Trailblazer Cities Use Case Identity Cards

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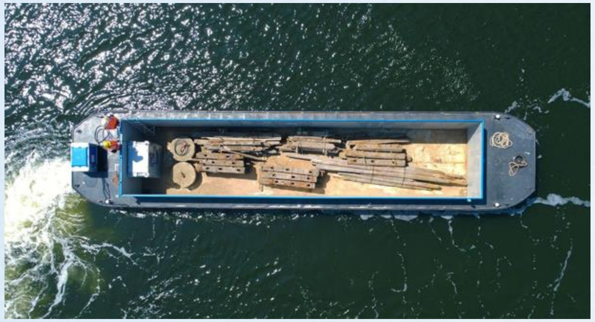
Amsterdam - The Netherlands
Autonomous electric waterborne vessel for waste logistics

Code: AM-UC01
Brief: ZoevCity's autonomous electric vessel shifts heavy transport from roads to waterways, reducing emissions and noise.



Key Urban Challenges Addressed:

- Infrastructure strain: Heavy trucks damage historic streets and bridges.
- Safety risks: Dense waterborne traffic increases accident likelihood.
- Workforce shortage: Maritime labour shortages make automation urgent.

Goals & Anticipated Benefits:

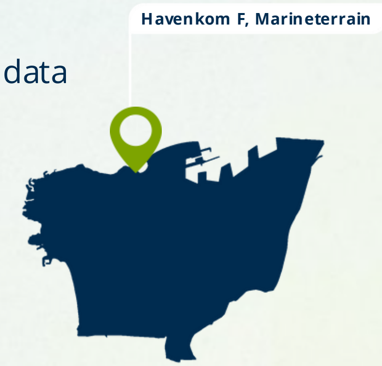
- Reduce emissions & improve air quality: Shift freight to electric, autonomous vessels.
- Relieve roads: Free space for pedestrians and bikes.
- Improve safety on the water: Use AI to improve waterborne traffic flow and safety in real time via smart systems.

Ownership:

- **ZoevCity**, with subcontractor Roboat, develops infrastructure
- **ZoevCity** retains full ownership of the hardware
- **Roboat** licenses software and computing resources to enable autonomous operations

Infrastructure:

- One ZoevCity electric waterborne barge vessel
- 2 x 360 degree motors (front and back)
- Sensors, cameras, Lidar, GPS, 5G
- Software to interpret sensor/camera data



Location:

The legal framework for autonomous sailing in Amsterdam is still evolving. Initial tests will occur near ZoevCity HQ in Havenkolom F, with further trials near Roboat HQ at the Marineterrein.

Timeline:

Aug 2024
Collaboration Agreement signed with Roboat

May 2025
First step of building the technology

Jan 2026
Start demonstration

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Amsterdam - The Netherlands
Adaptive speed governance of connected e-bikes

Code: AM-UC02
Brief: Townmaking's Adaptive speed governance is a privacy-first system for dynamic zoning, helping cities govern in real-time who can go where and at what speed.

Key Urban Challenges Addressed:

- Frequent cyclist-pedestrian accidents and near misses
- People stop cycling due to safety concerns
- Ungoverned release of micro-mobilities into a traffic regime unprepared for them over the past decade

Goals & Anticipated Benefits:

- Preserve Vondelpark's heritage as a pedestrian-friendly space
- Tackle high cycling speeds, especially from e-bike commuters and couriers
- Control speed without altering protected infrastructure
- Use adaptive speed governance to enhance safety
- Foster cyclist-pedestrian harmony

Ownership:

- The **Townmaking Institute** and the **City of Amsterdam** organise the necessary capital partners who develop the assets and the operational organisations that will operate the asset using NextCommons.

Infrastructure:

- **Total Urban Mobility System (TUMS):** digital system for managing urban mobility
- **5G-connected e-bikes** with Onboard Units (6+ units)
- **Safety Clover:** a framework for place-based safety studies
- **Urban Knowledge Base (UKB):** organises place-based urban knowledge obtained through safety studies

Location:
Vondelpark, a protected historic park in central Amsterdam, features a peripheral cycling path linking the city centre with the west and south.

Timeline:

June 2024
Initiation of place-based safety studies at Vondelpark

June 2025
Presentation of UKB to Park Stakeholders

September 2025
Start of initial round of place-based safety implementation based on dynamic zones

August 2026
Projected completion of initial park safety dynamic zones

City of Amsterdam
TOWNMAKING
Co-funded by the European Union

Amsterdam - The Netherlands
Optimising waste collection logistics in urban systems

Code: AM-UC03
Brief: A heuristic algorithm optimises the routing and scheduling of a multimodal waste collection service in Amsterdam to improve efficiency.

Key Urban Challenges Addressed:
- Limited space and heavy vehicle restrictions hinder standard waste collection
- Street waste attracts pests and harms cleanliness
- Alternative modes of transport, such as cargo bikes, present new challenges for planning and require smart coordination

Goals & Anticipated Benefits:
- Decrease illegal waste disposal
- Decrease litter, caused by damaged waste bags on the streets
- Reduce the weight load on historic infrastructure
- Improve traffic safety in the historic inner city
- Reduce emissions by modal shift to light electric vehicles

Ownership:
- **TU Delft** develops the scheduling algorithm
- **Argaleo** builds a digital twin to visualise and analyse waste collection patterns and support data-driven insights without controlling operations

Infrastructure:
- No new physical infrastructure is needed
- A prototype scheduling algorithm will be developed, tested, and validated

Location:
The algorithm will be tested in De 9 Straatjes, where a pilot is evaluating on-demand waste collection alongside scheduled service using cargo bikes, light electric vehicles, and barges.

Timeline:

April - ongoing
Field data collection

September 2025
Finalise and refine the timetable

October 2025
Inform residents by letter/app and implement the timetable

January 2026
Evaluation survey with residents on the new schedule

TU Delft ARGALEO

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Amsterdam - The Netherlands
Urban Mobility Incentive Exchange (UMIX)

metaCCAZE

Code: AM-UC04
Brief: Amsterdam's Urban Mobility Incentive Exchange (UMIX) gives employees tradable travel credits, tracked via an app, with rewards for underuse, costs for overspending, and visualized insights to guide improvements.

Key Urban Challenges Addressed:

- While demand for transport increases, urban space remains scarce.
- The current approach to mobility aims at optimizing the journey for the individual, not the overall system.
- A demand-side approach is needed to optimize for the system (minimise negative public effects of mobility).

Goals & Anticipated Benefits:

- Coordinate mobility demand towards a common goal
- Increase awareness of mobility impacts among users
- Test user acceptance of UMIX across diverse users
- Encourage active, shared, and low-emission travel over private cars

Ownership:

- **Technolution** will provide the credit balance and virtual market platform
- **Fynch** will handle trip tracking
- **TU Delft** is responsible for the credit distribution

Infrastructure:

- **Fynch** tracks users' mobility activities and transport modes (walking, cycling, public transport, car)
- **Technolution** develops the mobility credit platform for checking balances, prices, and trading credits

Location:
The location of the solution and its area of influence will depend on the partner organisations and the employees that will participate in the experiment.

Timeline:

Sep-Oct 2025
Agreement with Fynch

Nov 2025
Recruitment of companies

Dec 2025 – Feb 2026
Onboarding of companies

Dec 2025 – May 2026
Ongoing implementation of UMIX

TU Delft
Technolution Move
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Munich - Germany
Dynamic Curbside Management

Code: MU-UC01

Brief: The dynamic curbside system uses real-time data & sensors to improve space use and urban logistics. A zero-emission rickshaw tests sensors and alignment with semi-automated rickshaw in a non-public test field.

Key Urban Challenges Addressed:

- The increased number delivery vehicles causes congestion, safety issues, and emissions in urban areas
- Other commercial vehicles face parking difficulties
- Lack of real-time curbside occupancy data leads to inefficient, static space allocation

Goals & Anticipated Benefits:

- Reduce road congestion, decrease illegal double parking
- Shorten delivery parking search time and distance
- Cut greenhouse gas and pollutant emissions
- Improve urban public space quality

Ownership:

- **City of Munich**: provides infrastructure, signage, and fosters stakeholder engagement.
- **Smart City System**: installs and handles sensors, maintenance, and dashboard integration.
- **stadtraum**: develops app/API, user interface with sensor data
- **Technical University of Munich:** conducts network-level assessment.

Infrastructure:

- **Physical:** Each loading zone has a length of 15 to 20 metres and is equipped with 3-4 sensors and can be used by vehicles up to 12 tons.
- **Digital:** Real-time dashboard, app, and API show occupancy and may allow reservations.

Location:

Munich's Altstadt and Isarvorstadt will pilot Dynamic Curbside Management in about 20 loading zones in city areas with high parking pressure. In these zones, more than 70 sensors in total are installed

Timeline:

July 2024
Stakeholder engagement and requirement workshop

June 2025
Selection of feasible locations

Sept-Oct 2025
Sensor installation, testing & integration phase

November 2025
Start of demonstration phase

City of Munich
stadtraum
SMART CITY SYSTEM
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Munich - Germany
Establishment and operation of multimodal logistics hub

metaCCAZE

Code: MU-UC02

Brief: The logistic hub pilots last-mile delivery by cargo bikes, including Courier, Express, and Parcel (CEP) services, freight bikes, and potential add-ons like battery swaps and repair stations.

Picture credits: Presseamt München/Michael Nagy

Key Urban Challenges Addressed:

- Large delivery vehicles cause congestion, block bike lanes,and sidewalks
- They generate emissions, noise pollution, and safety issues
- Their size makes them inefficient in dense urban environment

Goals & Anticipated Benefits:

- Reduce road congestion and motorised freight vehicle activity
- Reduce standing time of motorised vehicles in public space
- Reduce climate and pollution impact
- Increase road safety and urban environmental livability
- Increase operators' acceptance of implemented measures
- Make parcel delivery more economical

Ownership:

- **City of Munich**: develops, implements and operates the logistics hub
- **B4B:** conducts onsite testing and co-develops the hub concept
- Logistic companies and hub users: operate from the hub

Infrastructure:

- a 2,000 square metres space featuring large storage areas for handling pallet goods, refrigerated logistics, and standard parcels
- a workshop for service bicycles
- a lounge for cargo bike riders and a showroom

Location:

The municipal bike logistics hub is located at the Paketposthalle.

Timeline:

July 2024
Stakeholder engagement and requirement workshop

July 2025
first tests in logistics operations by cargo bike

Nov 2025
Implementation Showroom

Jan 2026
Onboarding new logistics companies

City of Munich

Co-funded by the European Union

Limassol - Cyprus
On-demand mini-buses service

Code: LI-UC01
Brief: Limassol will launch an AI-driven, on-demand minibus service, starting with teens and expanding to tourists and staff, to cut car use and emissions through flexible, real-time routing.

Key Urban Challenges Addressed:
- 92% of Limassol trips are by car, driven by poor alternatives and low trust in public transport
- Traffic peaks during school hours as parents drive children

Goals & Anticipated Benefits:
- Reduce peak-hour traffic by cutting vehicle use
- Promote shared and public transport with smart tech integration
- Lower pollution and improve well-being, especially for families and disabled children

Ownership:
- **MaaSLab:** develops software and manages the service
- **EMEL**: offfers the bus fleet

Infrastructure:
- **9 mini-buses**: 7 conventional, 2 e-buses
- **Mobile app WeeDrive**: for passengers (trip booking) and drivers (navigation)
- **Web system :**for fleet/driver registration, scheduling, tracking, and invoicing. AI-powered backend for dynamic routing, fleet management, and incentive recommendations.

Location:
The service will be implemented in the metropolitan area of Limassol, extending beyond the municipality itself. This approach ensures that the service's impact will benefit the entire city, contributing to the climate neutrality goals outlined in the city's Climate Contract.

Timeline:

Sept 2025
Complete the testing and integration phases

Oct 2025
Launch of the service – 100 students/ 200 trips/day

Jan 2026
Objective: 150 students 310 trips/day

April 2026
Objective:
180 students
400 trips/day

MaaS Lab
EMEΛ
Co-funded by the European Union

Limassol - Cyprus
Shared e-bikes

Code: LI-UC02
Brief: Limassol's first shared e-bike service uses smart docks, GPS-tracked bikes, and AI to manage availability, addressing the city's hilly terrain and bike use challenges.

Key Urban Challenges Addressed:
- High car dependency
- Low trust in public transport
- Air pollution

Goals & Anticipated Benefits:
- Encourage active, healthier travel
- Cut air pollution and central traffic through smart, integrated transport solutions
- Use real-time data and tech to optimise and connect cycling with public transit

Ownership:
- **Nextbike**: develops and manages the shared e-bike service
- **Limassol Municipality**: decides the locations of the e-bike stations within the municipal limits

Infrastructure:
- **Digital infrastructures:** There is no need to develop a new app, since Nextbike has its own app
- **Physical infrastructure:** 50 e-bikes are deployed

Location:
The shared e-bike service covers Limassol's metropolitan area with strategically placed stations for easy access.
E-bikes were added to existing NextBike stations.

Timeline:

January 2025
The service is live.

December 2027
The service will remain in operational mode until the end of the project

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Limassol - Cyprus
Multimodal passenger hub

metaCCAZE

Code: LI-UC03
Brief: Limassol creates its first multimodal mobility hub, combining buses, bikes, Park & Ride, EV charging, and real-time info to improve connectivity and access.

Key Urban Challenges Addressed:
- High car dependency
- Low trust in public transport
- Air pollution

Goals & Anticipated Benefits:
- Reduce car dependency
- Promote accessible, smart, and integrated transport.
- Expand EV charging and e-bike use to boost greener, safer mobility and quality of life.
- Boost shared e-bike use

Ownership:
- **Municipality of Limassol**: develops the new infrastructure
- **NextBike**: manages the bikes and e-bikes
- **Public Transport Operator**: handles bus stations and real-time information screens

Infrastructure:
- **Physical:** Offers parking for all modes, EV charging, bike-sharing docks, bus stations, green spaces, real-time info, restrooms, ATMs, food stalls, and security features.
- **Digital:** Integrated with WeeDrive, NextBike, Energy & Transport Platform, and Digital Twin for smart mobility management.

Location:
Tsireio Stadium, near the highway and city entrance, offers space, bus and bike access, and key amenities, making it ideal as a hub for major bus routes.

Timeline:

Nov 2025
Complete the Design Study

Dec 2025
Commence construction

Oct 2026
Some operations begin

nextbike
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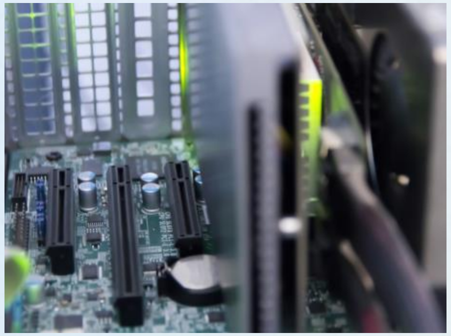
Limassol - Cyprus
Transport and energy platform

Code: LI-UC04

Brief: The transport and energy IoT platform integrates transport, EV charging, and the electricity grid in Limassol.



It helps manage charging demand by guiding users to charge during off-peak times or when renewable energy is available, consolidating data from traffic sensors and electricity production.

Key Urban Challenges Addressed:
- Rising vehicle numbers cause congestion and delays
- EV charging peaks strain the energy grid
- High operational costs for transport and energy providers
- Low public engagement in sustainable practices
- High noise levels from conventional vehicles in urban areas

Goals & Anticipated Benefits:
- Cut air and noise pollution by reducing car use
- Boost public transport
- Promote sustainable charging during off-peak hours

Ownership:
MaaSlab: Develops and manages the infrastructure

Infrastructure:
A platform available to private public transport and other local mobility providers, as well private EV owners, providing them recommendations on the optimal times to charge.

Location:
The metropolitan area of Limassol.

Timeline:

April 2025
Testing real-time data, static data ingestion, and the ETL Process

June 2025
API Connector Testing (HTTP & MQTT Server)

July 2026
Integration of Stakeholder Data and User Interaction

September 2026
Full Implementation

MaaS Lab

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Tampere - Finland
Autonomous e-shuttles with advanced remote control centre and automated charging

Code: TA-UC01+ TA-UC02
Brief: Tampere moves the safety operator from inside autonomous vehicles to a remote center, where operators monitor multiple AI-driven vehicles, boosting efficiency and lowering costs.

Key Urban Challenges Addressed:
- Car dependency in underserved areas
- High labour costs for human drivers

Goals & Anticipated Benefits:
- Increase public transport and tram use in newly served areas
- Ensure pilot system safety
- Assess cost-effectiveness of automated solutions
- Validate autonomous charging and remote operations

Ownership:
- **City of Tampere:** manages infrastructure (in case of bus stop or curb changes)
- **Remoted:** is responsible for remote operation and charging solutions development
- **Tampere University**: is responsible for organising and delivering the co-design, survey and training activities.

Infrastructure:
- Charging requires grid access; remote operations need stable connectivity.
- Minor street changes (e.g. bus stops, parking) may be needed once routes are set.
- Four vehicles (two per use case) will be provided by Remoted, with chargers and vehicles equipped with sensors to collect pilot data.

Location:
Most likely Hervanta, Tampere, chosen for its size and diverse user demand. First pilot will be based there to share charging and vehicle depot resources.

Timeline:

May 2025
Route selection

September 2025
Finalising the vehicle procurement

Mid November 2025
Starting the pilot operations

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