

Developing Technology That Is Responsible and Societally Ready

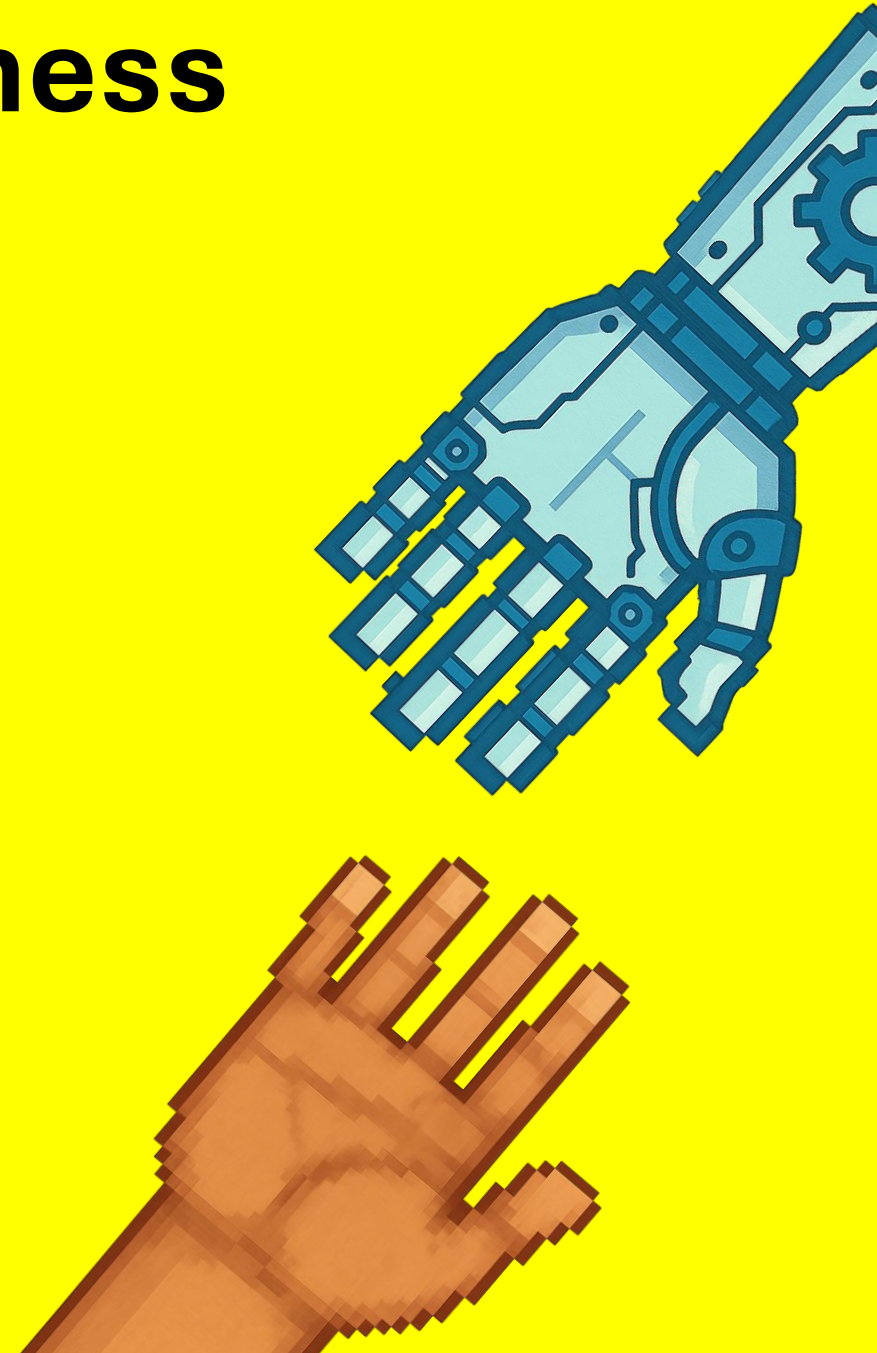
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Engineering Societal Readiness

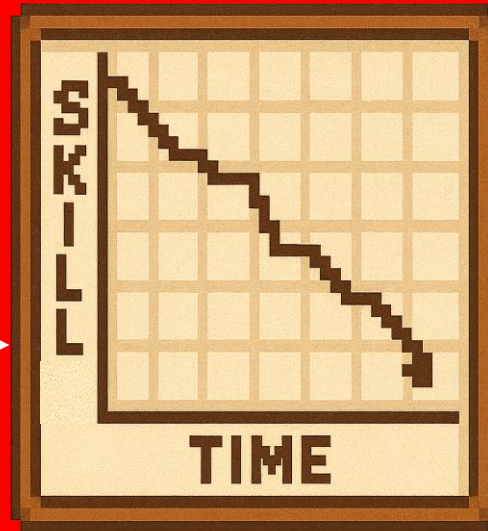
- Study how **people, technologies, and institutions/society** co-adapt during transitions.
- Identify readiness gaps — when systems are technically mature but socially unprepared.
- Design methods to align safety, sustainability, and fairness.



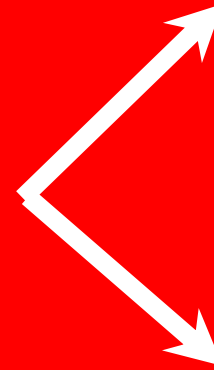
Example:



**Drivers
Vehicles of
Highly
Automated**



**Skill
erosion**



**Reduced ability to
detect errors**



**Loss of
independent
decision-making**



Technology



Human



Society

**Tools/Products
I Develop for
Societal Readiness
in HORIZON
projects**

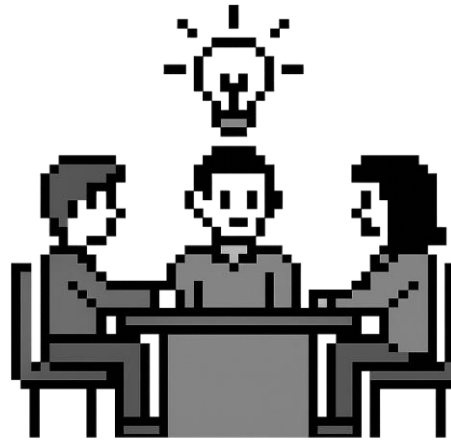
Tool	Purpose (Short & Clear)
 Societal Readiness Frameworks	Evaluate when technologies are technically sound, ethically responsible, and socially accepted.
 Foresight & Scenario Tools	Create future scenarios that anticipate societal, behavioural, and policy challenges in emerging technologies.
 Psychological Needs & Readiness Assessments	Identify user motivations, risk perception, and emotional factors that shape technology adoption.
 Human-AI Interaction Protocols	Design and test responsible, transparent, and adaptive human-system interactions.
 Co-Design & Transition Labs	Bring citizens, engineers, and policymakers together to co-create and evaluate real-world solutions.
 Value-Transition Modelling	Model how values such as safety, fairness, and sustainability interact and expose trade-offs
 Distributed Responsibility Frameworks	Map how responsibility is shared and learned across people, AI, and institutions.

How the Tools Work Together



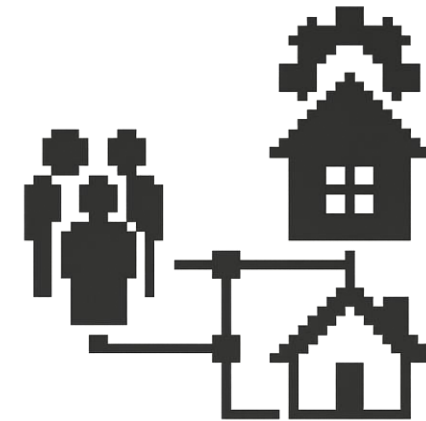
Understand the System

Study how technologies, values, and people interact.



Test with People

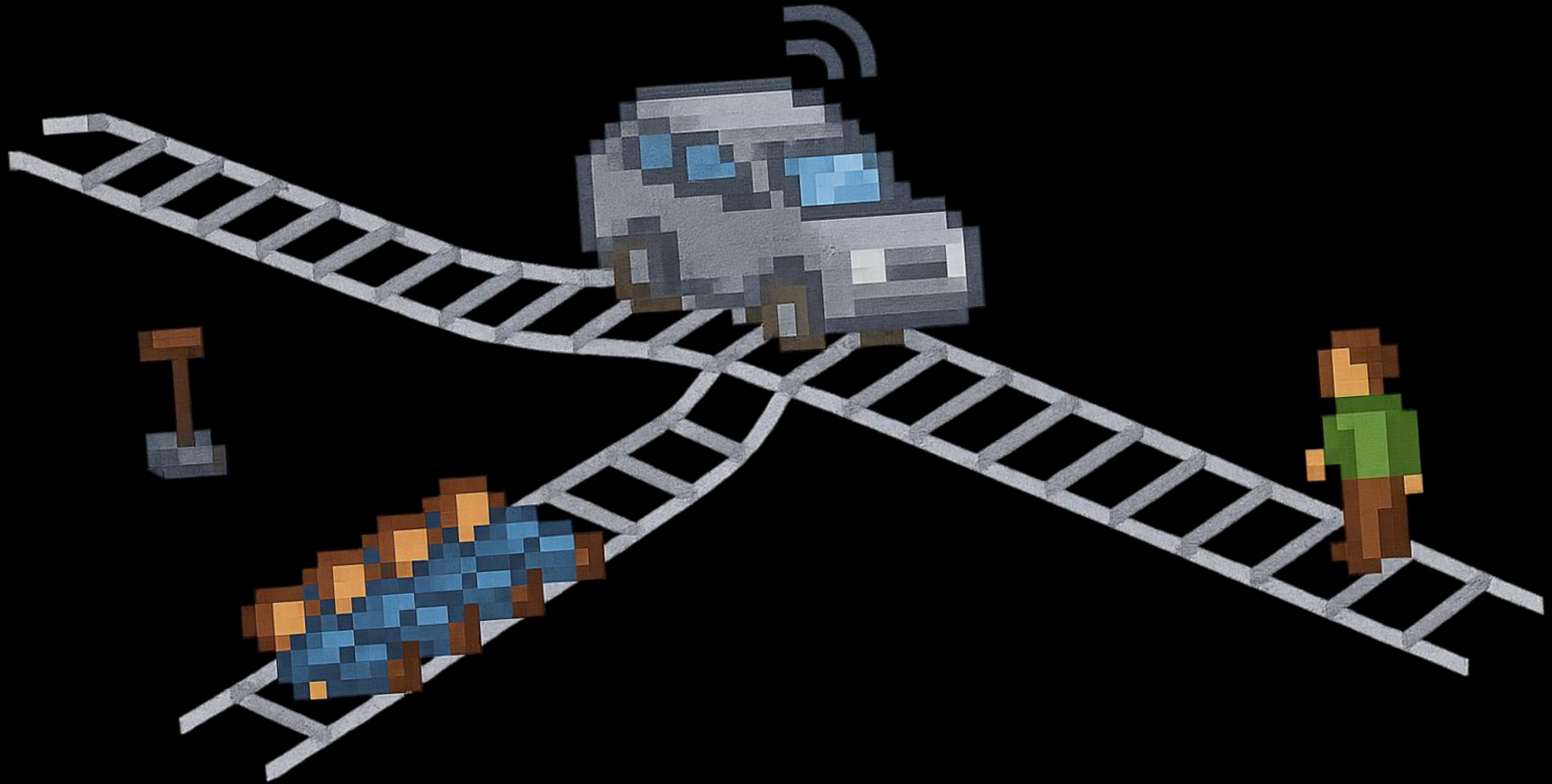
Co-design and test real solutions in practice.



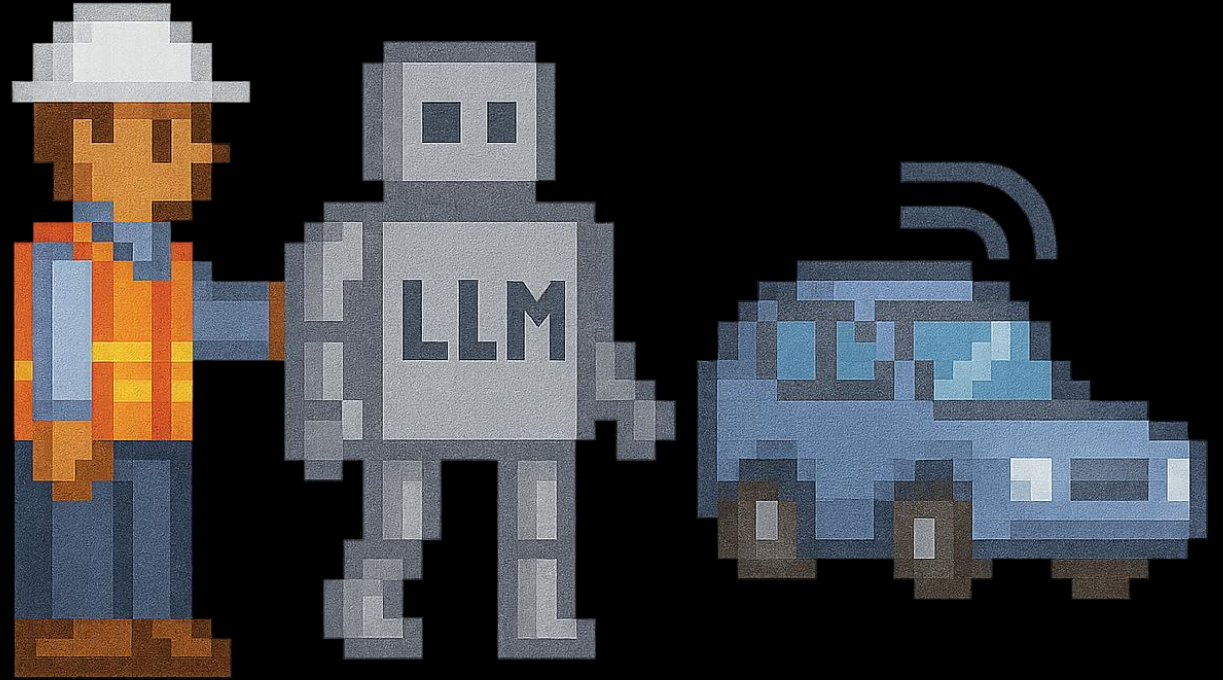
Model and Govern

Analyse impacts and design responsible governance.

AV ethics isn't about abstract moral puzzle



We need to focus
on **real-world
design choices**,
not just theoretical
scenarios



Use Case: Can LLMs Help Autonomous Vehicles Make Ethical Decisions?

Why treat LLMs as reasoning agents?

Because they're trained on massive datasets of human discourse — **including argumentation, decision-making, and moral judgment** — allowing them to simulate structured reasoning.

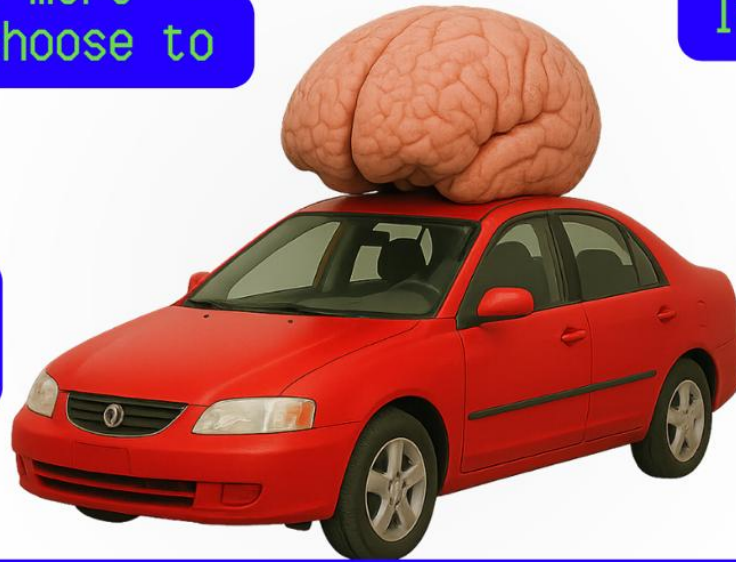


If pedestrians are more likely to die, I choose to save them

If there are children or youth, I prioritize their safety

If more lives are at stake, I protect the greater number

If you're jaywalking, I'm less likely to protect you



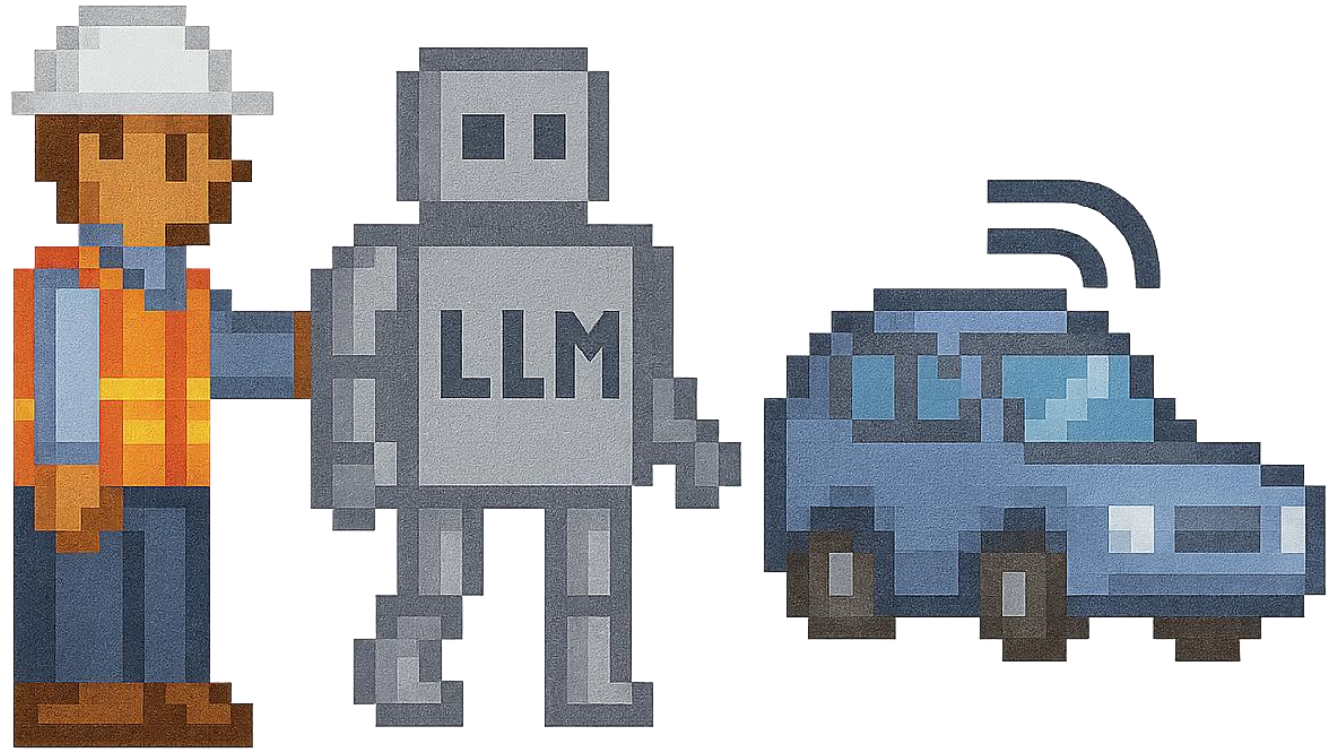
If one choice causes less harm, I take it – even when both are tragic



Want to know more? See the full study:

Xu, Z., Sengar, N., Chen, T., Chung, H., & Oviedo-Trespalacios, O. (2025). Where is morality on wheels? Decoding large language model (LLM) - driven decision in the ethical dilemmas of autonomous vehicles. *Travel Behaviour and Society*, 40, 101039. <https://doi.org/10.1016/j.tbs.2025.101039>

The choices we
design into AVs
and AI systems
reflect
assumptions
about safety,
value, and
responsibility





Call for Papers
Transportation Research Part A: Policy and Practice

Generative AI Impacts on Transport Policy and Applications

We seek original, high-quality research that examines the sociotechnical impacts of Generative AI on transport systems, policies, and practices, with submissions due by **20 May 2026**. Papers should provide clear implications for policy or practice, engage with interdisciplinary perspectives, and be grounded in current transport debates.

Guest Editors

Dr. Oscar Oviedo-Trespalacios (TU Delft, Netherlands)
Dr. TianTian Chen (KAIST, Korea)
Prof. Jinhua Zhao (MIT, USA)



Thank you!
Questions?

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