

# Where is transport research heading in the next 15 years?

**Professor Maria Attard**

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The future of transportation: Where ...  
Geotab



# Where is transport research heading in the next 15 years? *Google AI replies:*

## **1. The Death of "Predict and Provide" Modelling**

Paradigm Shift

Decide and Provide

Digital Twins

Agent-Based Simulation

## **2. Next-Generation Propulsion and Circularity**

Beyond Lithium-Ion

Grid Integration

Circular Manufacturing

## **3. Cooperative Autonomy and AI Logistics**

V2X Communication

Truck Platooning

Dynamic Routing

## **4. Sky and Sea Alternatives**

Urban Air Mobility (UAM)

Aviation Decarbonization

Smart Maritime

## **5. Social Equity and Mobility Poverty**

E-Bike Cities

Demand-Responsive Transport (DRT)

The "Peak Car" Transition



**Have citizens vanished from future research?**

# Where is transport **planning** research heading in the next 15 years? *Google AI replies:*

## **1. Paradigm Shift: "Backcasting" and Vision-Led Planning**

Goal-driven frameworks  
Backcasting methodology  
Scenario uncertainty



## **2. Analytical Shift: Disaggregate Modeling & Digital Twins**

Agent-Based Modeling (ABM)  
System-of-systems Digital Twins  
Real-time data fusion

## **3. Sustainability & Energy Sector Coupling**

Grid-mobility integration  
Heavy-duty decarbonization  
Nature-based placemaking

## **4. Behavioural & Equitable Access Metrics**

Social and environmental justice  
15-Minute City dynamics  
Inclusion and stress studies

## **5. Automated, Shared, and Sychromodal Logistics**

Sychromodal freight planning  
Bounded autonomy management

# The challenges are obvious!

**Decarbonization**

**Adaptation & Resilience**

**Wellbeing & livability**

**What is the role of transport research in this?**



# Some important considerations...

- Research shows that policies aimed at walking and cycling are effective at reducing environmental and health burdens (Brand et al., 2021; Aldred et al., 2021).
- Creutzig et al. (2018) show how the shift to electrification of the transport system will not be fast enough, or sufficient to achieve effective reductions in CO<sub>2</sub> emissions.
- On the other hand, many authors have claimed that investment in active transport infrastructure is a very promising way to reduce transport CO<sub>2</sub> emissions (see for example de Nazelle et al., 2010; Cavallaro et al., 2017; Amelung et al., 2019).

# News update?

What changed after the Pandemic?

## Traffic Is Back: Insights from the 2025 INRIX Global Traffic Scorecard

December 8, 2025 / By Bob Pishue

**INRIX 2025 Global Traffic Scorecard**

The 2025 Global Traffic Scorecard provides three years of transportation data for a more granular and holistic analysis of mobility within the world's most congested areas. It provides travel delay comparisons, costs of congestion to drivers and regions, and commuting trends based on the unique travel patterns within each metro area.

The Scorecard utilizes up-to-date, observed commute trips to truly analyze and compare how travel behavior differs in more than 900 cities across the globe.

**7** Continents  
**36** Countries  
**900+** Cities

Download the Full Report | Jump to City Rankings

You aren't imagining it. Traffic is getting worse. As infrastructure ages and population and economic growth put more strain on the road network, traffic congestion grows, resulting in billions of dollars in lost time, wasted fuel, and excess carbon emissions.



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**Is Denmark Falling Out of Love With the Bike?**

Figure 2: Cycling as transportation to and from work or education divided by age (percentage)

Age Group	2020 (%)	2025 (%)
15-19 years*	32%	38%
20-29 years old*	34%	38%
30-39 years old*	27%	26%
40-49 years old*	23%	22%
50-59 years*	21%	20%
60-69 years*	21%	21%
70-79 years*	15%	16%
80+ years*	8%	13%

Source: Denmark in Motion, SDU, 2025

Is there still “  
Vehicle traffic grew  
2007. Then traffic  
UK and other deve  
statistics for vario  
Passenger ki

Private car and lig  
Germany | Austr

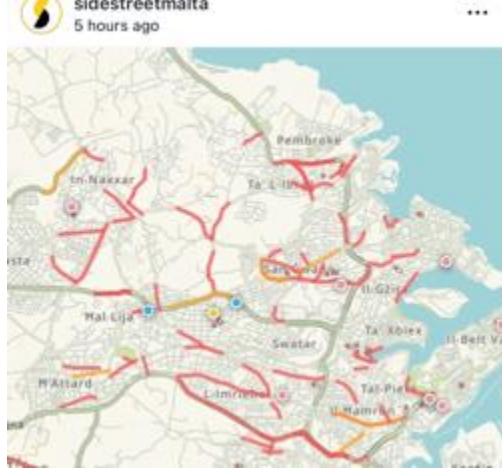


Guardian graphic

Source: International Transport Forum statistics

An aerial night view of a city street intersection. The scene is illuminated by streetlights and building lights, creating a vibrant urban atmosphere. Tall buildings with lit windows surround the intersection. A multi-lane road with traffic is visible, along with pedestrian crossings and green spaces with trees. The text "If more people choose to inhabit cities, how do we make cities great for people?" is overlaid in white, centered on the image.

If more people choose to inhabit cities, how do we make cities great for people?



- Research needs to reflect more upon what people want versus what they need.
- Research must support communities to understand the impacts of their choices and provide alternative and sustainable visions, where these lack.
- It is not only a prerogative of industry and technologies to drive successful, sustainable and equitable change.



Research can help us understand  
**CONTEXT, GEOGRAPHY AND  
CULTURE**



Research can help us understand  
**HUMAN AND ENVIRONMENT  
RELATIONSHIPS**



Research can help us understand  
the **SHAPE OF (FUTURE?)**  
**ENABLING TECHNOLOGY**



L-Università ta' Malta  
Institute for Climate Change  
& Sustainable Development

# Thank you

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