CITIES 4PEOPLE

PEOPLE ORIENTED TRANSPORT & MOBILITY

D3.8 Developed Interventions and Prototypes for Real Life Piloting

[November, 2019]

2020 CiViTAS Cleaner and better transport in cities

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723194

Project ID

Project Acronym:	C4P
Programme:	HORIZON2020
Topic:	MG-4.5-2016 "New ways of supporting development and implementation of neighbourhood-level and urban-district-level transport innovations"
Type of Action:	Research and Innovation Action
Start date:	1 June 2017
Duration:	36 months
Website:	www.cities4people.eu
Coordinator:	Copenhagen Business School (CBS, Denmark)
Consortium:	Oxfordshire County Council – United Kingdom
	UCL Institute of Health Equity – United Kingdom
	Municipality of the city of Budapest – Hungary
	Institute for Transport Sciences Non-profit LTD (KTI) – Hungary
	City of Hamburg and District Office of Hamburg Altona – Germany
	Hafencity University Hamburg – Germany
	e-Trikala SA – Greece
	Q-PLAN INTERNATIONAL PC – Greece
	Üsküdar Municipality – Turkey
	Istanbul University – Turkey
	White Research SPRL – Belgium
	Stichting Waag Society – The Netherlands
Project overview:	Cities-4-People unfolds in five European areas: the Oxfordshire County, Hamburg District of Altona, Üsküdar in Istanbul, Budapest and Trikala. In these areas Mobility Communities are set up involving citizens, city authorities, mobility providers and innovation experts. By developing and providing a framework of support services and tools, Cities-4-People empowers these communities to actively contribute to shaping their local mobility innovation ecosystems in line with a People-Oriented Transport and Mobility (POTM) approach. POTM encompasses a blend of new digital and social technologies under an inclusive and multidisciplinary approach in order to bring out solutions that have a low ecological footprint, a sharing mentality and the potential to solve real urban and peri-urban mobility issues.

Main authors

√ [Mr. Max Kortlander, Ms. Meia Wippoo, Ms. Petra Biro, Ms. Marta Espuny Contreras] (Waag)

√ [Ms. Giulia Zendron] (reviewer, [White Research]); [Ms. Julie Jo Nygaard, Ms. Isabel Froes] (reviewers, [CBS])

Table of Contents

List of tables and figures

Abbreviations

C4P	Cities-4-People
POTM	People-Oriented Transport and Mobility
QHS	Quadruple Helix Stakeholder
YP	YourPriorities (online voting tool)
HCU	Haven City University (Hamburg)
FHH	Free and Hanseatic City of Hamburg

Executive summary

This document serves as a 'Demonstrator' of the prototyping activities undertaken in Cities-4-People pilot cities during phase 2 of the project. During this prototyping stage, pilot partners developed their strategies to **improve** and **expand** the selected pilot interventions from phase 1 of the project. Additionally, the prototyping process also served as an opportunity for pilot partners to re-engage and re-energize stakeholders and community members with hands-on, collaborative work sessions.

The Budapest pilot's prototyping session revolved around plans to scale up the deployment of mobility info points in various locations around the city. This prototyping event focused on which aspects would be most useful to scale up, and how that scale-up would be practically executed. The event also identified further locations where info points could be made available.

In Hamburg, prototyping co-created particular aspects of bicycle racks, which in the forthcoming piloting stage may be made available for cargo bikes and may include nearby repair stations. These ideas, along with concepts for the design of the racks themselves, were developed during a live prototyping event.

Oxford's prototyping event worked with the pilot's plan to scale up their Supermarket Transit pilot from phase 1. The event helped to clarify specific questions regarding this scale up, and led to ideas such as incorporating other communities into a single ride and how people from different areas and with different destinations may be able to make use of the same busses and routes.

Pilot coordinators in Trikala led a prototyping session to develop their plan to scale up the deployment of motorized wheelchairs in Trikala's central square. Prototyping activities allowed community members to contribute new concepts for the forthcoming piloting stage, including offering more wheelchairs than before and assigning different roles or options (for distance, length of rental) to different wheelchairs.

Prototyping in Üsküdar was focused on expanding and improving the 'I Own My Garden' pilot. This session identified the demand for and usefulness of electric cars in the park. The session also developed walking routes through the park, which help to connect two public transportation stops on either end of the park. The event also identified content for informational boards regarding walking routes through the park.

0. Introduction

In this second round of prototyping, pilot partners focused on aspects of scale up: specifically, with prototyping they aimed to answer how to improve and expand the selected pilot interventions from phase 1 of the project.

Prototyping in C4P is a practical transition period, which moves pilots from the prioritization and decision-making of the QHS and Hackday workshops into the hands-on groundwork of piloting. Prototyping thus aims to answer practical questions involving how to make the decisions and priorities (from previous project stages) into tangible, workable, and clear steps before piloting begins.

As in the first round of prototyping, this second phase of prototyping also emphasized the role of community involvement. The prototyping activities took place alongside citizens and other stakeholders, who co-created the outcomes of these events. In this way, the co-creative aspects of development were further ensured, while co-creative communities were reactivated and engaged through the prototyping activities.

Each pilot partner developed a prototyping plan through initial conversations with Waag. Partners then executed their prototypes based on these plans, and reported on their prototyping events through both verbal and written reporting methods. The following sections present each pilot's prototyping activities starting with context and pilot selection, then presenting an overview of the prototyping activities, and finally closing with an indication of their next steps.

1. Budapest

1.1 Context and Pilot Selection in Budapest

In their QHS meeting, the Budapest pilot team hosted online and offline voting with various stakeholders. Through this process, they selected the 'Future Mobility Point' for scale up.

More detail on the idea generation and selection process can be found in Deliverables D3.2 'Activities for the generation of mobility concepts' and D3.6 'Report on the mutually endorsed mobility interventions for real life piloting'.

1.2 Prototyping Event in Budapest

Prototyping in Budapest began with a 3 hour event on 7 October, 2019, where a group of 15 key stakeholders showcased the results of the first mobility point and selected the best locations and services for the scale up.

The prototyping event in Budapest took the first pilot round as a starting point. By presenting and analysing the benefits and issues of the previously executed mobility point pilot, this prototyping event focused on which aspects would be most useful to scale up, and how that scale-up would be practically executed.

One question to be answered was where to locate the mobility points. The event started with a brainstorming exercise, collecting the pros and cons of nine previously selected mobility points in the city. Of these, six locations were presented on a printed canvas hanging on the wall to provide a visual image of key buildings in each location. Under each image, pilot coordinators provided the proposed mobility solutions with small icons. In parallel with the physical canvas, pilot coordinators also handed out information about the locations and presented maps on screen. Participants gave their opinions, which were written on the canvas.

The Budapest team took notes throughout the session, and selected 3 major mobility point structural areas within Budapest that the community would like to continue working on:

- a railway setting mobility-point
- a transport-hub like mobility point
- a campus or park setting mobility point

The group then selected two precise locations in the city that fit into each of these structural areas. The campus/park setting will be in the 11th district along the Danube River, close to the embankment where there is development and a large business park. The transport hub location will be in the 14th district at the metro exit of a metro line. The third location will be the Kőbánya alsó Railway Station in the X. district, which is a railway setting.

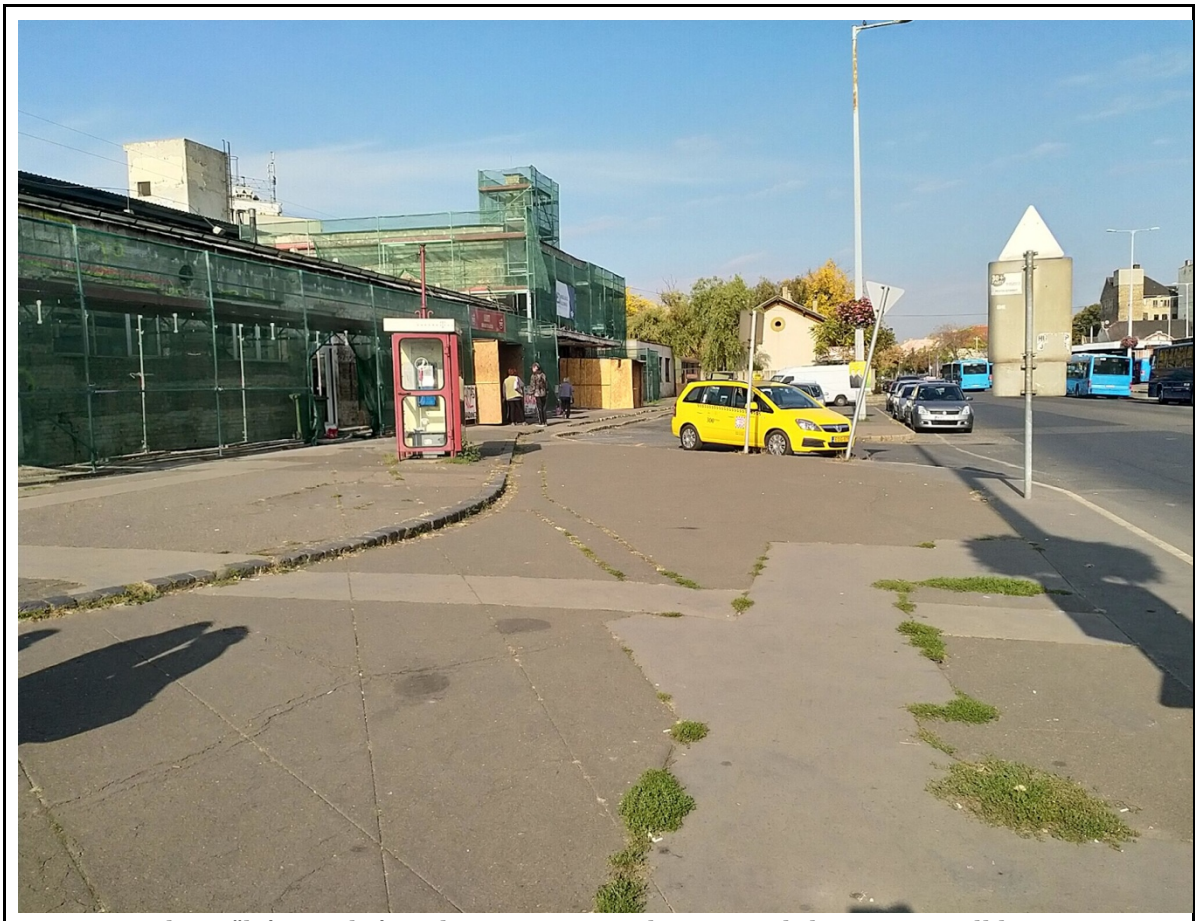

Figure 1: The Kőbánya alsó Railway Station, where a mobility point will be developed.

1.3 Outcomes and Next Steps in Budapest

Since the first prototyping event, the pilot team has been preparing for the Future Mobility Point planned for 2020. The team is also preparing a code of conduct and will sign an updated partnership agreement with mobility service providers.

After the first pilot intervention (round 1), pilot coordinators received letters of interest from stakeholders. Based on this positive feedback, the team will make the final mobility providers list for each of the three different structural locations.

Development of a 'Future Mobility Point' in each of these 3 areas will begin in the forthcoming piloting phase.

2. Hamburg

2.1 Context and Pilot Selection in Hamburg

The ideas used in the Prototyping workshop stem from the Hackday event and were endorsed by QHS respectively two experts from the District of Altona.

These inputs led to the decision to upscale the bike rack intervention. The main question for pilot partners was: How would it be possible to scale up this intervention? Specific considerations included the absence of parking for cargo bikes; the opportunity to incorporate a repair station, and; the possibility to add more bike stands or go into a new neighborhood.

2.2 Prototyping Event in Hamburg

The prototyping event in Hamburg took place over the course of 4,5 hours on 26 August, 2019, in the Goetheplatz walking street in Altona. A total of 68 participants were present (Citizen: 57. Academic: 5. Industry : 3. Local Authority: 3.) The main objective of the Prototyping Workshop was to further define elements of the potential scale-up projects that might be implemented in spring 2020.

Organisation of the Event

The location was selected by HCU and FHH and a permit was obtained by FHH. HCU borrowed two cargo bikes from Mobilstation Mitte Altona that were needed for the workshop.

Written exchange and a video meeting between HCU and WAAG were especially helpful in developing an overall event concept and methods which appealed to a broad range of participants.

The selected date was communicated via the C4P website, social media, newsletter, and on flyers distributed throughout the neighborhood. In addition, HCU invited several stakeholders personally. Approximately one week prior to the event, FHH sent an email invitation to the involved experts and stakeholders from the first project round about one week before the event by FHH.

Location

The event took place in a very busy pedestrian shopping street in the heart of the pilot area. This location was selected to attract as many people as possible and give them the chance to provide input on the scale-up project concepts through co-creative methods. Furthermore, the location would allow for greater visibility of the project and attract further stakeholders and citizens who may not have joined previous events.

Structure of the Event

The Prototyping workshop consisted of a row of tents hosting several stations/stands with different participation methods. Each method was moderated by a C4P team representative, who explained the task to visitors, discussed with them, and encouraged visitors to participate. A couple of student assistants were also present as greeters. They approached newcomers to the stand area and introduced them to the event and C4P goals. They also confirmed willingness to be photographed and managed sign-in sheets to gather consent.

Method stations were:

- A building station where cargo bike parking racks could be prototyped with plastic pipes and other material
    - Specific outreach to cargo bike organizations (companies selling cargo bikes, companies using cargo bikes , and the local cyclists' initiative) was done by HCU to encourage those with cargo bikes of different shapes and sizes to drop in and join the prototyping. HCU also arranged to borrow two types of cargo bikes from the Mobility Station Mitte Altona
    - Therefore, several different types of cargo bikes where present and bike racks that could suit multiple types could be prototyped
    - Several passers-by with their own cargo bikes also joined with great interest.
- A logo design station where logos to denote cargo bike parking could be crafted as stencils and designs could be sprayed and presented.
- A station for the discussion of the three scale-up concepts presented in the online participation tool YourPriorities (YP) and voting on the concepts
    - This followed the YP format, so that participants could provide arguments for or against the different scale-up concepts and also up-vote the comments of others.
    - The results of this station were digitalized and uploaded on YP, to make the discussion available for all.
    - There was also a chance to vote on the scale-up concepts. Three tables were set up with legos, one table per concept. Participants could place a block to denote their preferred concepts, and slowly lego towers were built up by more and more people voting
        - Results:
            - Cargo bike parking: 39 votes
            - Bike repair stations: 45 votes
            - Further regular bike racks: 43 votes
- A station where locations for cargo bike parking and DiY repair stations could be sited on a map of the local area and explanatory comments could be provided.

2.3 Outcomes and Next Steps in Hamburg

The Hamburg team collected 10 potential logo designs and feedback on certain qualities that the logos should have. Three different forms of cargo bike racks were developed, as well as supporting information in the form of notes and drawings were collected, and comments on these were noted by the moderator. Mapped information,

such as 9 suggested sites for cargo bike parking and 6 suggested sites for bike repair sites, along with supporting explanations, were collected.

Finally, comments in support of, against, or further detailing the scale up concepts were collected. The results will feed into the development of at least one scale-up project to be implemented in spring 2020.

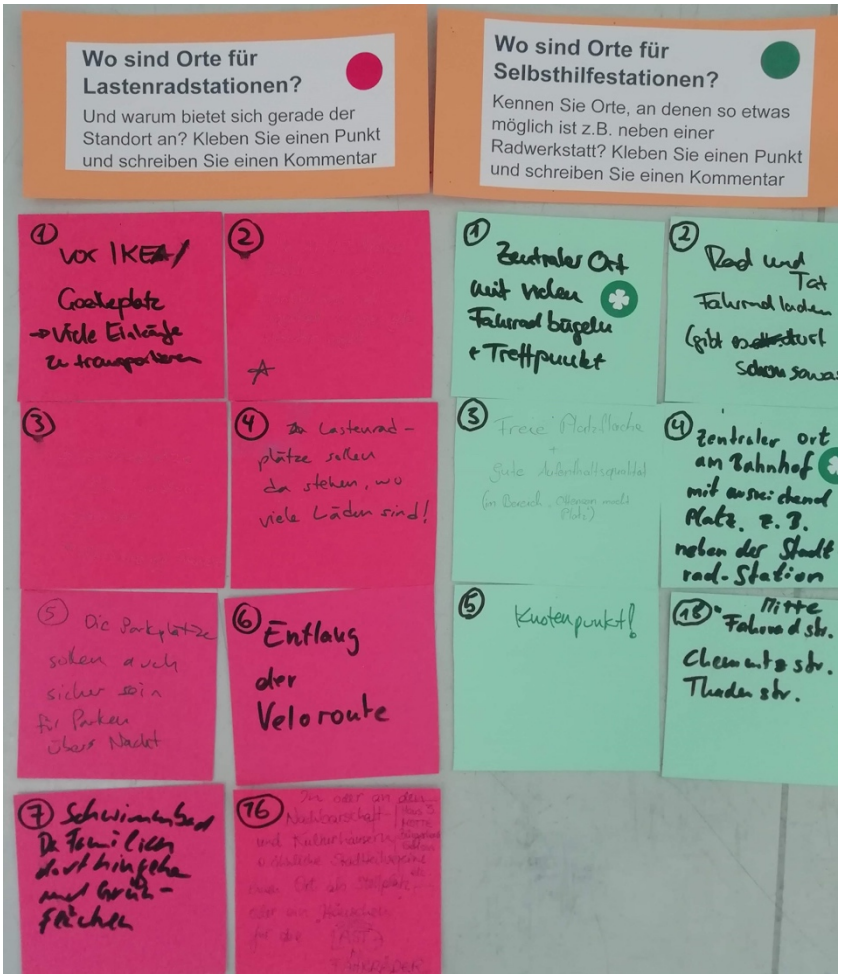

Figure 2: Collection of comments during a prototyping session in Hamburg

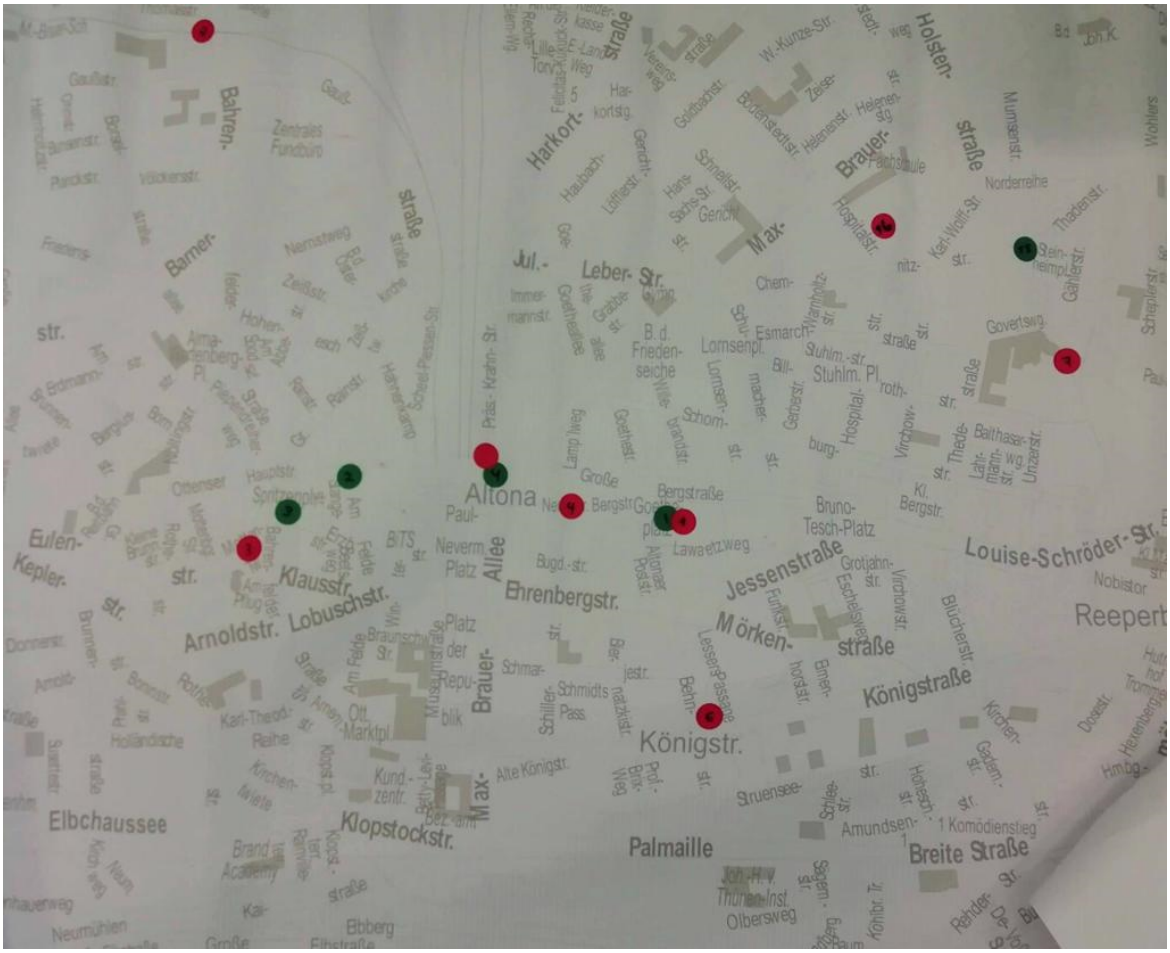

Figure 3: Mapping possible bike parking in Hamburg

3. Oxford

3.1 Context and Pilot Selection in Oxford

During the Presentation Day and QHS meeting, stakeholders, community members, and pilot coordinators discussed which pilot had most potential. It was decided to scale up the 'Supermarket Transport' pilot. It was also discussed that scale up should extend to surrounding villages with no supermarket access.

In order to make this scale up feasible, pilot coordinators pursued the idea to increase the number of riders on each trip by increasing the catchment area—people from multiple villages could go on one trip.

The Hackday helped to develop some specific aspects for scale up: Seven possible transportation routes, as well as aspects of how to monitor their success, were co-created.

With prototyping, pilot coordinators aimed to answer questions including:

- Where should services go?
- What kind of route would efficiently connect the communities that need to be connected to the places they need to be connected to?
- What is the demand in these communities?

3.2 Prototyping Event in Oxford

Oxford's prototyping took place during a 4 hour event on 28 August, 2019 in the Barton Neighborhood Centre. About 150 citizens and 10 local authority members were present.

OCC participation in this event was combined with the YourPriorities QHS tool.
The YP tool was used to identify community transport routes connecting villages.

Participants who came to the C4P stand from outlying villages were directed to contribute to YP using a tablet. A demand mapping prototyping tool was used to identify the ideal time and destination for people from Barton going to affordable supermarkets. People from Barton were directed to contribute using this too. In this way, the shuttle service connecting villages and connecting Barton were developed in parallel at the same event.

Figure 4: Prototyping Event in Barton Neighborhood Centre

Event goals, objectives and relevance with Cities-4-People

The key objective of this event was to gather data to improve pilot journey scheduling. In the first round of prototyping, ideal times and destinations were not significantly prototyped. Assumptions were made about these aspects and some feedback received from the pilot indicated that people would have preferred to go to different destinations and at different times.

Of secondary importance at this event was promoting the pilot service and building a list of contacts to directly promote any related services. Contacts were added to the Barton Mobility Community contact list and newsletter distribution list.

Organisation of the Event

The Barton Bash is an annual fair and is the largest event held in and around the Barton Neighborhood Centre. It was thus an ideal opportunity to reach a broad spectrum of the community, a booth was reserved for Cities-4-People prior to the Presentation Day. The timing of the event was particularly favourable for the Your Priorities tool, allowing participants to contribute by commenting and voting while at the event using a tablet.

Once the Transport to Supermarkets pilot was selected for scale-up at the QHS workshop, aspects of the service identified as needing improvement were prototyped using a demand mapping tool at a community event. This tool consists of a grid with various times of day and days of the week. Stickers were colour coordinated to represent local supermarkets. Participants placed stickers on the grid to show which supermarket they wished to access and the best time and day to do so.

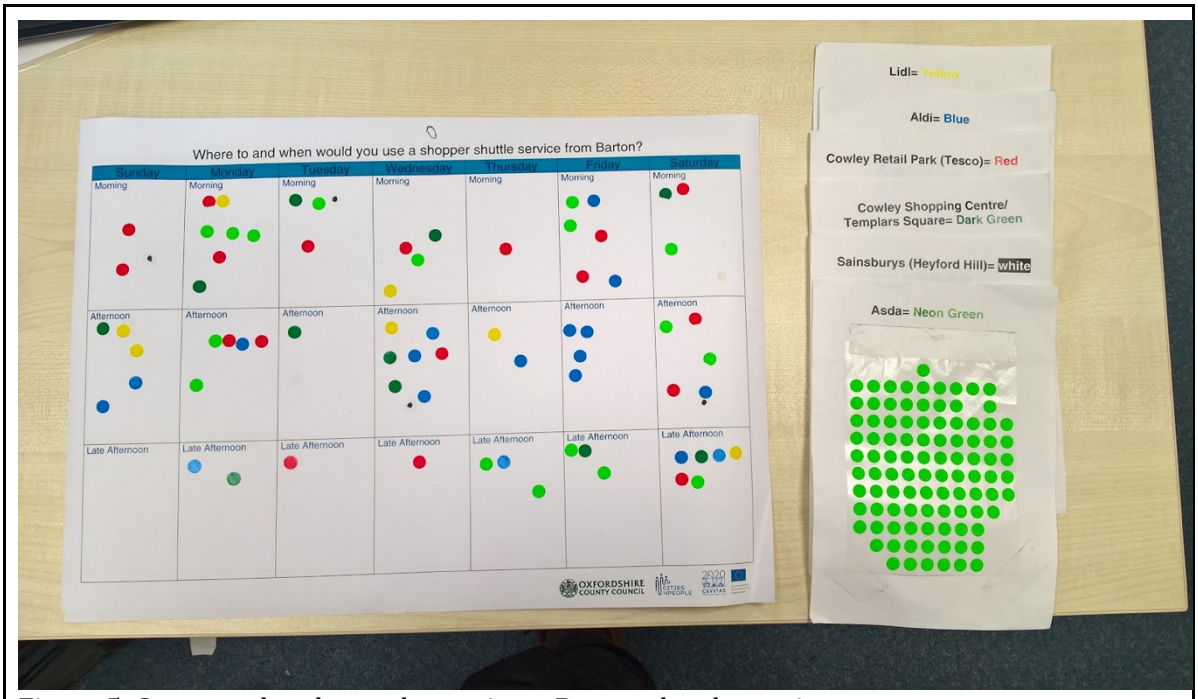

Figure 5: Supermarket demand mapping—Barton shuttle service

Structure of the Event

The Cities-4-People booth at the Barton Bash consisted of 2 tools:

- Printed descriptions and maps of the 7 proposed community transport routes connecting villages to desirable destinations. A tablet connected to a mobile network was then used by participants to write comments and vote for or against proposals.
- A demand mapping tool was used in order to identify priority times and destinations for people in Barton to access affordable supermarkets. This consisted of a grid with times of day and days of the week. Participants could place one of six coloured stickers, each representing the most popular shopping destinations in the area, on the time and day of their choosing.

These tools were selected for this event in order to advance decision-making and prototyping of the two types of service to be run in the pilot scale-up.

3.3 Outcomes and Next Steps in Oxford

In addition to the live event, some community members and stakeholders added votes and comments via Your Priorities. These will be used to select which of the proposed community transport routes will be piloted.

Greater participation was garnered in the demand mapping tool, for which 75 votes were given. The result from this activity were the highest priority travel times:

Times	Votes
Wednesday afternoon	8

Monday morning	7
Friday morning	6
Saturday late afternoon	6
Saturday afternoon	6

Table 1: Priority Times in Oxford

And highest priority destinations:

Destinations	Votes
Asda	18
Oxford retail/Tesco	18
Aldi	18
Cowley Centre	10

Table 2: Priority Destinations in Oxford

These results will be used to design service times and destinations for the scaled-up Transport to Supermarkets pilot.

The prototyping event gave pilot coordinators a better pool of ideas, routes, and times. Now, pilot coordinators plan to continue iterative testing towards a realistic and clearly defined pilot. This process includes identifying suitable times and locations, driver availability, and cost for Barton transport. Partners will do this by testing the schedules and routes during actual times and with actual participants.

Pilot coordinators plan to run a trip from Otmoore villages to Thornhill Park and Ride (a transport hub that can provide access to other buses that go into the city of Oxford, hospitals, and airports). The areas are quite close, but inaccessible because of a motorway. This route can be combined with a route going from Barton to Asda (grocery store) to most efficiently use vehicle and driver time.

The most challenging aspect of making a sustainable service is the cost of the driver. Identifying how to achieve the needs of Barton and Otmoore villages with the most efficiency is the pilot coordinators' goal for forthcoming iterative testing and piloting.

4. Trikala

4.1 Context and Pilot Selection in Trikala

The QHS meeting in Trikala, in addition to online voting and discussions with stakeholders, identified the provision of wheelchair scooters as the pilot to be scaled up in phase 2 of the project. With prototyping, pilot coordinators in Trikala aimed to answer questions about how this scale up would take place: Which aspects of the initial pilot could be improved and/or expanded to provide the most possible added value?

4.2 Prototyping Event in Trikala

Figure 6: Citizens co-create options for motorized wheelchairs.

Prototyping in Trikala was executed during a 1,5 hour-long workshop on October 4, 2019, along with a group of 6 involved citizens at the e-Trikala headquarters. In addition to answering questions about the form and scale of the forthcoming pilot, the Prototyping workshop also aimed to point out and successfully resolve potential risks or obstacles to these new developments.

Participants were informed of the event by email. The attendees started gathering after 11:45 am. George Gorgogetas and Christina Karaberi kicked off the event by welcoming the participants and doing a warm-up activity, in which they asked event participants

to use one word to describe their mobility patterns in the city in general. After this warm-up activity, the exercises session followed which consisted of the "Iteration Dice" and "Reverse Brainstorming". These exercises gathered new ideas for the scale up of the provision of mobility scooters. The new ideas that were generated were then discussed in terms of added value, feasibility, and cost.

To conclude the event, a cool-down activity was conducted in which participants stated "One word before leaving" to give a short impression of the participants' feelings before closing the workshop.

4.3 Outcomes and Next Steps in Trikala

The main outcome of this event were concrete proposals for how to utilize the available scooters during the piloting phase. From this event, it was gathered that 2 mobilized scooters could be made available at the Central Square mobility point, with each serving a different function or set of functions. Dedicated functions which may be part of a piloted sharing scheme include: having a dedicated 'short-term' and dedicated 'long-term' wheelchair (by investing in a larger battery for one of the two chairs); and introducing a booking service for the wheelchairs.

5. Üsküdar

5.1 Context and Pilot Selection in Üsküdar

Through the process of their presentation day and QHS meeting, the pilot team in Üsküdar selected 'I Own My Garden' to scale-up in phase 2.

The pilot will take place in a new park, Nakkaştepe Millet Bahçesi, which sits between multiple transportation points (see Figure 7). Gates on either end of the park open up to these public transport stops. The park is a significant mobility route for accessing these areas: For example, when park gates are closed, a trip from opposite transport stops can require a 20 minute trip. When the park is open, the same trip can be made by foot in approximately half the time.

The team, stakeholders, and community members identified potential ways to improve mobility inside the park, which is a steep area that does not currently have dedicated walking routes.

With these considerations in mind, 4 ideas were presented for potential prototyping a scale-up of the 'I Own My Garden' concept:

1. Electric cars in green areas: test a service using municipally-owned vehicles for use by elderly or disabled travellers through the park
2. Paint the walking route: identify and mark the routes that are shortest, easiest, fastest, or most enjoyable for pedestrians walking from one park gate to the other.
3. Information Boards: create boards with maps, routes, and other useful information for pedestrians who wish to use the park as a way to travel.
4. Rearrange the opening and closing times of the park: The park is currently open during daytime hours. Extended opening hours would allow the park to be used as a pedestrian transportation route for longer periods of time.

Prior to live prototyping, these 4 ideas were presented on YourPriorities. Idea #4, to rearrange opening and closing times, was identified by citizens and stakeholders as having little added value for the potential cost and issues raised. Thus, online ideas #1-3 were considered for prototyping. Ideas 2 (paint the walking route) and 3 (information boards) were combined as a single idea.

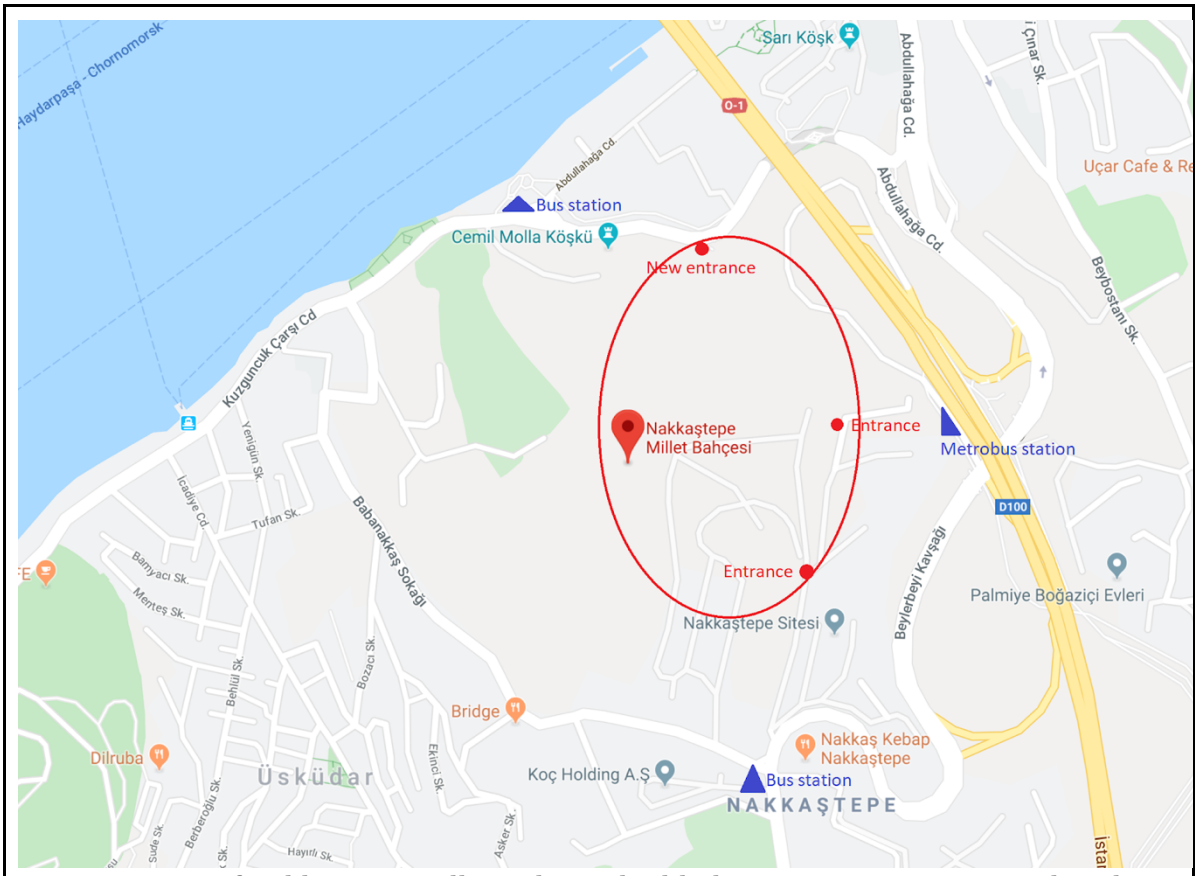

Figure 7: Map of Nakkaştepe Millet Bahçesi, highlighting transport stops and park entrances.

5.2 Prototyping Event in Üsküdar

Prototyping for these ideas occurred live in Nakkaştepe Millet Bahçesi Park on October 11, 2019, along with pilot coordinators, citizens from previous co-creation events, stakeholders, and citizens who happened to be in the park and were interested in the project.

Electric cars
One of the municipality's electric cars was taken to the park for prototyping. The car currently remains in this location, and will be made functional if this aspect of the concept is taken up during piloting.

During the prototyping event, the car was made available for use for 1 hour, with a driver from the municipality present. During this hour, elderly people and those with disabilities were invited to use the car. 4 groups of people, with 2-3 people per group, took rides during this time. Additional passerby (who were neither elderly nor disabled) did not ride in the car, but nonetheless showed interest in and enthusiasm for the idea.

The response to these test runs was overwhelmingly positive. Mostly, people liked the car because the park has a very high inclination and is a long route for them to walk. They wanted to increase the number of cars.

Following a successful prototype, park experts will evaluate cost to determine whether and to what extent a larger rollout of this idea is feasible.

Routes on the ground
This prototype was undertaken as a mapping activity, with 6 people present for co-creation. These participants each drew a map of park with locations of bus stops, and mapped routes that they use and other spots of interest in the park.

Citizens have different priorities for routes—for example, some emphasized the shortest routes, while others emphasized the easiest. The pilot coordinators now plan to discuss these citizen-drawn maps with parks experts, to identify first and foremost which of these routes ought to be highlighted or explored further. The consultation with parks experts will also plan to identify how these markings may be placed, considering costs and permissions for options such as painting on the ground, adding small signs to guide walkers, or some other option.

Info board
Altogether, 17 people took part in prototyping the info boards. These participants were asked which information would be most useful to them, and what they would like to see on the boards. These suggestions from participants reinforced the idea that an info board is useful in combination with a marked walking route. Participants also noted the importance of making access and routes to the public transportation stops a clear priority of the information boards.

5.3 Outcomes and Next Steps in Üsküdar

Each of the 3 piloted ideas for scale up must now be presented to and approved by local government officials in tandem with experts on parks and mobility. These consultations will be driven by the outputs of the prototyping events. It remains to be seen how these discussions may require pilot coordinators to adjust, eliminate, or change aspects of these 3 remaining components of the scale-up.

6. Conclusion

Cities-4-People project partners have had the opportunity to go through the prototyping process (as well as other project phases like pilot selection and piloting) twice. This two-phased approach has allowed partners to learn lessons in the first round, apply them in the second round, and gain even further insights during that second round.

The first prototyping round led to the publication of the digital book *Co-creative Prototyping: Development of Practical Interventions and Prototypes in Cities-4-People*. This book can be found at https://cities4people.eu/resources/c4p-reports/ and contains recommendations and insights based on the first round of prototyping.

Following the second phase of prototyping, some additional recommendations can be added. Specifically, some of the consortium's updated recommendations regarding prototyping are:

- **Involve the community** - It is easy to imagine 'prototyping' as a very scientific practice which takes place in a closed lab. In co-creative projects, however, prototyping should itself be a co-creative exercise that involves stakeholders and community members as much as possible. This will help to anticipate issues that may arise during piloting (since piloting will also involve stakeholders). Furthermore, involving these groups helps to maintain their interest and engagement in the project.
- **Aim to answer clear questions** - Break down prototyping activities into small, tangible questions to be answered, such as: How long will this pilot take? How much will it cost? What unexpected factors might we encounter? This way, 'known unknowns' about what your pilot might entail can be answered and mitigated. Breaking down a prototype's design questions in these individual, specific ways can also help to define and design the prototype or prototyping activity itself.
- **When possible, consider prototyping as a 'test run'** – In many cases, it is not possible to foresee all of the questions or issues that might arise during piloting. Treating prototyping as a 'test run' can help to encounter these unforeseen issues and questions, and to answer to them prior to piloting.
- **Check in with others** – Other project partners, outside actors, or even a project's own stakeholders can add valuable insights into developing a prototype. Consulting with these groups outside of the core pilot team can help to ensure the prototype's relevance, and also help to avoid oversights made by the core pilot team.