Helsinki Region Travel Time Matrix

- an open data set for travel times for the capital region of Finland

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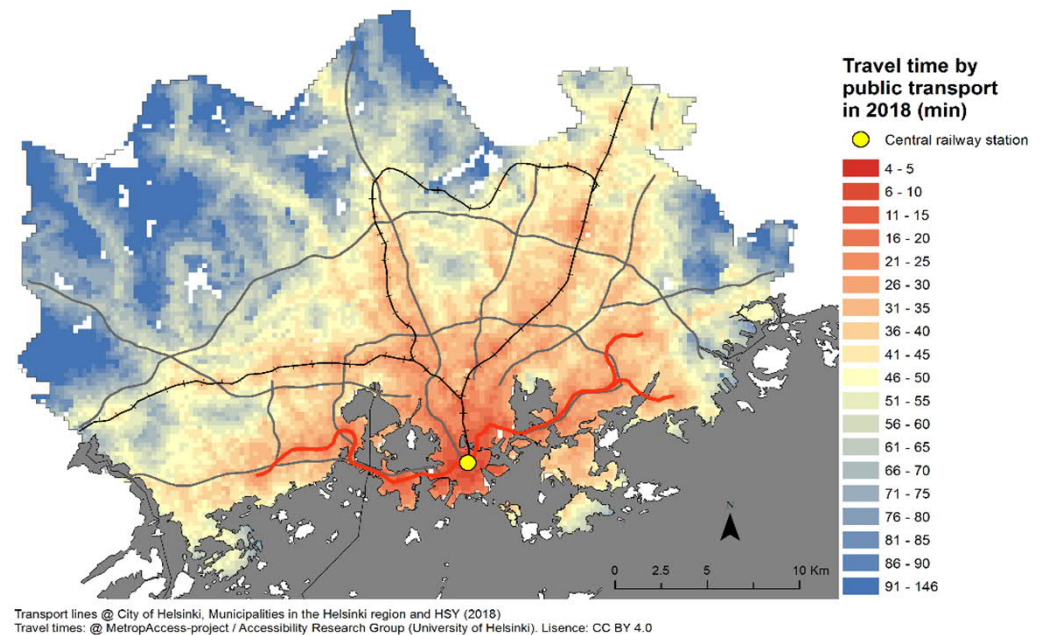(Accessibility Research Group)
Helsingin yliopisto

What is Helsinki Region Travel Time Matrix (#1)?

- **Helsinki Region Travel Time Matrix** contains **travel time and distance** information for routes between all 250 m x 250 m grid cell centroids (n = 13 231) in the Capital Region of Helsinki by **walking**, **cycling, public transport** and **car**.

- The data set has been published so far three times, to represent the accessibility patterns in Helsinki Region

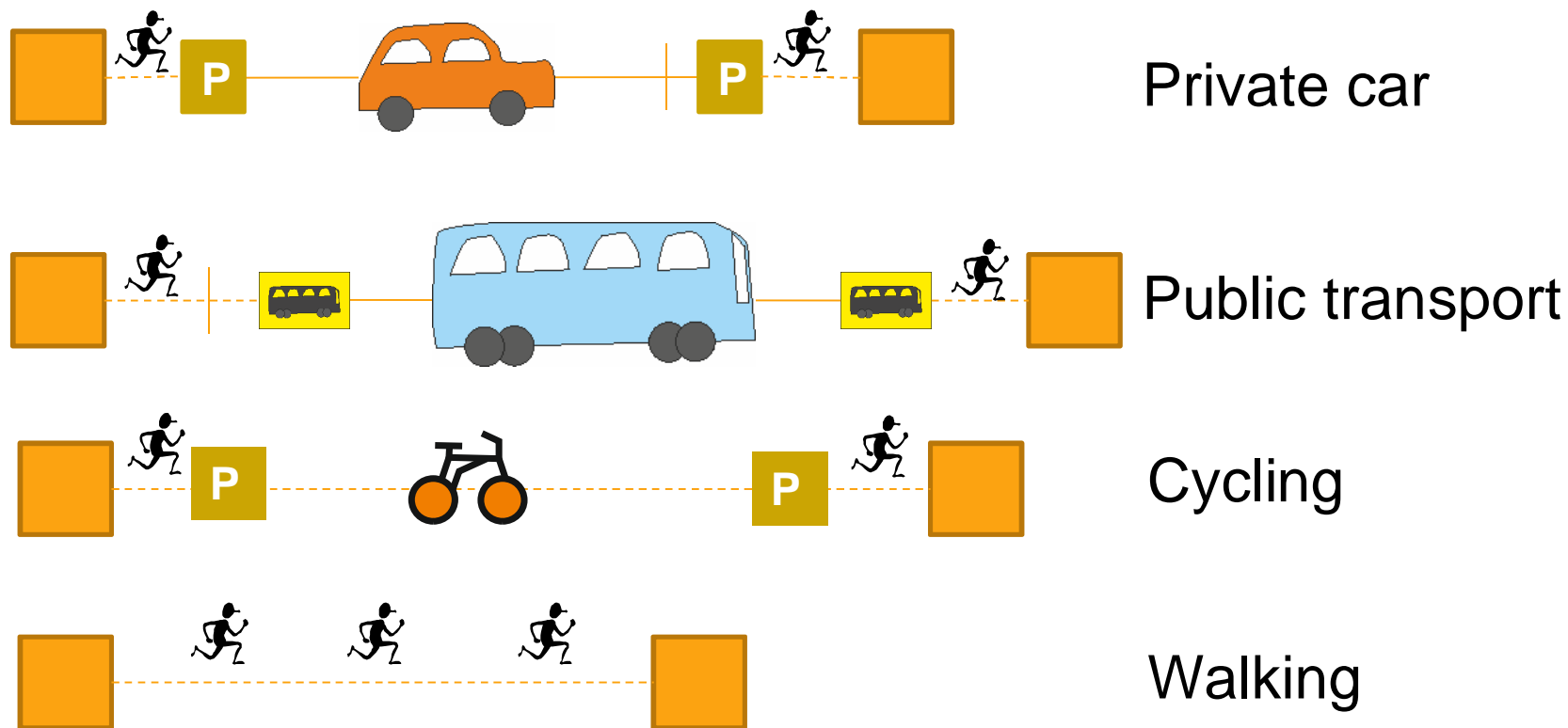 - **January 2018**

  - **September 2015**

  - **April 2013**

Travel time by public transport in 2018 (min)
- ⭕ Central railway station
- 4 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 25
- 26 - 30
- 31 - 35
- 36 - 40
- 41 - 45
- 46 - 50
- 51 - 55
- 56 - 60
- 61 - 65
- 66 - 70
- 71 - 75
- 76 - 80
- 81 - 85
- 86 - 90
- 91 - 146

0   2.5   5   10 Km

Transport lines @ City of Helsinki, Municipalities in the Helsinki region and HSY (2018)
Travel times: @ MetropAccess-project / Accessibility Research Group (University of Helsinki). Lisence: CC BY 4.0

What is Helsinki Region Travel Time Matrix (#2)?

- Can be used for example:

  - To understand the travel distances and times **between different parts of the city region**

  - To compare the times and distances **with different modes of transportation**

  - To understand how the travel times and distances **have changed over time**

Comparable measures from door to door -approach

Private car

Public transport

Cycling

Walking

All measures are estimated from door to door, making them more comparable.
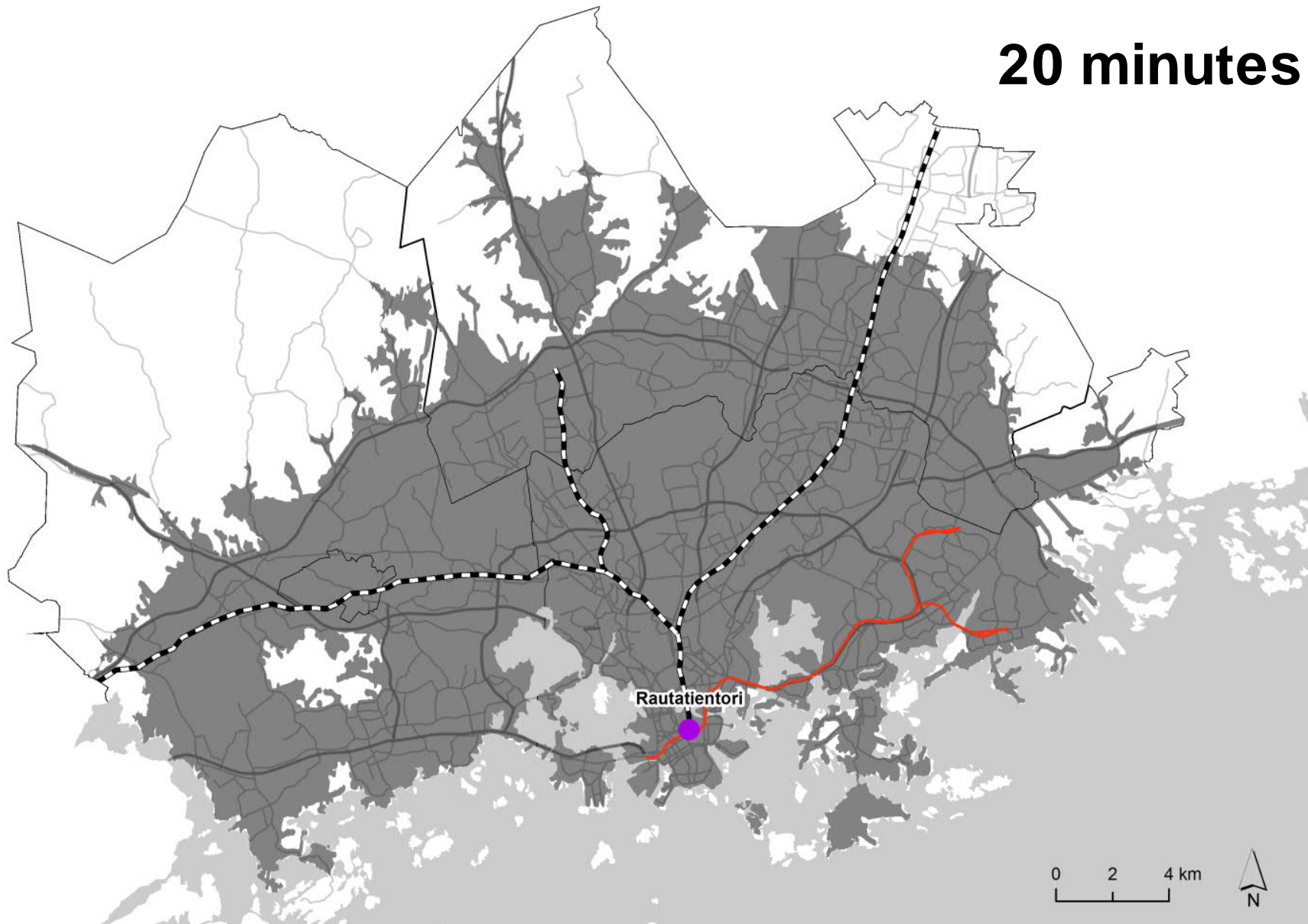
Why the Matrix was created #1?

- Most travel time –based accessibility measures were either overly simplistic (travel time by private car using speed limits) or too complex (travel time estimates by traffic planning software)

- Digital Geography Lab has developed tools to calculate robust, transparent and comparable travel time measures for the Helsinki region
(see http://blogs.helsinki.fi/accessibility/tools/)

- No point to duplicate the effort, 1.2 billion routings are needed for the Matrix

- The measures have a direct impact on the conclusions that can be drawn

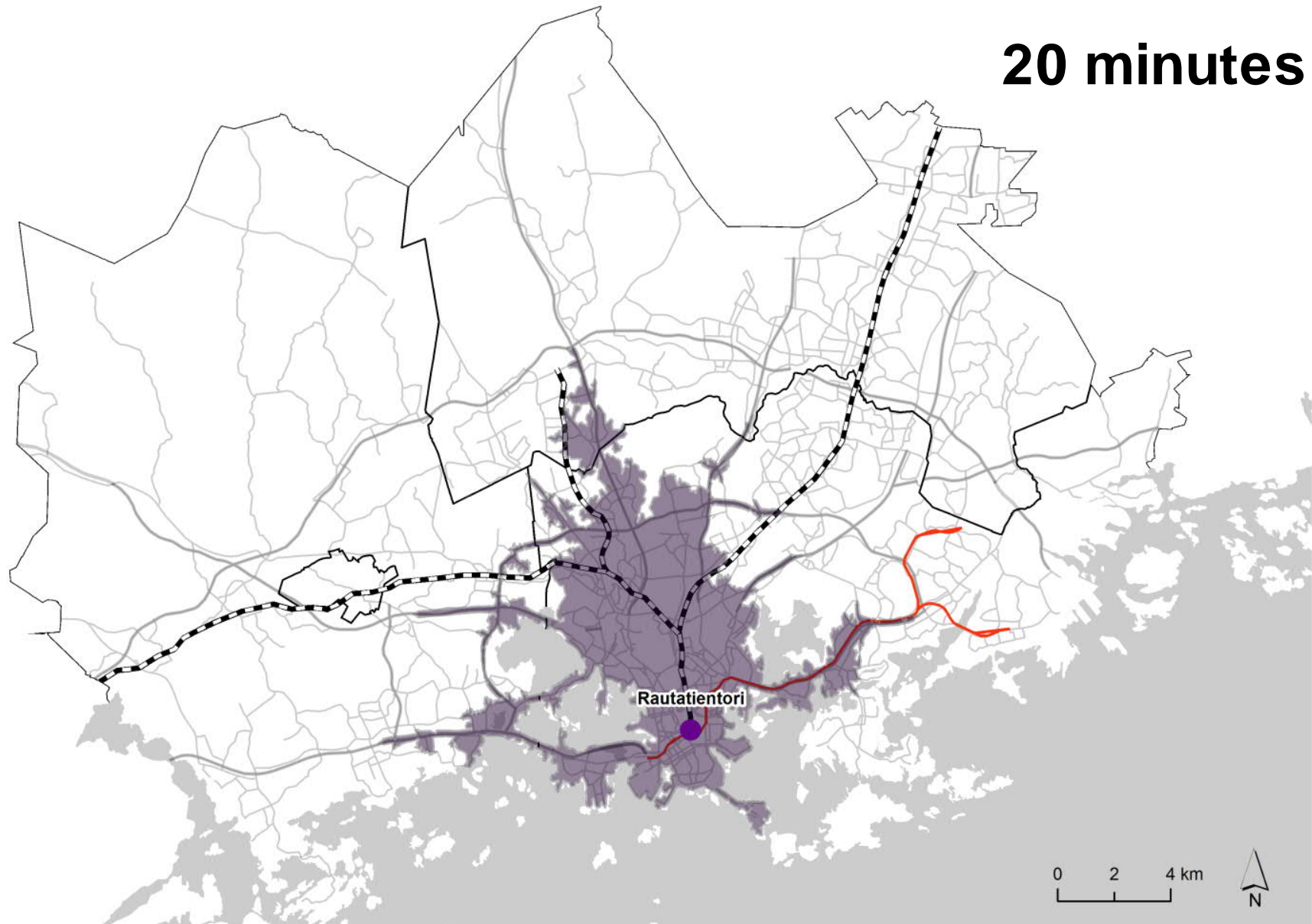**Travel time to central railway station (using speed limits)**

20 minutes

Rautatientori

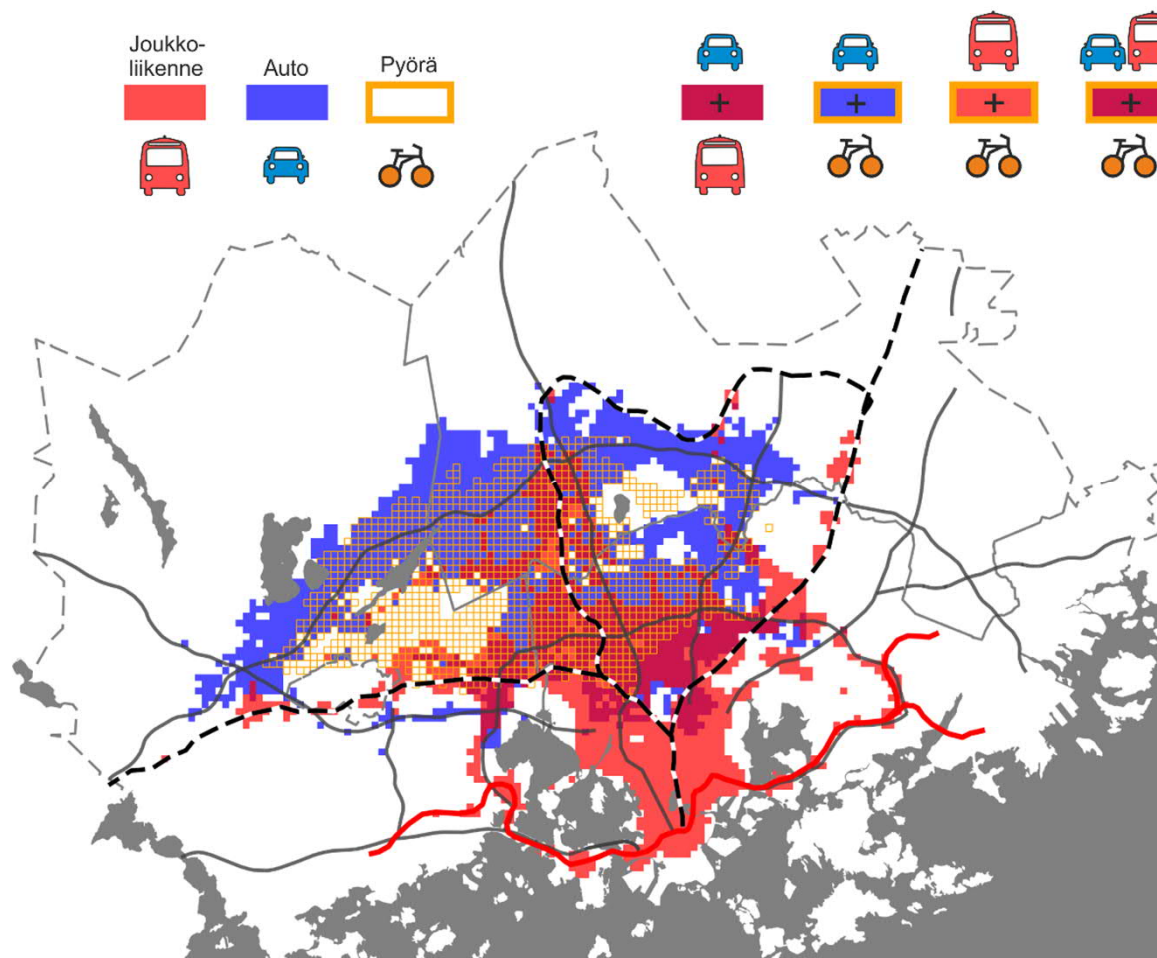**Travel time to central railway station (using realistic model)**

20 minutes

Rautatientori

0   2   4 km

N

Most accessible grid squares by travel time and mode

2018

Transport lines @ City of Helsinki, Municipalities in the Helsinki region and HSY (2018)
Travel times: @ MetropAccess-project / Accessibility Research Group (University of Helsinki). Lisence: CC BY 4.0

Who can use the Matrix?

- **The matrix can be used by anyone.**

- **Available at**: https://blogs.helsinki.fi/accessibility/

- The Matrix and its extracts are licensed under a Creative Commons Attribution 4.0 International License. So, **when you use the data, remember to cite it.**

- **The matrix should be used with thought**. We do not take any responsibility for any mistakes, errors or other deficiencies in the data.

How to cite the data?

- Data/Tools description:
  Toivonen, T., M. Salonen, H. Tenkanen, P. Saarsalmi, T. Jaakkola & J. Järvi (2014). Joukkoliikenteellä, autolla ja kävellen: Avoin saavutettavuusaineisto pääkaupunkiseudulla. *Terra* 126: 3, 127-136.

- DOI name for the 2018 matrix:
  Tenkanen, H., J.L. Espinosa, E. Willberg, V. Heikinheimo, A. Tarnanen, T. Jaakkola, J. Järvi, M. Salonen, T. Toivonen (2018). Helsinki Region Travel Time Matrix 2018. DOI: 10.13140/RG.2.2.20858.39362

- See the updating list of publications where matrix is being use at: http://blogs.helsinki.fi/accessibility/publications/

Future directions

- **We are also developing measures other than travel time**

- **Multivariable matrix hopefully available in the future**
  - **CO_2**
  - **Environmental exposure (e.g air quality, noise, greenery)**

  - **See more:**
    https://www.helsinki.fi/en/researchgroups/digital-geography-lab/research-themes

1.8 km	0.7 $_{ni}$ (very high)	68 dB$_{mean}$	>
Q1	+173 m	-52 % noise	-12 dB$_{mean}$	>
Q2	+251 m	-65 % noise	-15 dB$_{mean}$	>
Q3	+298 m	-67 % noise	-15 dB$_{mean}$	>
Q4	+388 m	-68 % noise	-16 dB$_{mean}$	>
Q5	+1.1 km	-74 % noise	-19 dB$_{mean}$	>

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