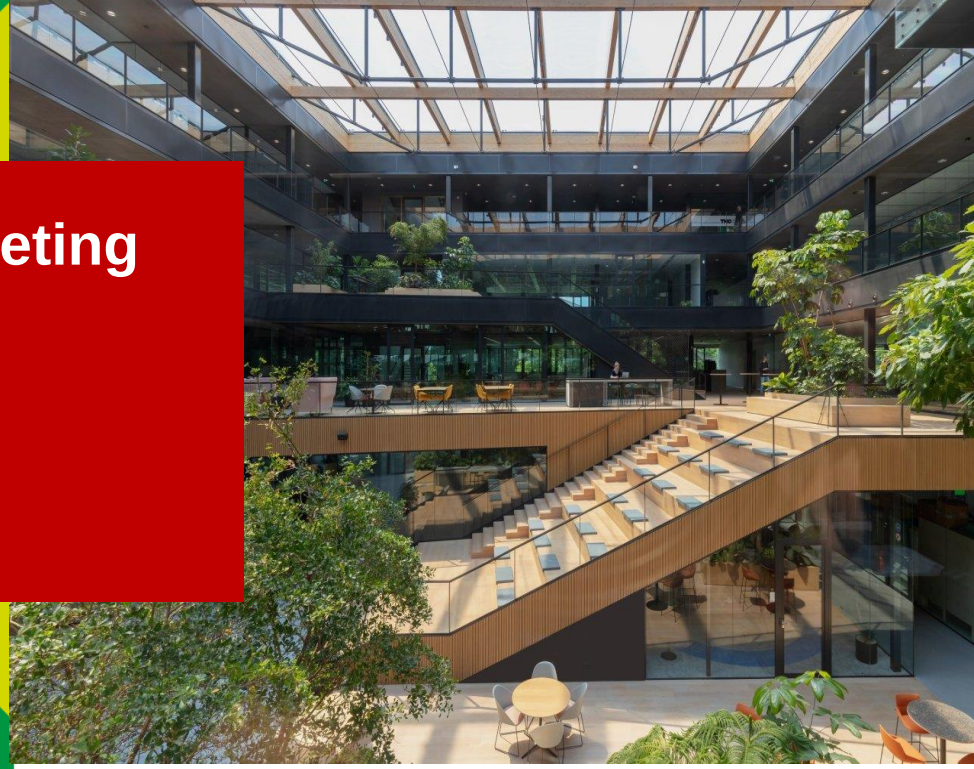
XCARCITY Consortium Meeting

Future Mobility Network
NEXT Delft

12 February 2025



Future Mobility Network

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Agenda

10:30 - 10:40		Opening + Welcome by Bart van Arem
10:40 - 11:10		Inspirational Speaker (30min)
11:10 - 11:30		Q & A with Inspirational Speaker (20min)
11:30 - 12:00		Programme Update (30min)
12:00 – 13:00	*Lunch*	
13:00 - 13:10		Introduction to Researcher's Carousel
13:10-14: 00		Researcher's Carousel session 1 (45min)
14:00-14:10	*BREAK + Switch Tables*	
14:10-15:00		Researcher's Carousel session 2 (45min)
15:00 - 15:20		Feedback session + Reflection (30min)
15:20 - 15:40	*TEA BREAK*	
15:40 - 16:00		NWO Update (20min)
16:00 - 16:30		Closure+Reflection
16:30	*Borrel*	

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Welcome by Bart van Arem

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Inspirational Speaker: Alwin Bakker

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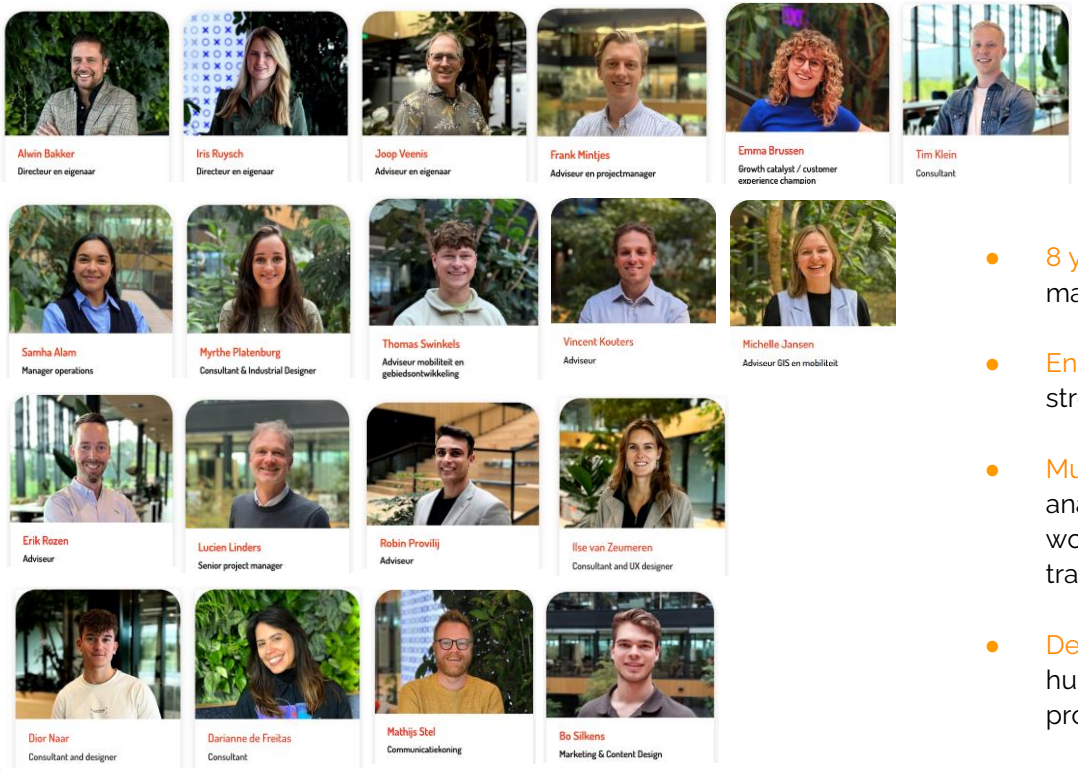
Future Mobility Network

The Future Mobility Network

Making the future of mobility a reality today.

About us | A group of 20 innovative mobility consultants



- 8 years of experience in the field of mobility management and lesser disruption tasks.
- Entrepreneurs with market knowledge and a strong established network
- Multidisciplinary team of mobility experts, data analysts, process and programme managers working together as a team with openness and transparency as core values.
- Demonstrable successes, including 200+ mobility hubs implemented and 15+ lesser disruption projects led.
- Founded 6 successful startups.

What we stand for:

We accelerate the mobility transition with smart, practical mobility solutions, always with people in mind.

What we do | We deliver mobility consultancy on 4 themes

We are building the mobility landscape of the future with the following expertise:

Mobility visions

"What does the mobility of the future look like and how do we start realizing this future?"

Less Disruption

"How do we ensure less disruption during major infrastructure work by providing good alternatives?"

Innovative mobility concepts

"How do you implement new mobility solutions?"

Spatial development

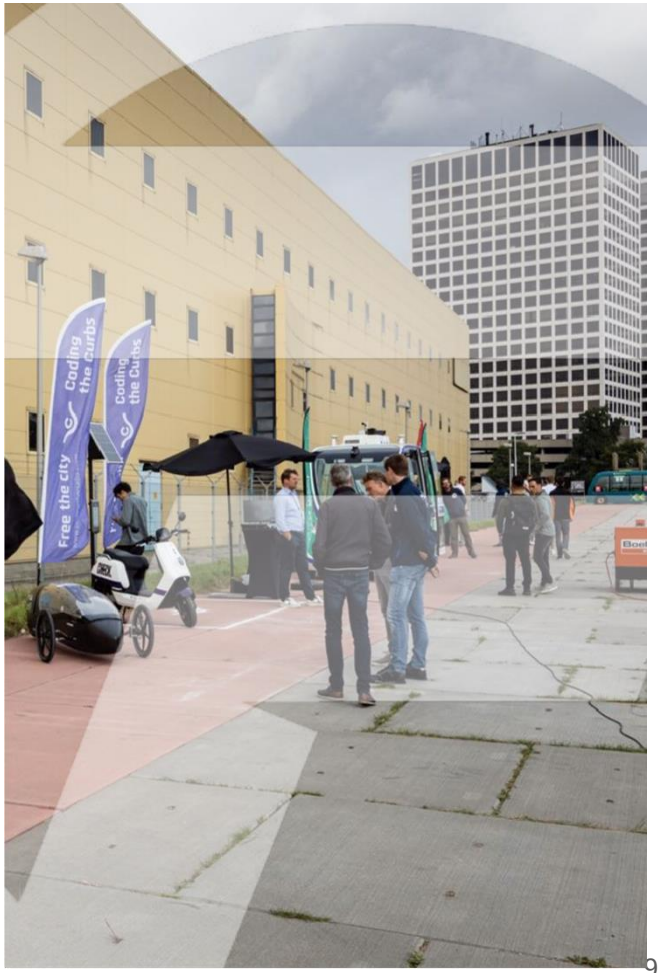
"How do we integrate mobility into new project or area developments?"

Testing ground | We test at Future Mobility Park

Do we always start implementing new innovations immediately? Sometimes we can first have a test phase on our test park!

- ➔ Shuttles and delivery robots had their first go there.
- ➔ A drone landed after the first flight in that area of the harbour.
- ➔ iVRI-traffic lights are being tested.

It's a great testbed for new mobility innovations.



About us | We have a big Innovation network

With extensive expertise in creating and managing impactful pilots, we are uniquely positioned to support the developing and executing urban mobility initiatives at our test facility.

DRONE DELIVERY SERVICES

kpn

Coding the Curbs

cenex

vodafone

NVIDIA

TU Delft

TNO innovation for life

AMS AMSTERDAM INSTITUTE FOR ADVANCED METROPOLITAN SOLUTIONS

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

Mercedes-Benz DAIMLER

HARDT HYPERLOOP

tomtom

Port of Rotterdam

Technolution

About us | We are active in large consortiums

1. Future Network Services

Testing and implementing innovations by making use of 6G network.

3. DMI Ecosysteem

Developing a digital loading zone as part of digital instruments for the mobility and urban planning sector,

2. XCARCITY

XCARCITY is a five-year program (2023-2028), packed with research and pilots, aimed at making urban regions sustainably accessible.

4. The World Bank

We conduct different research studies on behalf of The World Bank. We went to 10 different countries to analyse the readiness for self-driving vehicles.

About us | With a long track record in innovative mobility realization

Rotterdam The Hague Airport

esa ESTEC

22 driverless shuttles, ferries and robots implemented

SPAR UNIVERSITY

Landal GreenParks

Breda University OF APPLIED SCIENCES

Lelie zorggroep

MACROSTEP Autonomous Robot

How we work:

From hop step jump to learning by doing we change the cities of tomorrow

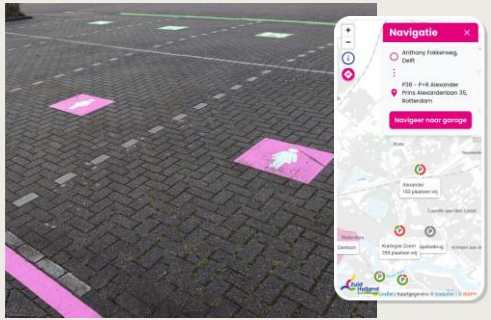
Our approach | Our Hop - step – jump approach

Hop: We have a physical testing area in M4H - Future Mobility Park

A secured and well equipped **testing ground** for pilots unique to Rotterdam and linked directly to the locations of the pilots.

Step: We made a P+R strategy to stimulate park & rides

We tested with **female friendly parking places** & implemented a **live dashboard to show occupancy** at various P+Rs.



Jump: Implemented 200+ mobility hubs

We have **4 colleagues working for the city** in on assignments about urban planning (M4H), parking, participation in neighborhoods and behavioral change of car drivers.

Our approach | Our learning by doing ® framework

Phase 1
Discover and define

Focus: Problem definition and feasibility

Deliverables: feasibility study, initial analysis, and partner network

Actions:
- ➔ Hands-on market and desk research
- ➔ Rapid scan of legal and logistic challenges
- ➔ Financial feasibility and business case

Phase 2
Pilot preparation

Focus: action plan and deliverable definition

Deliverables: pilot description (incl. scope, kpis)

Actions:
- ➔ Coordinate partner and stakeholder roles and responsibilities
- ➔ Define communication and contingency plan

Phase 3
Learn by doing

Focus: pilot execution and project steering

Deliverables: Implementation plan (incl. milestones and reporting)

Actions:
- ➔ Execution of pilots according to scope and content
- ➔ Stakeholder coordination and communication

Continuous
Manage and measure

Focus: project management and analysis

Deliverables: Interim and final reporting, results analysis, meeting coordination and participation

Actions:
- ➔ Clear and short lines of communication with Project Management for client
- ➔ Ensure quality management through quality management protocol comparable to ISO 9001.

Learning by Doing | Applied to Mobility hubs Rotterdam

Phase 1
Discover and define

Phase 2
Pilot preparation

Phase 3
Learn by doing

Continuous
Manage and measure

Learning by Doing | What is next after standardization?

In a years time we helped implement over **200** hubs in Rotterdam. But they can still be improved. **What does the future look like?**

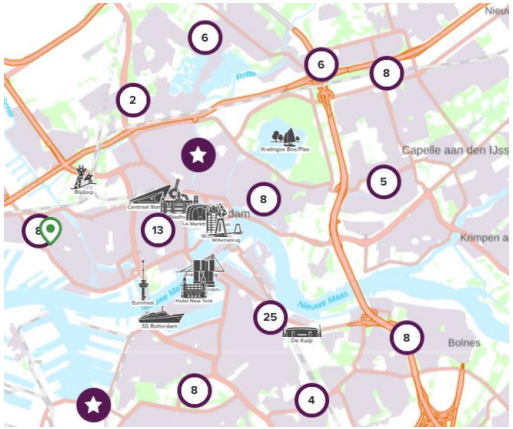
Phase 1
Discover and define

Phase 2
Pilot preparation

Phase 3
Learn by doing

Continuous
Manage and measure

?
What's next?



Punchline

Beyond standardization: Keep learning, keep doing!

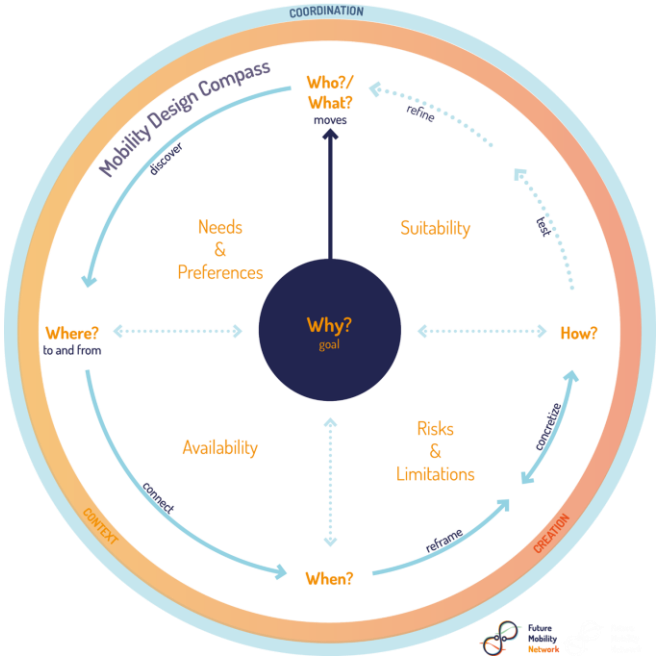
Our Framework:

Mobility compass

Focus area | Spatial development

We consider innovative spatial development to be very important for us. Based on our years of experience, we have developed the ***Mobility Design Compass ®: An Integral Approach to Mobility Visions from Design to Construction Phase.***

1. **Why, are people moving (to work)**
2. **How, are people moving (with car and metro)**
3. **Who, is moving (female)**
4. **Where, is somebody moving to (Rotterdam Centre from Bergschenhoek)**
5. **When, is somebody moving (in the evening)**



Solution: female friendly parking

Solution: Bever Buzz for children

Punchline

Design transport for everyone—safety isn't one-size-fits-all. Think beyond the male perspective!

We discover:

Wandering around and learn from abroad

Beijing, China | Lessons learned - Summary

In spring 2024, a delegation from The Future Mobility Network (FMN), TU Eindhoven and RAI Amsterdam travelled to China.

The governement has a long term vision on mobility planning (5 years) The government's five-year plans focus on individual growth, prioritizing urban zones in the east and agriculture in the west for sustainable development.

Municipalities participate actively in start ups and scale ups as shareholders The Chinese government heavily invests in technologies to improve livability, prioritizing traffic safety by accelerating autonomous transport, with regional authorities supporting mobility firms like Pony.Ai.

The central payment system makes it easy for mobility start ups to grow (Wechat -Alipay) The government ensures affordable, accessible mobility through a centralized platform, integrating public transport, shared mobility, taxis, and delivery services, with large-scale mobility hubs for organization.

The governement focus on happiness of the individual but steers on the thick flows Traffic flows are managed for the collective good, prioritizing mass movement over individual needs, with road closures for state visits being routine and logistics, including robotic deliveries, integrated into this system.

In urban development there are no parking standards Urban development prioritizes spatial quality with underground parking, ample shared mobility options, and train stations using reservation systems for efficient flow management.

Punchline

Shift from 'me' to 'we'—embrace collective challenges and contribute to society beyond the ego.

Sao Paulo, Brazil | Lessons learned - Summary

In autumn 2024, a delegation from The Future Mobility Network (FMN), and TU Delft travelled to Brazil.

In São Paulo a 15 minute city is not a realistic model form a safety perspective
São Paulo's urban sprawl and inequality challenge the 15-minute city model, while its inaccessible center faces drug issues, requiring tailored planning and better pedestrian policies.

In São Paulo the stomp principle is not a realistic perspective from a geografical approach The STOMP principle in the Netherlands prioritizes walking, cycling, and public transport over cars, but in São Paulo, informal growth and car dominance shift mobility priorities, highlighting the need for adapting STOMP in regions reliant on cars.

In São Paulo a 15 minute city is not a realistic approach form the accesibility of functions In São Paulo's favelas, limited access to jobs worsens inequality, highlighting the need for public transport and mixed development to improve accessibility.

In São Paulo the governement is less visible and people create there own mobility solutions in favela's São Paulo highlights the balance between top-down governance and bottom-up community solutions, where informal settlements thrive on self-regulation, and broader city planning relies on government frameworks.

In São Paulo the travels time stays constantly high São Paulo's mobility shows that as cities grow, travel time stays constant, highlighting the need for strategic development to limit travel times and support sustainable growth.

Punchline

Designing cities isn't just about principles like STO(M)P—it's about people and context!

We create:

After the jump we invest

Create new Start-ups | Car free streets have small beginnings

Coding the Curbs

Application: Flexible booking spots in cities

- Redesigning the streets by providing flexible spaces that can be booked with an app
- Already implemented in several cities over Europe.

sCOOL2Walk

Application: Creating a walking school bus for children

- Pilots in Riga, Barcelona en Malta
- Co-creation with children, schools and parents / caretakers
- Positive results and increased engagement of all involved
- Starting the introduction in the Netherlands

Punchline

Stop overthinking—start doing! Define the 'grey area' as your innovation playground.

To summarize…

….

The five punchlines | Summary

1. **Beyond standardization: Keep learning, keep doing!**
2. **Design transport for everyone—safety isn't one-size-fits-all. Think beyond the male perspective!**
3. **Shift from 'me' to 'we'—embrace collective challenges and contribute to society beyond the ego.**
4. **Designing cities isn't just about principles like STO(M)P—it's about people and context.**
5. **Stop overthinking—start doing! Define the 'grey area' as your innovation playground.**

The Future Mobility Network

Will we see you at our next hosted Consortium Meeting at Future Mobility Park?

Molengraaffsingel 8, 2629 JD Delft

www.thefuturemobility.network | info@thefuturemobility.network

Programme Update by Bart van Arem

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CONSORTIUM MEETING June 2024

City of Amsterdam

Climate change effects

Sacha Stolp, department of engineering

May 30, 2024

ZUIDASDOK

IMPACT PLAN

POSITIONING

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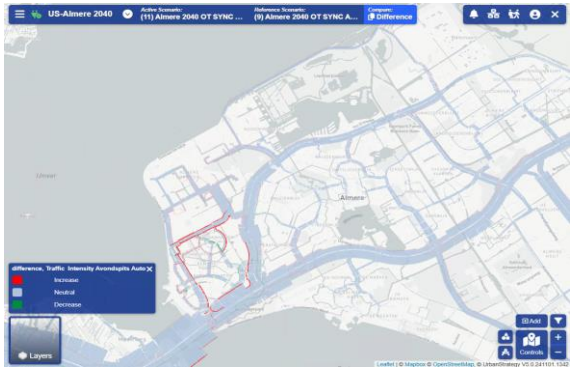
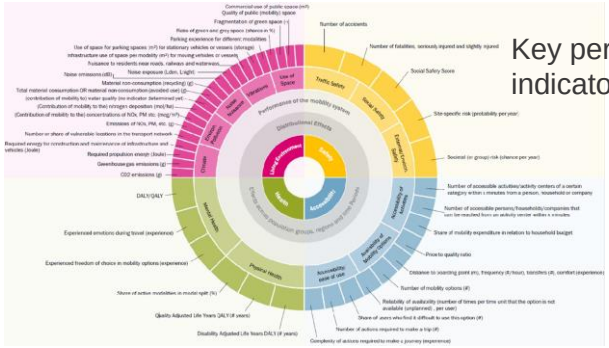
DESIGN SESSION November 2024

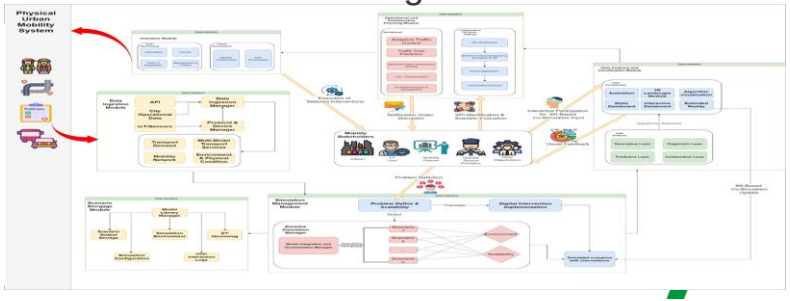


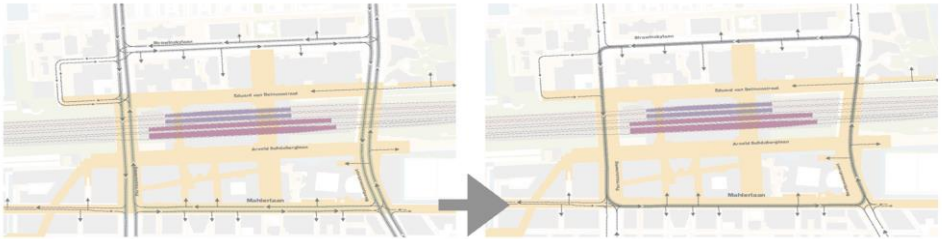
Digital twin assessment Almere Pampus



Key performance indicators

Digital twin federation

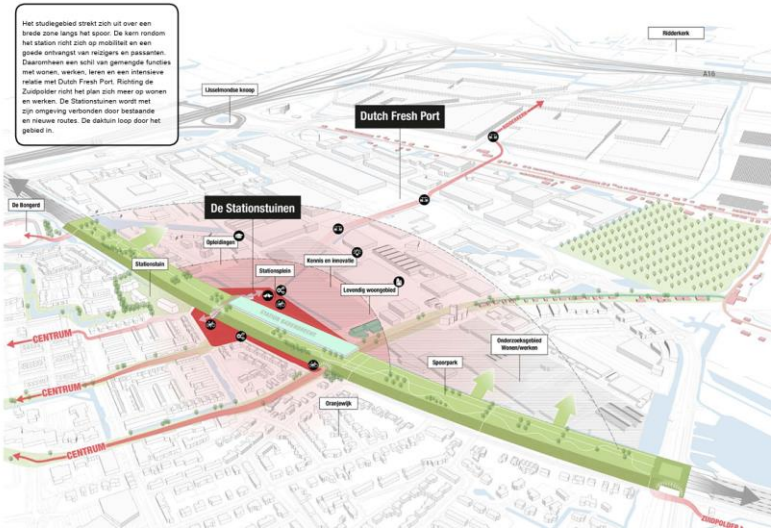




Redesign Parnassusweg

Upcoming use cases

Merwe4Haven Rotterdam
2 MSc students started
Rotterdam, BMW, Keilecollectief, DRIFT



Stationstuinen Barendrecht
MSc student started

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DMI XCARCITY collaboration

DMI·ECOSYSTEEM

Development of smart-digital- solutions for sustainable urban development, including mobility, energy and public space. https://dmi-ecosysteem.nl/

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Scientific research program that studies how and if cities could function without private cars. XCARCITY aims to use a federation of digital twins to do so. www.xcarcity.nl.

Commonalities in tooling (digital twins), partners (AMS, Almere, Amsterdam, Rotterdam, I&W, Technolution, TNO, Goudappel, …) and application to urban mobility.

XCARCITY-DMI Workshop: Digital Twins for Sustainable Car-low Cities: Connecting Research to Real-World Practices

10 April 2025, Delft

Amsterdam Zuidas as case study

Aligned with WP7 research by design

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Student Lab as XCARCITY Connections

MSc
Students

Publish interesting XCARCITY-related MSc topics & Academic Supervision

XCARCITY Researchers

Gemeente Rotterdam
Goudappel
TNO
Gemeente Barendrecht
AMS Amsterdam Institute for Advanced Metropolitan Solutions

XCARCITY
Consortium
Partners

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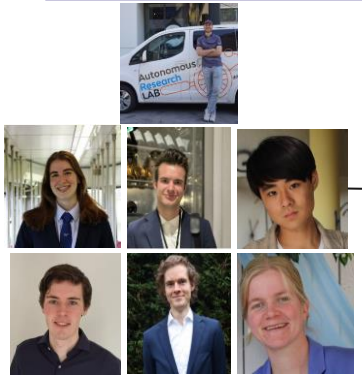
Student Lab as XCARCITY Connections



MSc
Students

Offer Potential Internship Opportunities for Industrial Insights

Gemeente Rotterdam
Goudappel
TNO
Gemeente Barendrecht
AMS Amsterdam Institute for Advanced Metropolitan Solutions

XCARCITY Consortium Partners

XCARCITY
Researchers

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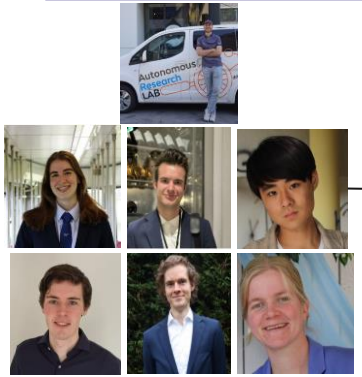
Student Lab as XCARCITY Connections



MSc Students

Conduct MSc Research Based on Interests (or even bring their own topics)

Gemeente Rotterdam
Goudappel
TNO
Gemeente Barendrecht
AMS Amsterdam Institute for Advanced Metropolitan Solutions

XCARCITY Consortium Partners

XCARCITY Researchers

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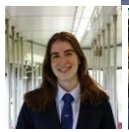
Student Lab as XCARCITY Connections



Join our student lab 🙂
https://xcarcity.nl/about/student-lab/

Goudappel

GEMEENTE BARENDRECHT

ARCITY
nsortium
artners

city

New partners

- MyWheels, Deloitte: withdrawn; Argaleo: pending

toertje Initiated by Fietsersbond CANVAS HEROES bam

Proposed in kind (€21.600,-) contribution to WP2:

- Development of new perceived cycling safety data evaluation feature within the existing Toertje application
- Providing collected GPS-based cycling route data and associated personal characteristics

Unanimous agreement of Parties needed and approval by NWO.

(1) Agreement at consortium meeting
(2) Email proposal to all representatives
(3) After 10 days: email decision to all representatives
(4) 10 days for veto
(5) Decision final

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Workshops

4th february 2025; Lobke Zandstra, Patrick van Norden (MRDH) about XCARCITY, KPIs and shared mobility hubs. Canmanie Ponnambalam (TNO) about a visualisation tool to collaboratively design complex mobility systems

6th December 2024, User Behaviour, Preferences & Acceptance, Soora Rasouli (TUe), Marco van Burgsteden (*CROW)*, Valeria Caiati (TUe), and others.

XCARCITY Delft Innovation District

Collect input from different stakeholder groups on how the mobility system of the Innovation District Delft can be designed in such a way that the area will be accessible and livable at the same time.

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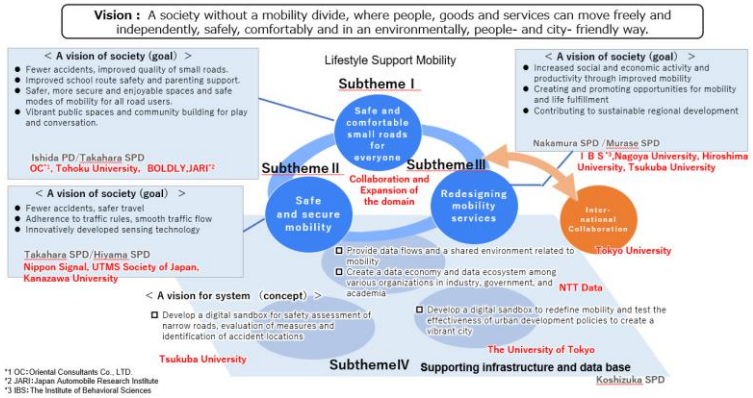
International collaboration



Japan SIP Development of Smart Mobility Platform

Proposal for joint 4 day symposium in Japan submitted to NWO, JSPS (decision expected February 2025)

Inspiring Futures for Zero Carbon Mobility (INFUZE)

Common workshop 3rd April 2025 in Delft

https://in-fuze.org.uk/

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Partner contributions

100% update	50% update	Never updated	
13	**7**	**8**	Number of partners
46%	**25%**	**28%**	%

How can you contribute?

- ➔ Provide Data
- ➔ Communications
- ➔ Case Studies
- ➔ Digital Twin Contributions
- ➔ Events
- ➔ Expertise
- ➔ Models
- ➔ Pilots
- ➔ Research
- ➔ Training
- ➔ User Needs
- ➔ Workshops

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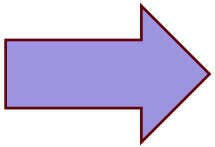
Reducing consortium meeting frequency

- Project plan specifies 2 consortium meetings and 1 design session every year
- Design session invite all consortium members
- WP meetings take place at least 2 times per year for each WP



Starting 2025, we will have one consortium meeting and one design session each year.

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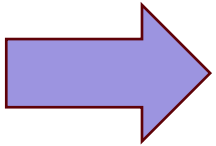
Personnell update

- PhD candidates successfully passed ‘go-no go’ meetings
- WP5 2nd PhD candidate at University of Twente pending
- WP7 PhD candidate at TU Delft resigned



WP7 resources are reallocated:
(1) TNO for use case coordination
(2) TU Delft for use case assessment in collaboration with WP6

Open to suggestions!
Details to follow…

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Outlook

Use cases developing
Digital twin federation developing

Today: focus on research, progress, contributing and usefulness

Research

Use cases

Digital twins

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LUNCH BREAK

Research Carousel Ideas

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Introduction of Topics

Table 1: Mohammad: Sensor Network Design Optimisation (WP 1)
+ Yuxing: Sensor Network Design for Real-time traffic management (WP 1)
Table 2: Dennis: Perceived safety of cyclists (WP 2)
Table 3: Andrea: Crowd-sourced parcel Delivery (WP 2)
Table 4: Nourhan and Canmanie: Dynamic road space allocation optimisation framework (WP 3)
Table 5: Jyotsna, Erwin and Tygo: Evaluating interventions and their effects in the design of car low areas (WP 4)
Table 6: Fatemeh: Privacy-Preserving Mobility Data Collection (WP 5)
Table 7: Dingshan: Multi-modal transport network management (WP 5)
Table 8: Jingjun: Using simulation as a core towards a federated digital twin (WP 6)

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Set Up

2 x Rounds of +-50min each

13:10 – 14:00 ROUND 1: First 4 Topics in → Join 1 table

- **Table 1: Mohammad:** Sensor Network Design Optimisation (WP 1) **+ Yuxing:** Sensor Network Design for Real-time traffic management (WP 1) – UP STAIRS
- **Table 2: Dennis:** Perceived safety of cyclists (WP 2) – THIS ROOM
- **Table 3: Andrea:** Crowd-sourced parcel Delivery (WP 2) – THIS ROOM
- **Table 4: Nourhan and Canmanie:** Dynamic road space allocation optimisation framework (WP 3) - FMN ROOM

----------10 min Tea Break----------

14:10 – 15:00 ROUND 2: Next 4 Topics in → Join 1 table

- **Table 5: Jyotsna, Erwin and Tygo:** Evaluating interventions and their effects in the design of car low areas (WP 4) - FMN ROOM
- **Table 6: Fatemeh:** Privacy-Preserving Mobility Data Collection (WP 5) – THIS ROOM
- **Table 7: Dingshan:** Multi-modal transport network management (WP 5) – THIS ROOM
- **Table 8: Jingjun:** Using simulation as a core towards a federated digital twin (WP 6) – UP STAIRS

Feedback Session 15:10-15:30

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NWO Update

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Mission

NWO facilitates world-class scientific research with scientific and societal impact

Changes flowing from research. Usually happens long after research is finished

Focus of NWO Domain AES

Dutch Research Council (NWO)

- Funding
- Programming
  Monitoring
- Connecting

Applied and Engineering Sciences (AES)

The NWO domain AES facilitates applied and engineering sciences research that yields applications and impact for people and society

Goals of PERSPECTIEF

Ministerie van Economische Zaken en Klimaat

- *Develop innovative technologies*
  - → *Strengthen (international) position Dutch knowledge and innovation system*
  - → *Contribute to societal challenges*
  - → *Contribute to economy*
- Stimulate new research lines
- Break old networks
- Foster collaboration research – industry – other stakeholders

Roles User Committee

- Final responsibility for all aspects related to the project
- Reporting project progress
- Primary contact NWO

- The research
- Seek advice and input from users continuously
- Presentations / workshops and minutes

- Proactive attitude
- Offer new insights, feedback and cases
- Co-financiers
- Valorization & commercialization

- Monitoring horizon and process
- Intermediary role between consortium and society
- Primary financier

Rubicon 2025

Allows academics who recently obtained their PhD to gain experience at a foreign knowledge institute

Context

- Open to research projects in all disciplines
- **Aim: Encourage talented recent PhD graduates from Dutch institutions to pursue academic research abroad**
- Three rounds per year
- Applicants with a PhD obtained within 12 months before the Call's deadline are eligible to apply
- Project duration is between 12 and 24 months at a foreign knowledge institute

Budget

- **Basic payment of €84,000 per 12 months, €276 research costs per month, and travel costs**
  - Basic payment is subjected to a correction coefficient of the host country

Timetable

- **Deadline for full proposal**
  - 2025-1 round: 25 March 2025
  - 2025-2 round: 2 September 2025
  - 2025-3 round: 2 December 2025

More information: **https://www.nwo.nl/rubicon** | Contact: **rubicon@nwo.nl**, **enwrubicon@nwo.nl**

Revised call: Open Mind 2025

'Focused on **original, creative research ideas** with **meaningful and lasting impact**'

Context

- **High-risk, high gain** ideas that challenge conventional approaches and have the potential to be groundbreaking
- Aim: support **outside the box research ideas** that offer sustainable solutions to global societal challenges through the power of technology
- **Originality** and **impact** are at the forefront
- Applications include a **3-page proposal**, a **short video** and a **sketch** of your bold research idea

Budget

- €350.000 budget
- **Maximum €50.000 funding per project**
- Applicant(s) can apply for funding for personnel and material for the duration of 1 year

Timetable

- **11 March – deadline full proposals**
- 19 June (TEKNOWLOGY) – Top 15 pitches and announcement of winners

More information: **www.nwo.nl/en/researchprogrammes/open-mind** | Contact: **openmind@nwo.nl**

TEKNOWLOGY 2025
Innovation market

Innovation market summary

Utrecht, 'DeFabrique'

Participation is free of charge

Tangible demo; Indicate your demo and space needed to build your booth

Set up <10:00, market ~10:30 - 17:30h

Your program officer or Cheryl Roumen: c.roumen@nwo.nl

Evaluation of today

https://www.menti.com/aljidoket14e

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Close out

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Close out

Next events

- Post Design Sessions: 21-22 May
- DMI-XCARCITY workshop with IenW: 10th April
- Design Session in Oct/Nov

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