

# Training on Sustainable Urban Logistics

Eurocities Mobility Forum  
1 June 2023



The ULaDS project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 861833. ULaDS is a project under the CIVITAS Initiative.

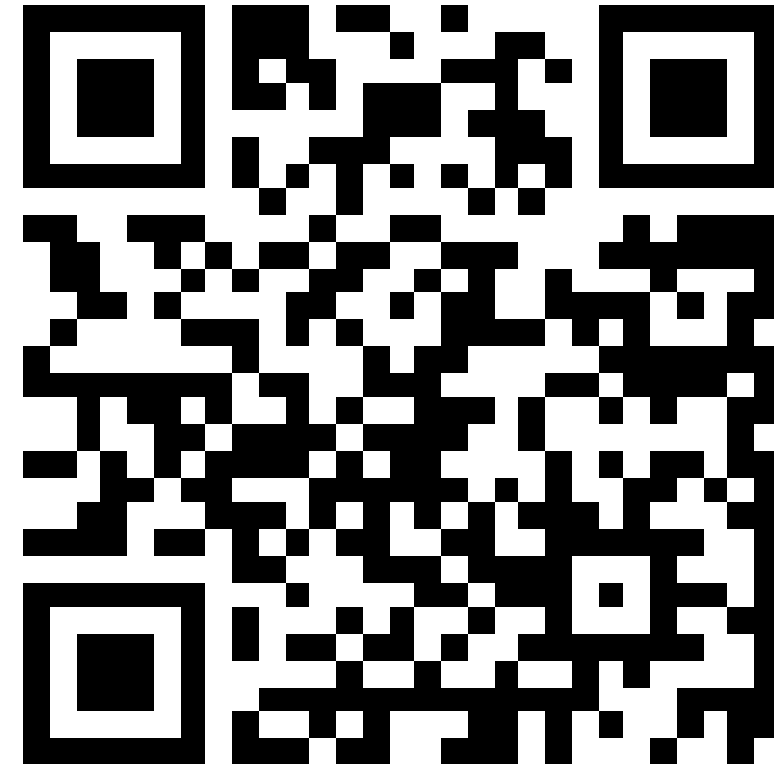


THE CIVITAS INITIATIVE  
IS CO-FUNDED BY  
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# Who is in the room?

Slido.com

CODE: **ULaaDS2023**



# Setting the scene with concrete use-cases

Domien Stubbe  
VIL



# Urban Logistics as an on-Demand service

Fostering sustainable and liveable cities through the deployment of innovative, shared, zero-emission logistics, while dealing with the impact of the on-demand economy.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 861833





# Our Cities

## REAL-LIFE TRIALS

The ULaaDS solutions and schemes will be demonstrated in our **Lighthouse** cities: Bremen (Germany), Groningen (The Netherlands) and Mechelen (Belgium).

Since large scale replication and upscaling of ULaaDS results is one of the cornerstones of the project, four **Satellite** cities - Alba Iulia (Romania), Bergen (Norway), Edinburgh (United Kingdom) and Rome (Italy) - will replicate select solutions.



**42**  
Months



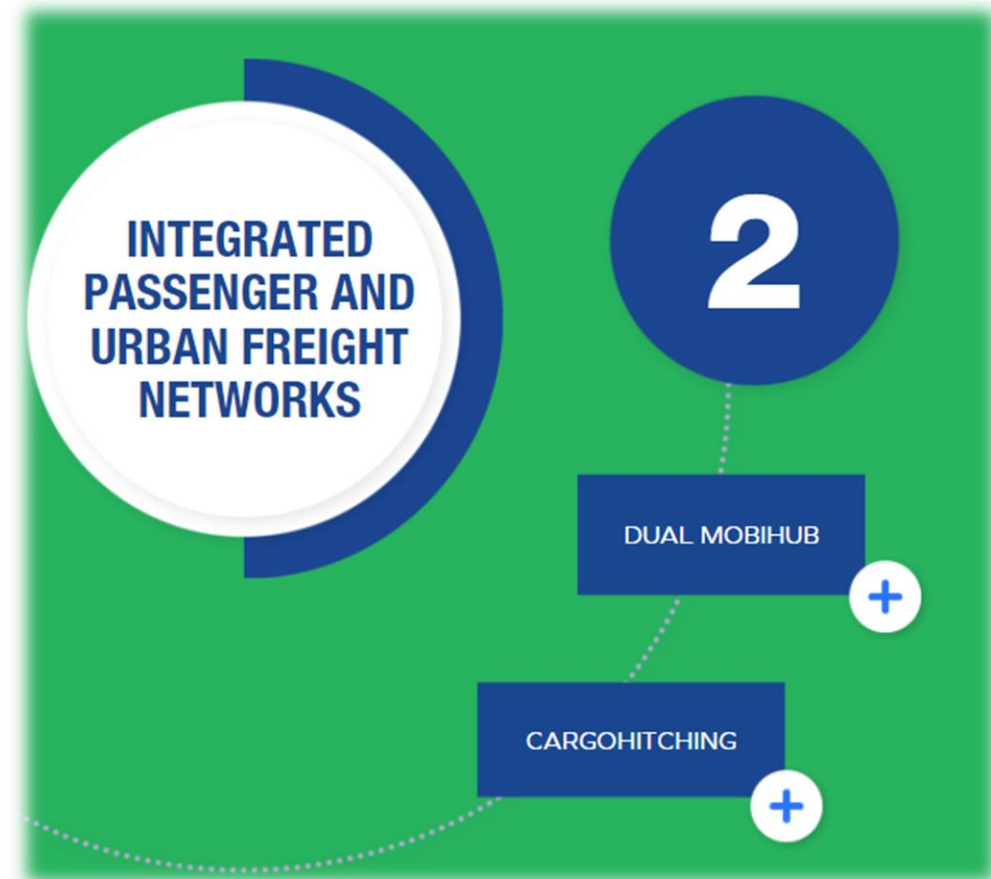
**25**  
Partners



**3.15<sub>m</sub>**  
Budget

# ULaDS

- Developing and testing solutions for sustainable last-mile parcel delivery in cities:
  - People, Planet, Profit

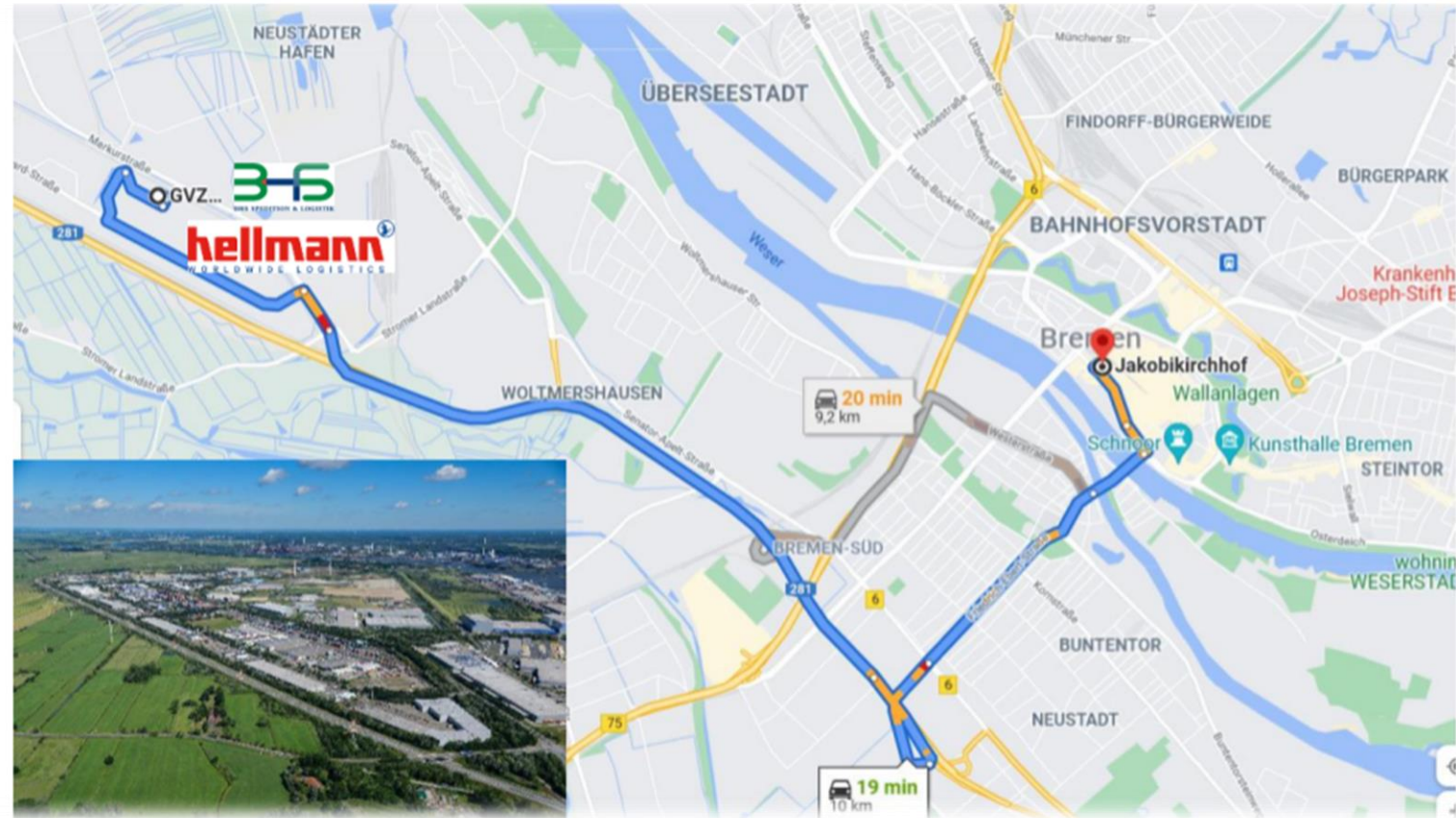


The image features a solid blue background with several abstract, dark blue geometric shapes. On the left, there is a complex shape with a vertical bar on the far left, a horizontal bar at the top, and a vertical bar on the right. In the center, there is a large, thick, U-shaped frame. To the right of this frame, the text "Trials Bremen" is written in white. Below the central frame, there is another thick, U-shaped frame. On the far right, there is a simple L-shaped block.

**Trials Bremen**

# Containerized consolidated last mile delivery

- Transport of general cargo from Bremen freight village (GVZ) to city
- Last mile delivery by (heavy) cargo-bikes





# Containerized microhubs with cargo-bike logistics



# Private cargobike logistics

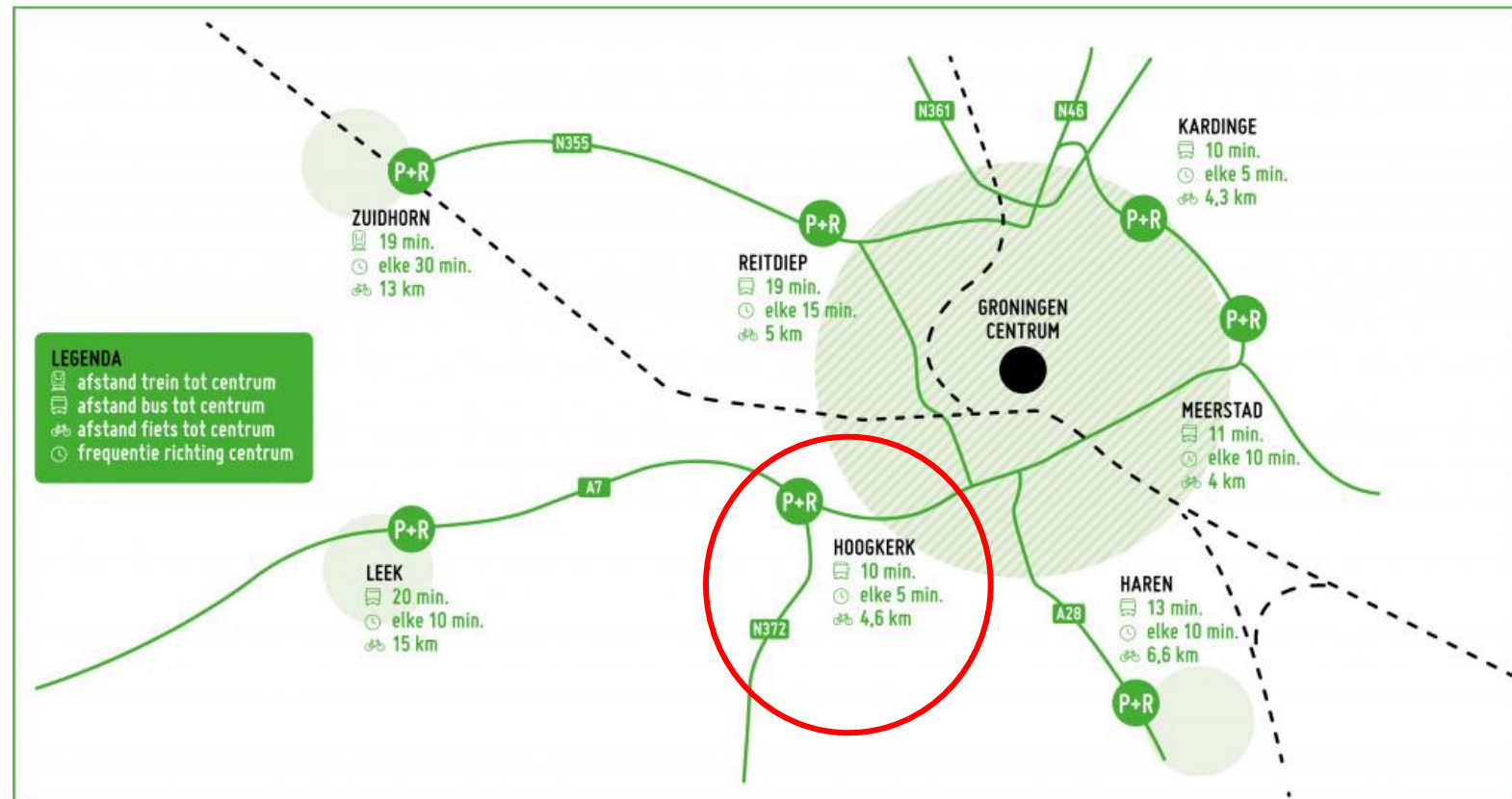


# Trials Groningen



# Trial 1: urban logistics as a service for commuters at park & ride zones

- 375.000 traffic movements in & out the city center



# New logistics services

- Public lockers
- Cargo-bike rental place



# Trial 2: vehicle sharing for logistics by local shopkeepers

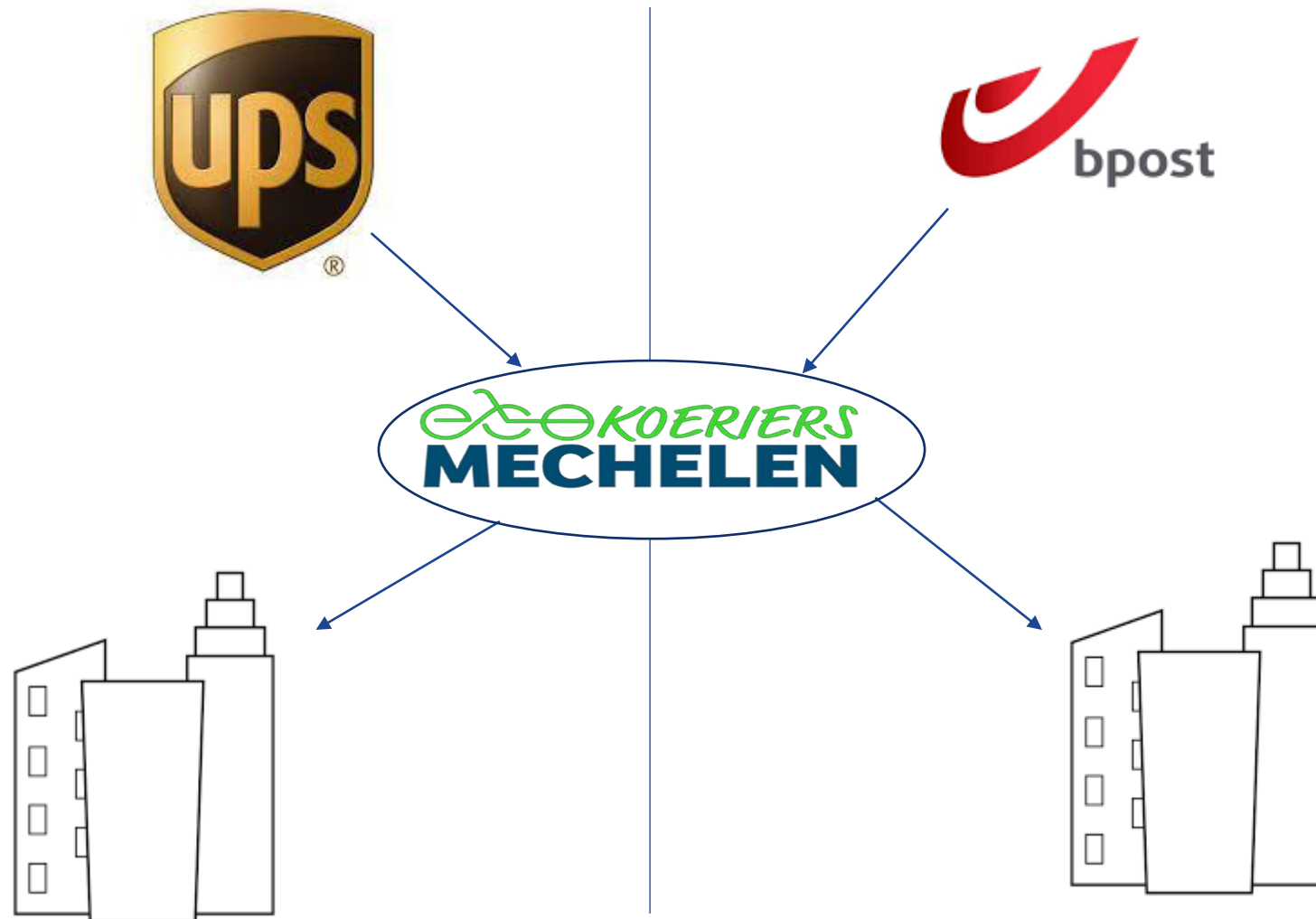
- Groningen City Club: city shopkeepers covenant
- Sharing/rental options for: electric vehicles + (e-)cargo bikes
  - 1 vehicle provider, pay per use



# Trials Mechelen



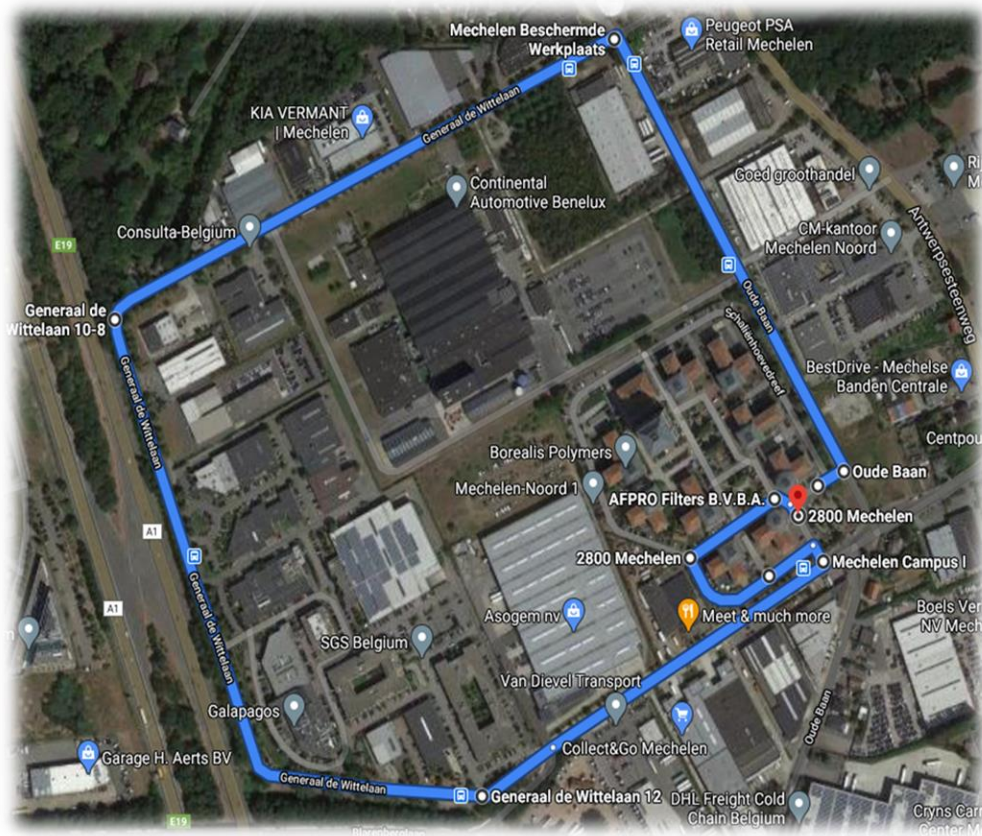
# Trial 1: Combined parcel pick ups at local shopkeepers





# Trial 2: Cargo hitching with autonomous vehicles

**Cargo-hitching:** autonomous transports passengers and parcels in a parcel locker on board of the vehicle



# SULPs essentials of the planning process

Levent Saran  
Rupprecht Consult



# About Rupprecht Consult

Welcome to Rupprecht Consult  
Forschung & Beratung GmbH!

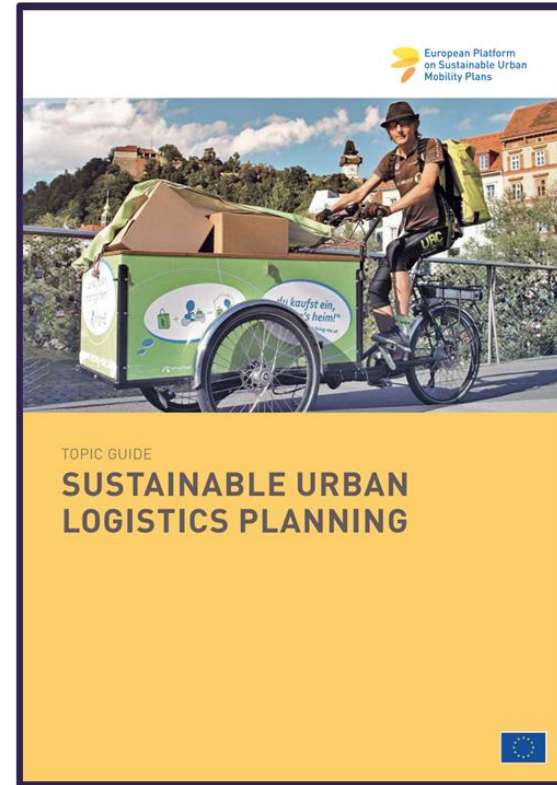
We are a fully independent private research and consultancy company based in Cologne since 1996.



Innovative solutions for practitioners.

In cooperation with our worldwide partners, we develop and manage projects with a practical impact for a more sustainable future.

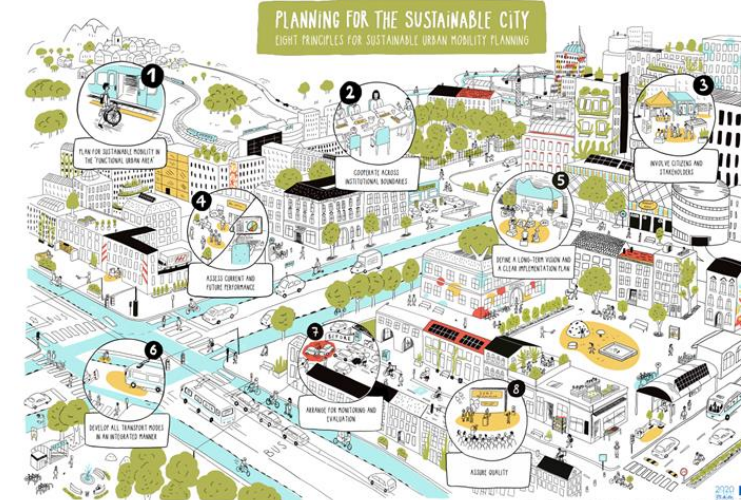
# About today



# Concerning SUMP



- The SUMP concept as we know it today basically came into being in 2013 through the Urban Mobility Package and was revised in 2019.
- “planning for people”. That could just as well be SUMP’s claim.
- The poster illustrates the sustainable planning process for transport in an urban area. It includes many crucial aspects of a sustainable mobility system and demonstrates all eight of the fundamental SUMP principles.



# Concerning SUMP



There are eight crucial principles for successful Sustainable Urban Mobility Planning



Plan for **sustainable mobility** in the entire **'functional city'**



Define a long-term **vision** and a clear **implementation plan**



**Cooperate** across institutional boundaries



Develop all transport **modes** in an **integrated** manner



Involve citizens and **stakeholders**



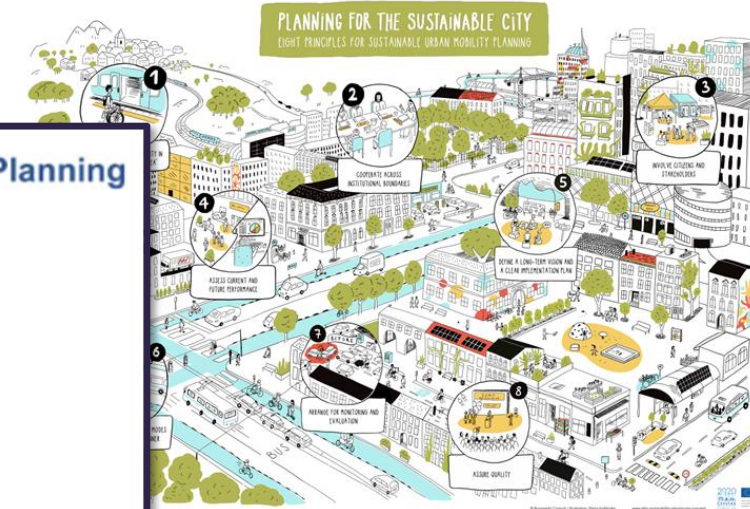
Arrange for monitoring and **evaluation**



Assess current and future **performance**



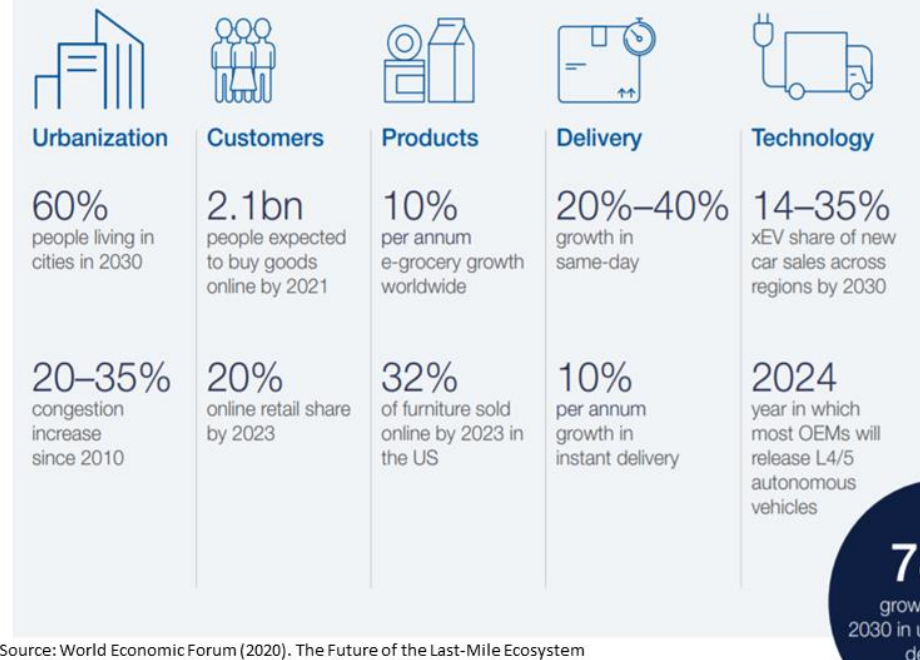
Assure **quality**



# Concerning Urban Logistics

- The demand for **last-mile delivery is expected to grow by 78% by 2030**, which will increase the number of delivery vehicles in 100 cities around the world by 36%
- In response to customer and **business demand**, private entities regularly invest in **new technologies and solutions**. With such investments often profit-oriented, various environmental, social and economic **challenges** arise.
- Search for sustainable solutions has resulted in the growth of interest in **green logistics** and **alternative methods of goods delivery**, such as parcel pick-up points, cargo bikes, crowd shipping, etc.
- **Conflicting interests** of city logistics stakeholders are also exposed, involving private organizations (haulage and shipping companies, logistics operators), public organizations, NGOs, and the general public.
- **EU climate laws** put pressure on cities to cut emissions.

FIGURE 1:  
There has never been a time of greater demand for last-mile transport



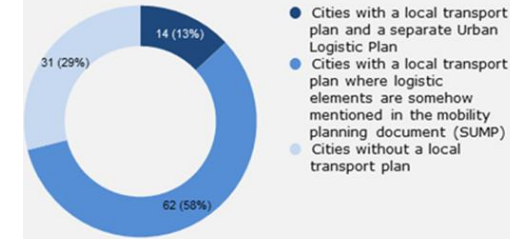
Source: World Economic Forum (2020). The Future of the Last-Mile Ecosystem

# Fact-Finding Study



Fact-finding Study On Status And Future Needs Regarding Low- And Zero-emission Urban Mobility on behalf of DG Move 2021 together with PwC (Leader), Ecorys, and ISINOVA [\(link\)](#)

**Existence of local transport plan with attention to urban logistics**



Indicator	Key Takeaways
Existence of local transport plan with attention on urban logistics (107/125 sampled cities)	<ul style="list-style-type: none"> <li>20% of cities have a planning approach on urban logistics (e.g. with the use of a plan-do-check-act method), confirming that in many Member States urban logistics policy-making is still undergrown to date</li> <li>13% of cities has developed a specific Urban Logistics Plan; of the remaining share, 58% of sampled cities stated having some logistics elements integrated in their mobility planning document (i.e. SUMP).</li> <li>In general, it seems that city administrations seem to be less focused on urban logistics management in comparison to passenger mobility.</li> </ul>
Awareness of the concept of SULP (European guidelines) (85/125 sampled cities)	<ul style="list-style-type: none"> <li>68% of cities is aware of the existence of European guidance on Sustainable Urban Logistics Plans; the awareness is higher for medium- and large-sized cities.</li> </ul>
Specific expertise in place on urban logistics (60/94 sampled cities)	<ul style="list-style-type: none"> <li>The design and implementation of a plan with attention to urban logistics is in most cases supported through the expertise provided by local government (88%) and/or appointed professionals (68%).</li> </ul>



# Fact-Finding Study



- Logistics activities are majorly on EU, national or regional scope
  - City logistics is only a minor stretch of the total transport chain (need for a minimum of FUA planning)
  - The logistic measures included in the mobility plans are usually smaller action plans, research pilots, or local subsidy projects without a plan-do-check-act policymaking approach
- Development of a separate urban logistics plan is a challenge for cities
  - Difficulty in the **collection of data** on urban logistics activities.
  - Logistic activities are not considered an essential part of the policy planning process - a probable explanation for limited capacity on logistics in public authorities
  - Lack of **involvement of politicians and ministries** in policies and programs regarding SULP
  - Non-availability of **financial and technical support** for the development and implementation of SULPs in urban areas



Source: [ACEA](#)

# Fact-Finding Study



- **Major challenges:** lack of focus and strategy on urban logistics, lack of coordination among actors, lack of data and information
- Innovation and technological development quickly progressing in a highly **business-driven sector**. **Planning** needs to keep up with the pace, along with **goal setting** and better **cooperation**
- A **city-led and objective-driven** process is needed through comprehensive logistics planning to address overall objectives of SUMP – accessibility, quality of life, environment, safety
- **SULP provides the context** for a dialogical and city-led innovation process with a participatory discussion of the desired future state, selection of measures, set-up of demonstration projects and pilots, and monitoring and evaluation schemes.

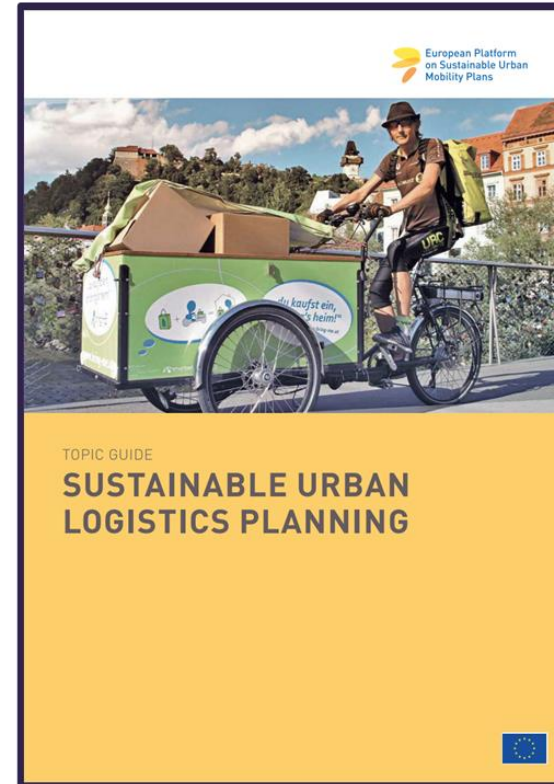


© Rupprecht Consult 2019



\* Source: Topic Guide for Sustainable Urban Logistics Planning (2019) developed within NOVELOG Project

# Back to...



# SULP in the SUMP cycle

- While SUMP is all about planning for the movement of people
- SULP is about the delivery of goods, or such things as demolition traffic, reverse logistics for waste removal and for returns management, service vans for maintenance, supply and removal of parts
- At the same time, it is indispensable for people and comprises a substantial part of all types of activities contributing to the urban economic development and attractiveness



Source: [SULP Guide](#)

# SUMP and SULP Phase 1

**Step 1**

- The inter-departmental team formulated City's UFT stakeholders identified
- Multi-Stakeholder Platform/Freight Quality Partnership created
- Capacity of resources defined and available
- Tools availability ensured
- Legal framework and interrelation to the SUMP defined
- MOU/ Partnership agreement among the MSPs participants has been signed.

**Step 2**

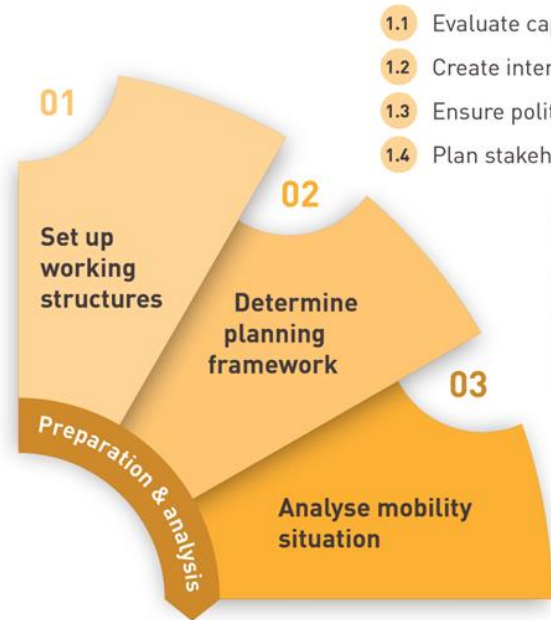
- Geographic scope defined
- Relevant policy linkages identified (synergies and conflicts).
- Initial options for policy integration assessed.
- Initial prioritisation of integration options decided.
- Consensus building activities implemented
- Work plan and time plan agreed

**Step 3**

- City's minimum UFT dataset formulated
- Data collected
- City's UFT characteristics & Influencing Factors defined
- UFT problems and opportunities defined

Source: [SULP Guide](#)

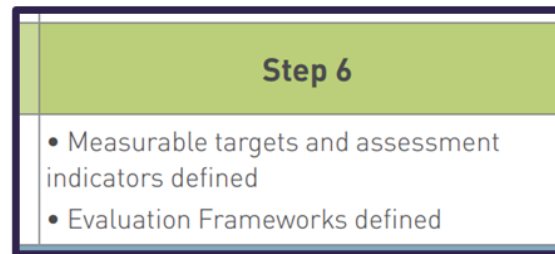
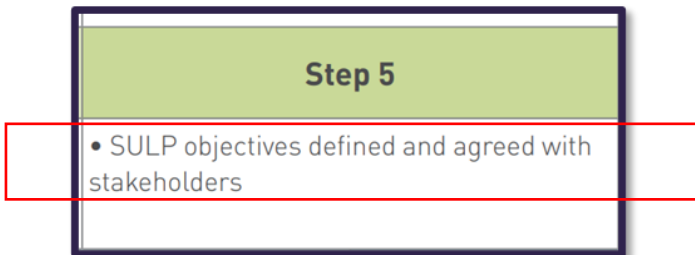
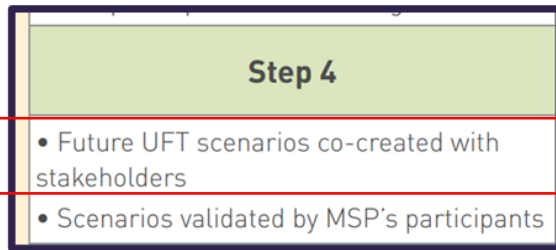
Milestone:  
**Decision to prepare a SUMP**



- 1.1 Evaluate capacities and resources
  - 1.2 Create inter-departmental core team
  - 1.3 Ensure political and institutional ownership
  - 1.4 Plan stakeholder and citizen involvement
- 
- 2.1 Assess planning requirements and define geographic scope ('functional urban area')
  - 2.2 Link with other planning processes
  - 2.3 Agree timeline and work plan
  - 2.4 Consider getting external support
- 
- 3.1 Identify information sources and cooperate with data owners
  - 3.2 Analyse problems and opportunities (all modes)

Milestone:  
**Analysis of problems and opportunities concluded**

# SUMP and SULP Phase 2



Source: [SULP Guide](#)



# SUMP and SULP Phase 3

 Milestone:  
**Sustainable Urban Mobility Plan adopted**

- 9.1 Develop financial plans and agree cost sharing
- 9.2 Finalise and assure quality of 'Sustainable Urban Mobility Plan' document

- 8.1 Describe all actions
- 8.2 Identify funding sources and assess financial capacities
- 8.3 Agree priorities, responsibilities and timeline
- 8.4 Ensure wide political and public support

- 7.1 Create and assess long list of measures with stakeholders
- 7.2 Define integrated measure packages
- 7.3 Plan measure monitoring and evaluation



Step 7
<ul style="list-style-type: none"> <li>• Relevant past experiences considered</li> <li>• Supporting tools for potential UFT measures identification available and used</li> <li>• Package of measures defined &amp; agreed with the MSPs stakeholders</li> <li>• Suitable set of measure indicators selected.</li> <li>• Monitoring and evaluation arrangements for all indicators developed.</li> </ul>

Source: [SULP Guide](#)

Step 8
<ul style="list-style-type: none"> <li>• Responsibilities and budget for monitoring and evaluation agreed on.</li> <li>• All actions identified, defined, and described.</li> <li>• Relationships between actions identified.</li> <li>• Financial analysis and financial resources secured</li> <li>• Timeline defined</li> <li>• Political support ensured</li> </ul>

# SUMP and SULP Phase 4





# Concluding remarks

- Urban densification, e-commerce, on-demand logistics, ..., and EU zero-emission goals put pressure to decarbonize the (urban) logistics sector.
- Biggest difference between the two planning processes:
  - SUMP emphasizes planning the urban mobility of people
  - Sulp emphasizes planning the urban mobility of goods
- Trade-offs between the commercial need for low-cost operations and societal imperatives of low CO<sub>2</sub>, safety and equity call for a close integration of SUMP and Sulp processes and measures.
- Today's discussions are valuable input for a guide that is under development in ULaDS on the integration of logistics pilots into SUMP and Sulp planning processes.

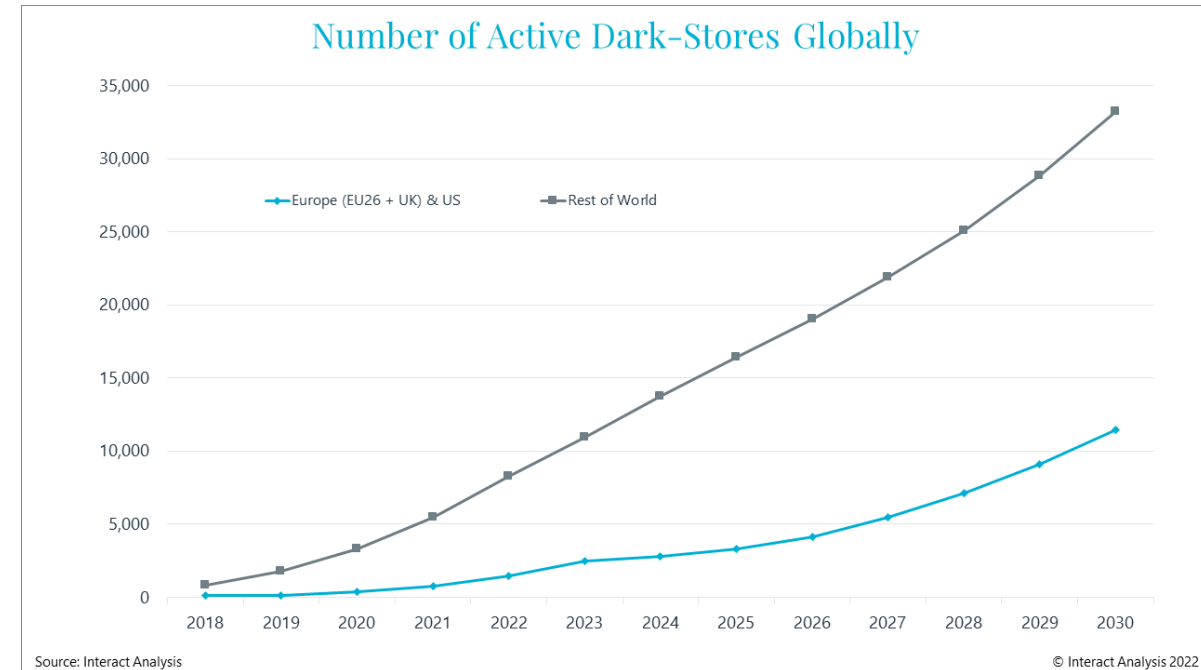
# The importance of a proper regulatory and policy framework

Lorena Axinte, PhD  
Bax & Company



# Quick commerce & the city

- After a period of growth, e-commerce and quick commerce have now entered a **consolidation** phase
- The need for **new logistics capacities** closer to the end consumer brought logistics facilities within 'ultra-urban locations'
- Cities saw a rapid increase in **micro-hubs, dark stores and dark kitchens**, often replacing traditional retail stores



Source: [Interact Analysis](#)

**Dark stores** are facilities that cater (almost) exclusively for online shopping

**Dark (ghost, cloud or virtual) kitchens** cater for online delivery meals, generally without having any seating capacity

# The issues with expanding logistics facilities

1. Uncertainty over **classification of facilities** (e.g., stores vs. warehouses) & potential non-compliance with land use and zoning rules when opening facilities
2. **Nuisances reported by citizens** living in proximity (noise, congestion, pollution, waste)
3. **Traffic and congestion** due to frequent loading and unloading
4. **Cluttering of public space** due to many vehicles parked outside of the facility
5. **Aesthetics** - closed stores and covered windows, as well as employees waiting outside of facilities
6. Potential risk of **unfair competition** with small businesses and traditional food retail
7. Gradual **replacement of traditional shops and restaurants** which might reduce the attractiveness of inner cities and commercial streets



Image source: [The Times](#)

# Public authorities' actions

- **Classification** of dark stores as 'warehouses' which forbids the establishment in residential areas (e.g., Paris)
- **Temporary freezing permits** for new openings in residential areas (e.g., Rotterdam, Amsterdam) *and*
- **Umbrella zoning plans** with newly determined requirements, including mandatory planning application (e.g., Amsterdam)
- Discussions to develop **new zoning category** for dark kitchens, and new parking requirements (max. 2 parked on street) for all companies (e.g., Groningen)
- **Ban** on new openings and **strict requirements** for existing dark stores to either convert to food warehouses without home delivery or to open supermarkets (e.g., Barcelona)

NL#TIMES

**Amsterdam to ban rapid grocery delivery services from residential areas**

Bloomberg

CityLab | Economy  
**Paris Wins Battle to Regulate Dark Stores After Court Decision**

France's top administrative court ruled that dark stores are warehouses, allowing Paris and other cities to boot rapid-delivery sites from residential areas.

REUTERS®

**Barcelona bans grocery delivery companies' 'dark stores'**

By Joan Faus

# Reactions from companies

- **Fewer facilities** (partially due to sector consolidation)
- Willingness to **comply and collaborate** with cities
- Request for **clear rules** which are not left to interpretation / arbitrary decisions (not necessarily solved through the new regulations)
- **Appeals against** the measures instituted, including potential cases being challenged in courts
- Initiatives to **improve the aesthetics** of the glass front (e.g., collaborations with local artists)



# Where are we today?

- Clear **rollback** of dark stores opening and **more consideration when selecting new locations**
- Discussions between flash delivery companies and public authorities taking a more **collaborative approach** in some cities
- Better understanding of what the needs might be & how to make the relationship **mutually beneficial** *but*
- Continuing need to grasp the exact **impact of quick commerce**, and of the **new regulations being imposed** (e.g., CO2 emissions due to relocation of facilities in industrial areas)
- Quick deliveries as a representative example that using more sustainable delivery vehicles is **not enough** to make logistics sustainable
- Groningen - an example of how to turn issues into an opportunity to **review policies and regulations** more broadly

**The establishment of a clearly defined regulatory and policy framework for urban logistics solutions offers a consistent and persuasive message to the private sector, making it easier for companies to make long-term investments.**

**What is needed to set up a proper regulatory and policy framework?**

**How can cities do it?**





# Working together with stakeholders on urban logistics

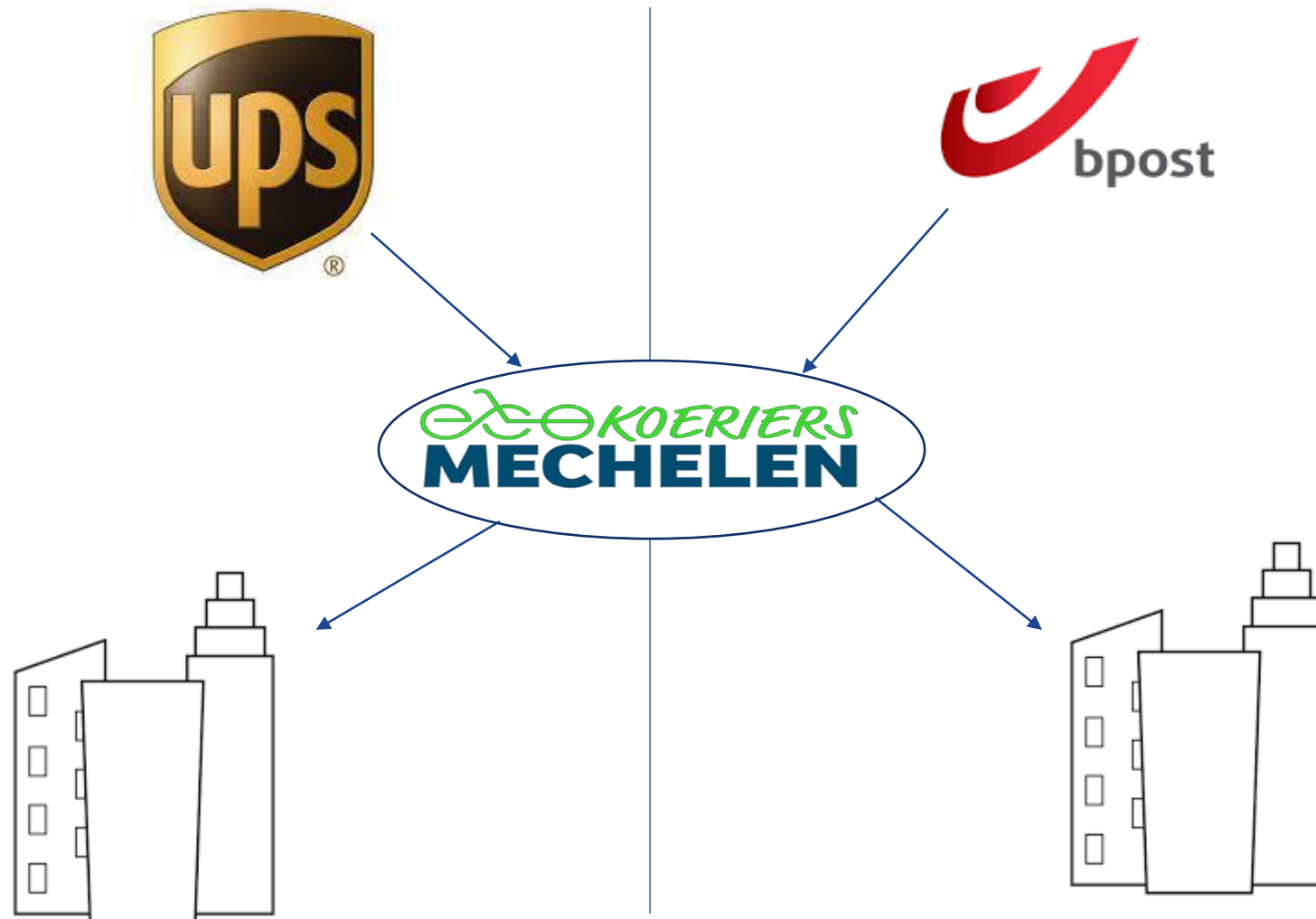
Domien Stubbe  
VIL

# Groningen: shared vehicles for shopkeepers

- **City future regulation:** zero-emission inner city area by 2025
- **Provide solution:** sharing/rental options for electric vehicles + (e-)cargo bikes
- **Groningen City Club:** city shopkeepers covenant in the lead to define solution



# Mechelen: Combined parcel pick ups at local shopkeepers



# Stakeholder engagement in urban logistics

- What works in your city related to stakeholder engagement for realizing significant change? Best practices sharing
- How do you approach and gather stakeholders? With a clear goal (in a project), or are these existing stakeholder fora in your city?
- Stakeholder fora: groups mixed from different stakeholder groups on one theme, or segregated fora per stakeholder group on multiple topics? A combination?
- Who takes the lead in these conversations? What will you do with the outcomes? And how do you give feedback to your stakeholders?
- What is the frequency you bring together stakeholders?





# The role of cities in fostering the flourishing of new business models

Arianna Americo  
Eurocities

# The Groningen case

- Strong vision and regulatory framework set by the city
- A number of restrictions for urban logistics movements in areas of the city
- A long history of engaging and involving stakeholders
- A pilot providing the right alternative at the right time



**Result**

A new business model being successfully deployed and used

# The Groningen case

Zero emission urban logistics by 2025



Vision

Alternatives

## Regulations

Access restrictions to logistics in the whole city centre, permitting logistic vehicles to access only between 5:00 am and 12:00 pm



# The Bremen case

- Bottom-up initiative coming from NGO
- Filling a gap for citizens
- City providing support in financing and promoting the initiative
- No business case – good business case?



**Result**

A new business model being successfully deployed and used



# The Bremen case

Citizens that don't own a car and that want to test cargo bikes for private use

Societal gap

Alternatives



Bottom up approach

NGO identifies the gap and provides the service



# Questions for discussions

- What role can cities play to ensure that urban logistics will develop sustainably and in synch with overarching public policy goals?
- What is the role of local authorities in fostering the testing, piloting and adoption of new business models for sustainable logistics?

# Looking for the right technology

Levent Saran  
Rupprecht Consult



# The Bremen and Mechelen Cases:

## Containerized microhubs

A mismatch between software and hardware limits the solution's potential.



## Cargo Hitching with AVs

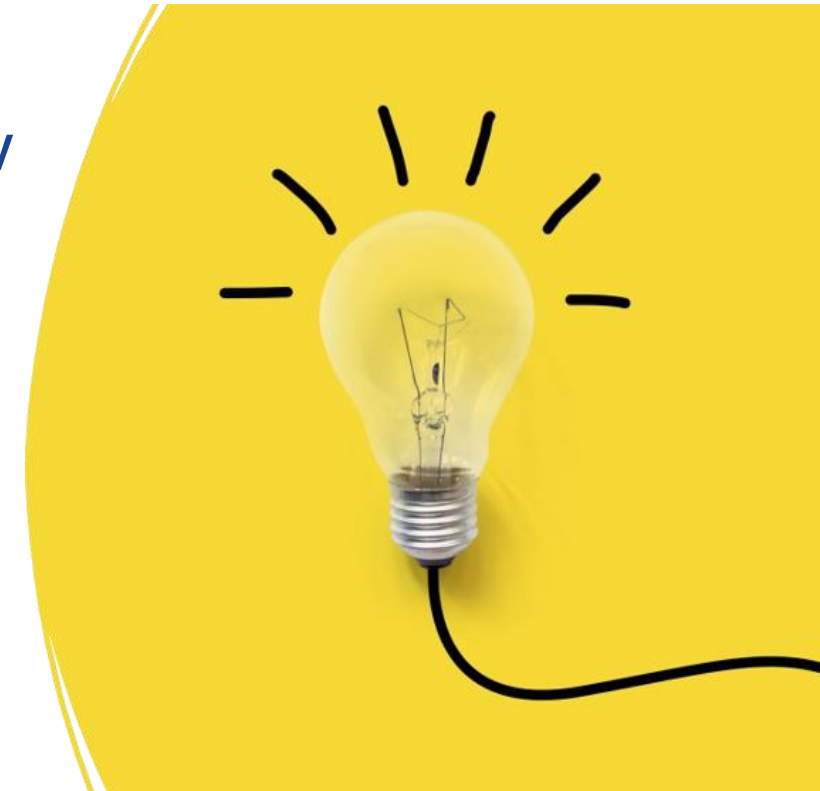
Quick learnings but also risk of public or political disillusion.



# Looking for the right technology

Questions for the discussion:

1. How can cities push for the adoption of new technologies that will be in line with the cities' (sustainability) goals?
2. What options are already available, what experiences have been made?



# Generating impact: Target setting, indicators and monitoring

Domien Stubbe  
VIL



# Data-gathering in trials ULaaDS

Start: exhaustive 'whishlist':

- 7 dimensions
  - 20 objectives
    - 29 KPI's
      - **96 support indicators = data-points (coming from city / companies / citizens)**



# New dimensions



## Environmental Impacts

- CO2 reduction
- Land-use (public space)



## Costs

- Sustainable Business Model (cost per delivery, maintenance costs and investments)



## Socio-Economic Impacts

- Level of Service (OTIF, customer satisfaction & acceptance)
- Awareness of sustainable delivery solutions



## Benefits

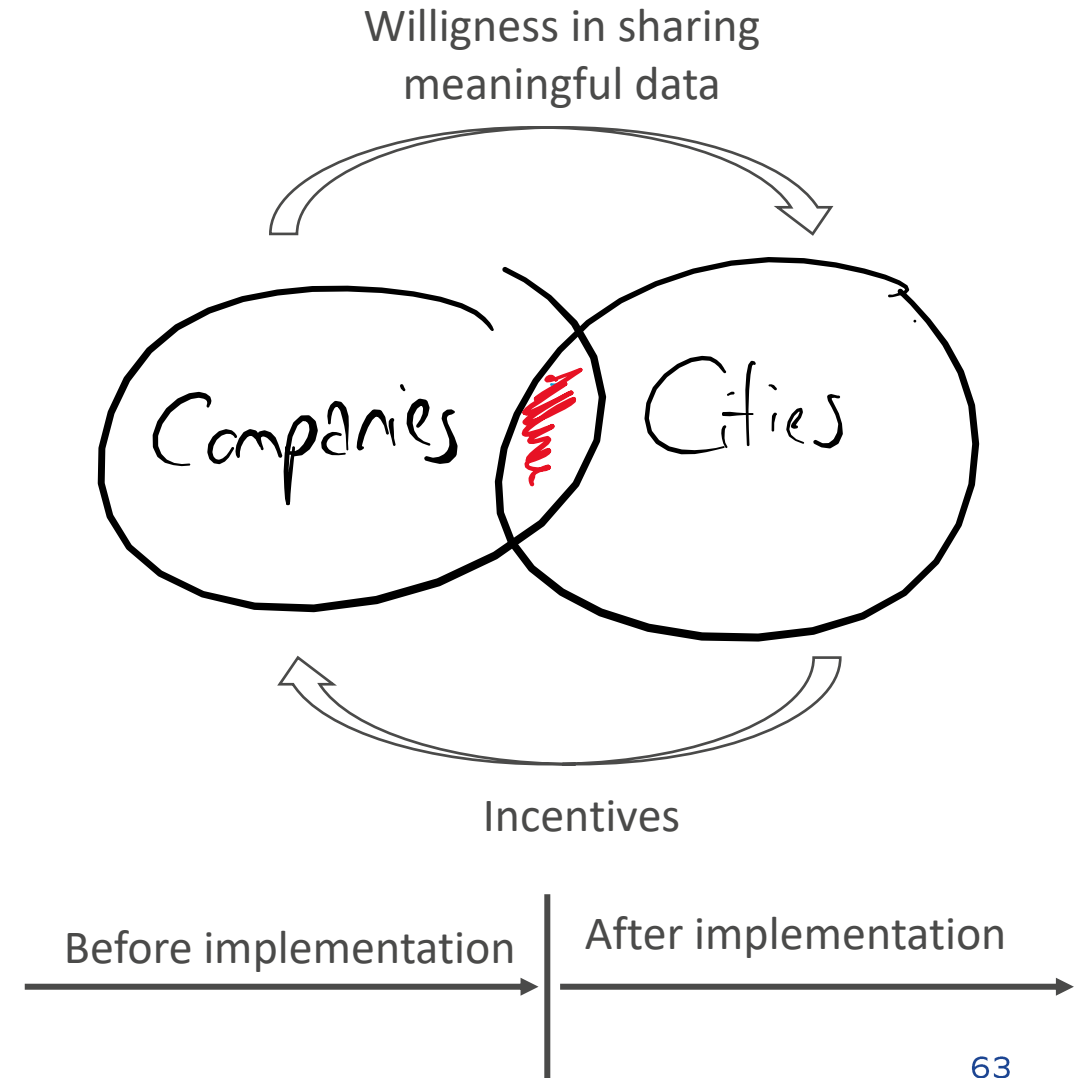
- Traffic conditions (Congestion & safety)
- Logistic efficiency (load capacity, delivery speed, fleet efficiency)



# Data as a key element for measuring impacts

## What is needed

- Baseline
- What is the goal of the pilot?
- **Which KPI can be defined?**



# Questions for discussions

- In projects, who delivers data to measure the impact? The city, companies, ...?
- How do you convince companies to share data / insights with you?
- How do you address 'sensitive' data?
- Which security/safety measures do you provide in data-gathering?

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# Setting the scene for implementation

Lorena Axinte, PhD  
Bax & Company

# Supporting cities in handling logistics innovations: a framework for collection and delivery points

## Framework rationale:

- Aim: establish the vision, rules and expected results of parcel lockers (and more broadly CDPs)
- Groningen's need for a framework for parcel lockers became obvious during the ULaaDS implementation
- Lack of easily replicable models from other cities/countries
- The city has been working with different stakeholders to develop the framework and has already established some potential scenarios

### Groningen City

- Stakeholder fora (incl. PostNL, DHL, de Buuren)
- Inter-departmental discussions

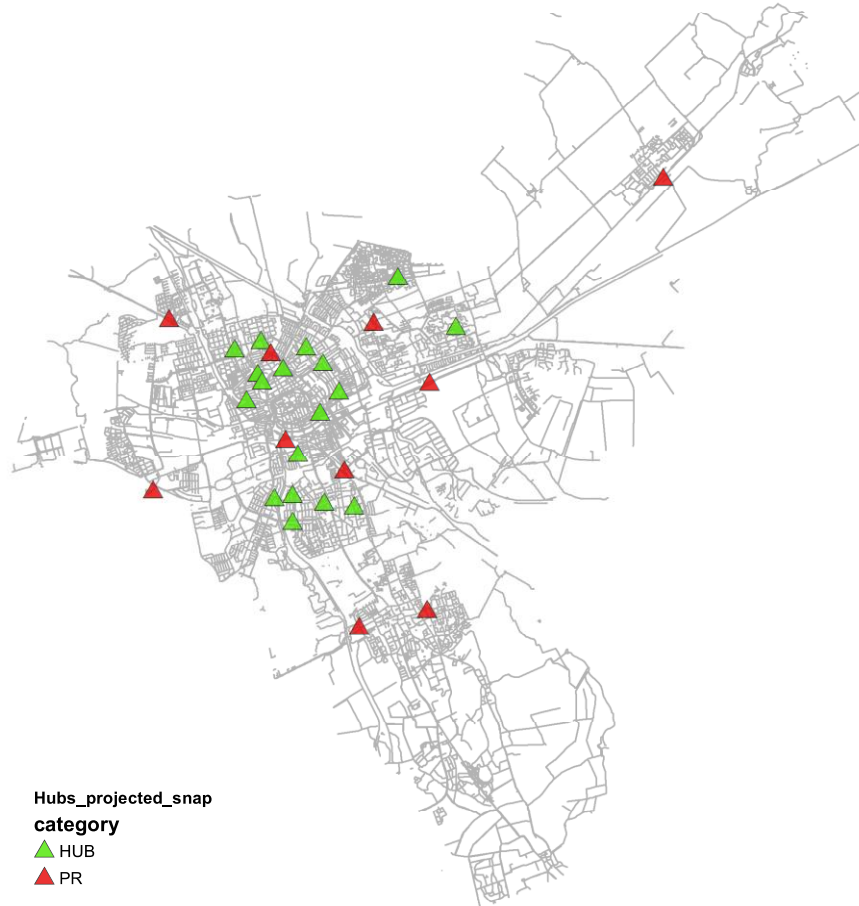
### University of Groningen

- Involvement and facilitation of stakeholder fora
- Research on the carbon emission impact of pickup points in last-mile parcel delivery

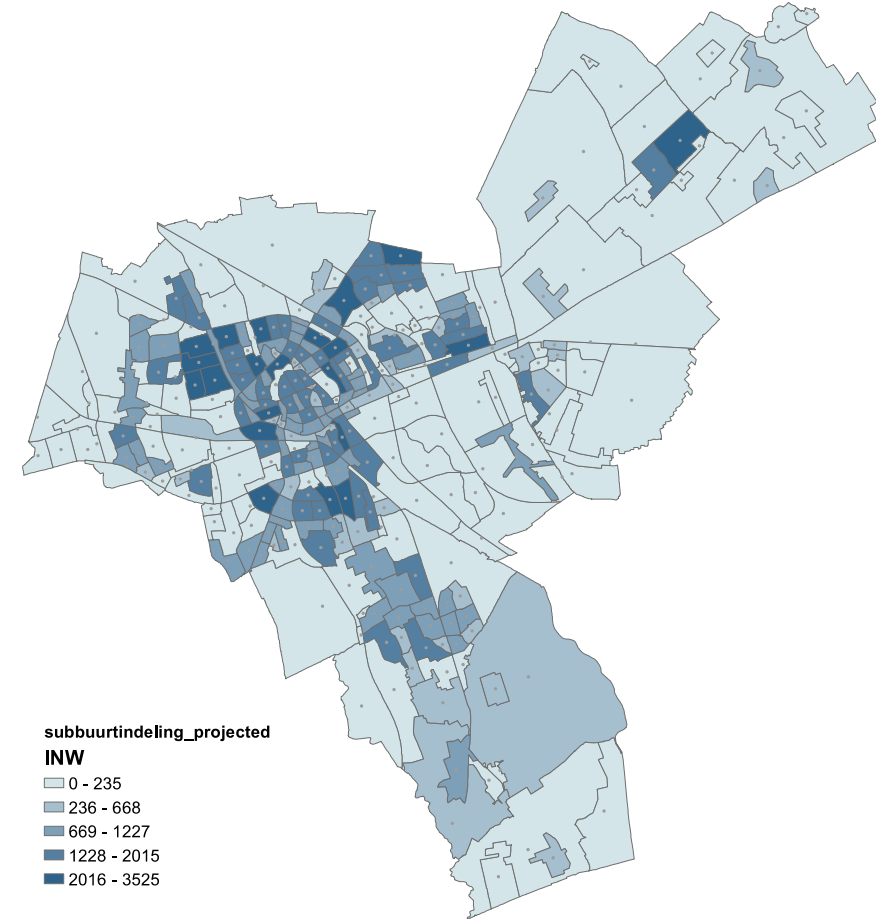
### Bax & Company

- Spatial analysis to identify the best location for parcel lockers & PUDO's in terms of measured accessibility for citizens
- Benchmarking of worldwide practices for parcel lockers

# Data provided



Mobility Hubs and Park&Rides



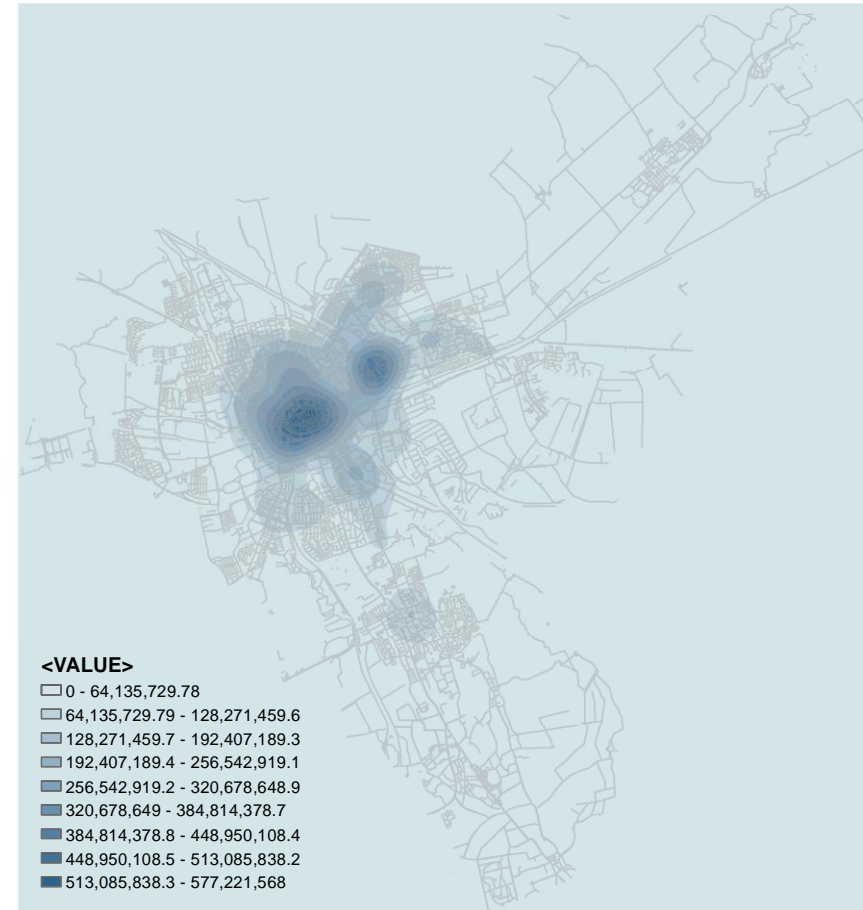
Neighbourhoods and population

# Where will people cycle?

## Space syntax: betweenness centrality

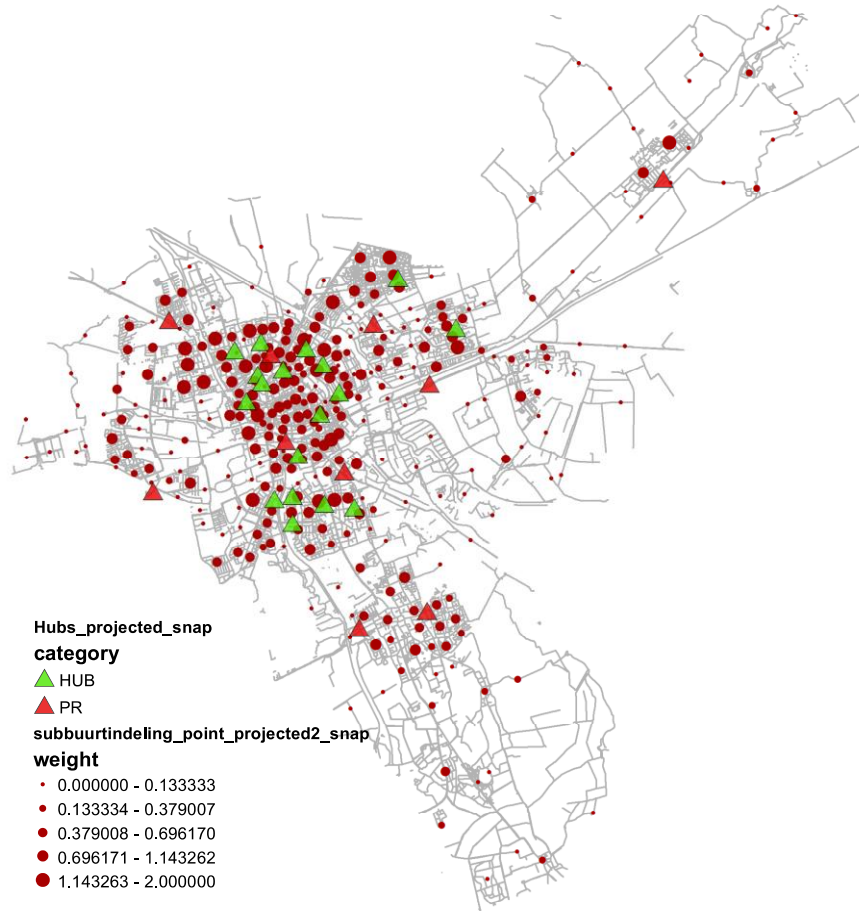


Cycling network - streets most likely to be chosen by cyclists (shortest path linking any pair of street segments within a radius - 10min by bike at 18km/h)



Kernel density

# Optimal location of hubs

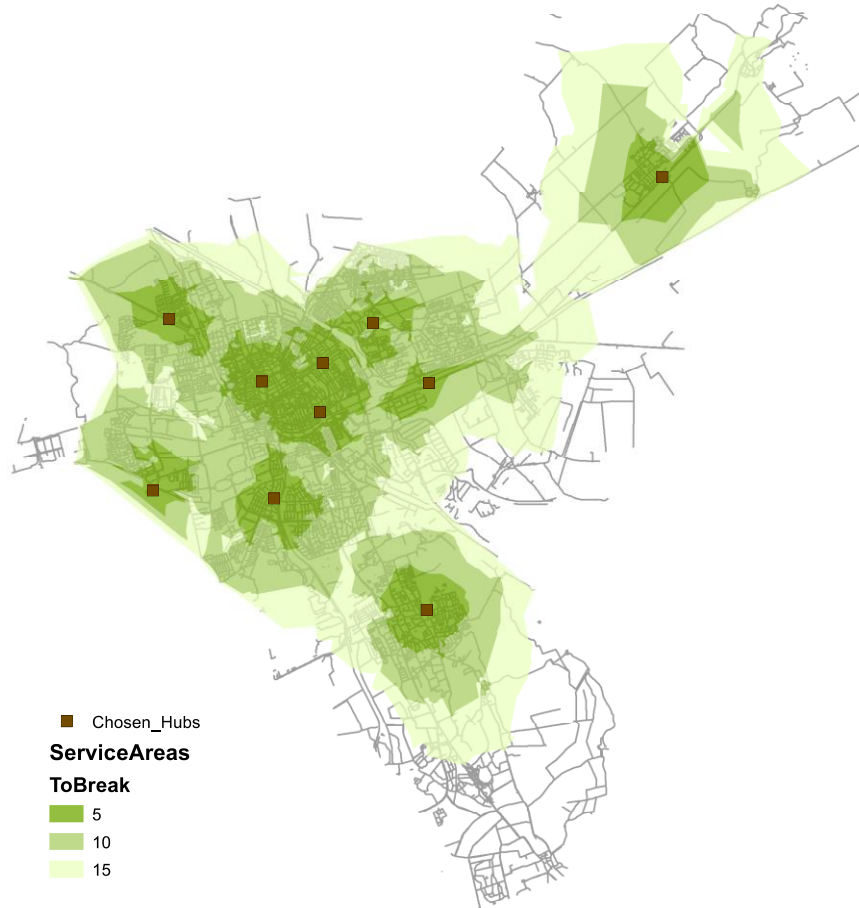


Hubs and Population

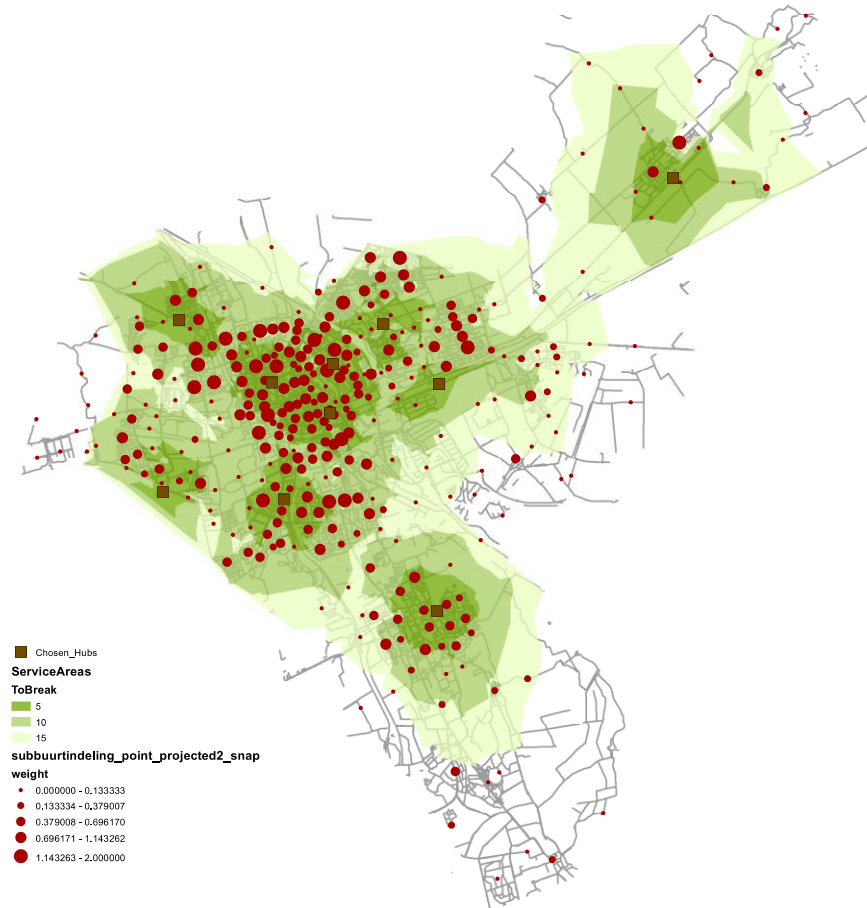


Optimal location of 10 hubs

# Areas covered



Isochrones 5-10-15 minutes (cycling, 18km/h)



Isochrones and population



# Under development

## Spatial analysis

- Which areas might be underserved by private providers and where could the city try to complement with white label solutions?
- Analysis of walking network

## Benchmarking - existing guidance from where we can provide (new/best) practices:

- Austria - White Label Parcel Boxes Guide & Criteria for use and choosing the location of parcel boxes in communities
- Drammen, Asker, Bærum and Oslo - Common policy for self-service collection points (placement principles, criteria and case management)
- Singapore Locker Alliance - Federated Lockers and Collection Points programme
- UK planning permission for parcel lockers

**An open discussion on the “chicken-and-egg”:**

**Where to start & when?**

**Should we put a Sulp in place first?**

**Should we start piloting and testing first?**

# Thank you!

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