

AI FOR URBAN MOBILITY CO2TRAFFICAI

Digital with Purpose Global Summit 2023

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digital4planet.org





WHO WE ARE

D4P is a non-profit organisation supporting the development and adoption of green digital technologies and solutions for sustainable development of our economy and society.

< **TOGETHER, WE CAN MAKE A DIFFERENCE** />

THE EUROPEAN HUB FOR DIGITAL SUSTAINABILITY

- **D4P IS AN OPEN NETWORK** facilitating collaboration and promoting awareness about green digital initiatives - **you can join at any time our association!**
- **D4P HELPS RESEARCHERS AND INNOVATORS** to acquire funding for green digital projects and initiatives
- **D4P IS YOUR IDEAL HORIZON EUROPE** partner to realise your project's sustainability objectives
- **D4P GATHERS KNOWLEDGE, EXPERTS AND TOOLS** to accelerate the green digital transition and save our planet



OUR HORIZON EUROPE PROJECT PORTFOLIO



Area: 6G SNS
Aim: fully integrate Non-Terrestrial Networks component into 6G



Area: eXtended Reality
Aim: build Europe's first multisite interconnected platform for real-time immersive telepresence



Area: Robotics & AI
Aim: develop a smart cooperative multi-robotic system for Industry 5.0 manufacturing



Area: EU-Indo-Pacific cooperation
Aim: support the implementation of the Digital Partnerships in the Indo-Pacific area



Area: 6G/ EU society
Aim: address the tension between parallel needs in terms of 6G technological development

...AND WE CAN HELP YOU ACQUIRE FUNDING FOR YOUR SUSTAINABLE R&I PLANS



digital4planet.org/eu-funding-for-sustainable-digital-innovation/



HOW CAN DIGITAL TECHNOLOGIES DELIVER SUSTAINABLE SOLUTIONS FOR THE BENEFIT OF OUR PLANET?

KEY INGREDIENTS

- Awareness and education
- Financial means
- Innovative technologies
 - Green by design
 - Affordable and accessible
 - Trustworthy and secure
- New business models
- Policies and regulations
- (Open) Standards
- Fiscal incentives
- A beyond-the-borders mindset

WHEN IT COMES TO TECHNOLOGIES

Great potential across several sectors



Access to essential
(and not only)
services



Optimisation
of processes



Environment
al monitoring



More efficient
use of resources

However, technology

- Drives electricity demands
- Damages the environment
- Induces overconsumption

CLIMATE-NEUTRAL AND SUSTAINABLE SMART CITIES

Cities are responsible for **over 70% of global CO2 emissions**, most of which come from industrial and **motorised transport systems** that consume huge amounts of fossil fuels and rely on distant infrastructure built with carbon-intensive materials.¹

UN SDG #11 *Make cities and human settlements inclusive, safe, resilient, and sustainable* encourages cities to **make better use of ICT to address urban challenges**.

Major European investments and actions to

- Underpin the **digital transformation of cities and communities**
- Optimise the **environmental impact** and the **quality of life** for all citizens
- Promote the adoption of **intelligent and sustainable digital technologies and solutions** that can protect our environment and empower citizens

¹ Source : [From World Bank Group Climate Change Action Plan 2021-2025](#)

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SUSTAINABLE MOBILITY AS A SERVICE

Road transport accounts for a significant portion of air pollution in urban areas



New mobility models may strengthen individualistic behaviours



The mobility ecosystem is becoming more complex, distributed with conflicting interests



Public authorities struggles in implementing effective measures able to tackle pollution problems in a multi-actor environment

Unable to link CO2 monitoring with mobility demand management

Unable to control dysfunctionalities of new mobility systems

AN INNOVATIVE APPROACH

TODAY

Data-driven Decision Support

- Measure the present
- Predict the future

Mobility Governance

- Static governance
- Agreement-based
- Slow deliberation

Community Engagement

- City regulates
- Operators propose
- Citizens use



TOMORROW

- Explain the present
- Make the future

- Dynamic governance
- Situation-based
- Tight deliberative loop

- City oversees
- Operators integrate
- Citizens co-create

Open MaaS enabling components

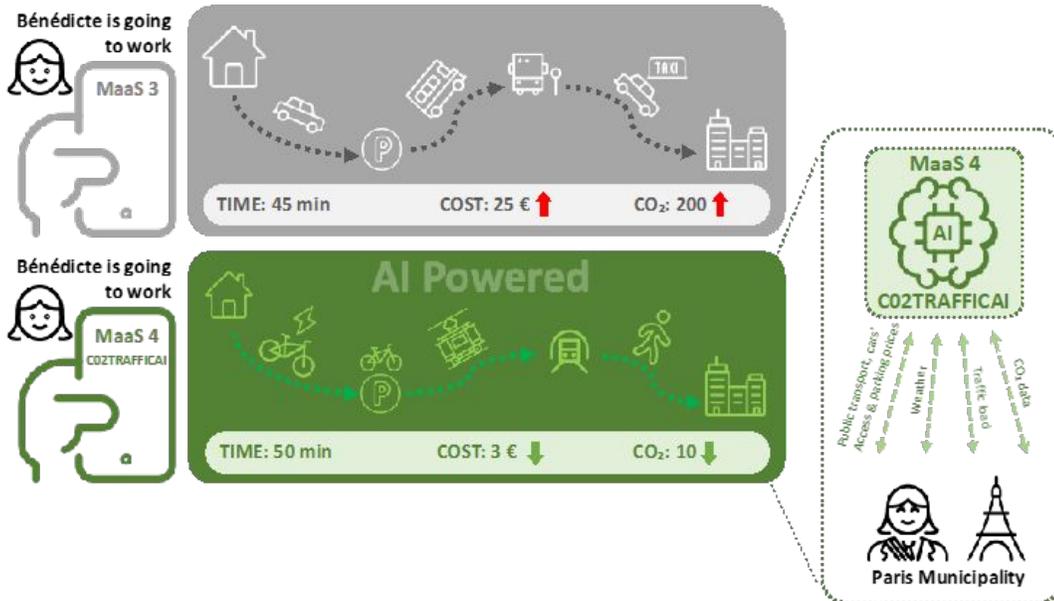
- Active demand management
- Pillar for policy-driven MaaS

AI-powered decision support

- Advanced CO2/GHG monitoring
- Scenarios for policymakers
- Recommendations and planning for mobility users

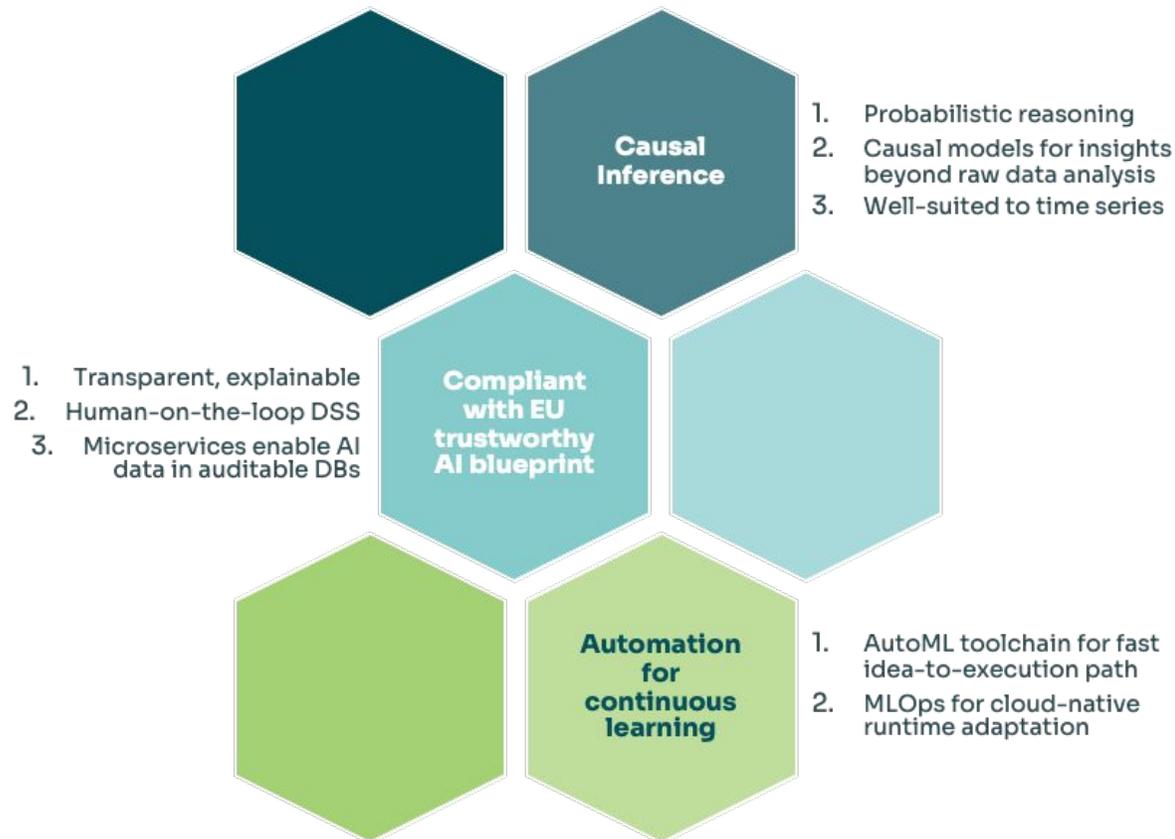
Multi-stakeholder vision

- City, transport operators, citizens
- Sharing data, insights, AI models



Sample use case: multi-modal trip planning with dynamic climate impact awareness

AI APPROACH



FEATURES AND BENEFITS

AI boosts CO₂ emission monitoring

- Improves time series data with inference
- Combines measured and calculated CO₂

AI supports decision- and policy-making

- Assesses overall impact of city actions
- Intervention and counterfactual scenarios

AI provides system-wide improvements

- Enhances data assets for all city actors

ENVIRONMENT



Gains

- MaaS Pricing and Routing driven by environmental and traffic policies
- Dynamic Low Emission Zone according to measured/estimated GHG levels



Pain relievers

- Effective and active governance models in the multi-actors mobility market



Market channels

- Governance Open Platform

MOBILITY ACTORS



Gains

- AI dynamic features integrating MaaS operators travel offers and automating CO2 assessment;



Pain relievers

- Support MaaS uptake introducing AI-driven features



Market channels

- B2B Platforms

ORCHESTRA CITIES



<https://www.orchestracities.com>

- Smart Cities and IoT platform
- Open-source, cloud-native, multitenant
- Developed by Martel, community-based
- Use cases in mobility, air quality, et al.



Embrace openness in technology

- Work with technological partners on use cases and components
- Ensure constant attention and understanding of sustainability
- Join the dots across technological, business, and policy ecosystems

Connect with European Sustainable Cities

- Sustainable technological paths
- Public awareness and engagement
- Stakeholders involvement with co-creation workshops
- Liaise with initiatives for a common European mobility data space

HOW TO DISCOVER MORE?

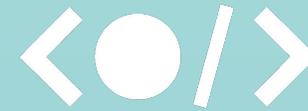
JOIN US!



DIGITAL FOR PLANET IS WAITING FOR YOU!

Become a part of a strong community for the development and adoption of sustainable digital technologies! Digital For Planet Welcomes Both Organizations And Individuals:

- **SMEs / Startups**
- **Large industry players**
- **Academic institutions and research centres**
- **Municipalities and public authorities**
- **Associations / Grass roots communities**
- **Committed people!**



**DIGITAL
FOR
PLANET**

Our planet calls for action! JOIN the movement now!



On digital4planet.org

DIGITAL FOR PLANET IN ACTION



**Green
Cloud-edge-iot
Computing**



**Climate-neutral
and Sustainable
Smart Cities**



**Towards a
Sustainable
Internet**



**Zero Pollution
Communication
Networks**



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THANK YOU FOR YOUR ATTENTION



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