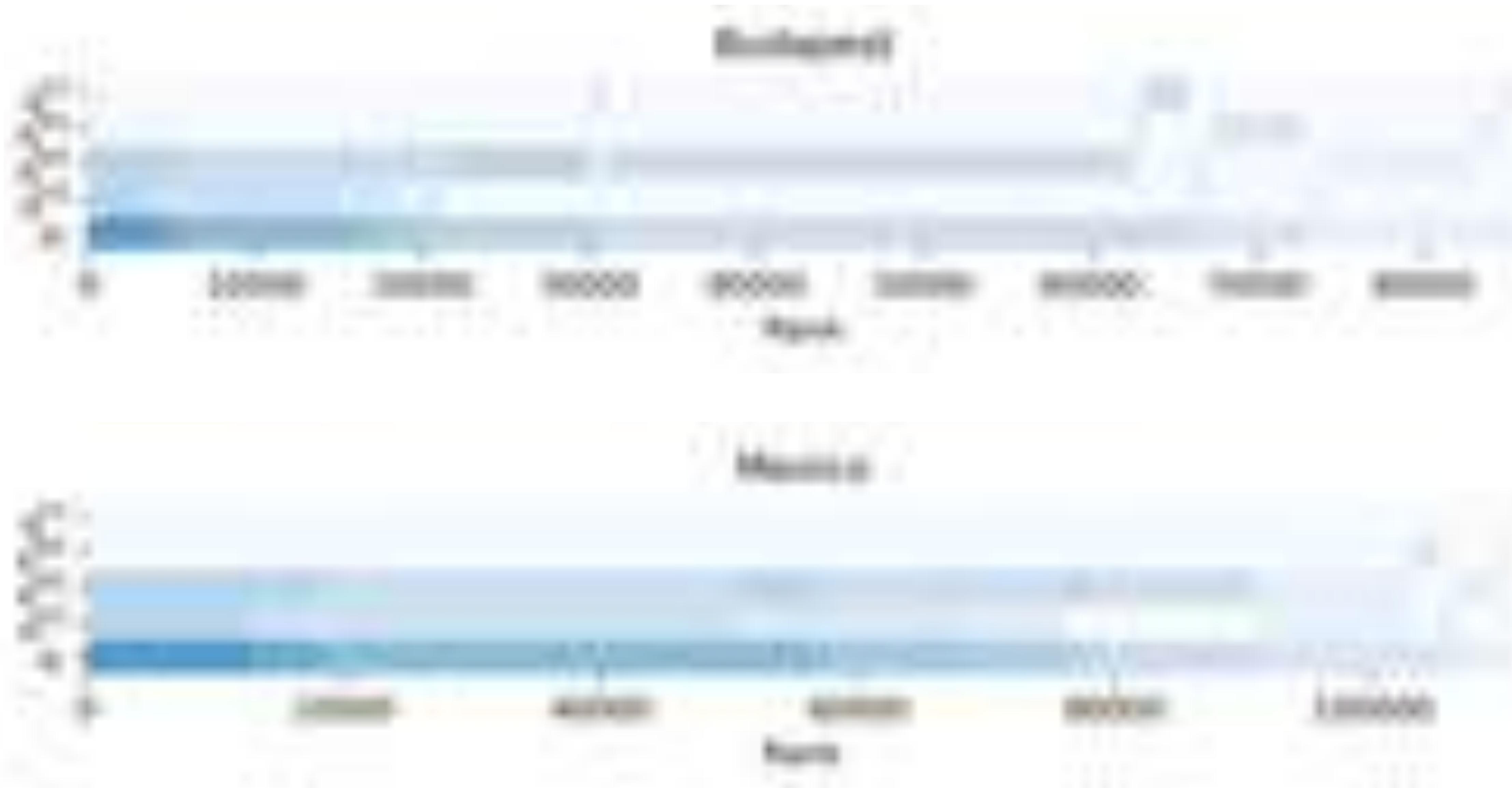


$$s_i^{[\alpha]} = \sum_j w_{ij}^{[\alpha]}$$

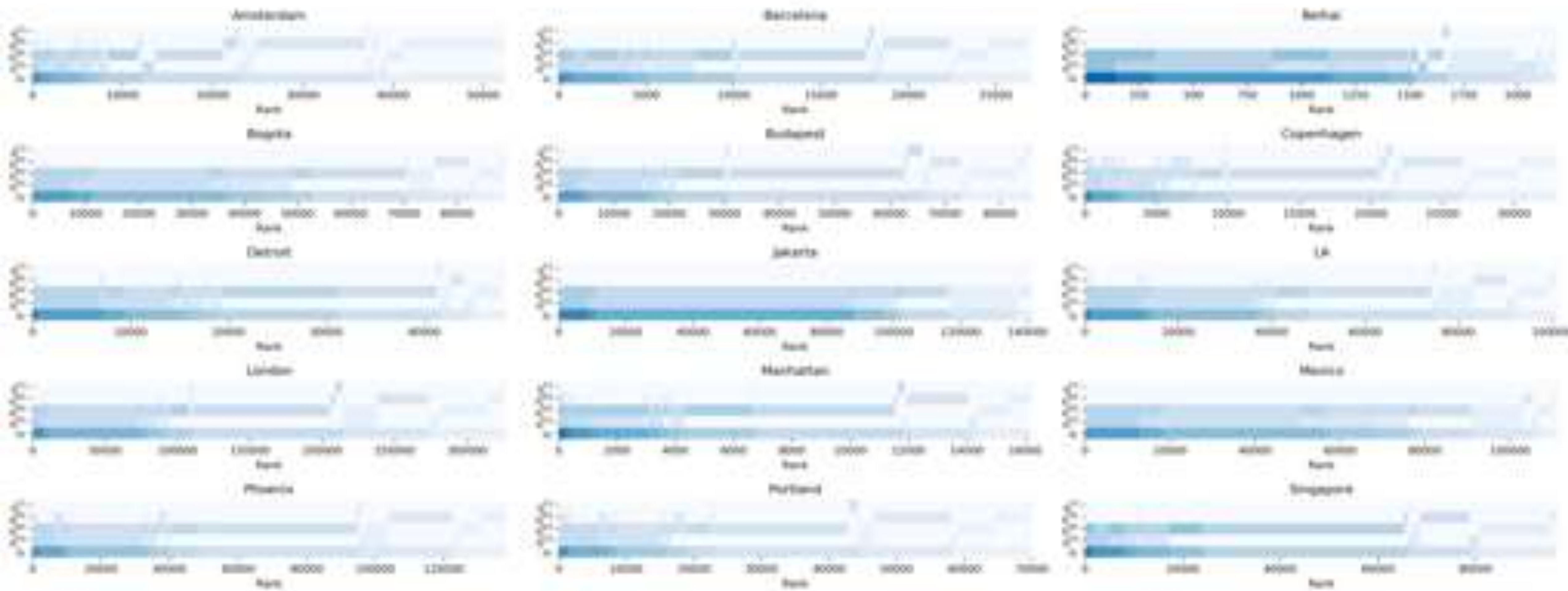
$$s^{[\alpha]} = (s_i^{[\alpha]}, \dots, s_n^{[\alpha]})$$

Layers:





Cities Overlap Profiles





The mix between different means of transportation improve the *walkability* of a city.

Overlap Census

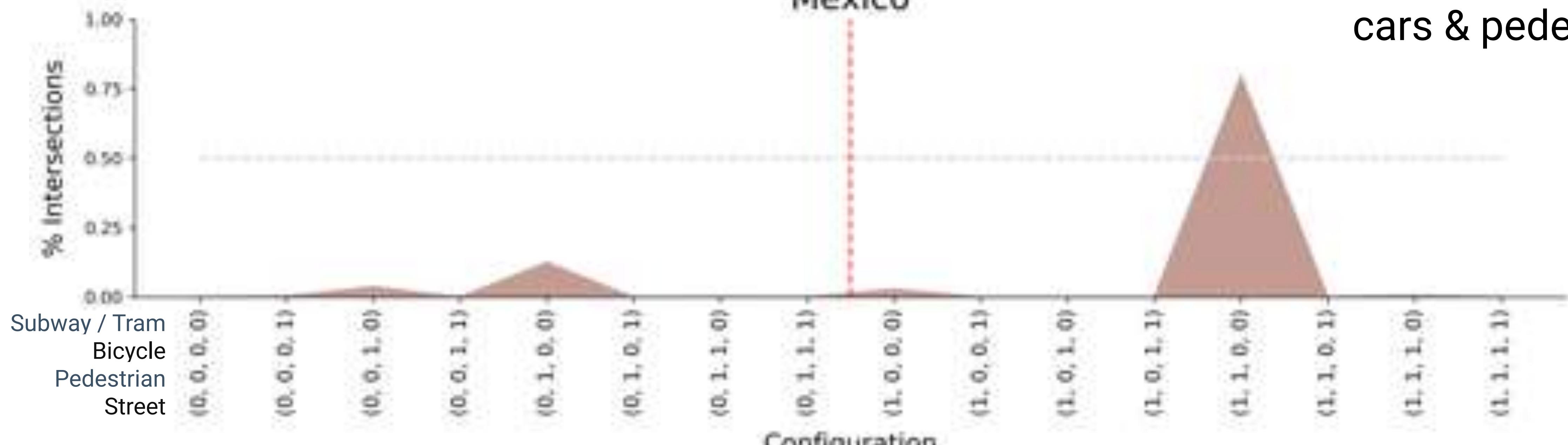
No cars active

Budapest



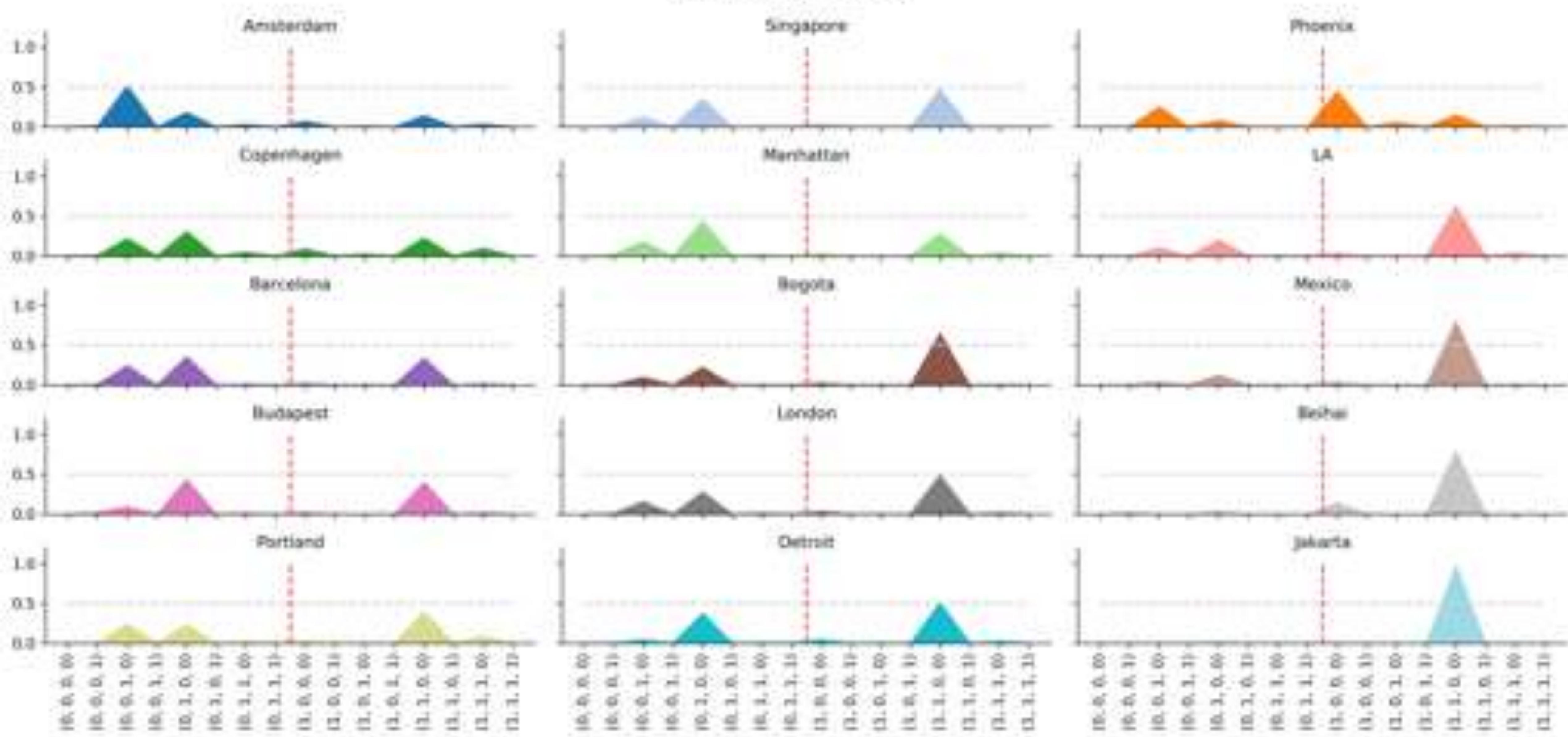
Mexico

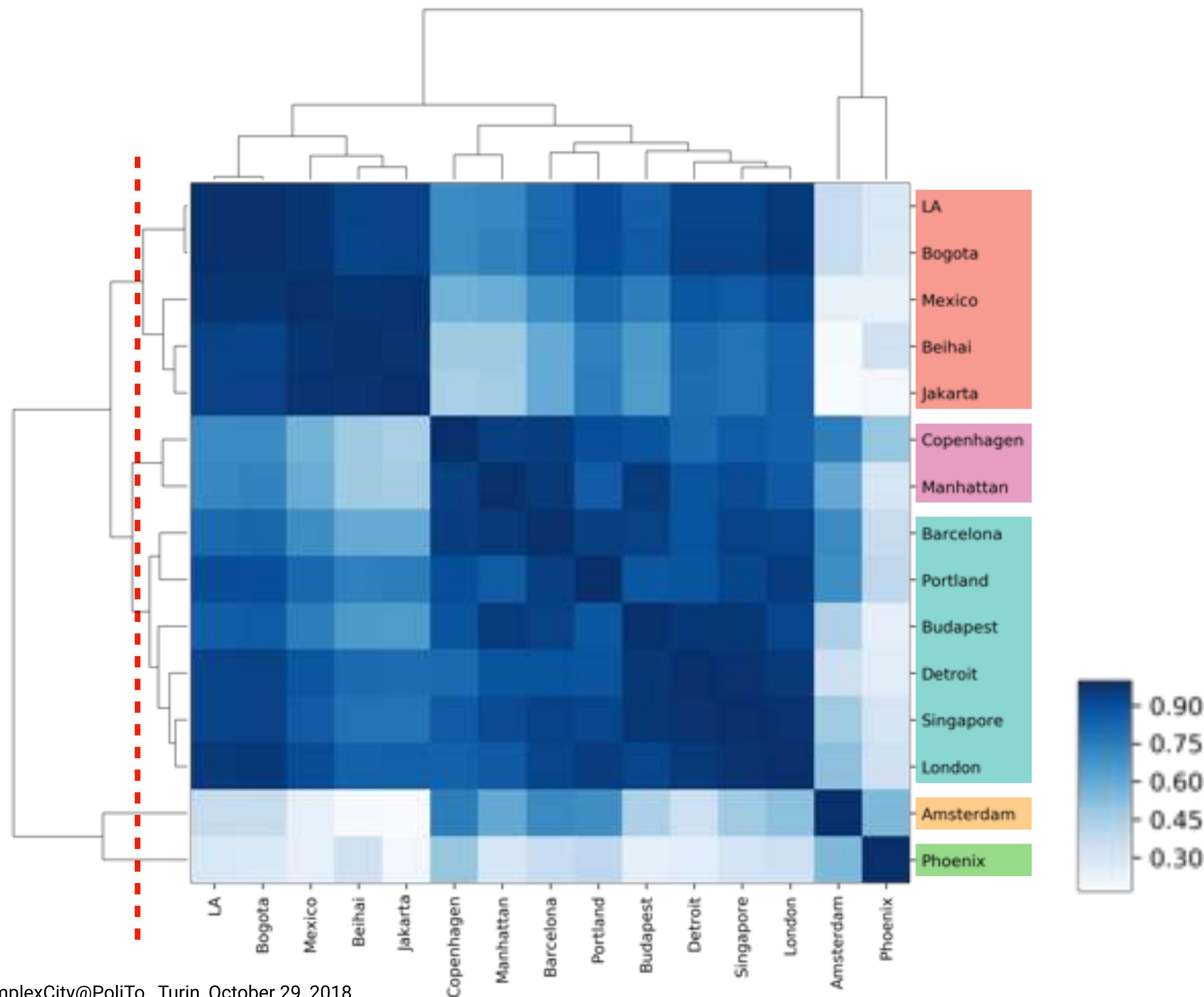
cars & pedestrians



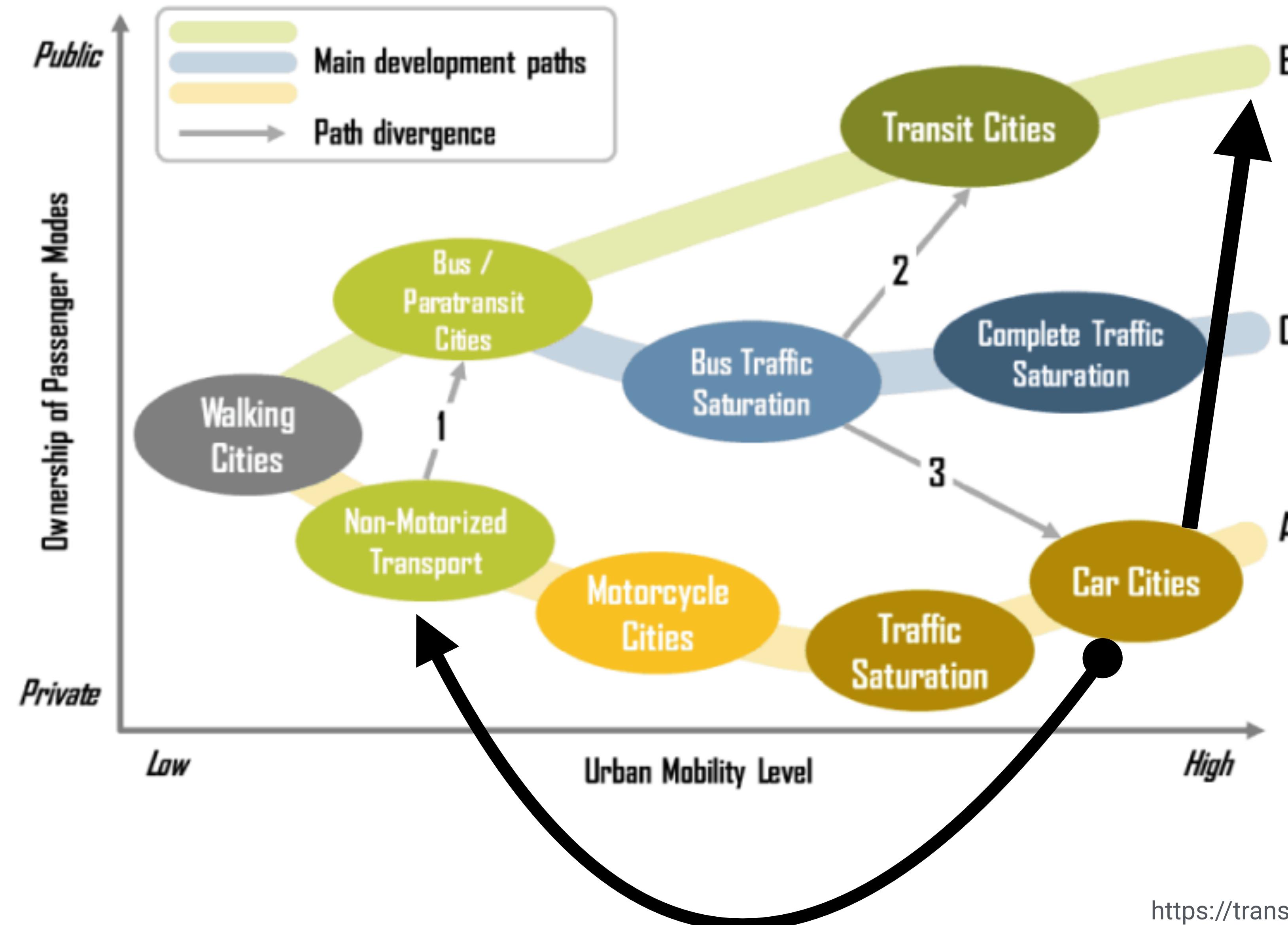
Subway / Tram
Bicycle
Pedestrian
Street

Node Overlap Census

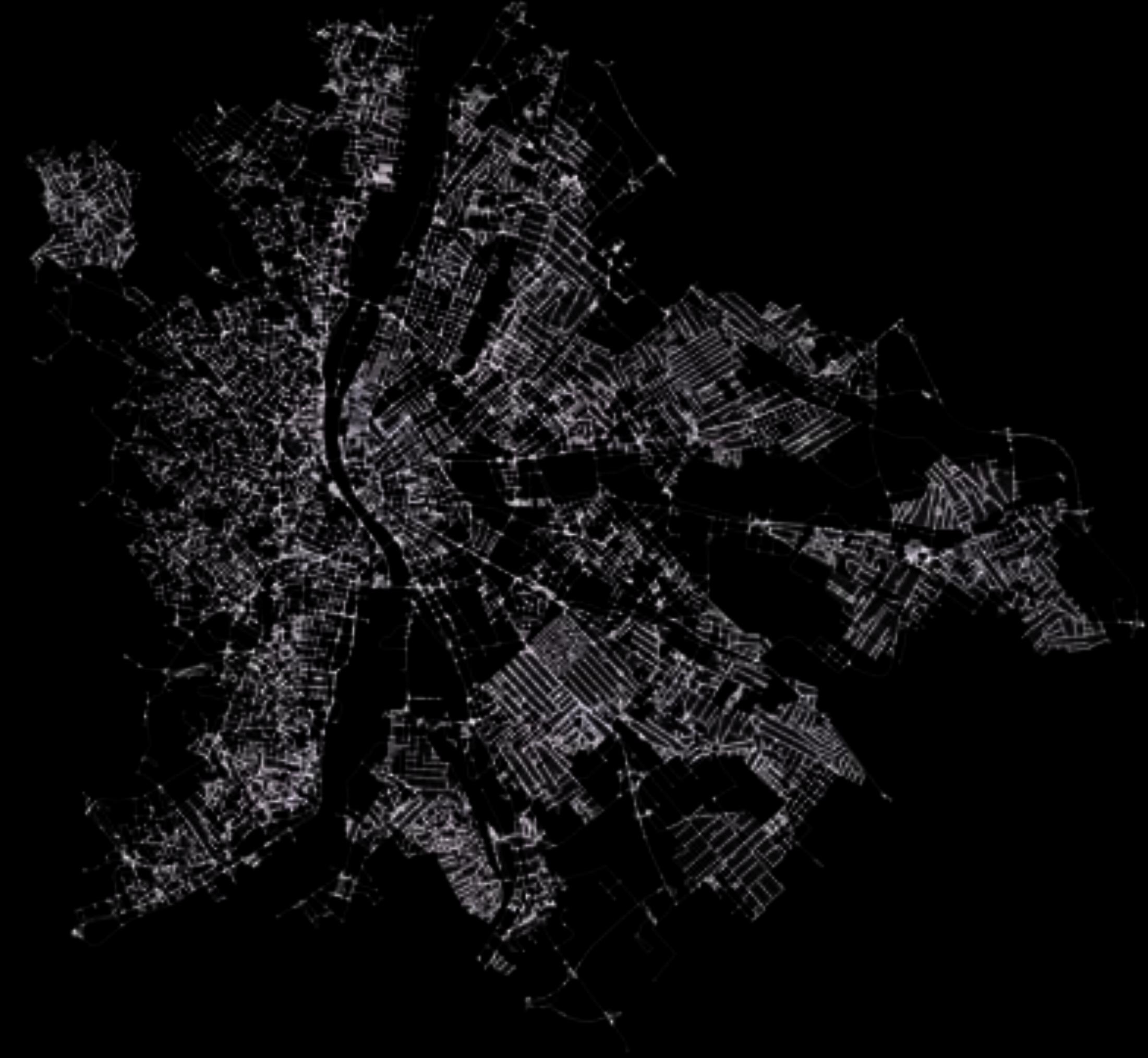




Find the missing links

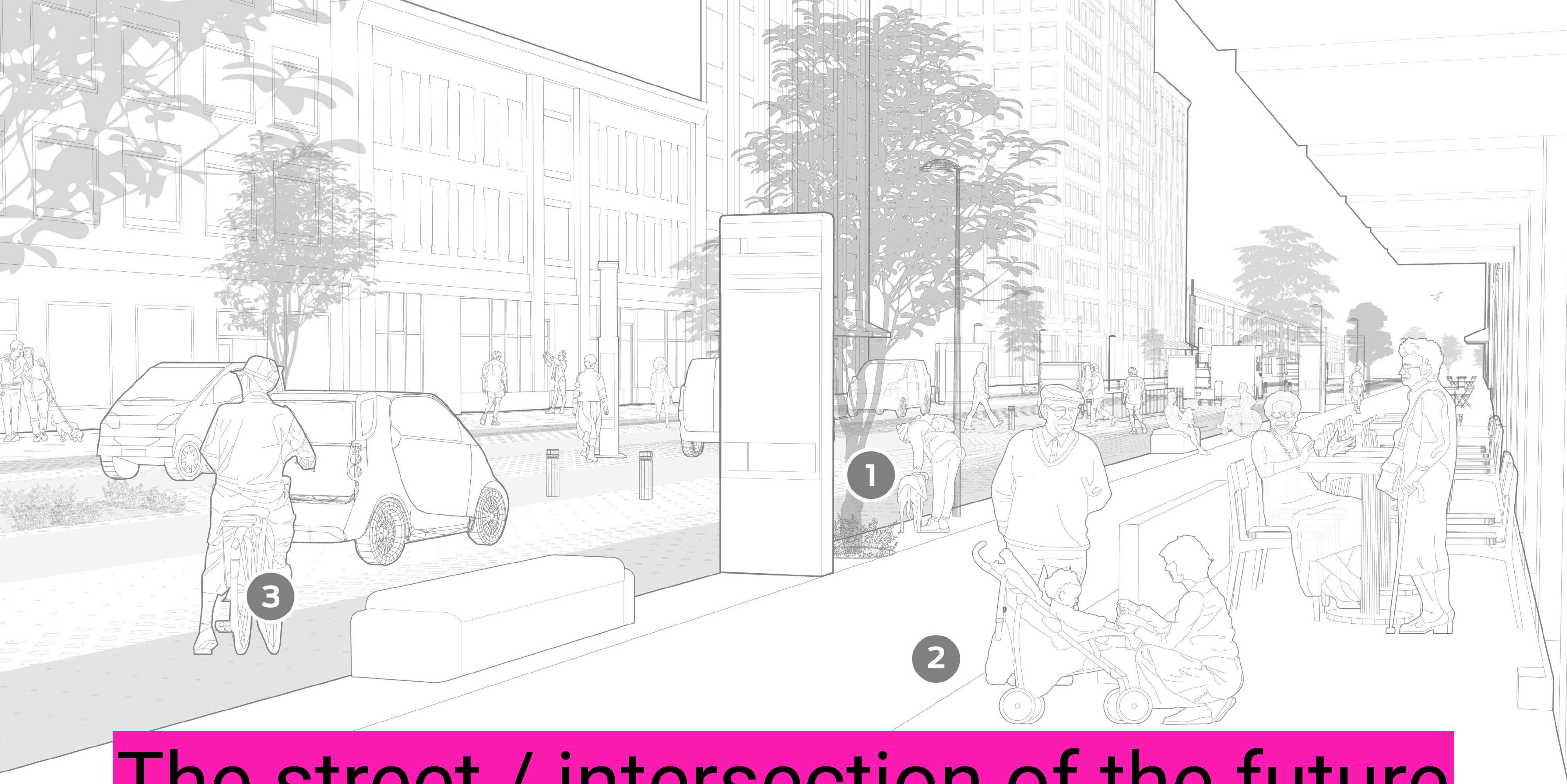


https://transportgeography.org/?page_id=4792



← **PERCOLATION** →



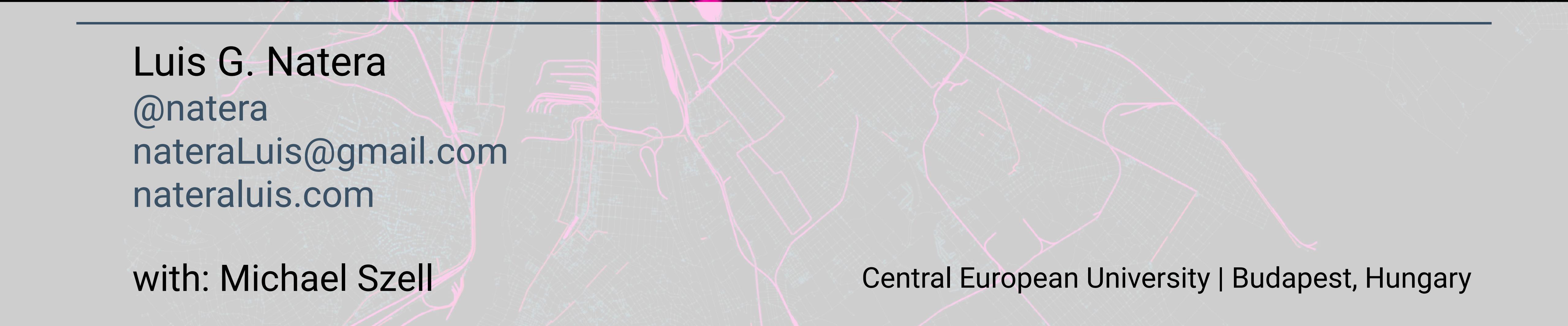


The street / intersection of the future



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