DISCO webinar on mixed use of space

Overview of Thessaloniki use cases in DISCO

CERTH/HIT
Hellenic Institute of Transport

Vasilis Giannoudis
Research Associate

Funded by the European Union

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101103954

Contents

1. Who we are are CERTH/HIT

2. A couple of words about what DISCO does

3. The measures demonstrated in Thessaloniki and challenges

4. What’s next?

Who we are at CERTH/HIT

What do we do at the Hellenic Institute of Transport?

Logistics Lab

CERTH
CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

HELLENIC INSTITUTE OF TRANSPORT CERTH/HIT
EST. 2000

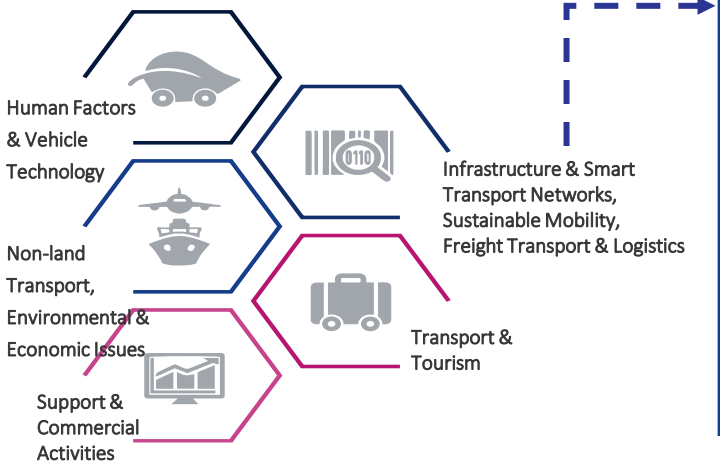
No. 17 in the top-50 list of research organizations in terms of EU funding

100+ members

500+ Successful projects

40+ H2020 & HEU projects in progress

Institute Structure



VISION

to be an **international leader in supply chain & logistics research**
1. growing sustainably
2. driving the economy
3. benefiting the society

MISSION

to transform **supply chain innovation** into **results**, for the **benefit** of the **private/public stakeholders** involved, the **wider region** and the **society** as a whole

1. Applied research

- Logistics sustainability enhancement
- Supply chain optimisation
- Impact assessment of new technology- & policy-facilitated logistics solutions
- Predictive analytics
- Collaborative logistics cost/gain/risk sharing
- Innovative logistics business models & practices identification & transfer
- Targeted/sectoral research

2. Tools & technologies

- Technology-facilitated pilot applications
- Intermodal planning & monitoring platforms
- Logistics performance dashboards
- Multi-stakeholder governance platforms

3. Policy support & industry interface

- Strong links to regional public & private actors (common projects, MoUs)
- Representation in relevant international fora (ALICE, EARPA, EIT UM, OpenENLoCC)
- Contribution to EC policy making (DTLF & SSTPA Expert Groups)

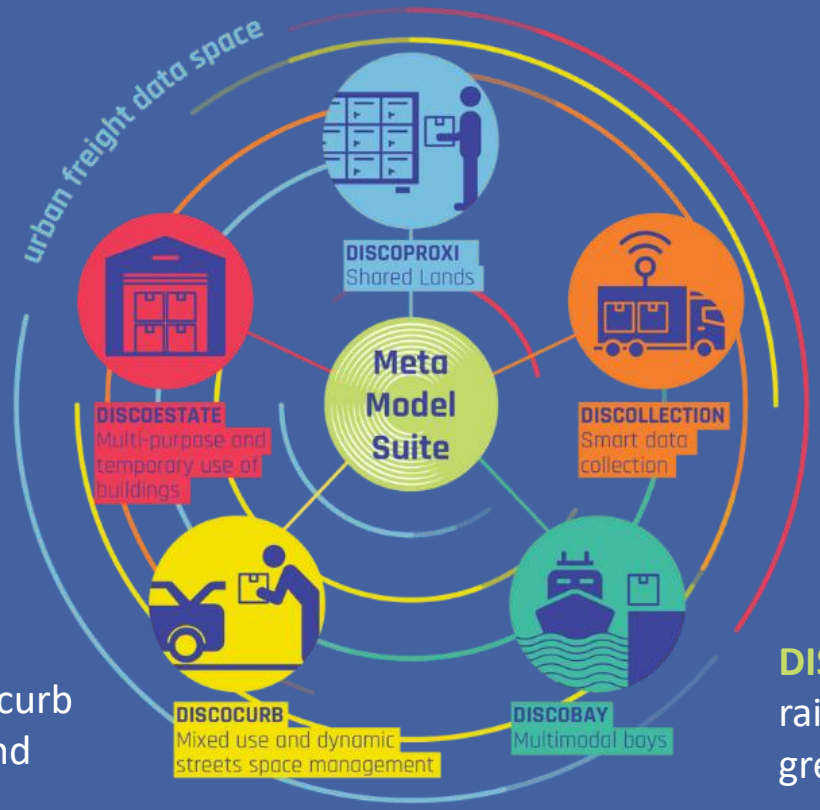
European Commission
DTLF
ERTICO ITS EUROPE
TRB
eit Urban Mobility
alice

A couple of words about what DISCO does

DISCO-X: a super-hero supporting cities in going fast and innovate in optimal and strategic use of space

DISCOPROXI - Urban corners or lockers for nearby deliveries and omnichannel shipments, to optimise multiple collection and delivery solutions

DISCOESTATE - Retrofitting building space for multi-tenant and temporary logistics use and enhance the reliability of last mile deliveries.



DISCOLLECTION - Advanced access control and real time routing for optimised and prioritized, incentivised and dynamic access permission enabling smart network management upon priorities and functional areas.

DISCOCURB - Smart and flexible use of curb side, for parking slots, pick up points and network management

DISCOBAY - Mutualised and multimodal (e.g., rail/waterborne) distribution centres pooling green last mile delivery

The DISCO-X measures of Thessaloniki Living Lab

Living Lab Immediate Partners

The partners

CERTH
CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

CERTH/HIT
Hellenic Institute of Transport

_LIVING LAB ECOSYSTEM MANAGEMENT, SOLUTION PROVIDER AND INNOVATION CREATION

The Hellenic Institute of Transport of CERTH is the LL Leader and the coordinator of the Living Lab's activities. Its responsibility is to build the necessary framework so that all the existing and future stakeholders of Thessaloniki can work out the innovative PI-led City Logistics solutions and successfully implement them under the scope of the DISCO projects objectives.

TIF HELEXPO

_LIVING LAB REAL ESTATE PARTNER

TIF HELEXPO SA is the national entity for the organising of exhibitions, congresses, and cultural events in Greece and a big generator of freight flows. TIF Helexpo's premises will be utilized in the context of retrofitting expo's underutilized spaces for logistics operations next to the historical centre of Thessaloniki.

ACS

_LIVING LAB LOGISTICS OPERATOR AND KEY DATA PROVIDER

The biggest parcel couriers in Greece (more than 30% of the Greek market)

There are already large and mid-sized consolidation centres and micro-consolidation centres in Thessaloniki.

A diverse fleet of long-haul trucks, light vans, motorcycles etc.

CITY OF THESSALONIKI

_LIVING LAB URBAN LOGISTICS, POLICY, PLANNING AND INNOVATION ACCELERATOR

The Municipality of Thessaloniki is the City Authority and the measure accelerator of the Living Lab.

Thessaloniki Living Lab DISCO-X Measures

DISCOPROXI: To demonstrate innovative business models and services for free space use, by adopting smart-contracts. The city community aims to enrich with blockchain the WareM&O (Warehouse as a Service) community platform solution which already integrates a fair pricing algorithm for facilitating business agreements in WaaS. [Business]

- **UC1:** Identifying strategically positioned proximity areas as off-road places dedicated to L/U nearby destination to reduce vehicle trips;
- **UC2:** Adopting innovative business models and services for free space utilisation with smart contracts.

DISCOESTATE: To demonstrate temporary/multipurpose and optimal use of strategically positioned buildings at the TIF HELEXPO Exhibition Centre as a logistics hub (when events aren't taking place) to operate with shared transport and logistics facilities (e.g., freight hotels) and their optimization through smart solutions and tools and green last mile solutions. [Physical]

DISCOBAY: To map underused infrastructure to be used as freight hotels and enrich the WaaS data space with other unexploited areas and land available and managed by the municipality to create an integrated space availability observatory for Thessaloniki. [Digital]

DISCOLLECTION: A proof of concept for the planning aspect of a local urban freight dataspace in Thessaloniki. In this measure, the Municipality and CERTH/HIT serve as trustees, developing and managing the dataspace. The platform will integrate data from various sources, including logistics operations, freight surveys, and sensor/cameras measurements, to offer real-time insights that support planning and decision-making. End goal is to help the city optimize urban freight flows, reduce congestion, and support the holistic design of the Sustainable Urban Logistics Plan of the city of Thessaloniki. [Digital]

Thessaloniki Living Lab DISCO-X Measures

DISCOPROXI: To demonstrate innovative business models and services for free space use, by adopting smart-contracts. The city community aims to enrich with blockchain the WareM&O (Warehouse as a Service) community platform solution which already integrates a fair pricing algorithm for facilitating business agreements in WaaS. [Business]

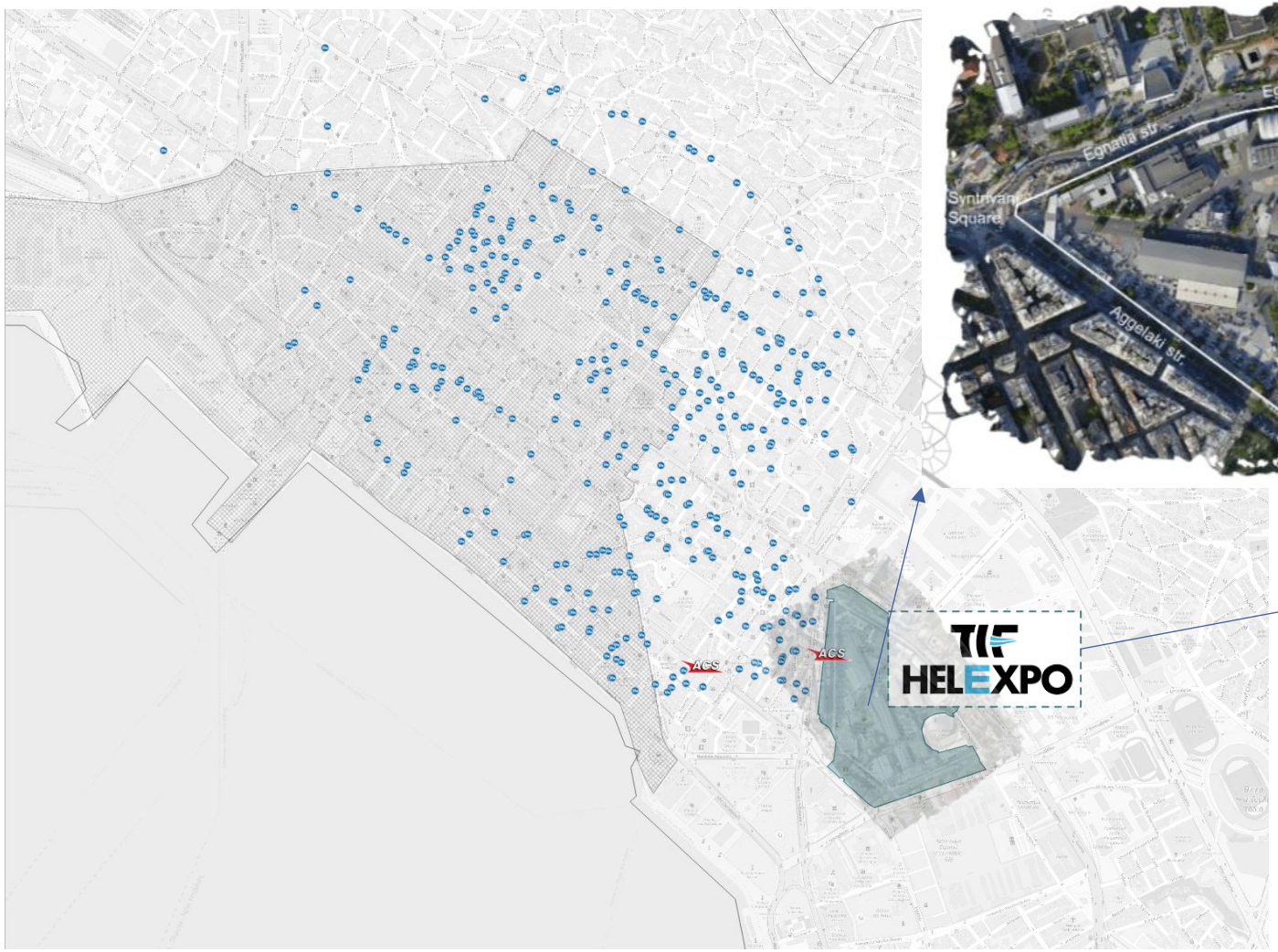
- **UC1:** Identifying strategically positioned proximity areas as off-road places dedicated to L/U nearby destination to reduce vehicle trips;
- **UC2:** Adopting innovative business models and services for free space utilisation with smart contracts.

DISCOESTATE: To demonstrate temporary/multipurpose and optimal use of strategically positioned buildings at the TIF HELEXPO Exhibition Centre as a logistics hub (when events aren't taking place) to operate with shared transport and logistics facilities (e.g., freight hotels) and their optimization through smart solutions and tools and green last mile solutions. [Physical]

DISCOBAY: To map underused infrastructure to be used as freight hotels and enrich the WaaS data space with other unexploited areas and land available and managed by the municipality to create an integrated space availability observatory for Thessaloniki. [Digital]

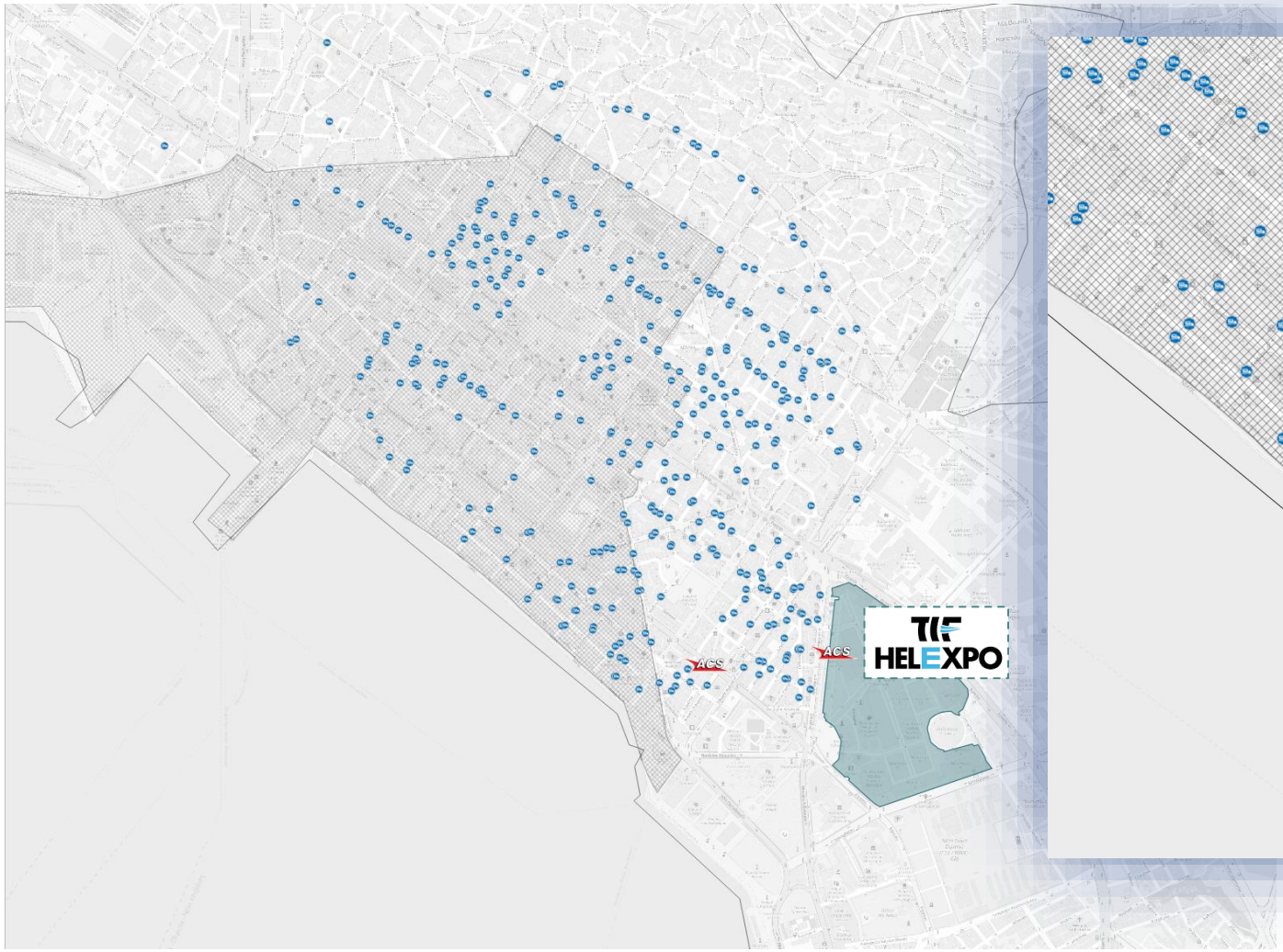
DISCOLLECTION: A proof of concept for the planning aspect of a local urban freight dataspace in Thessaloniki. In this measure, the Municipality and CERTH/HIT serve as trustees, developing and managing the dataspace. The platform will integrate data from various sources, including logistics operations, freight surveys, and sensor/cameras measurements, to offer real-time insights that support planning and decision-making. End goal is to help the city optimize urban freight flows, reduce congestion, and support the holistic design of the Sustainable Urban Logistics Plan of the city of Thessaloniki. [Digital]

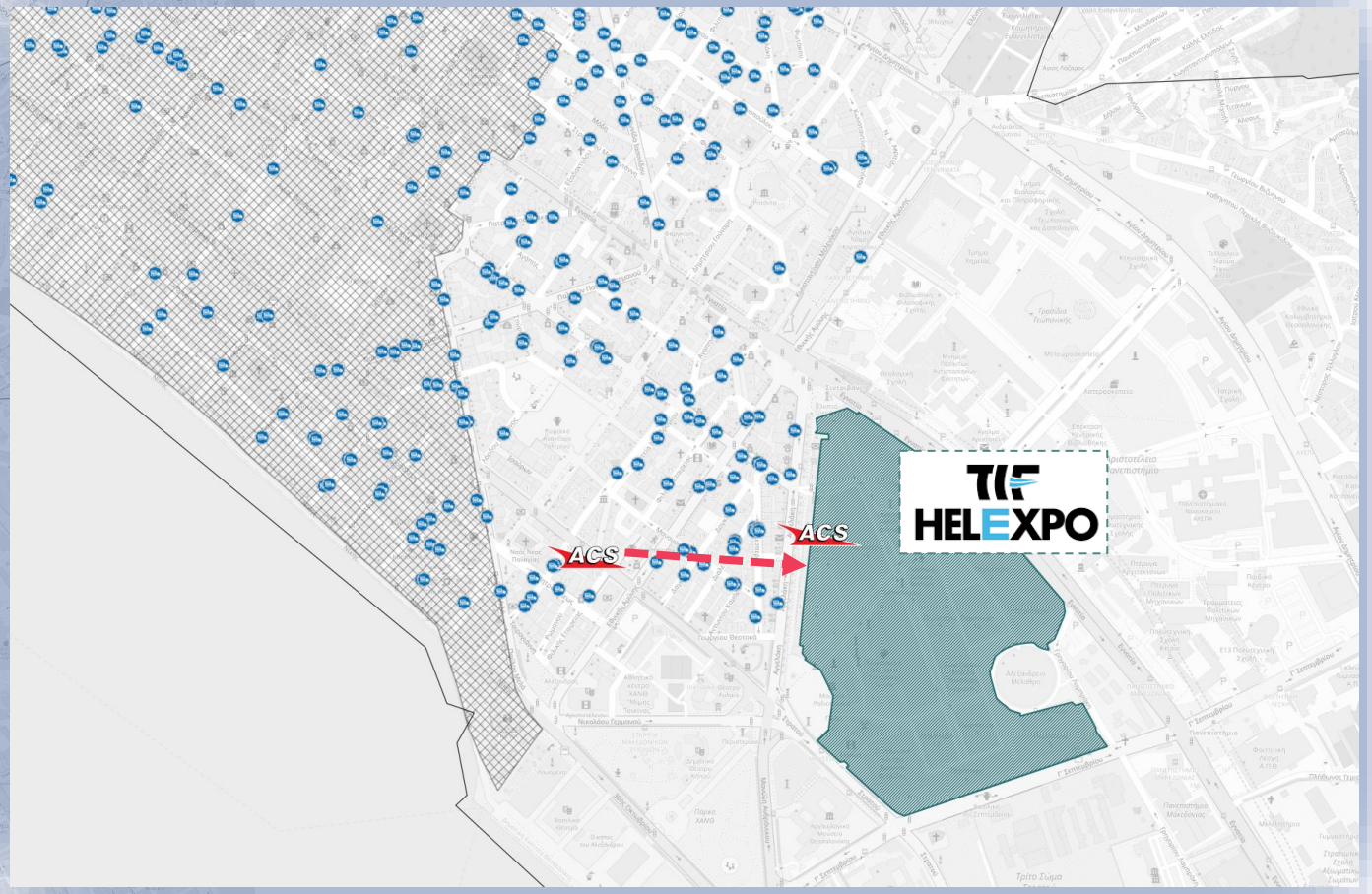
Area of interest



TIF Helexpo premises

Area of interest





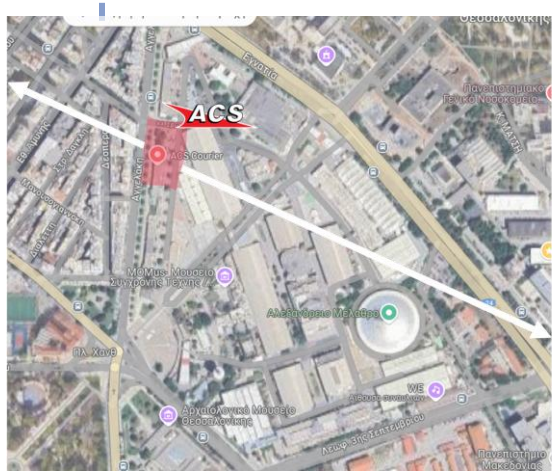
THESS_02_DISCOESTATE

description of the implementation

M01

Identifying Underutilized Spaces

Recognized the opportunity to repurpose TIF-HELEXPO's pavilions, shops, and offices for logistics operations when events were not in session, aiming to reduce congestion in Thessaloniki's historical center.

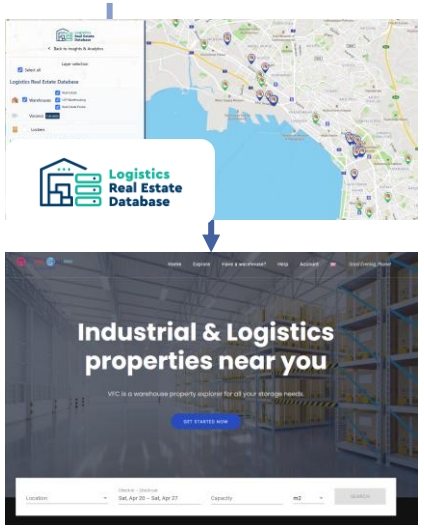


Stakeholder Collaboration

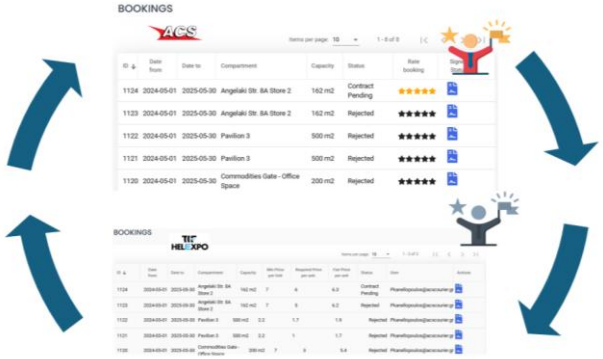
Convened discussions with the Thessaloniki Municipality, TIF, and ACS to identify underutilized peri-urban transport infrastructures as potential consolidation centers.

Mapping and Survey

Upgraded the WareM&O platform with e-signature capabilities and enriched the taxonomies of the platform to meet DISCOESTATE's needs, enabling digital contracts, real-time occupancy tracking, and standardized data exchange.



Business Model Formalization



Negotiations between TIF-HELEXPO and ACS led to a collaborative agreement, finalized through the WareM&O platform's e-signature feature, clarifying operational responsibilities and cost-sharing for leasing exhibition spaces as logistics hubs.

THESS_02_DISCOESTATE

description of the implementation

ACS moved its primary shop from the historical center to TIF-HELEXPO, easing city-center congestion. For this migration it was required new infrastructure for **round-the-clock vehicle access and on-site logistics operations.**

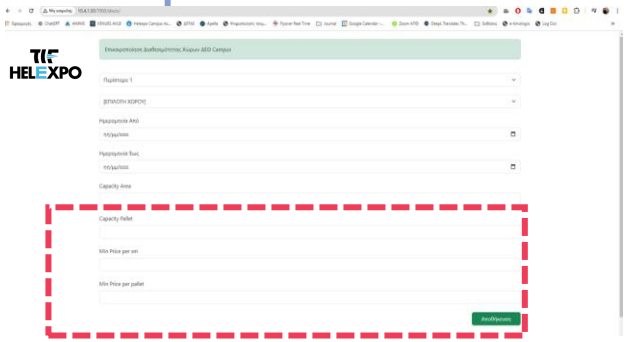
ACS Relocation

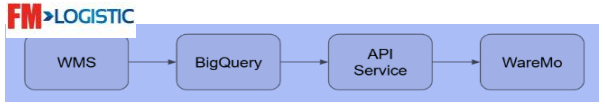
Infrastructure Upgrades

TIF-HELEXPO addressed challenges such as **mismatched expo hours** and **restricted access** by installing articulated barriers, cameras, and RFID-based entry systems, **ensuring 24/7 operations and smooth vehicle flow.**

TIF further developed their Building Management System for updating pavilions/warehouses availabilities to dynamically exchange availability data with the WareM&O platform to fit with the purpose of optimal use of their strategically positioned spaces. FM Logistic followed the same approach with their WMS and a Big Quary-powered middleware.

Dynamic update of FML's and TIF-HELEXPO's warehouse capacities





KPI Tracking

Regular feedback loops and structured decision checkpoints helped overcome technical and coordination challenges, leading to necessary timeline extensions for a comprehensive feasibility study.

M24

What challenges did we encounter and how we addressed them?

1

Inappropriate Layout: located on the first floor → difficulties for logistics operations that required ground-level access for loading and unloading.

Size Limitations: too small to accommodate ACS's operational requirements

Additional Requirements: Many available spaces lacked necessary features (WC, space for office, designated L/U area…)

Solution: After extensive discussions between TIF Helexpo and ACS, they managed to identify a space that, while slightly larger, was located in a difficult area within the Expo premises. However, this issue was mitigated by making infrastructure changes, such as **installing cameras** for better access control and security.

2

Expo working hours <> ACS operations hours

Additionally, **renovations** in the inner area of the expo during exhibition dates caused extra delays and complications for ACS's activities.

Solution: TIF Helexpo infrastructure upgrades for vehicle access:

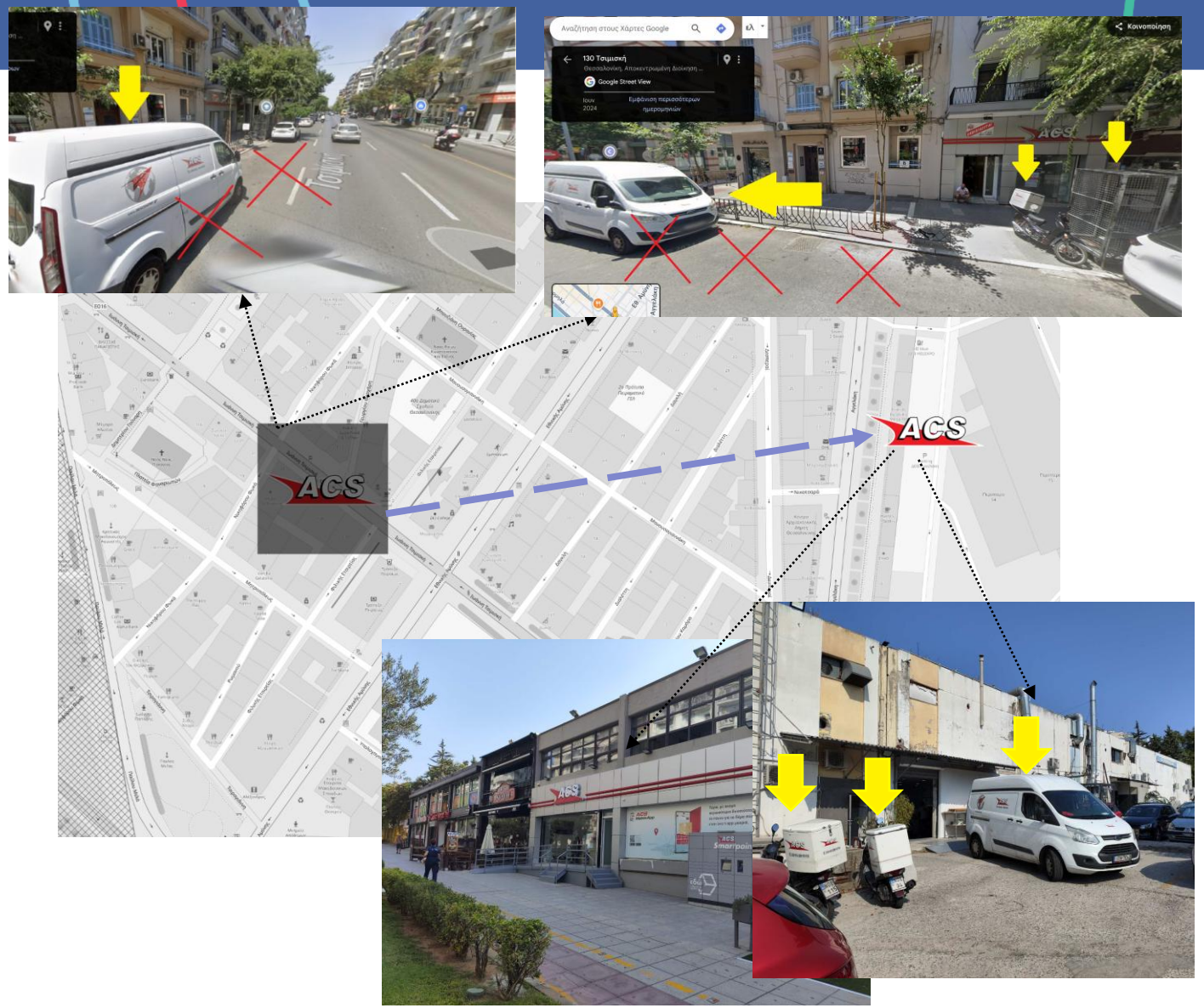
1. traffic control barriers,
2. articulated barrier system for tight spaces,
3. cameras for automated access.

Solution:
Ticket issuance system re-programming →
ACS vehicles with RFID tags can access the premises outside regular exhibition hours

Some first indicative results

Transforming TIF HELEXPO into a logistics hub showed how large expo areas/venues can be repurposed to ease congestion in the city center.

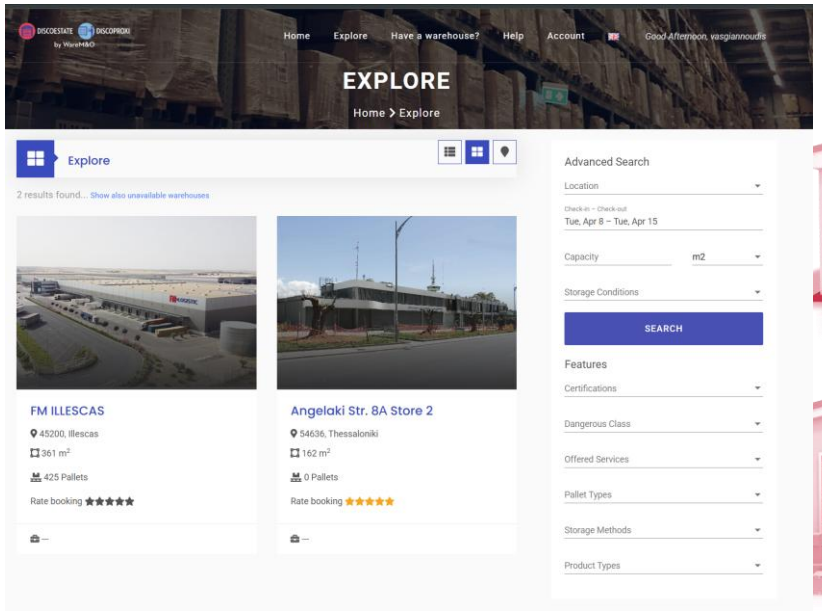
- **ACS** already sees the improvements and **better flow for their operations**, no **traffic fines** and a **designated and safer area** for round-the-clock activities.
- From TIF's perspective, previously underutilized spaces are now in active use as logistics hubs, demonstrating their potential even after DISCO.

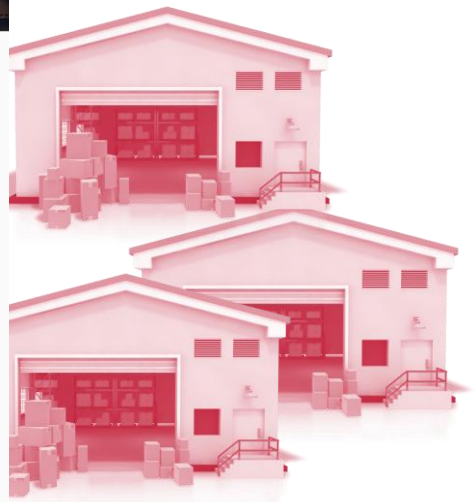


What’s next

1

The WareM&O platform can expand to include additional sites across the metropolitan area, enabling more strategically positioned buildings to function as logistics and micro-consolidation hubs. FM Logistics will also test dynamic availability data exchange with its WMS in the pilot’s final phase.





2

beyond warehouse compartments, the now blockchain-powered WareM&O platform can evolve to manage shared bookings among multiple courier services as it will then allow transparent contract management and shared operations under the same infrastructure.

Thank you

Vasileios Giannoudis

Research Associate

vasgiannoudis@certh.gr

+30.2310.498463

CERTH/HIT
Hellenic Institute of Transport

Funded by the European Union

CIVITAS 2030
Sustainable and smart mobility for all

THE CIVITAS INITIATIVE IS CO-FUNDED BY THE EUROPEAN UNION

DISCO is a project under the CIVITAS Initiative.
Read more - civitas.eu