

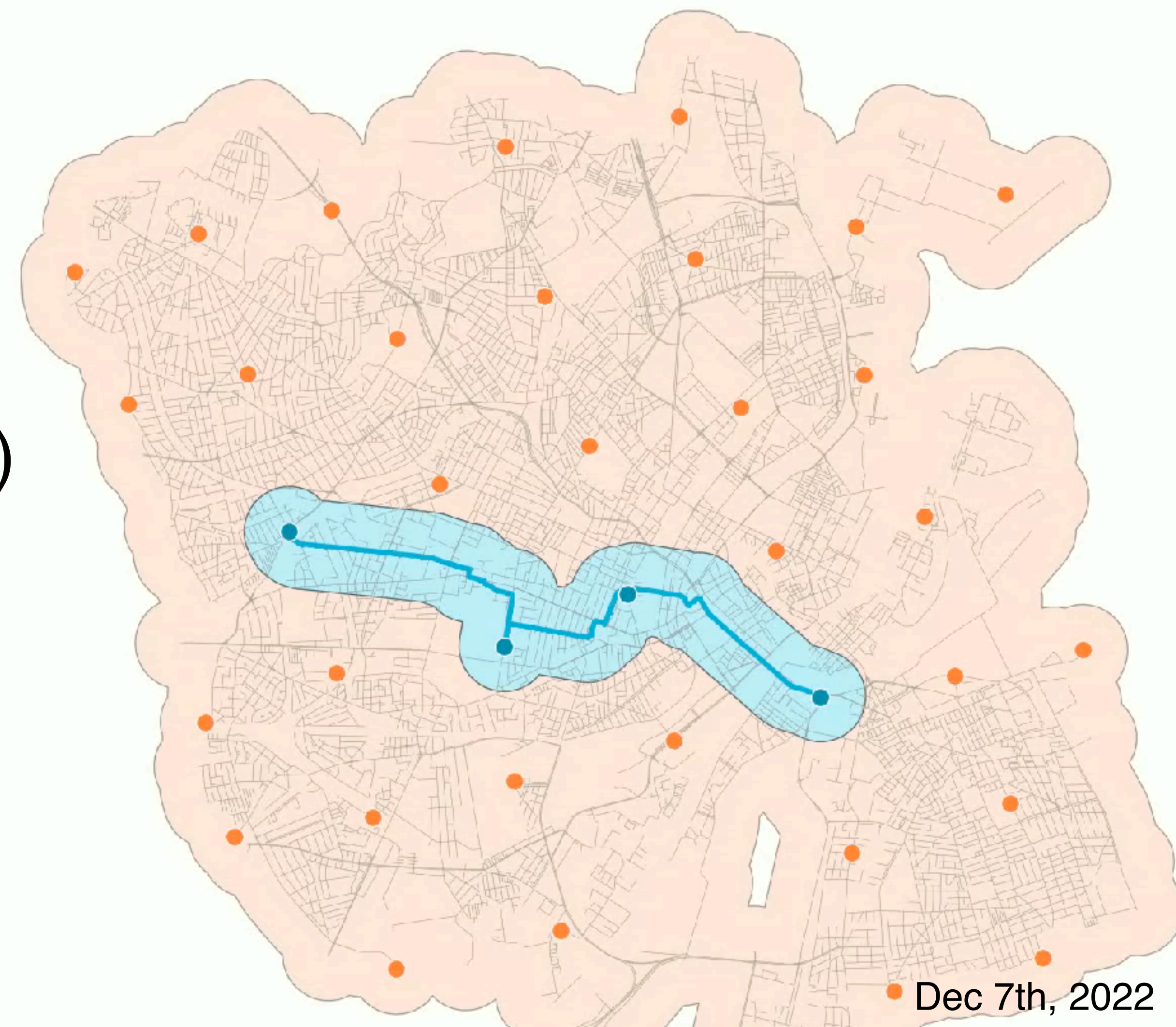
# Sustainable Mobility and Data-driven Planning

Ane Rahbek Vierø

Michael Szell

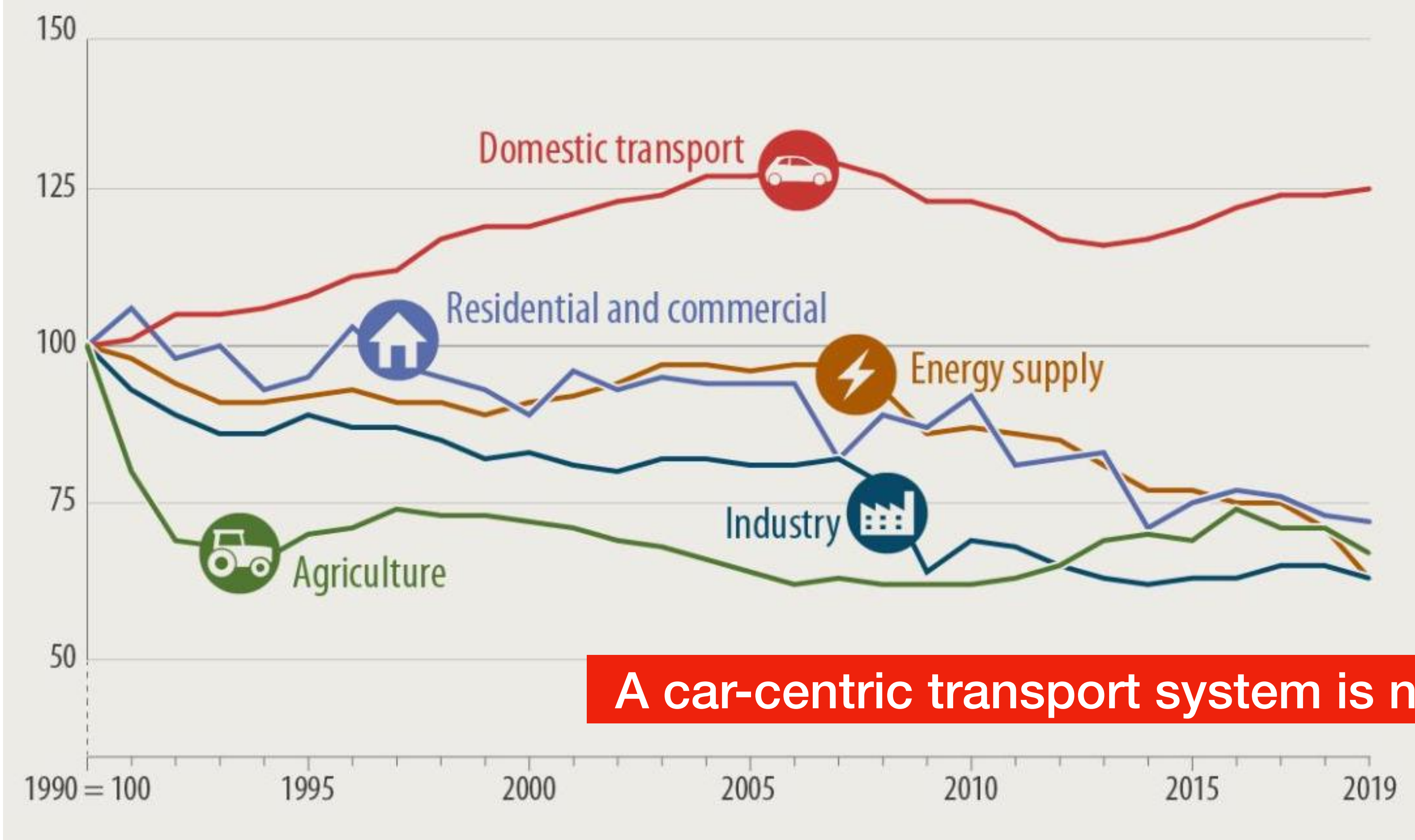
NERDS (NEtwoRks, Data, and Society)

Computer Science Department



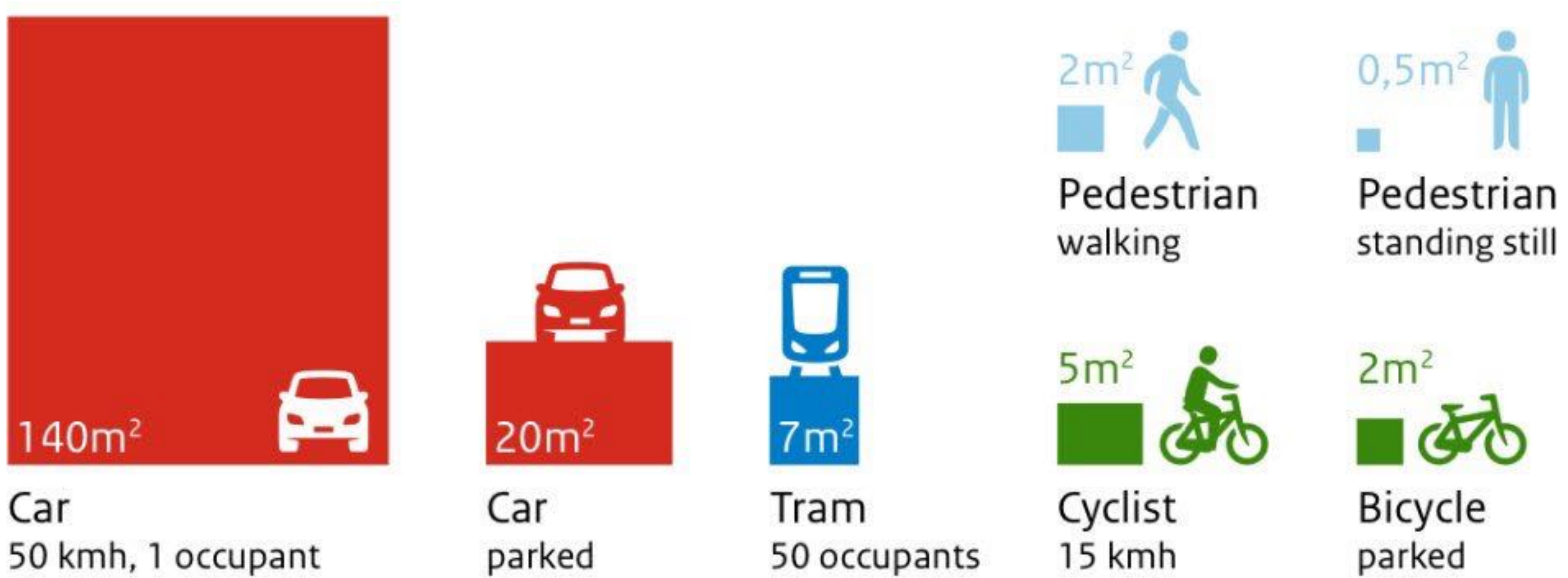
Dec 7th, 2022

# Transport plays a key role in the climate crisis



**A car-centric transport system is not sustainable**

# You can't beat geometry: Cars will always be inefficient

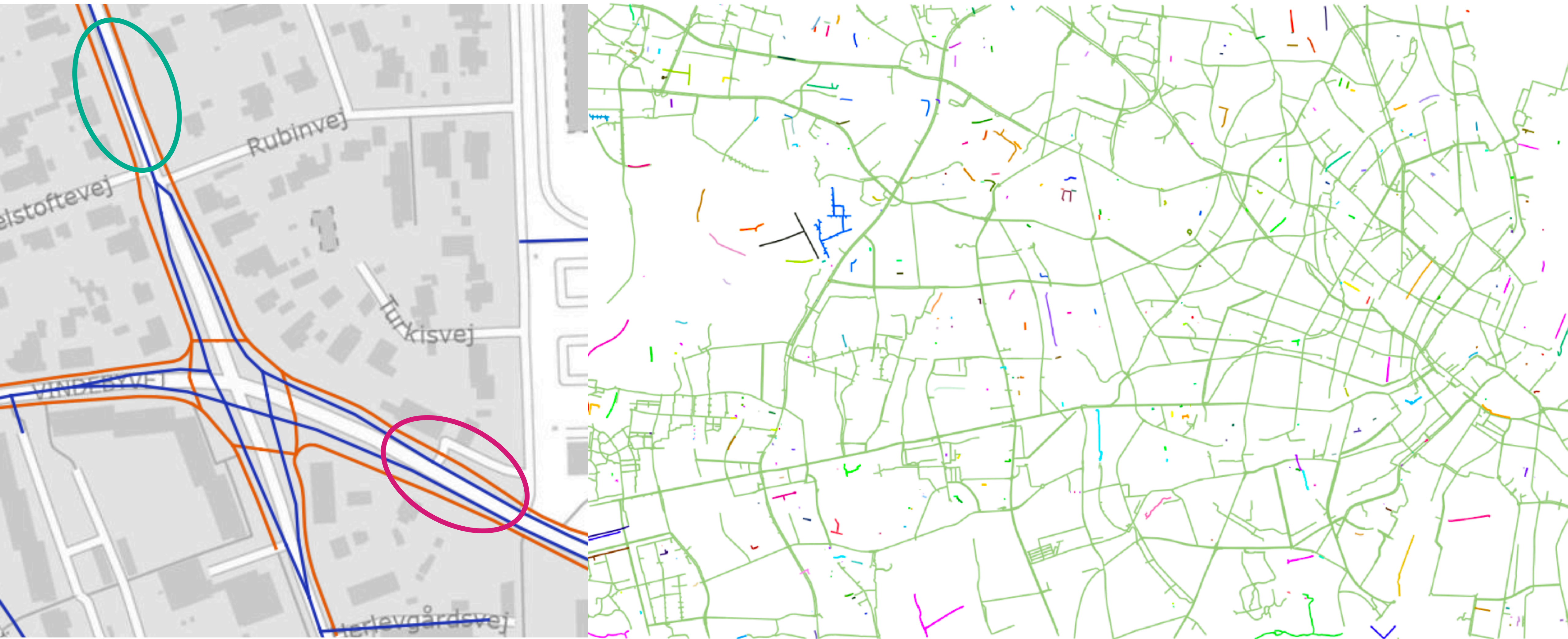


Harms and Kansen, Netherlands Institute for Transport Policy Analysis (2017)  
Szell, Urb Plan 3, 1-20 (2018)  
Euclid (300 BC)

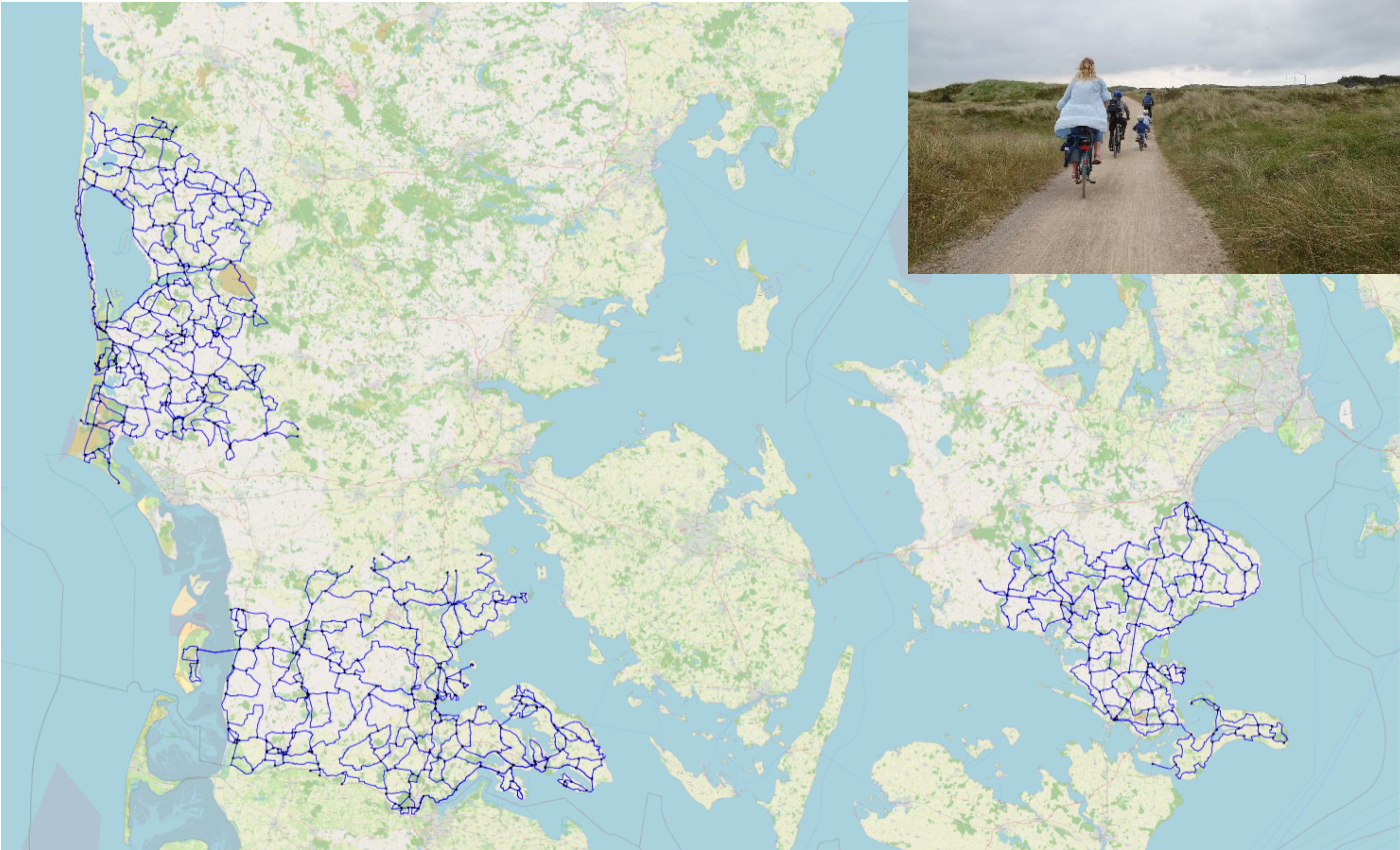
# Data-driven planning can support a sustainability shift



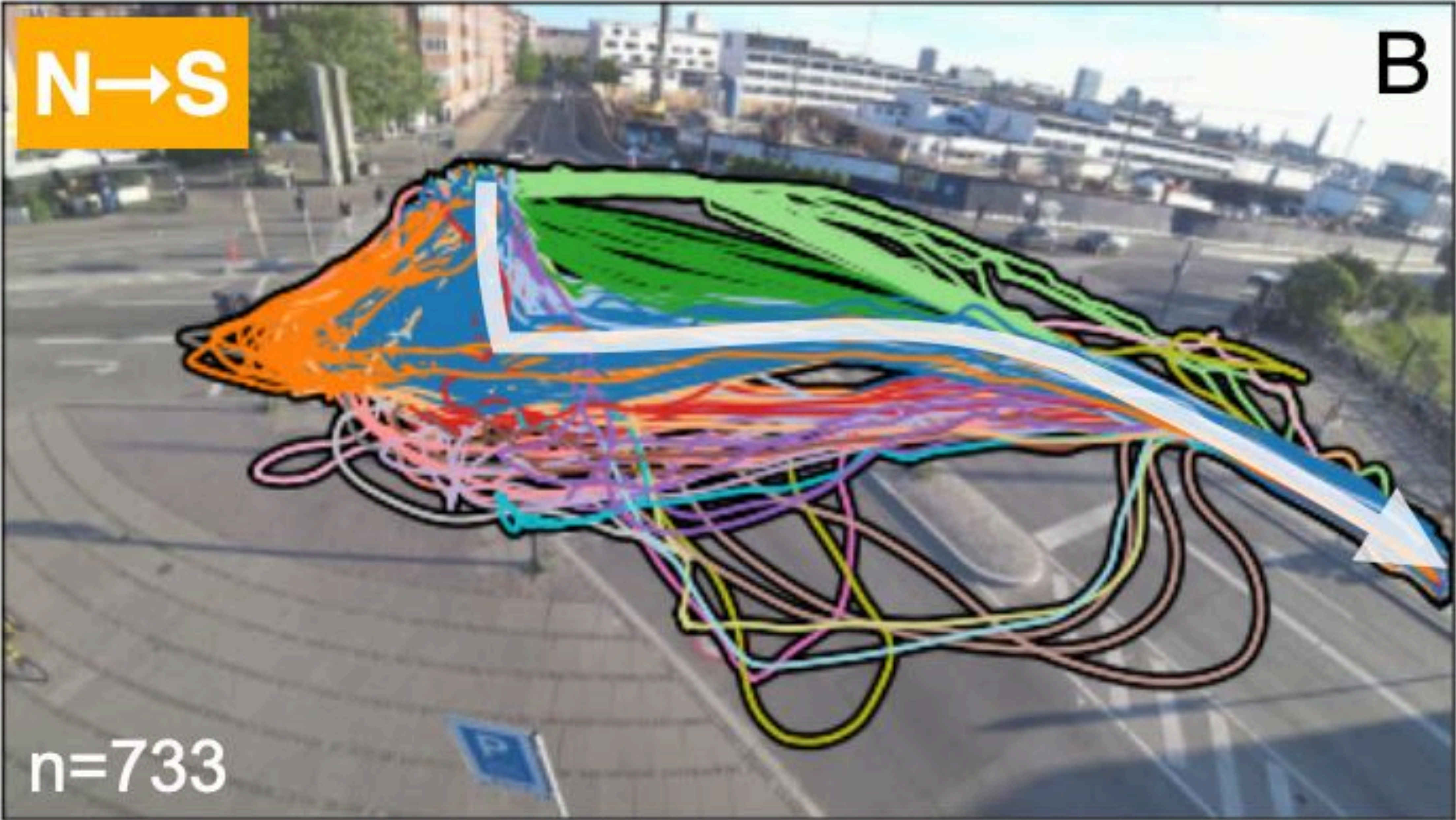
# Cycling data are often not prioritized



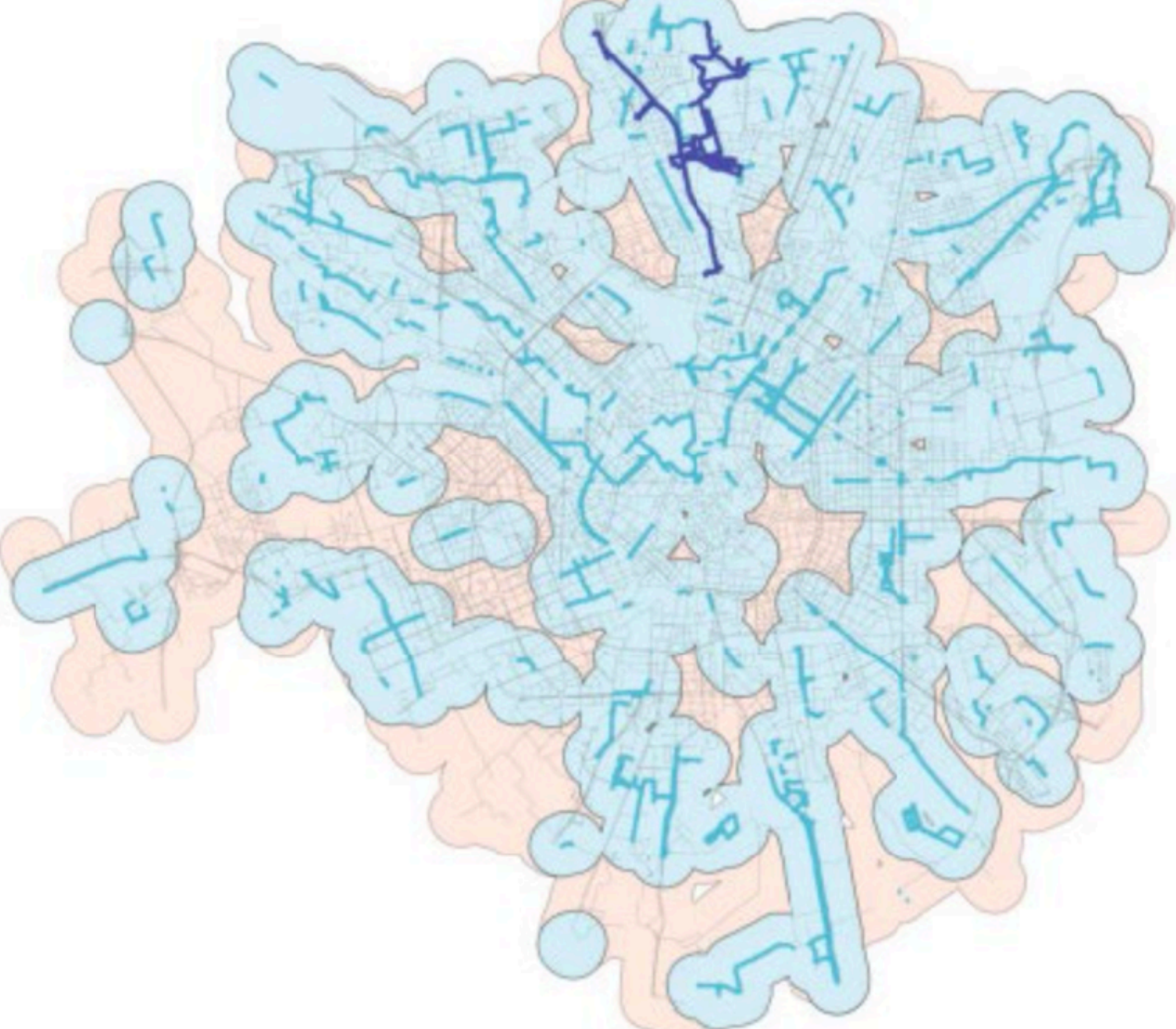
# Data-driven planning needs to be human-driven



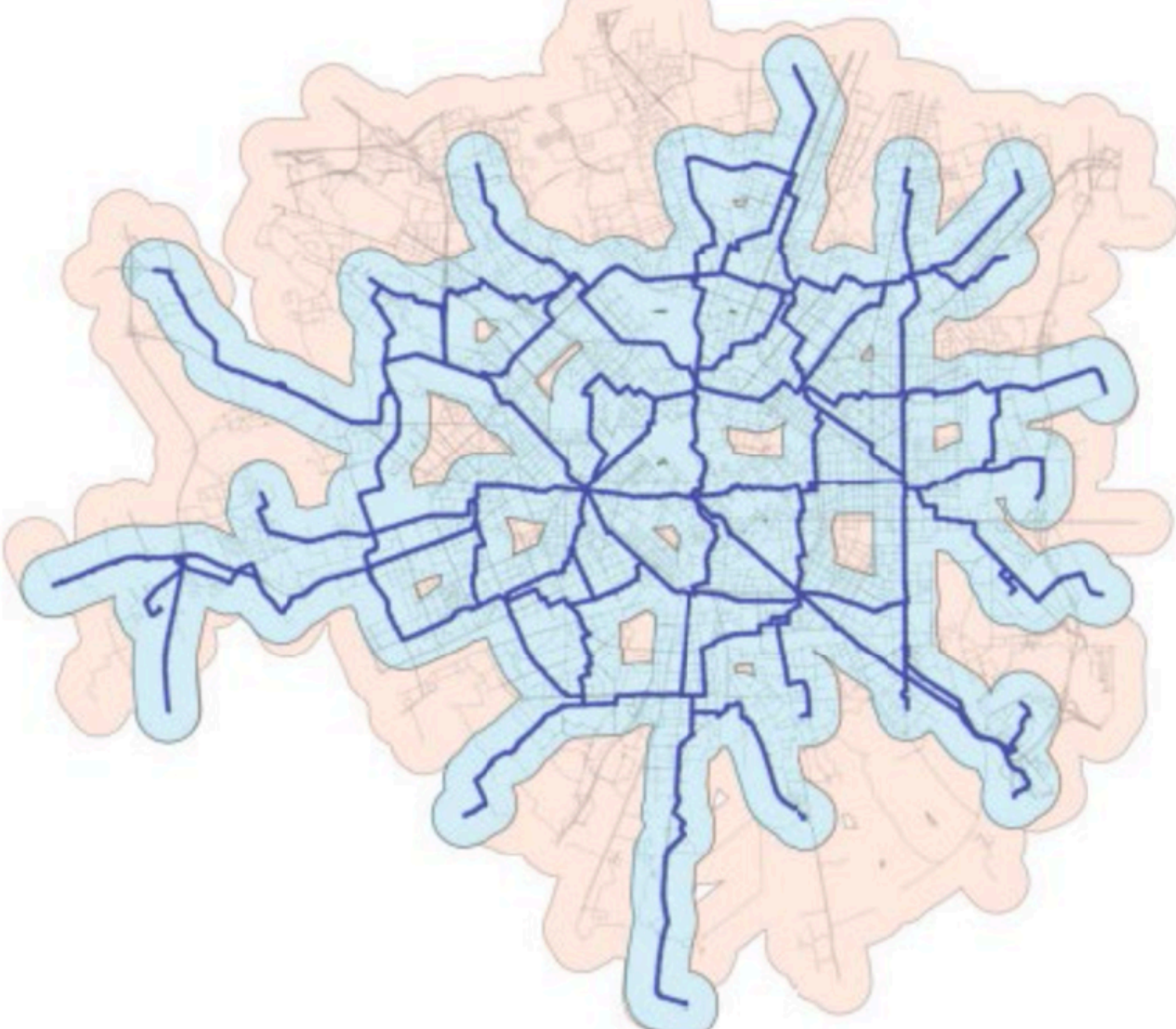
# Data-driven planning needs to be human-driven



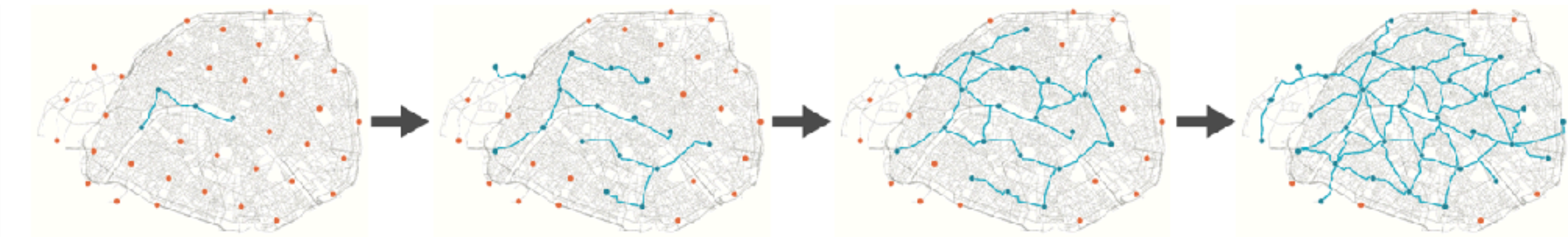
# Many bicycle networks lack a long-term growth strategy



Real city



Simulated city

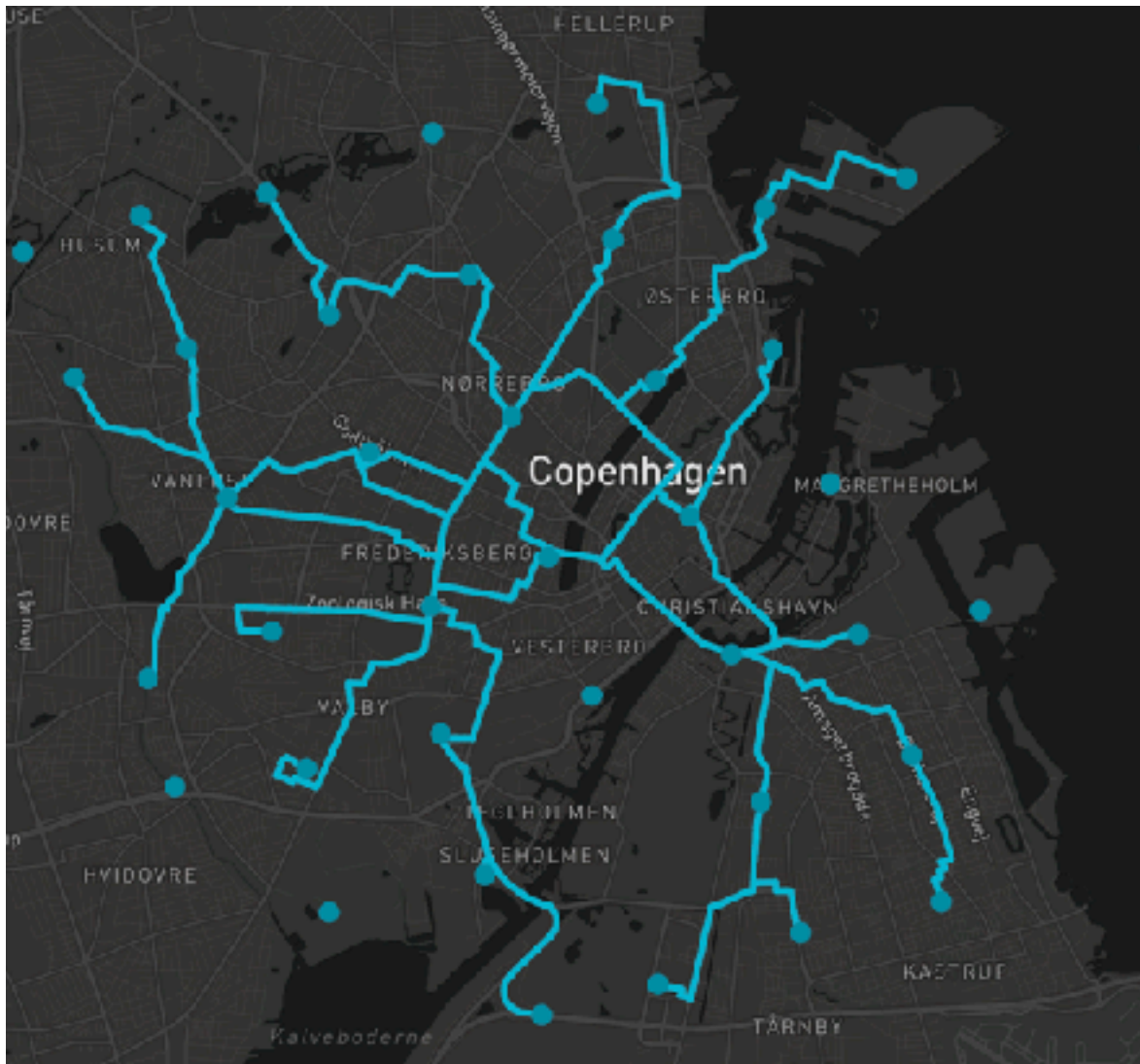


Szell et al. 2022, <https://www.nature.com/articles/s41598-022-10783-y>



Building sustainable cities is a  
**political**, not a technical question

# Our work: Data-driven tools to help sustainable urban planning



Grow bicycle networks

Geospatial Data Science (Spring 2022)



Geospatial Data Science



BikeDNA



Missing Links

# Our work: Data-driven tools to help sustainable urban planning

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Research



Cite this article: Natera Orozco LG, Battiston F,

## Data-driven strategies for optimal bicycle network growth

Luis Guillermo Natera Orozco<sup>1</sup>, Federico Battiston<sup>1</sup>,  
Gerardo Iñiguez<sup>1,2,3</sup> and Michael Szell<sup>4,5,6</sup>

## geographical analysis

*Geographical Analysis* (2022) 0, 1–29

## Automated Detection of Missing Links in Bicycle Networks

Anastassia Vybornova<sup>1</sup> , Tiago Cunha<sup>1</sup>, Astrid Gühnemann<sup>2</sup> ,  
Michael Szell<sup>1,3,4</sup>

scientific reports

www.nature.com/scientificreports



## OPEN Growing urban bicycle networks

Michael Szell<sup>1,2,3,4</sup>, Sayat Mimar<sup>4</sup>, Tyler Perlman<sup>4</sup>, Gourab Ghoshal<sup>4</sup> & Roberta Sinatra<sup>1,2,3,5</sup>

Special Issue: Advances in Spatial and Transport Network Analysis

Urban Analytics and  
City Science

## Data-driven micromobility network planning for demand and safety

EPB: Urban Analytics and City Science  
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Breum, Simon Martin, Bojan Kostic, and Michael Szell. 2022. "Computational Desire Line Analysis of Cyclists on the Dybbølsbro Intersection in Copenhagen." *Findings*, December.

TRANSPORT FINDINGS

## Computational Desire Line Analysis of Cyclists on the Dybbølsbro Intersection in Copenhagen

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Keywords: urban data science, cycling, traffic behavior, intersection design, human-centric planning

<https://doi.org/10.32866/001c.56683>

[growbike.net](https://growbike.net)

[fixbike.net](https://fixbike.net)

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