

Report on local fora meetings

ULaADS D2.5: Report on local fora meetings

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Project abstract

ULaaDS sets out to offer a new approach to system innovation in urban logistics. Its vision is to develop sustainable and liveable cities through re-localisation of logistics activities and re-configuration of freight flows at different scales. Specifically, ULaaDS will use a combination of innovative technological solutions (vehicles, equipment and infrastructure), new schemes for horizontal collaboration (driven by the sharing economy) and policy measures and interventions as catalysers of a systemic change in urban and peri-urban service infrastructure. This aims to support cities in the path of integrating sustainable and cooperative logistics systems into their sustainable urban mobility plans (SUMPs). ULaaDS will deliver a novel framework to support urban logistics planning aligning industry, market and government needs, following an intensive multi-stakeholder collaboration process. This will create favourable conditions for the private sector to adopt sustainable principles for urban logistics, while enhancing cities' adaptive capacity to respond to rapidly changing needs. The project findings will be translated into open decision support tools and guidelines.

A consortium led by three municipalities – so called lighthouse cities- committed to zero emissions city logistics -Bremen, Groningen and Mechelen - has joined forces with logistics stakeholders, both established and newcomers, as well as leading academic institutions in the EU to accelerate the deployment of novel, feasible, shared and ZE solutions addressing major upcoming challenges generated by the rising on- demand economy in future urban logistics. Since large-scale replication and transferability of results is one of the cornerstones of the project, ULaaDS also involves four satellite cities (Rome, Edinburgh, Alba Iulia and Bergen) which will also apply the novel toolkit created in ULaaDS, as well as the overall project methodology to co-create additional ULaaDS solutions relevant to their cities as well as outlines for potential research trials. ULaaDS is a project part of ETP ALICE Liaison program.

Keywords

Multi-Stakeholder Approach, Stakeholder Mapping, Stakeholder Network, Local Fora, Collective Target System, Deductive Impact Assessment, Decision- Making Processes, Needs and Requirements

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Executive summary

ULaaDS wants to re-shape the urban on demand logistics by introducing sustainable solutions, which were implemented in the lighthouse cities Bremen, Mechelen and Groningen. These solutions focus on containerised last-mile delivery, sharing economy platforms for on-demand city logistics, city-wide platform for integrated management of urban logistics, dual mobi-hubs and cargo hitching. In order to achieve viable long-term solutions, the support of various stakeholders was needed.

Solutions and decisions are generally more accepted by the affected companies and people - which will be referred to as stakeholders - if they are involved in the development of the solutions and decision-making processes (Aifandopoulou et al., 2019). Furthermore, it is crucial for the sustainable long-time success of a solution to take the needs and requirements of stakeholders into account. Different approaches are possible depending on the extend of the participation process. Nonetheless each involvement process depends on a framework of preoperational and accompanying steps to achieve the aim of the process.

The Deliverables 2.5 and 2.6 will introduce the multi-stakeholder approach as it was planned and implemented in the ULaaDS lighthouse cities Bremen, Groningen and Mechelen. The aim of this approach was to further define the respective needs and requirements for the planned ULaaDS Trials in a co-creation dialogue with relevant stakeholders. Therefore, the deliverable will introduce the methodological approach and framework for the stakeholder engagement in the project which was adapted for each city regarding their trials and needs.

The overall multi-stakeholder process comprised a stakeholder mapping process, a series of local fora and related working groups, the collective target system approach, and further data questionnaire as well as the deductive impact assessment approach.

The results of the ULaaDS stakeholder engagement processes are described in two deliverables:

The presentation of the results of the ULaaDS Stakeholder Engagement Process are split between two deliverables. The results of the local fora and of the collective target system will be shown within this deliverable, **D2.5: Report on local fora meetings**. The results of the stakeholder mapping and the discussion of the needs and requirements for the ULaaDS trials will be presented in the deliverable, **D2.6: Local ecosystem stakeholders` needs and requirements & prioritisation of use cases – final version**.

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1. Introduction

The growing need to consider sustainability for urban freight transport adds more complexity to the already very challenging logistic processes in most cities.

To achieve successful implementations, an early and continuous stakeholder engagement is crucial. Including various groups of stakeholders within a decision-making process provides a more comprehensive overview and strengthens decision-making on a factual basis, ultimately reducing uncertainties (Stringer et al., 2008; Russo et al., 2021). Stakeholder engagement should be integrated into the decision-making process in the earliest stages since it systematically represents stakeholders.

The ULaaDS project supported the lighthouse cities Bremen (BRE), Groningen (GRO) and Mechelen (MEC) on their way to sustainable city logistics. Since all cities have a different baseline and framework conditions, each city will have to face different challenges and possibilities of stakeholder.

In each city, a combined usage of five different methods was foreseen to retrieve the needs and requirements necessary for a successful implementation of the ULaaDS trials.

Stakeholder engagement was planned to start already before the trialling of the new urban logistics solutions, building on inputs and needs from logistic service providers, public authority, academia, residents and consumers. According to their inputs, the trials were adapted to increase the effectiveness and the acceptance of the new solutions among stakeholders.

The presentation of the results of the ULaaDS Stakeholder Engagement Process are split between two deliverables:

1. The results of the local fora and of the collective target system will be shown in **D2.5: Report on local fora meetings**.
2. The results of the stakeholder mapping and the discussion of the needs and requirements for the ULaaDS trials will be presented within in [this](#) deliverable, **D2.6: Local ecosystem stakeholders' needs and requirements & prioritisation of use cases – final version**.

The deliverables are closely connected. To allow easier reading and a more comprehensive understanding, certain text passages may occur in both deliverables.

2. Methodologies

Identifying the needs & requirements of the stakeholders involved in the ULaaDS trials and assessing their impact on the implementation's plans was one of the key challenges of the project. This chapter will introduce the main methodologies used in the ULaaDS multi-stakeholder process, which were:

- The identification of relevant local stakeholders via stakeholder mapping.
- The introduction of a collective target system to elaborate common and diverging aims and objectives.
- The establishment of a co-creation dialogue via local fora.
- Data collection.
- The deductive impact assessment.

2.1 Stakeholder mapping

As a starting point and to gain knowledge and understanding of the local logistic ecosystem within the three ULaaDS-lighthouse cities – Bremen, Groningen and Mechelen – a stakeholder mapping process was conducted. Therefore, the responsible partners of the consortium had to appropriately identify, describe and - at a later point - involve the specific stakeholder groups prevalent in each of these cities.

As a preparation for the stakeholder mapping, a template table was elaborated by the partners FGM and RUG, including the measures and approaches proposed in the DG Move non-binding guidance document on urban logistics N°3/6 by Van den Bossche et al. (2017) and sent out to the lighthouse cities (BRE, MEC, GRO) with the request to fill their local stakeholder network contacts into this table, based on their subjective estimations and experiences. In most cases the answers had to be chosen from a dropdown menu to allow easier processing of the information and data.

Within this table it was the task of each city to fill in 13 columns with attributes per stakeholder, including information about:

Table 1: Information per stakeholder in the stakeholder mapping process

- Stakeholder type
- City the stakeholder will be active in
- Keyword for their activities (e.g. Frontrunner or Follower ...)
- Involvement history
- Research Trial the stakeholder will be part of/participating in (inner city and urban/peri-urban area)
- Importance for ULaaDS
- Influence on other stakeholders
- Expected main contribution + further information
- Expertise + further expertise
- Stakeholder legitimacy
- Stakeholder's interest

The lighthouse cities filled in the table in three rounds before the local fora, one in December 2020 followed by updates in July and November 2021. Since the project naturally evolves, the necessary stakeholders might change as well. Hence, a stakeholder mapping should always be seen as a living process.

In order to evaluate the stakeholders who shall be involved in the local fora for the respective city, an adapted version of the Interest Power Grid of Mendelow, A.L. (1981) was implemented. The latter gives insight about how to manage stakeholders with respect to their estimated power and interest. Data about the stakeholders was filled in by the cities themselves. Since we asked for the nature of interest instead of a quantitative assessment in form of a Likert scale, Mendelow's interest power grid was adapted in that way that all interests have an equal value except the interest of simply being informed. In other words, the adapted version of the method focuses on a qualitative statement of the interest and a quantitative statement regarding the power. Figure 1 shows the difference between Mendelow's interest power grid and the adapted version used for ULaaDS.

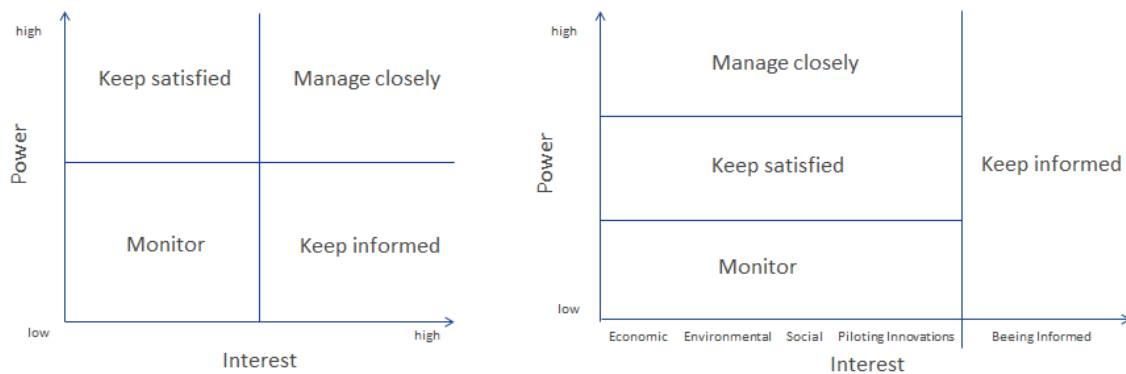


Figure 1: Left: interest power grid from Mendelow A.L. (1981); right: adapted interest, power grid with qualitative statements of the interests

The overall power for ULaaDS was calculated according to the weights in Table 2. Since the stakeholder mapping is a subjective approximation which only serves for internal estimation needs, the weights were elaborated in internal discussions. Importance and influence for ULaaDS, the stakeholder's legitimacy, the influence on other stakeholders as well as the keyword were taken into account according to a certain ratio.

Table 2: Attributes used for the calculation of the overall power of stakeholders for ULaaDS with the respective weights

Attribute	Weight for the calculation of the overall power
Importance and Influence for ULaaDS	0.35
Legitimacy	0.3
Influence on other stakeholders	0.15
Key attribute	0.2

For each of those attributes there were different answer options, which can be seen in Table 3. For this, we defined n (see Table 3), which reflects the maximum points that can be reached per estimated answer. For the calculation of the overall power of a stakeholder for ULaaDS we then used n to avoid disproportionate ratios.

$$Power = \frac{Importance}{n_{importance}} + \frac{Influence}{n_{influence}} + \frac{Legetimacy}{n_{legitimacy}} + \frac{Keyword}{n_{keyword}}$$

Table 3: Answering options and their respective rating for the attributes used for the power calculation

<i>n</i>		Answer options					
Importance for ULaaDS	2	Very important	Moderate important	Not important			
		2	1	0			
Influence on other Stakeholders	2	High influence	Moderate influence	No influence			
		2	1	0			
Legitimacy	6	Expertise and directly involved in research trial	Expertise and directly affected by research trial	Expertise and indirectly affected by research trial	No expertise and directly affected	No expertise and indirectly affected	Expertise and not affected by research trial
		6	5	4	3	2	1
Keyword/ Attribute	2	frontrunner	representative	follower	newcomer	interested	
		2	1	0	1	0	

Therefore, the power for each stakeholder is between 0-1 being it 1 the maximum possible power assigned to a stakeholder. This leads to the further differentiation between the stakeholders. Stakeholders with an interest but being informed with a power of 0-0.3 should be monitored, stakeholders from 0.3 – 0.6 shall be kept satisfied and all stakeholders above should be closely managed.

The stakeholder mapping is mainly a tool for internal elaboration and evaluation, which helps to manage the awareness about the existing stakeholders and their potential roles. By carefully going through the results, it was possible to choose stakeholders for the planned trials to increase the potential for a successful implementation of the trials. Since this mapping is of dynamic nature it was conducted firstly to prepare for the planning process and could be repeated e.g. in-between other stakeholder engagement processes. The results of the stakeholder mapping will be presented in chapter **Fehler! Verweisquelle konnte nicht gefunden werden.** of this deliverable.

2.2 Collective Target System

The Collective Target System (CTS) is a tool to evaluate common and conflicting goals in a specific topic, e.g. sustainable urban last mile logistics, and use it as a tool of decision-making so that acceptance within the stakeholders increases. This tool occurred in literature for the first time by Russo et. al (2021). In a nutshell, this method is asking different stakeholder groups questions in three categories.

Figure 2: Schematic display of the condensed group results [%] from the collective target system

	Strongly agree			Slightly agree			Neutral			Slightly disagree			Strongly disagree		
	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
Social Goals															
Goal 1															
Goal 2															
... Goal n															
Environmental Goals															
Goal 1															
Goal 2															
... Goal n															
Economic Goals															
Goal 1															
Goal 2															
... Goal n															

In its original form, the questions have been set through literature study and were answered using 5 point Likert scale. The results were compared per stakeholder group. Finally, the use of a Kruskal Wallis test, a statistical test uses ranks in one-criterion variance analysis to detect diverging goals, highlighting objectives that may need further discussion between the stakeholders.

For ULaaDS, it is planned to use and partly adapt the CTS methodology as described here:

- The stakeholders will be allocated to one of three stakeholder groups. The categories will be slightly adapted into the three pillars of sustainability: social, environmental and economic sustainability.
- For the goals that shall be answered with the Likert scale there will be generic questions and further questions tailored for the actual trials in the cities.
- The CTS will be used after the first round of Local fora.

- The results of the CTS process are presented in deliverable **chapter 8**.

2.3 Local Fora

In ULaaDS it was foreseen that each lighthouse city will conduct at least three local fora – divided over two trials – initiating a multi-stakeholder process and establishing a co-creation dialogue between all the parties involved in the trialling of the ULaaDS solutions.

In each city, the first round of local fora per trial was planned to be conducted before the effective trial implementation phase starts, in order to gather information about the needs and requirements of affected stakeholders which will be followed by further steps of assessment and discussion to define their impact on the trials planned. The trials in Bremen will deviate from this approach, as both trials start with already existing implementations that should be expanded.

A second local forum per trial was foreseen to be conducted approximately after the first six months of actual trialling. These fora's objective would be to get feedback from the stakeholders involved in the trials and evaluate possible improvements for the trials and to inform stakeholders about the status quo and experiences made so far. Since the content of these intermediate fora depends on the developments, the fora will be planned after the trialling started.

Further details to the local fora, their actual implementation and correlated learnings are presented in Deliverable D2.5: Report on local fora meetings.

2.4 Data collection

Collecting data to prepare the trials is another vital part of the trial preparation phase. It is closely connected to the multi-stakeholder process, as some data needed may be retrieved by the stakeholders involved in the ULaaDS trials.

It was significant to gain functional information like vehicle properties, delivery frequencies, order organisation, timeframes for deliveries e.g. as well as social aspects to optimise the plans for the ULaaDS trials. Especially qualitative data was foreseen to be collected within the participation process. This includes non-measurable data like the awareness of sustainable solutions as well as the willingness to pay for sustainable deliveries.

Within the project, there were different ways to collect the data: If possible, data shall be collected during the local fora. As time was limited within the local fora, another option was to ask the stakeholders for their data contribution in follow up workshops and bilateral communication. Last but not least, questionnaires were conducted were needed.

2.5 Deductive Impact Assessment

Based on the results of the multi-stakeholder process, specifications, adaptations and optimisations for the ULaaDS trials should have been elaborated. Therefore, a qualitative approach was developed, called **deductive impact assessment** (see figure 3). Within this iterative process, all the inputs from the stakeholders, their needs, requirements and priorities were split into functional and further implications (see steps 1 and 2 below). The influence of these implications are compared to the original use cases planned within ULaaDS (3). If further information is needed, further consolidation of the stakeholders will take place e.g. meetings or questionnaires. In step (4), the fusion, the information gathered in the local fora, their correlated implications, the original plans for the use cases and the knowledge from other steps of the project were combined to finally allow the adaptation of the ULaaDS-Trials.

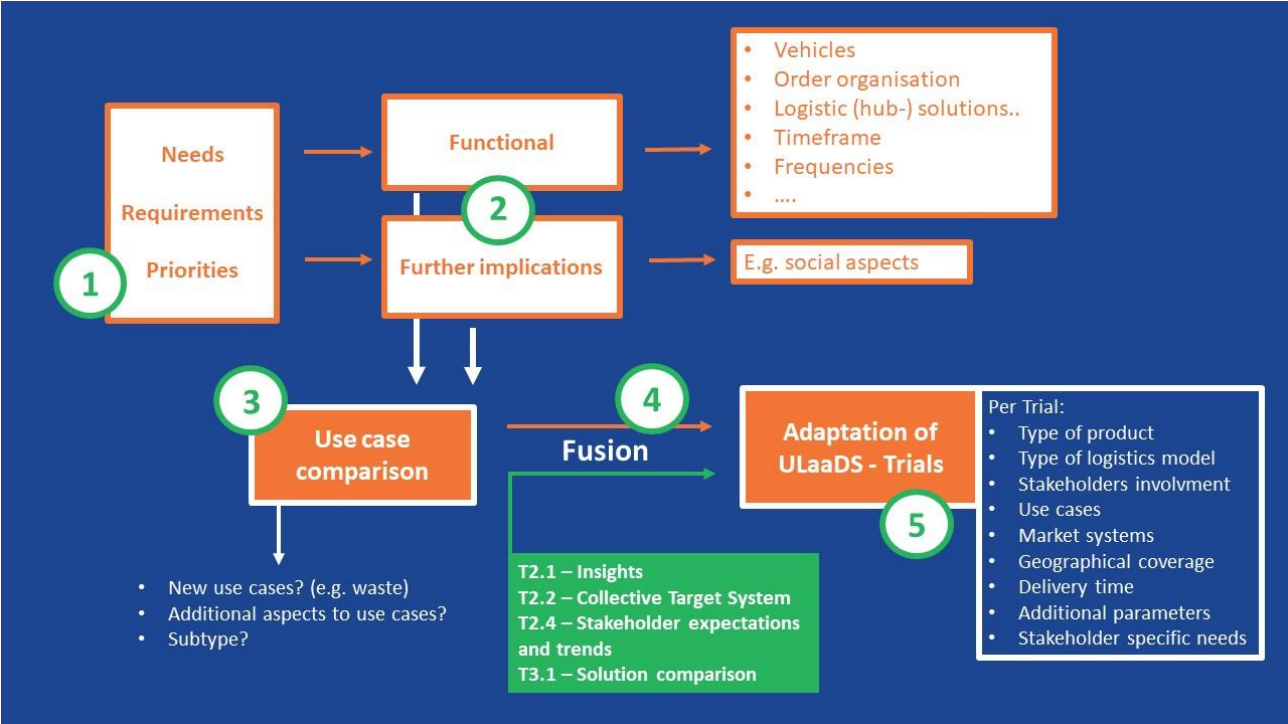


Figure 3: Scheme of the deductive impact assessment

3. A deeper dive into the first implementations of the Local Fora - Approach

3.1 The approach to the 1st round of local fora

The approach for the first round of local fora as described in this chapter can be seen as baseline or blueprint for orientation. ULaaDS partner IFZ prepared the basic concepts, ideas and slides for the light house cities to adapt, depending on the local settings, objectives and framework conditions of the trials.

The conception of the local fora was based on following considerations:

- Many partners already were involved in other logistics projects, and hence it was considered that the external stakeholders, especially logistics service providers (LSPs), do not have a lot more time or general availability.
- Often this is correlating with the amount of other sustainable urban logistics projects in different cities, which also had influence on the time budget of the stakeholders.
- In ULaaDS it was the plan to build strong on the inputs of the stakeholders, which would need clear commitment from all sides. Hence it was in discussion if it would be easier to find
 - a date for a longer exchange, or
 - plan more, but shorter exchanges with the stakeholders.

In the blueprint, it is chosen to head for a longer exchange in the 1st round of local fora. As a result, the proposed length of the 1st local fora is between three and four hours and the proposed structure divided the forum into 4 sections.

Each forum is supposed to start with a welcome and the introduction of the ULaaDS project, followed by a theoretical input about expected future trends and scenarios as well as the vision of the city. Then the first participatory part starts where general chances, needs and requirements for the future shall be elaborated. The results of this part shall on the one hand deliver input for the assessment of the ULaaDS trials and give the cities insight about what concerns stakeholders and future work can focus towards.

This rather general group work is followed by the presentation of the trials, which ideally is supposed to tackle some of the obstacles elaborated in the first group work. Subsequently a second group work follows with the aim to discuss needs and gather feedback on the trials and operational steps themselves. The last block is built on an introduction of the next steps like the Collective Target System as well as feedback options.

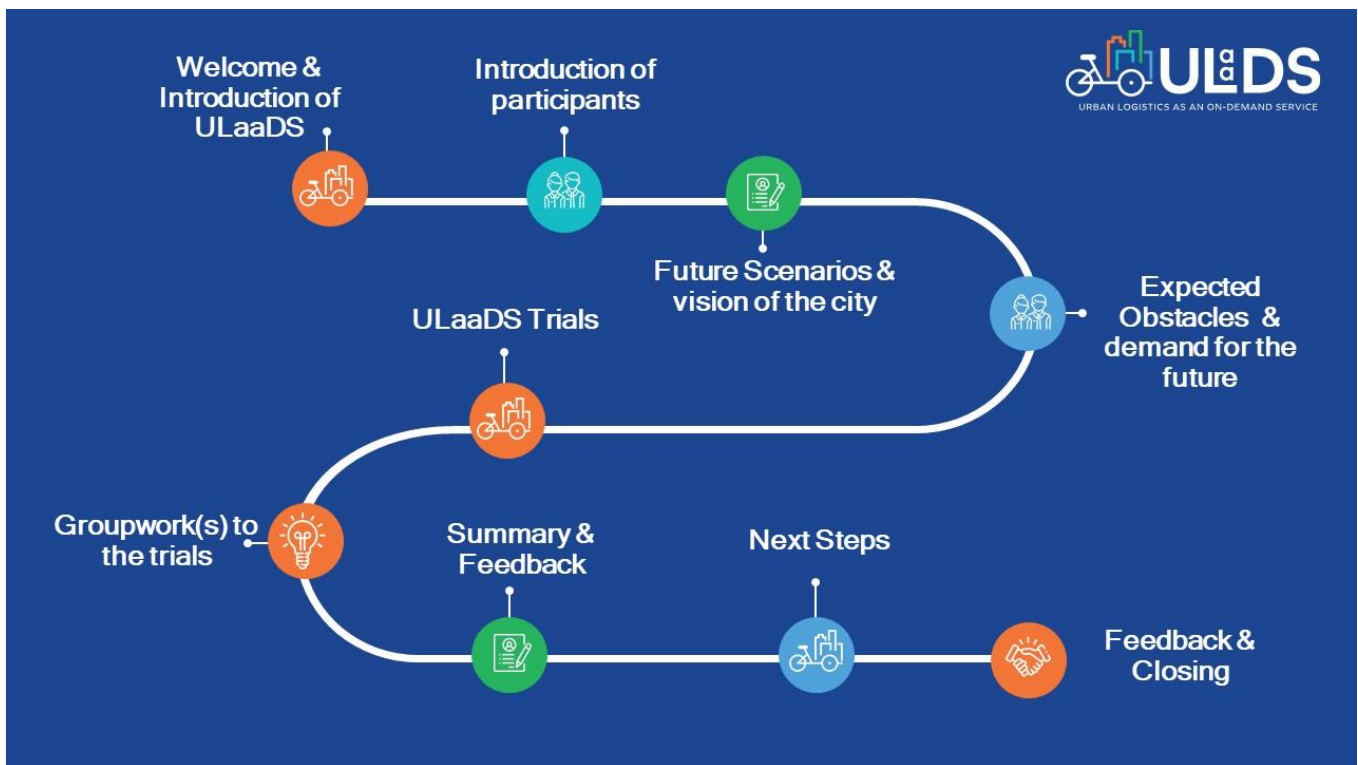


Figure 3: 1st Blueprint proposed for the first local fora in the lighthouse cities

Apart from the cargo-hitching trial in Bremen, local fora were planned in each trials implementation, as can be seen in table 4.

Table 4: Overview of the trials conducted in ULaaDS

City	Scheme	Area	Implementing Partners	Trial	Local fora
Bremen	Micro-hub-logistics	Inner city	Rytle	Trial 1 Bremen	✓
	Cargo-bike sharing	Inner city	ADFC	Trial 2 Bremen	✓
	Cargo-Hitching	Peripheral area	Via	Trial 2 Bremen	–
Groningen	Crowd-sourced logistic platform	Inner city	GCC	Trial 1 Groningen	✓
	Shared logistics on a P&R site	Peripheral area	OV-Bureau	Trial 2 Groningen	✓
Mechelen	City-wide logistic platform	Inner city	Bpost, ECOkoeriers, UPS	Joint trial Mechelen	✓

	Transport vehicle capacity sharing	Peripheral area	VIL	Trial VIL	✓
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3.2 Information on the COVID 19 context

The ULaaDS project started just a few months before the COVID 19 -pandemic fully stroke Europe. As for all the citizens all over the world, that had impacts on the plans of ULaaDS. Considering the strong emphasis the project had on stakeholder engagement, it was clear that the original approach cannot work out as planned. As online meetings more and more substituted conventional in situ- meetings, the consortium saw new ways for establishing the stakeholder engagement processes as originally foreseen. For the case needed, the consortium prepared an internal guideline on how to use online and telecommunication tools. Not all local fora started at the same time, and not all countries had the same regulations at the time the first for a took place. As a result, the actual approach or decision for or against live meetings was taken by each city itself.

4. Local fora overview

In overall, 12 local fora have been held during the project lifetime.

Table 5: Local Fora Overview

Trial	Forum	Date
Local fora Bremen		
BRE Trial 1: Containerised Last Mile Solution	1	08.09.2022
BRE Trial 1: Containerised Last Mile Solution	2	13.06.2023
BRE Trial 2: Cargo Bike sharing Service	1	14.09.2022
Local fora Groningen		
GRO Trial 1: Vehicles Sharing in the inner city	Kick Off	21.09.2021
GRO Trial 1: Vehicles Sharing in the inner city	1	23.11.2021
GRO Trial 1: Vehicles Sharing in the inner city	2	10.05.2023
GRO Trial 2: Logistics services to multi-modal mobility hubs	1	03.10.2022
GRO Trial 2: : Logistics services to multi-modal mobility hubs	2	11.04.2023
Local fora Mechelen		
MEC Trial 1	1	26.10.2021
MEC Trial 1	2	02.05.2022
MEC Trial 2	1	07.07.2022
MEC Trial 2	2	19.09.2022

In the following chapters, the specific approaches of the cities to the local fora will be presented. This deliverable, D2.5: Report on local fora meetings, focusses on the presentation of the lighthouse cities' aims and objectives per local forum, the chosen approaches, main type of stakeholders in the fora and gives a short insight into the most interesting points of discussion. By showing the main questions that arose, the reader shall be able to adapt these questions to its own projects or implementations. Readers interested in more details on the needs and requirements discussed in the local fora are advised to read deliverable **D2.6: Local ecosystem stakeholders' needs and requirements & prioritisation of use cases – final version.**

5. The Stakeholder Engagement Process in Bremen

5.1 BRE Trial 1 -Containerised last mile

Solution	Containerised urban last-mile delivery
Scheme	Location and infrastructure capacity sharing
Partners involved	BRE, TBNLR

Figure: Trial description BRE Trial 1

The first ULaaDS trial in Bremen focuses on expanding the number of micro hubs and cargo bike freight transports in the inner city. It is building on the forerunner project called Urban BRE which ran from 2019 to 2021 and was funded by the Bremen Ministry SWAE. Within this forerunner project, a micro hub was set up from which cargo bikes from ULaaDS partner Rytle cover the last-mile to the inner city. Within ULaaDS, the focus is on general cargo instead of courier express freight itself and on expanding the number of micro hubs within the city.

Two new locations for micro hubs have been identified besides the original pre-existing one:

- The second micro hub is located in Viertel, an area neighbouring the inner city. It started operating in July 2021 and the freight volume doubled after two months of operation.
- The third micro hub is located in Findorff, the northern part of the inner city of Bremen. Operations kicked off in May 2022.

In this trial, Bremen tests containerised urban last-mile delivery by grouping together parcels and general cargo heading towards the same city area, with ULaaDS partner Rytle is providing the technical solution for the implementation of this trial.

5.1.1 BRE Trial 1 Local Forum 1

Bremen Trial 1, Containerized last mile solution: 1 st forum	
Date	08.09.2022
Relevant Stakeholders	Logistics service providers, public authorities
Aim of the Meeting	Information, Introduction of the vision of the city
Approach & methods used	Presentations, open discussions

5.1.1.1 Aim of the forum:

The city wants to introduce the trial and to recruit new users for the trial implementation, so that the system will be economical feasible on a long term. Furthermore, an additional location should be implemented, which shall be topic in the second local forum.

5.1.1.2 Approach

Topic	Responsibility
Online Poll	Bremen
Introduction round	Bremen
Presentation of ULaaDS	Bremen
Results of the Delphi Study	Bremen
Vision of the city	Bremen
Presentation Urban BRE to ULaaDS	TBNL
Discussion	Bremen
Feedback	Bremen

5.1.1.3 Discussion

During the first local forum, the following topics were discussed

General challenges in urban logistics in Bremen:

- There are not enough parking spaces, parking in second lane often the only option.
- City logistics is often not considered enough in concepts and policy papers, e.g. in the city centre concept.
- Loading zones are often too small and not sufficient for the need of the logistics service providers.
- Hamburg loading zone project as a possibility:
 - Strongly controlled loading zones
 - It was a research project with high costs
- There are examples in other countries such as Spain, but different legal basis

Feedback on the micro depots approach

Micro depots were considered as a good idea, but with small quantities and the costs, there is only a small margin, which must lead to an increase in price to compensate for the costs.

For a sustainable long-term implementation of the project a clear business model showing costs and benefits and a concept with strong arguments to attract companies is needed/has to be developed.

5.1.1.4 Conclusion Local Forum 1

So far it was hard to discuss a possible future participation in the project with the attendees of the first local fora. Their feedback was that no strong arguments are available to base a decision on it yet. At the moment of the forum, the cost structure was not transparent enough and also the benefits for participating were not completely clear. As a result, the next steps for the trial participants will be the clear elaboration and presentation of the costs and benefits when joining/using the trial. This should serve as base to convince potential future users. In addition, the overall challenge of a lack of parking possibilities for delivery vehicles was clearly a topic from the logistic service providers site, which leads to frequent second lane parking.

5.1.2 BRE Trial 1 Local Forum 2

2nd forum Bremen Trial Urban containerized last mile	
Date	13.06.2023
Relevant stakeholders	LSPs, Chamber of Commerce
Aim of the Meeting	Discussion of Trial experiences, discussion of alternative solutions for sustainable urban last mile deliveries, exchange for Project StaLaOpt
Approach or methods used	Presentations, break-out sessions

5.1.2.1 Aim of the forum:

The city wanted to discuss the trial experiences so far, but also think about other potential solutions for BRE. It was a combined meeting with the Project StaLaOpt, led by DIFU.

5.1.2.2 Approach

Nr.	Topic	Responsible
1	Welcome	Bremen, Chamber of Commerce
2	Content contributions: ULaaDS	TBNLR, City of Bremen, DIFU, City of Graz (online)

	StaLaOpt GrazLog	
3	Workshop: Break-out Session	TBNLR, City of Bremen, DIFU
4	Farewell	Bremen

5.1.2.3 Content contributions and correlated discussions:

In the second local forum in BRE Trial 1, after an interesting set of content contributions by logistics experts the following aspects have been discussed:

5.1.2.3.1 ULaaDS: BRE Trial 1

After the introduction of trial, it was discussed

- How to integrate further partners?
- Where to install further hub locations? Is it possible to use vacancies in existing buildings?
- What solutions are relevant for BRE?
- How to add innovative loading zones?
- Does the switch to cargo bikes really pay off?
- How city specific is the efficiency of the logistics solution?
- How to optimise the loading time window?
- How to bring logistics more into existing policy papers?
- What is needed from the public authority, e.g. bicycle infrastructure?

5.1.2.4 StaLaOpt

The project StaLaOpt recognises the existing challenges on in urban logistics and tries to find new ways to bring solutions to these topics. After the project introduction it was discussed:

- Who is responsible for providing loading areas for LSP in Bremen?
- How many loading zones are needed? Also, is there a need to combine them with charging stations for electric vehicles?
- How to scale up existing micro hub solutions, that are just dimensioned for comparably small amounts of parcels and other deliveries?

5.1.2.5 GrazLog

The GrazLog project, a white label midi-hub solution initiated by the City of Graz in Austria, was introduced to the participants. Main quintessence for a LPS point is, that at the moment, the economic viability is dependent on the cooperation with a big CEP player. The participants then discussed:

- What is the role of the city when intervening on the logistics market? Big players on the market want to realise their own projects
- There is a need for 400 to 450 deliveries per day to be cost efficient.
- Finding the right location is not easy.
- There are additional services planned to further increase the efficiency of the system, e.g. parcel lockers.
- What are the incentives for Logistics service providers?
- A company is already realising a midi-hub system at Lloydhof in Bremen.
- Still, there are some aspects of data security and data sharing open.

5.1.2.6 Conclusion Local forum 2

The second local forum for BRE Trial 1 introduced a very broad spectrum of important topics and clearly tried to set a strong base for stakeholder interaction after the ULaaDS project ends. The participants of the local forum had following wishes:

- Follow up events every three to six months
- Set Theory into practise.
- Discuss success and introduce international solutions
- The city should create a clear framework for all.
- There is a wish for further pilot projects.
- Follow the trend of self pick-ups/ parcel lockers

5.2 BRE Trial 2: Cargo Bike Sharing Service

Solution	Effective integration of passenger and urban freight mobility services and networks
Scheme	Location and infrastructure capacity sharing
Partners involved	BRE, ADFC

The second trial in BRE focussed on private micro logistics. Within the ULaaDS project and together with ADFC, Bremen will discuss additional 24/7 cargo bike sharing options as well as the improvement possibilities of the existing Fietje network with the five new cargo bikes bought within the project. The 24/7 offer can be implemented either together with already offered services or via the city's plans for a comprehensive city driven cargo bike sharing network that was announced during the ULaaDS project in June 2021. The city-wide sharing network shall consist of cargo bikes which will be offered for little monetary compensation and can be seen as a complementary offer.

5.2.1 BRE Trial 2 Local Forum 1

1st forum Bremen Trial Cargo Bike Sharing Service	
Date	14.09.2022
Relevant stakeholders	ADFC as rental scheme providers, cyclist associations and representatives, city administratives
Aim of the Meeting	Discuss key features of cargo bike sharing schemes
Approach or methods used	Presentations, break-out sessions

5.2.1.1 Aim of the forum:

The city of Bremen planned to discuss the implementation of an additional, new cargo bike sharing scheme, complementary to the existing Fietje system of ADFC. In the forum, a variety of aspects concerning this potential implementation was discussed, in detail: What does it need and how can the City of Bremen best achieve that?

5.2.1.2 Approach

Topic	Moderator
Mentimeter Questions	Bremen

Introduction round	Bremen
Presentation of ULaaDS	Bremen
Conclusion cargo bike it festival	ADFC
ADFC study	ADFC
Vision of the City of Bremen	Bremen
Mentimeter & Questions	Bremen

5.2.1.3 Discussion points

The local forum was held online, resulting in online polls being an important tool for the meeting. The local forum was very specific in its aim to elaborate the needs and requirements of a cargo bike sharing system complementing the fietje system. In the local forum the following points were discussed:

- How to implement the cargo bike sharing scheme?
 - MAAS integration
 - Booking possibilities
 - Insurance
 - ...
- What are suitable bikes?
- Is there a need for trailers?
- What kind of equipment is needed?
- How to define the prices?

5.2.2 Short summary BRE Trial 2

In summary, within the local fora it was defined that to facilitate the transition of private logistics patterns from car use to cargo bike use, it would be necessary to have a two -fold approach: On the one side the Fietje renting system, which is more time intensive during the rental process, due to longer instructions and personal contact. On the other hand, a 24/7 renting scheme, with little reservation time in beforehand will open up the use to a broader customer group.

6. Stakeholder Engagement Processes – GRO

6.1 GRO Trial 1: Vehicles Sharing in the inner city

Solution	Effective integration of passenger and urban freight mobility services and networks
Scheme	Location and infrastructure capacity sharing
Partners involved	GRO, GCC

The first ULaaDS trial implemented in Groningen aimed to provide logistic solutions for shop owners within the inner city and should originally implement a crowdsourcing platform marketplace for city logistics. Groningen dedicated itself to reach zero emission city logistics by 2025. While this commitment should result in a more liveable city, local businesses may face additional challenges correlated to the shift to zero emission city logistics—on top of the already challenging economic situation with competing e-commerce channels. The City of Groningen wants to assist local businesses in this transition by involving them in the development and trialling of the ULaaDS solutions. In this regard, two solutions have been discussed to be trialled. First, Groningen wanted to explore the use of a local pickup and delivery service—with a hub. This solution should provide local businesses the option to let parcels for home delivery be picked up from their local store by cargo bike and delivered to consumers. This service should include home deliveries in Groningen (by cargo bike) and beyond (via subcontracting), be open for multiple local cargo bike operators, and have different delivery speeds (same-day, next-day, multi-day delivery). Second, a solution with shared zero-emission vehicles was implemented and tested. The fleet of vehicles included different vehicle types (i.e., cargobike, trike, van) which were placed at different locations.

6.1.1 Kick Off Meeting

Kick Off Meeting Groningen Trial 1 Vehicle ssharing in the inner city	
Date	21.09.2022
Relevant stakeholders	Local shopkeepers from the inner city
Aim of the Meeting	Introduction of the Trial Basic decision on how to start
Approach or methods used	Presentations and discussion

6.1.1.1 Aim of the kick off meeting:

In this first meeting the City of Groningen wanted to introduce the two options for the inner city trial and discuss basic information and how to start the trial.

6.1.1.2 Discussions:

Within this meeting, the most important points of discussion were:

- Will there be an enforcement during the trials?
- There is a need to discuss with the regular suppliers.
- Be aware of the cities competitive position and that it could influence the market.

6.1.1.3 Conclusion of the Kick Off Meeting :

The meeting served as a start into the project, with a list of follow up activities for the next meeting

6.1.2 GRO Trial 1 Local Forum 1

Local forum 1 Groningen Trial 1 Vehicle sharing in the inner city	
Date	23.11.2022
Relevant stakeholders	Local shopkeepers from the inner city, Groningen City Club, Groep Deelvoertuigen
Aim of the Meeting	Definition of key parameters for the vehicle sharing scheme
Approach or methods used	Presentation and discussion

6.1.2.1 Aim of the local forum 1:

The aim of the meeting was to elaborate what kind of vehicles could be interesting for the inner city vehicle sharing scheme. Therefore, it was also an aim to further define the specifications of each vehicle.

6.1.2.2 Discussions:

To elaborate the main specifications of the vehicles to be shared, the following aspects were discussed:

- What kind of vehicles?
- Loading capacities

- Range
- Loading space
- Advertisement on the vehicle
- Expected Usage per shop
- Potential locations for rent
- Potential renting companies

6.1.2.3 Conclusion of the GRO Trial 1 Local Forum 1:

The forum was well used to define the specifications needed to further set up the trial. Groningen partner GCC used the opportunity to involve the local stakeholders in these decisions. There was a clear action plan elaborated at the end of the meeting, assigning tasks and responsibilities.

6.1.3 GRO Trial 1 Local Forum 2:

Local forum 2 Groningen Trial 1 Vehicle sharing in the inner city	
Date	10.05.2023
Relevant stakeholders	Local shopkeepers from the inner city, Groningen City Club
Aim of the Meeting	Future of the Trial How to invite and introduce new users to the scheme
Approach or methods used	Presentation and discussion

6.1.3.1 Aim of the local forum 2:

The aim was to discuss how to continue with the trial after the official ULaaDS trial phase and how to win new users for the system.

6.1.3.2 Discussions:

Within this meeting, discussions were lead about:

- Who could write a manual for new users?
- How to reach new users – via email?
- Is there a need for more vehicles?

6.1.3.3 Conclusion of the GRO Trial 1 Local Forum 2:

The second forum was well used to clear the path for an ongoing implementation of the trial. The cooperation with partner GCC, who is representing the local stakeholders, added great value to the trial implementation, and especially in the stakeholder engagement process.

6.2 GRO Trial 2 Logistics Services to multi-modal mobility hubs

Solution	1. Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities Effective integration of passenger and urban freight mobility services and networks
Scheme	City-wide platform for integrated management of UFT Location and infrastructure capacity sharing
Partners involved	GRO, OVB

In this trial Groningen added urban logistics services to the Park and Ride (P&R) location Hoogkerk, just outside the city. This location attracts many commuters parking their car or arriving by bus, to travel their final leg towards the city of Groningen by bike, bus, or taxi. The parcel locker system is integrated into the public transport system (Solution 2), sharing its location and available infrastructure capacity (Scheme 4). Commuters can use the parcel locker for collecting or returning parcels (i.e., reverse logistics).

The parcel locker system could also be used by shopkeepers and entrepreneurs in the city. This is facilitated by means of a collective service (Solution 1, Scheme 3) focusing on reducing the dependence of shopkeepers and entrepreneurs on their car or van. Specifically, shopkeepers and entrepreneurs could drive from home to the mobility hub, where they can drop off their goods and travel to their shop by means of bike or public transport. Goods are then bundled at the mobility hub and delivered to the shops. Reversely, the parcel lockers can also be used for the first mile— that is, e-commerce deliveries can be taken from the shop to the parcel lockers at the hub.

The parcel locker was planned to be operated by the OV Bureau as a third party. The data which shall be gathered on the one hand regarding the usage (pickup/drop off per day) and on a survey developed by RUG which will target users and shall elaborate the travel distance and mode of transport etc.

Furthermore, a survey on to elaborate the opinions regarding the use of parcel lockers among different stakeholder groups will be done by IFZ to build a baseline for discussion in the second local fora.

6.2.1 . GRO Trial 2 Local Forum 1:

Local forum 1 Groningen Trial 2 Logistics Services to multi-modal mobility hubs	
Date	03.10.2022
Relevant stakeholders	PT Agencies, City of Groningen various departments, De Buren, RUG
Aim of the Meeting	Discuss the use of parcel lockers on public ground in Groningen Discuss the trial implementation on the P+R Hoogkerk
Approach or methods used	Presentation, group work and discussion

6.2.1.1 Aim of the local forum

The first forum was supposed to discuss the use of the parcel locker since Groningen is conscious about the lack of public space available. On the one hand a policy discussion is necessary for the decision for or against parcel lockers especially in the inner city. The forum was used on the one hand to discuss the topic parcel locker and on the other hand to promote the use of the parcel locker at the Park and Ride location Hoogkerk.

6.2.1.2 Approach

Topic	Moderator
Welcome and Introduction of ULaaDS	GRO
Future vision for the logistics municipality of Groningen	GRO
Trial with parcel locker at P&R Hoogkerk	GRO
Group work 1. Policy for Parcel Lockers, How and why? 2. Opportunities and threats pilot Hoogkerk	GRO
Break	GRO
Brain-walking	GRO
Feedback Results of group assignments	GRO
Narrow Down	GRO
Next Steps and Closing	GRO

6.2.1.3 Discussion

- Concerning parcel lockers, the fear was mentioned that villagers will be more likely use the car to pick up a parcel than city residents, even if the distance to the parcel locker is comparable.
- Another question raised was on how people return their return packages, if parcel lockers increase and manned pick up points decrease.
- For the Marktplaats / Vinted it is interesting whether parcel lockers are used for C2C purposes and what the regarding trends are.
- Furthermore, it was discussed that within the Netherlands no address is assigned to parcel lockers, which differs to other countries. This could be of use for finding the parcel lockers.
- Another question which emerged was the number of parcel locker needed to reduce the number of vans used for deliveries.
- Finally, it was asked on how the share of 'on the way home' pick-ups can be increased.
- It was noted that a different density of the location of parcel lockers is needed.

6.2.1.4 Conclusion

For the city of Groningen it is important to further discuss in which way parcel lockers make a benefit for the city logistics and what ways can be used to regulate the use as well as locations on which parcel lockers can be placed. This is crucial to avoid on the one hand a reduction of public space and guarantee on the other hand a success of the lockers due to visibility and a shared use of resources.

For the trial it was noted that there is little social control. Furthermore, it is evident that the participants agree on that parcel lockers need to be visible and located at a place within a trip chain for a benefit, which is the case for the lockers at the P&R Hoogkerk.

The second fora will therefor deal with the topic of locker policy options in Groningen. For that reason, the collective target system and respective questionnaire will be done as a preparation for the second round of the participation process.

6.2.2 GRO Trial 2 Forum 2:

Local forum 1 Groningen Trial 2 Logistics Services to multi-modal mobility hubs	
Date	11.04.2023
Relevant stakeholders	PT Agencies, City of Groningen various departments, De Buren, RUG
Aim of the Meeting	Discuss various business models for parcel lockers on mobility hubs. Discuss next steps

Approach or methods used	Presentation and discussion
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6.2.2.1 Aim of the local forum

After half a year has passed by since the first local fora in this trial, the city wanted to elaborate possible approaches to make a choice between business cases or implementation variants.

The variables are:

- Operator model: white label vs. single label (with mandatory open network)
- Whether or not there is a link with a broader logistics concept (so the safes are supplied via a hub). And if the parties may be able to work together on such an inclusion.

6.2.2.2 Discussion

- What does the revenue model of the four scenarios look like?
- Appearance of the parcel lockers (house style can be deviated from)
- To what extent are the safes easy to remove/move?
- Can we work with (price) incentives to stimulate the use of the parcel lockers?
- Is the parcel locker open for returns to online shops?
- Are the parcel lockers available for shipments (from private individuals/small online shops)?
- What is a realistic pilot period?
- Which data can be shared (with municipality, RUG)?

6.2.2.3 Conclusion

As a result of the meeting, it was decided that the City of Groningen will have 1 on 1 meetings with different potential providers for the parcel lockers to get more knowledge about potential add on services, framework conditions, project lifetime and costs.

7. Stakeholder Engagement Processes – MEC

7.1 MEC Trial 1: Inner City Trial for last mile delivery with cargo bikes

Solution	2. Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities Effective integration of passenger and urban freight mobility services and networks
Scheme	City-wide platform for integrated management of UFT Location and infrastructure capacity sharing
Partners involved	MEC, ECO, UPS, BPT

The City of Mechelen has the vision to have a Zero Emission Zone installed in the city centre by 2030. The trials performed in the ULaaDS project aim for solutions of business to business (B2B) deliveries. Bpost, Ecokeoeriers and UPS wanted to trial innovative logistic solutions regarding a city-wide platform for integrated management of urban logistics. The plans therefore were: The three partners should participate in the first trial which aims for the bundling of resources for a zero-emission delivery ecosystem within the cities. Ecokeoeriers and UPS should do the last- and first-mile delivery by cargo bike to a micro hub within the city. They should optimize their routing by dividing the orders by size and place. Bpost should deliver the freight from the micro hubs to the city hub and lastly, from there, the further delivery should be done by Bpost or UPS, depending on the client's agreement. Each of the mentioned partners would have focused on different aspects within the trial. On the one hand, Ecokeoeriers could additionally focus on a solution for reverse logistics. The objective of the stakeholder involvement process was to define settings for these operations and get insight about customers' needs and possible obstacles that need to be circumvented. Bpost on the other hand wanted to trial a bundling of deliveries of various logistic service providers, which would deliver the freight to the city hub at the city boarder and Bpost would have done the end delivery. The aim of the involvement process was also to discuss conditions under which service providers would have been accepting to use this bundling of freight streams. This trial did not only require stakeholder involvement but also collaboration in order to define the solution in such a manner, that as many logistic service providers will join as possible. UPS was planned to focus on implementing zero-emissive vehicles such as cargo-bikes for the inner-city deliveries and pickups.

7.1.1 MEC Trial 1 Local forum 1:

Local forum 1 Groningen Trial 2 Logistics Services to multi-modal mobility hubs	
Date	26.10.2021
Relevant stakeholders	City of Mechelen, Logistics Service providers, Logistics network organisations
Aim of the Meeting	Discuss the cooperation possibilities with the planned city hub
Approach or methods used	Presentation and discussion

7.1.1.1 Aim of the local forum

ULaADS partner Bpost is appointed by the city via a tender as official city hub. What is needed for logistics operators to start working via this city hub? In concrete: to deliver their goods in the city hub instead of at the end clients address? In this way a reduction in vehicle movements and driven kilometres can be realised

7.1.1.2 Discussion

The following aspects were discussed:

- A bigger company may be interested in working together for express deliveries at pick-up points.
- How about other deliveries than parcels, will they be possible?
- How about security and data sharing? Data sharing was seen as biggest challenge.
- Discussion of brand visibility: will there only be Bpost vehicles in the city? Or is a combination of brands possible?
- It was agreed that it must be a win-win situation for all parties, not only financially, but also in terms of delivery efficiency.
- How to create a level playing field?
- Can the number of vehicle movements really be reduced?

Existing efficiency of deliveries: is there anything to gain?

7.1.1.3 Conclusion

The first local forum in MEC Trial1 served as a first kick off for the discussion on how to cooperate with a local city hub concept. There were questions left open, but some bigger companies will further investigate the cooperation potential.

7.1.2 MEC Trial 1 Local forum 2:

02/05/2022. ULaaDS local forum

Local forum 1 Groningen Trial 2 Logistics Services to multi-modal mobility hubs	
Date	02.05.2022
Relevant stakeholders	Board of Mechelen Meemaken, which represents the shop owner and restaurant owner in the inner city
Aim of the Meeting	Presentation of the joint trial proposing a consolidated pick-up of parcels (online sales) with a cargobike.
Approach or methods used	Presentation and discussion

7.1.2.1 Aim of the local forum

Presentation of the joint trial of the ULaaDs partners, proposing a consolidated pick-up of parcels (e.g. for online sales) with a cargobike.

7.1.2.2 Discussion

Within the meeting, the following aspects were discussed:

- Does the cargo bike have enough capacities for the expected deliveries and does it really pay off compared to a truck delivery?
- Timeframes of pick-ups and deliveries?
- How to retrieve enough data?
- Learnings from the Surflogh Project, were the last mile delivery by cargo bike was tested by three shops, with two of them stopping the service after the project's end.
- Need for changes in the regulatory framework concerning level playing field.

7.1.2.3 Conclusion

The shop and restaurant owners were rather sceptical. They mainly saw negative issues or challenges instead of opportunities. For the restaurant owners the proposal of the trial project was also not relevant, as they have no pick-ups of online sold parcels.

7.2 MEC Trial 2: Cargo hitching with an autonomous vehicle

Solution	Transport vehicle capacity sharing
Scheme	Effective integration of passenger and urban freight mobility services and networks (Cargo hitching)
Partners involved	MEC, VIL

The second trial in Mechelen implemented the use of an autonomous vehicle for parcel delivery. Starting with a theoretical approach, five scenarios were described and provided to a panel of experts and stakeholders. Their input and feedback on the proposed scenarios were used to choose one scenario for effective trialling. The scenario chosen was a cargo-hitching scenario, where a parcel locker will be integrated in an autonomous vehicle for passenger transport. Bpost will be the partner filling and picking up the parcels in the vehicle. The vehicle will bring and pick up people and parcels on an industrial park, which is a public open road.

7.2.1 MEC Trial 2 Local forum 1

Local forum 1 Mechelen Trial 2 CargoHitching with an autonomous vehicle	
Date	07.07.2022
Relevant stakeholders	employees of Mechelen Noord, city administratives, VIL
Aim of the Meeting	Investigate the use of autonomous vehicle with a parcel locker in a business park
Approach or methods used	Testride, Presentation, Discussion, group-work, survey

7.2.1.1 Aim of the local forum

The city of Mechelen wants to investigate the use of autonomous shuttles and their potential. The local fora for trial 2 in Mechelen were part of a broader participation process in Mechelen with four goals including capturing mobility needs of citizens, creating awareness about autonomous vehicles, reflecting on future mobility and create support among stakeholders. This bigger participation process included 4 workshops, 6 street setups and 4 surveys conducted by Studio Dott. Within the first participation process of ULaaDs. Within the forum the potential and applicability of combined parcel and transport using an autonomous vehicle within an industrial site shall be investigated.

7.2.1.2 Discussion

The forum was combined with a test-ride of the autonomous shuttle. Then the questions about how autonomic transport can be applied in the business context in such a way that it becomes sustainable, who will use the shuttle and what can be the advantages of using it in the settings of parcel deliveries and what the expected results of the experiments were discussed.

Those questions were openly discussed, further individual and group questions were asked via a questionnaire. Furthermore, a group work for 3 scenarios was done regarding the use of the shuttle as a hop-on-hop-off service, as a form of taxi service or the use for CEP services was conducted.

7.2.1.3 Conclusion

The employees of Mechelen North saw particularly the potential in a direct shuttle service to transport employees between station and business park without any intermediate stops (employees themselves were not yet convinced whether they would leave their company car for this for this).

The time and speed was considered as an issue with the focus on efficiency and time saving. Nonetheless a strong belief in self-driving transport as a possibility to include in the own supply chain and logistics show potential for future application was noticeable.

7.2.1 MEC Trial 2 Local forum 2

Local forum 2 Mechelen Trial 2 CargoHitching with an autonomous vehicle	
Date	19.09.2022
Relevant stakeholders	employees of Mechelen Noord, city administratives, VIL
Aim of the Meeting	Wrap up results , get a final feedback and give an outlook about the future of autonomous vehiclesWra
Approach or methods used	Presentation and discussion

7.2.1.1 Aim of the local forum

The second forum was held after ending the trailing time and the aim was to wrap up all results and get some feedback.

7.2.1.2 Discussion

- Results about the use and technical data
- Results of the expert panel, the workshop with citizens, the city of Mechelen and employees of Mechelen North

- Positive and negative impacts of the vehicle use in terms of social, economic and environmental aspects
- Elaborated scenarios of use: hop-on hop-off, taxi system and for CEP services
- Results of all questionnaires
- Necessary adaptations
- And an outlook for autonomous vehicles in the future

7.2.1.3 Conclusion

To fully realise the potential of the shuttle and self-driving transport in itself many adjustments are still considered necessary. These suggestions are a response to user needs and as adaptations to the shuttle as tested in this test phase tested. Nonetheless the testings in Mechelen started a broader discussion about the use of autonomous vehicles and responding legal frameworks.

8. The Collective Target System - results

As already described in chapter 2.2, the collective target system (CTS) is a tool to evaluate common and conflicting goals and use it as a tool of decision making so that acceptance within the stakeholders' increases. This tool occurred in literature for the first time by Russo et. al (2021) and came into use in the Austrian national research project *MiHu*. In a nutshell, this method is asking different stakeholder groups questions in three categories. The questions have been set through literature study and discussions with the lighthouse cities and were answered using a 5 point-Likert scale. The results were compared per stakeholder group. Finally, the use of a Kruskal Wallis test allows to find diverging goals, showing objectives that may need further discussion between the stakeholders. The significance threshold was set to 5% so to a p-value of 0,05. For the questionnaires were only two different stakeholder groups replied a Mann-Witney- U test was applied for comparing the results. Here the significance level is at 5 so everything below can be considered as significantly differing. The method was applied in three trials, BRE Trial 1, GRO Trial 1 and GRO Trial 2, providing useful input for the implementations. In the other trials, the CTS was not applied due to various reasons: In BRE Trial 2 and 3 it was not viable to implement it due to the limited amount stakeholders in certain stakeholder groups, making it useless to actually implement the CTS due a lack of comparability. In MEC Trial 1 was not elaborated far enough to use the CTS, and Trial 2 was too short lived to bring this methodology in.

Table 6: Example of results gained by the collective target system from the results for trial 1 in Groningen; S1-S3: different target groups, values in percent.

	totally agree			agree			neutral			disagree			totally disagree		
	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
Fine dust and a reduction of local emissions (e.g. NOx) is not an issue in Groningen.						10			20	66,6	66,6	60	33,3	33,3	10
My organisation agrees upon the vision of the city to have a zero emission zone by 2025.	33,3	100	20	66,3		30			10			30			10
Traffic noise by delivery services is not an issue in Groningen.			20			10	33,3		30	66,6	100	20			20
It is important to reduce global emissions (e.g. CO2).	66,6	100	80	33,3		10						10			
It is important to reduce movements (driven km) of heavy vehicles like trucks and vans.	33,3	33,3	30	66,6	66,6	30			10			30			
There is need for information and awareness raising campaigns about sustainable urban logistics.	33,3	33,3	30	66,6	66,6	50			10						10
Cargo bikes and zero emission vehicles contribute to the increase of traffic safety				33,3	100		33,3		40	33,3		40			20
Logistic services with trucks do not cause a noticeable decrease of the available public space		33,3	10			10	33,3	33,3	20	66,6	33,3	50			10
My organisation/company is striving for to involve in activities fostering sustainability.	33,3	66,6	50	66,6	33,3	40						10			
The new service should be available 24/7.	33,3		10		66,6	20	33,3	33,3	30	33,3		40			
The new service shall bring additional possibilities to my business/operations.			10	100	66,6	30		33,3	20			40			
For a sustainable solution, it would be ok if the service may increase the time and effort needed.			10	66,6	66,6	60		33,3	10	33,3		10			10
An immediate delivery is important to me/my organisation.			50	66,6	66,6	20		33,3	20	33,3		10			

8.1 Collective Target System Results BRE Trial 1

For Trial 1 in Bremen, 13 people filled out the survey. In total 11 surveys were possible to include in the evaluation. The stakeholder groups were logistic service providers and public authority/city administrates. In total 17 questions were asked which were included in the assessment. The results are clustered in social, economic and environmental aspects.

Diverging results were only seen in one question, in the answers of logistic service providers and public authority regarding the economic aspect of whether the use of public space is a prerequisite for the profitability of the use of micro hub solutions in the city of Bremen. This inconsistency in opinions opens the question if the city of Bremen would be willing to offer public space for micro hub solution or if logistic service provider need to adapt the solution in order to make it profitable.

Social Aspects

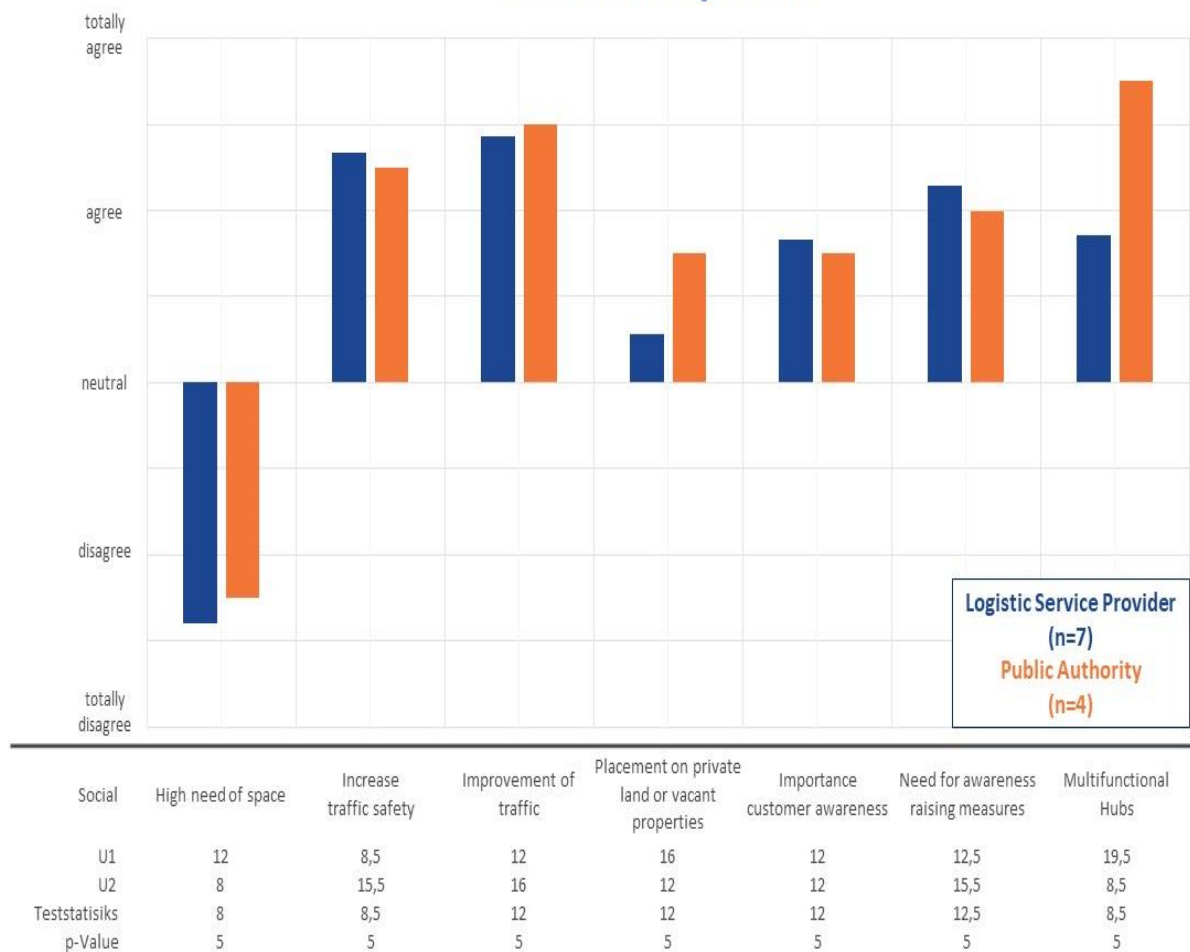


Figure 4: Results on social aspect questions in Bremen.

Both public authority and logistic service providers agree on the little space required for such a solution (see first question in the section social aspects). The mean of the opinions of logistic service providers suggests a rather neutral opinion on whether parcel lockers should be placed on private land or vacant properties. Regarding the statement about the need of public space for the profitability it would be needed to investigate under which circumstances vacant properties and private land are a feasible solution. Regarding traffic, both logistic service providers and public authority agree on the improvement of the traffic situation as well as traffic safety when applying the logistics solution. Also, both stakeholder groups think that there is a need for awareness raising campaigns and awareness raising in customers.

Economic Aspects

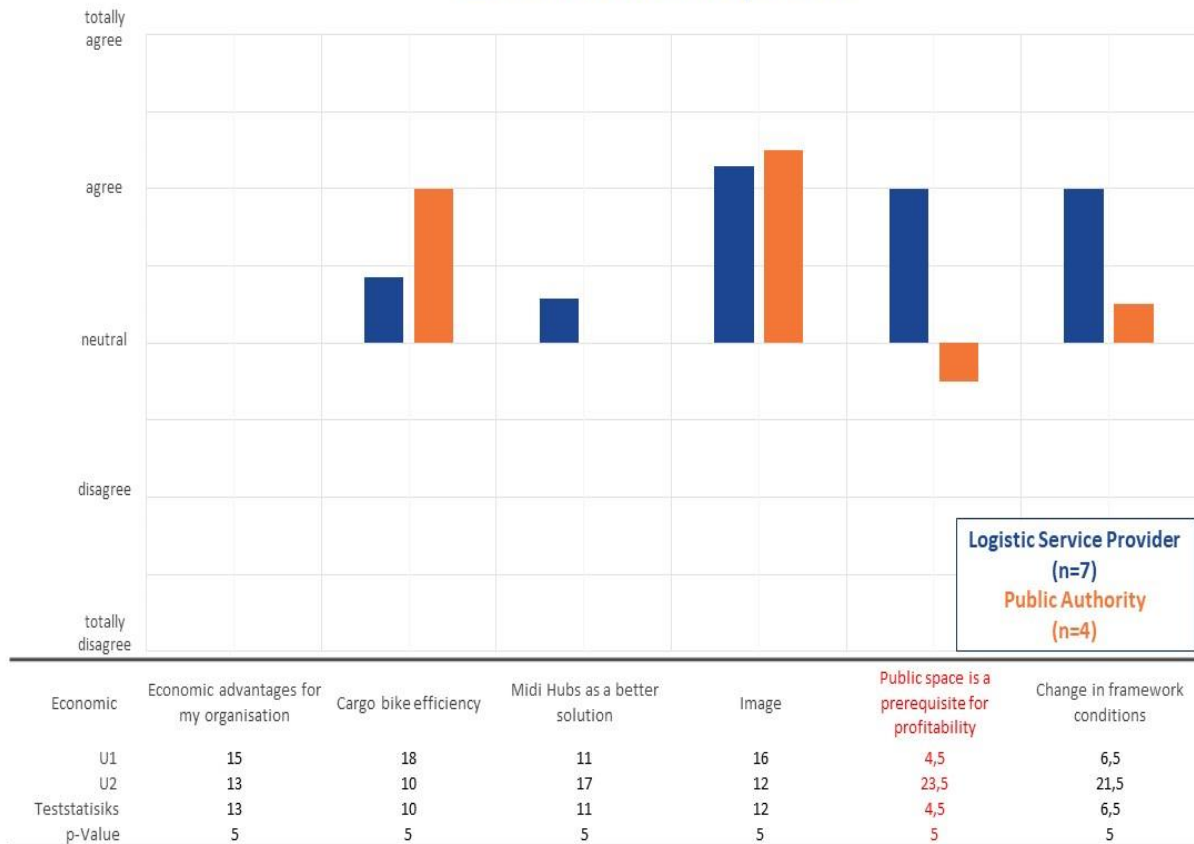


Figure 5: Results on economic aspect questions in Bremen.

Regarding the economic aspects, the only significant difference in opinions is regarding the need of public space for the profitability. In all other points there is no significant difference even though opinions diverge. Especially regarding the points of whether midi-hubs might be a better solution both stakeholder groups means are close to neutral. To investigate the feasibility further research or stakeholder interaction might be recommended.

Environmental Aspects

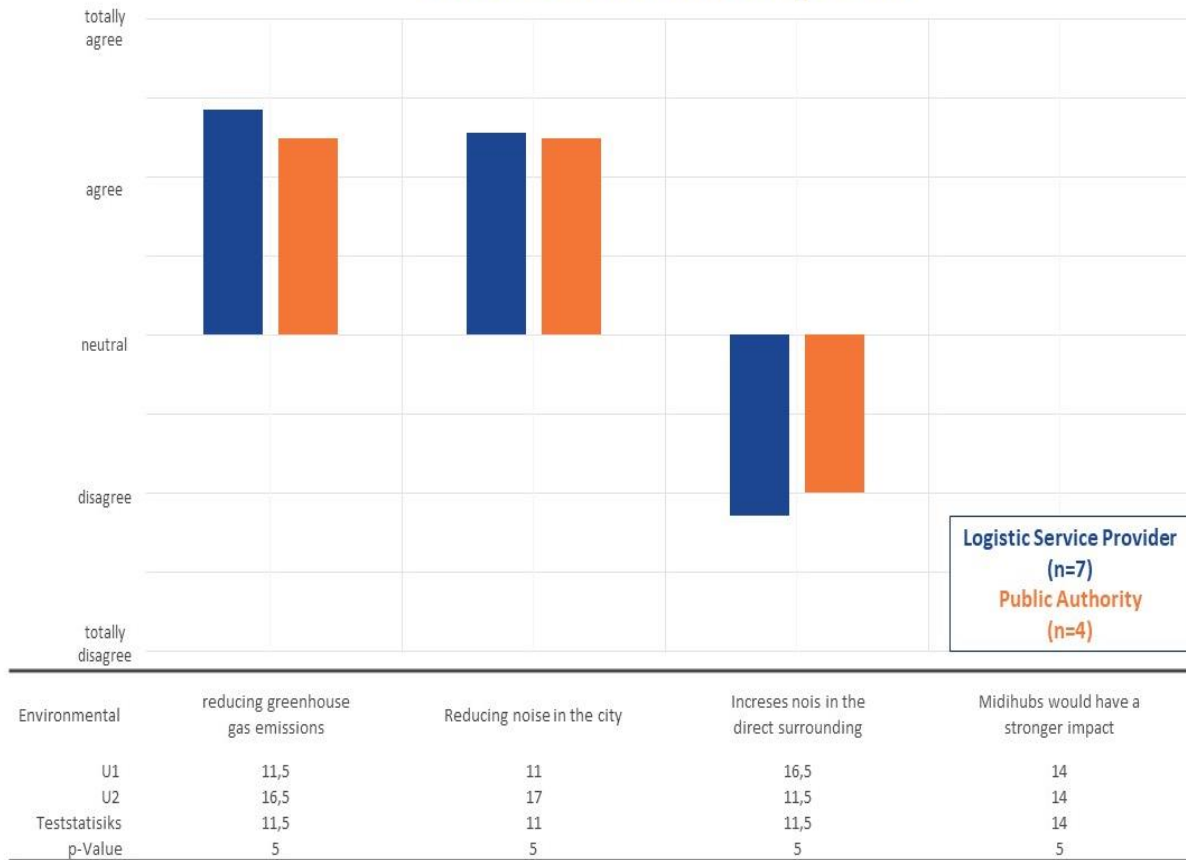


Figure 6: Results on environmental aspect questions in Bremen.

Regarding environmental aspects both stakeholder groups agree on the importance of micro hubs to reduce greenhouse gas emissions that are caused by urban logistics and the role of micro hubs in decreasing noise on a city level even though the noise increases in the direct surrounding of the hub. Therefore this aspect should be included in the choice of (future) locations next to economic considerations.

8.2 Collective Target System Results GRO Trial 1

For trial 1 in Groningen, 16 people filled out the survey and all their answers were complete. The stakeholder groups were shop owners, city administratives and others like research or vehicle providers.

Due to the format of the participation process in Groningen most answers were given by shop owners with 10 participants. The other groups each gained three answers.

The means (see figure 4-6.) suggest that there are differences in opinions regarding the different statements. Nonetheless a Kruskal Wallis test was applied to evaluate the significance of the difference in opinion. In only one statement there is a significant difference in the perception of the stakeholder groups regarding the increase of traffic safety due to the use of cargo bikes for logistics. This question would require more in depth attention regarding the reasons why the impact of cargo bikes on traffic safety is perceived differently and whether soft (e.g. information, training, awareness raising) or hard (e.g. infrastructure) measures are required in order to promote the use of cargo bikes as logistic option to shop owners. Interestingly the availability of public space due to deliveries by truck doesn't show a significant difference in opinions. The means within the stakeholder groups are located around neutral with the groups "other" and "logistic service providers" rather rejecting the statement and "public authority" rather agreeing on the statement. Rather high agreement of all stakeholders was attributed to the need of awareness raising campaigns and the ambition to get involved in activities to foster sustainability, which opens up a window of opportunity and is a good basis for common efforts.

Social Aspects

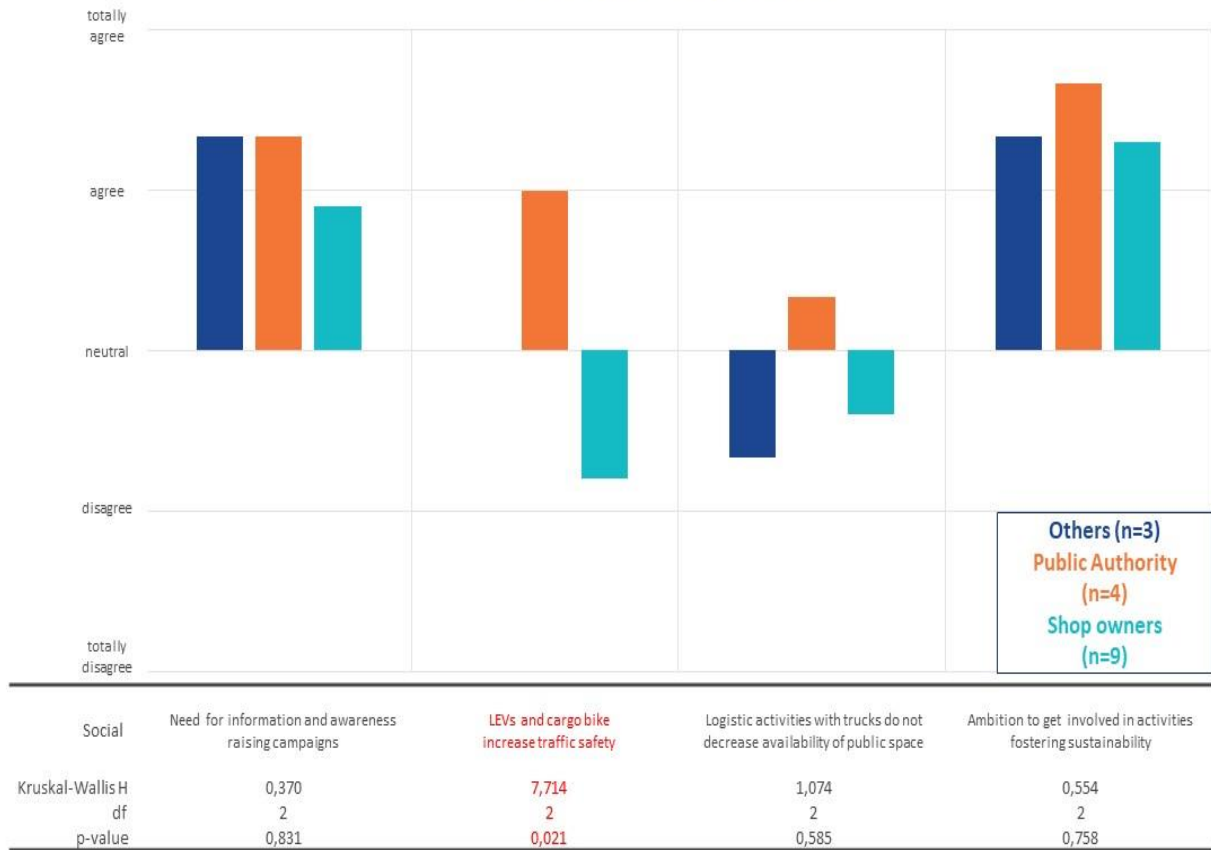


Figure 7: Results on social aspect questions in Groningen.

There are no significant differences in opinions between the stakeholder groups regarding economic aspects.

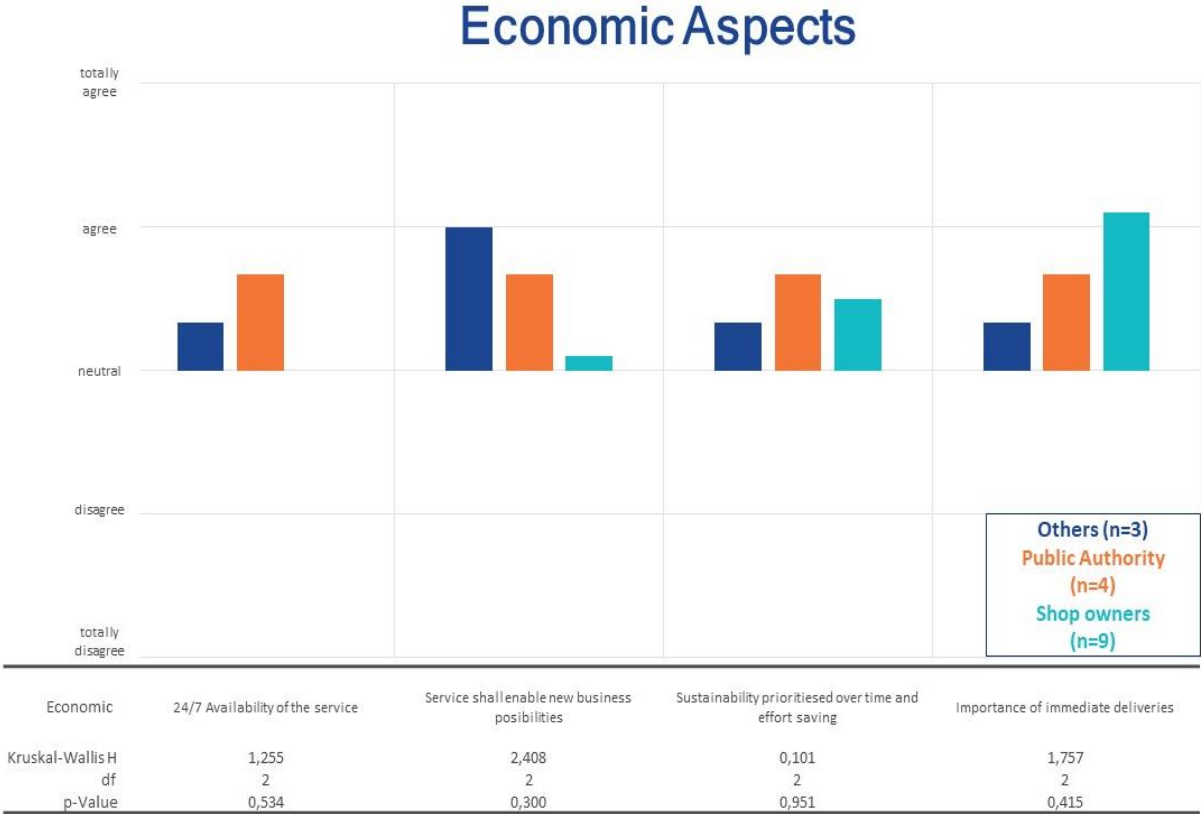


Figure 8: Results on economic aspects in Groningen.

Also regarding the environmental aspects no significant differences between the opinions of the stakeholder groups were found. Strong agreement is prevalent regarding the importance of reducing global emissions.

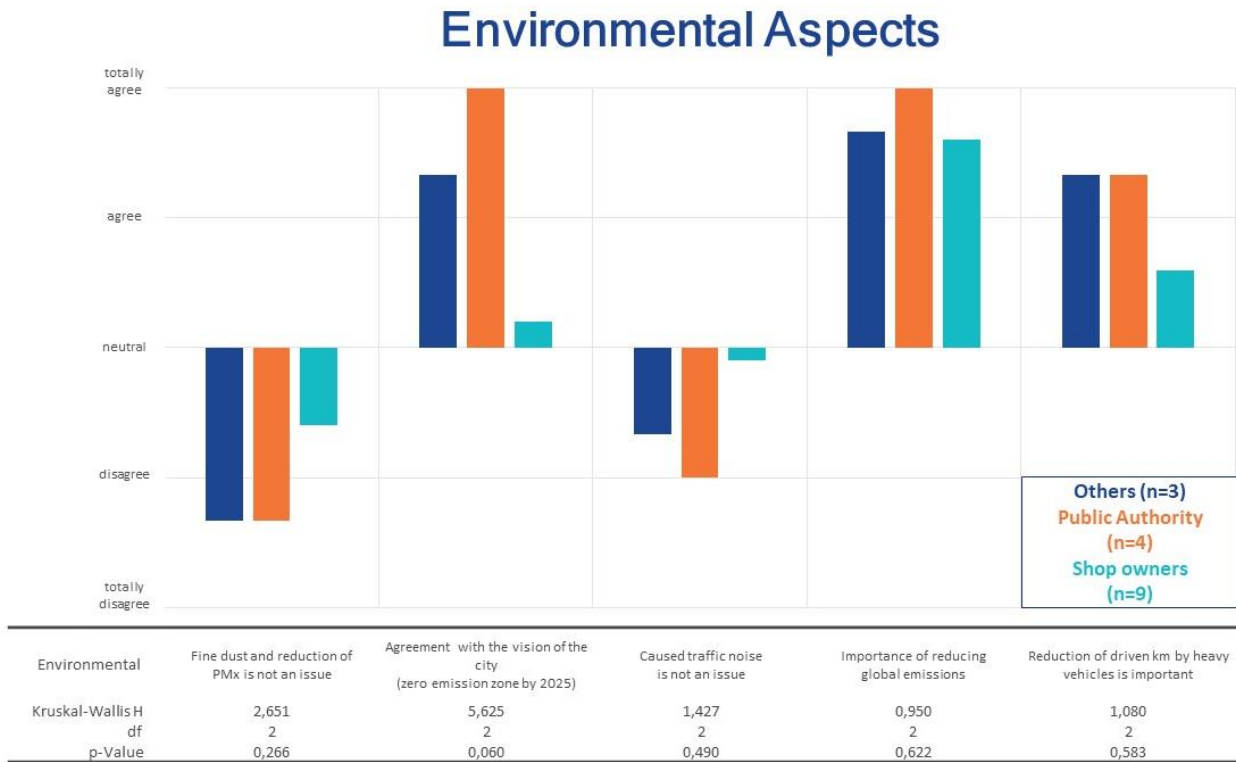


Figure 9: Results on environmental aspects in Groningen.

8.3 Collective Target System Results GRO Trial 2

For trial 2 in Groningen, 20 people filled out the survey. In total 20 surveys were complete. The stakeholder groups were logistic service providers, city administrative and others like research or other businesses.

Most answers were given by city administrative with 12 participants. The other groups each gained four answers. The questionnaire was not divided in environmental, social and economic aspects but rather in general questions, questions regarding the business model and locations of parcel lockers. This change was applied because of the shift in the trial to investigate the potential, need for and possible costs of implementing a parcel locker system in Groningen.

Within the location related questions, the only significant difference between the stakeholder groups *public authority* and *logistic service providers* compared to the one of the group others is regarding whether they should be located within public transport. Interestingly logistic service providers are in general in favour of such a solution.

All stakeholder groups agree that parcel locker should not only be situated on private property but agree on the general location at private property without public access like buildings. Installing parcel lockers as a solution in the city centre is generally agreed more upon as on the optimization on deliveries in the outskirts of the city. Even though it is also agreed upon that parcel lockers shall be

close to living areas. High agreement is also regarding the importance of the visibility of the parcel lockers and the need of a navigation tool to find the parcel lockers quickly.

Location

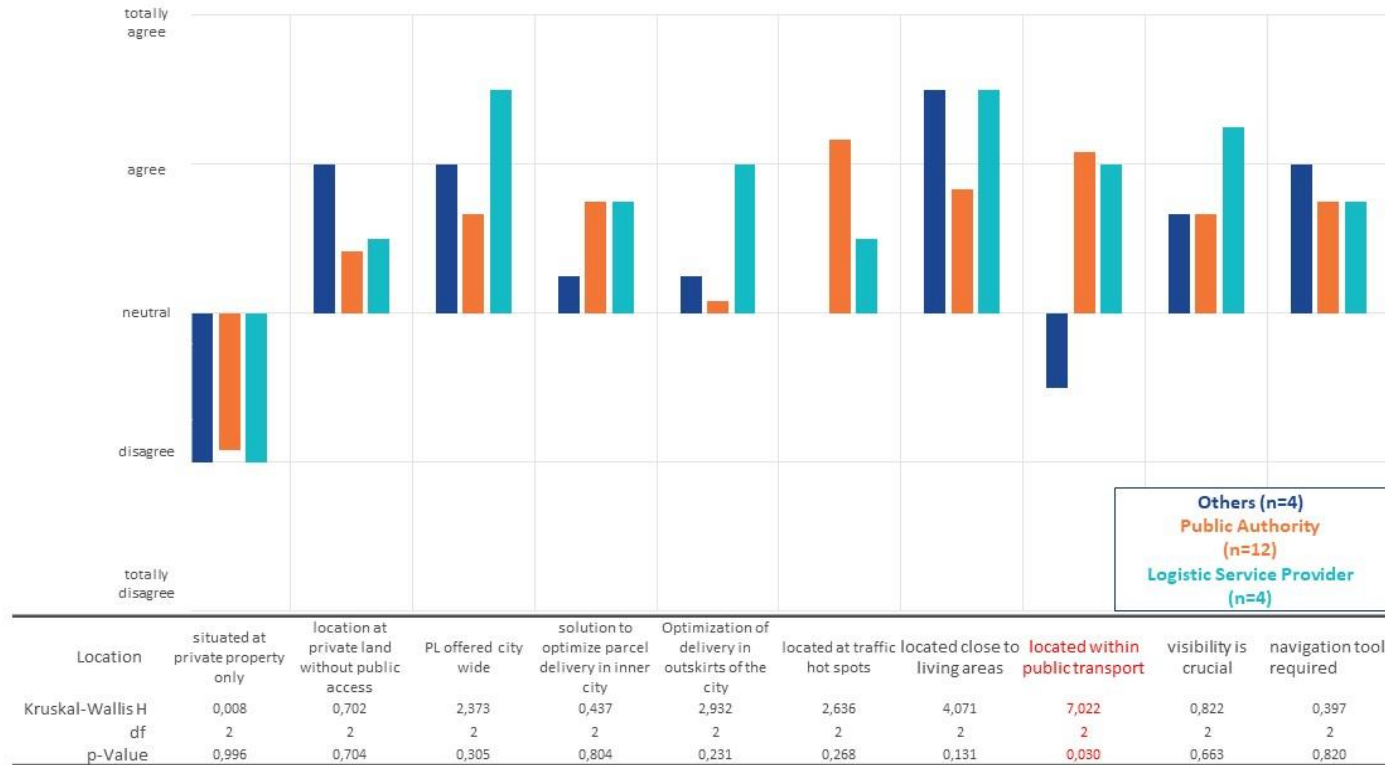


Figure 10: Answers on location questions.

Regarding the business model there is a significant difference between the groups *others* and *public authority* about whether parcel lockers should be available for private usage as well. Interestingly this topic is more agreed upon by the groups *others* and logistic service provider than by *public authority*. The access of parcel lockers to all LSPs, shop owners, other businesses and service providers is agreed upon. Regarding the operator model it is interesting that logistic service providers are slightly rejecting a single operator model. In the case of a more concrete application it would make sense to elaborate the conditions and causes in more depth.

Business Model

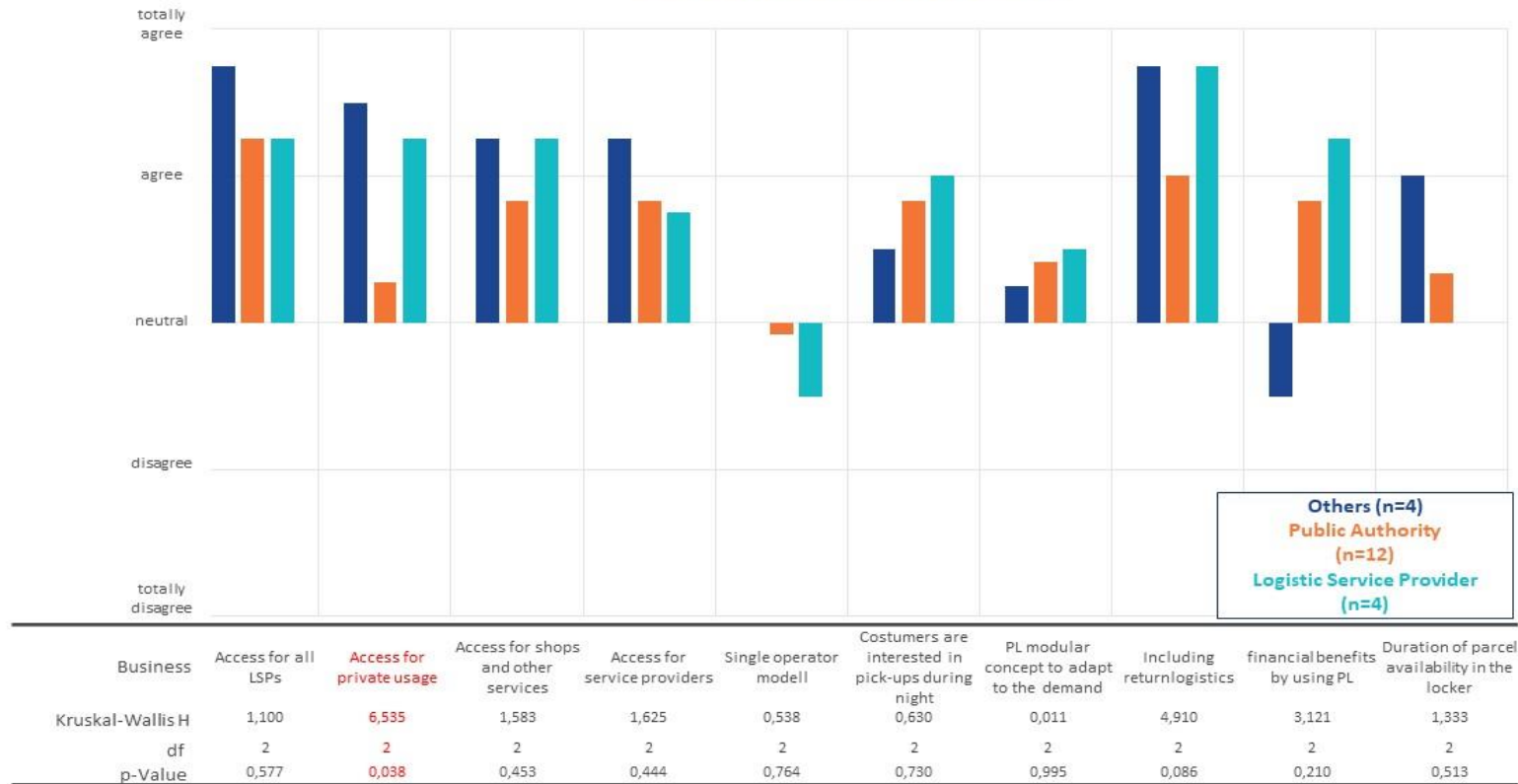


Figure 11: Answers on business model questions.

Even though the means seem to be quite similar concerning official design regulations for parcel lockers, there is a significant difference in opinion between the groups *public authority* and *others* to the group of *logistic service providers*. If implemented this would need to be further discussed. Interesting is that there is quite a high agreement between the stakeholder groups regarding a guideline for visual appealing integration of parcel lockers with a p-value of 0,949.

General Questions

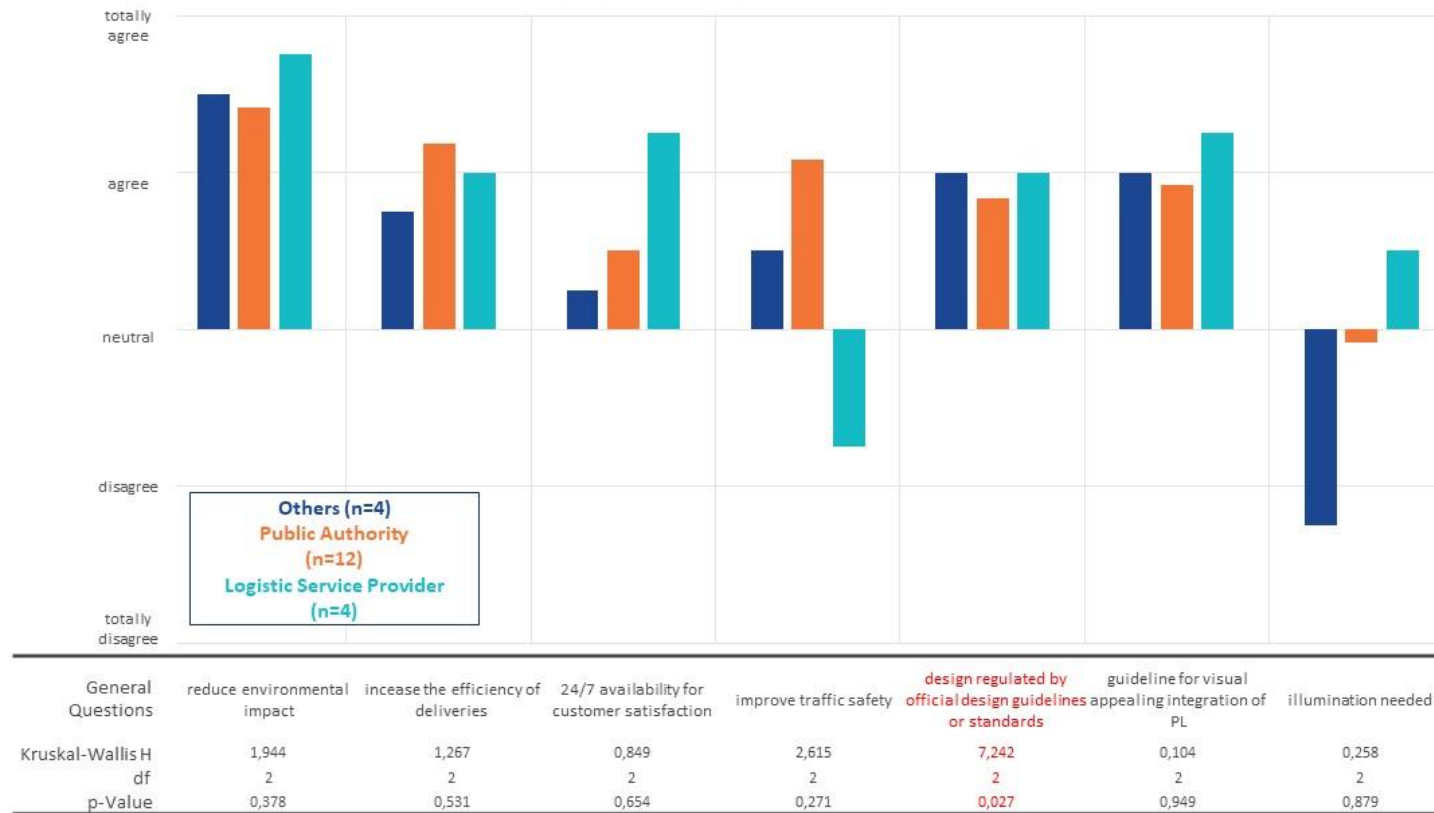


Figure 12: Answers on general questions.

5. Discussions

5.1 Discussion of the Local fora

Within ULaADS, stakeholder involvement was a key element of the whole project. The local fora were the backbone of this approach, supported by clearly elaborated materials and schedules on how to plan the fora.

The quality of the existing stakeholder engagement processes in each lighthouse city was assessed via the stakeholder mapping approach, and it showed that the cities with more pre-experience in networking activities had it easier to implement the stakeholder fora, but challenges for a city without established contacts are nonetheless doable and will contribute to an easier cooperation with logistics service providers and other stakeholders in future projects and implementations.

Depending on the framework conditions and the trials planned, the actual approaches to the realisation of the local fora varied. In some cases, like GRO Trial1, it was necessary to invest into even more stakeholder interaction than initially planned. In other cases, like BRE Trial 1, it was necessary to plan well ahead, as the stakeholders had limited capacities compared to the requests asking for their contributions. Aspect of data sharing and cooperation still are one of the main challenges for the logistics service providers, and any interventions tackling these challenges shall clearly plan ahead in terms of elaborating benefits, arguments and clear business models.

One of the main objectives of the local fora was to learn about the needs and requirements of the logistics stakeholders, to be able to optimise the trials planned in the project to their needs, leading to a higher acceptance of the solutions elaborated. The results of the local fora in terms of needs and requirements are presented in deliverable **D2.6: Local ecosystem stakeholders`needs and requirements & prioritisation of use cases – final version.**

5.2 Discussion of the Collective Target System Method

The collective target system (CTS) proved to be an interesting tool to further investigate the tendencies and opinions among different stakeholder groups. Within the ULaADS project it showed that this methodology is not suitable for every occasion. It is necessary to have enough people per stakeholder group participating in the survey for the CTS. Special care must be taken when elaborating the questions to guarantee non-biased response options.

In three cases, namely the Trials BRE1, GRO 1and GRO 2, the CTS brought a clear value to the project implementation. The application in GRO Trial 2 showed that it is possible to deviate from the original approach, when needed. In this case, the topics social, economic and environmental were replaced by general questions, questions regarding the business model and locations of parcel lockers.

The implementation of a CTS is shall not be underestimated concerning time efforts but can definitely add to the performance of a project.

6. Conclusion

The document presents the approaches and fora held by the lighthouse cities in order to engage stakeholders. A flexible approach was needed in order to adapt methods to the resources and framework condition of each trial. Resources include on the one hand financial and time resources not only of the lighthouse cities implementing the local fora, but also from the stakeholder side. Another important aspect which became obvious was that the success of a method or an approach also depends on the example of use including the framework for participation and previously collected experiences.

Cities with already applied participation processes do have an advantage concerning trust of stakeholders based on previous experiences. Coherently, in the City of Groningen was able – together with partner Groningen city Club – to apply a more cooperative approach, elaborating the specific aspects of the trials in close interaction with the stakeholders, the local shop owners. In comparison. Bremen could focus on previous experience due to the project Urban- BRE but the stakeholder network was more in the process of get built up, limiting a bit the possibilities for cooperative approach to the solution applied, but clearly strengthening the cities standing for the next implementations and trials on sustainable urban last mile logistics.

All local fora held valuable qualitative information for the trial implementation and adaptation including the needs and requirements of stakeholders and support an continuous process of stakeholder engagement fostering sustainable urban logistics.

Acronyms

Acronym	Meaning
AI	Artificial Intelligence
AV	Autonomous Vehicles
D	Deliverable
EC	European Commission
GA	Grant Agreement
ICT	Information and Communication Technology
LF	Load Factor
LSP	Logistics Service Provider
O	Objective
ODD	On-demand Delivery
P	Product
PA	Public authority
PPP	Public Private Partnership
PM	Person Month
SUMP	Sustainable Urban Mobility Plan
SULP	Sustainable Urban Logistics Plan
T	Task
UC	Use Case
UCC	Urban Consolidation centre
UFT	Urban Freight Transport
ULaDS	Urban Logistics as an on-Demand Service
WBS	Work Breakdown Structure
WP	Work Package
VUR	Vehicle Utilisation Rate
ZEV	Zero Emission Vehicle

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