



D3.2 Community co-creation knowledge sharing



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Executive Summary

In MUV, pilot partners utilize co-creation to work with local communities in six diverse locations throughout Europe. As partners have worked in their own local contexts, they have also developed and shared insights, tools, and strategies related to the co-creation process with the consortium.

This deliverable documents the co-creation knowledge sharing that took place in MUV. Three physical workshops (in Bergen aan Zee [2018], Netherlands; Fundao, Portugal [2018]; and Ghent, Belgium [2019]) served as the basis for knowledge sharing during the project. Each workshop had a specific objective, which framed the knowledge sharing that occurred there: Game customization, monitoring stations, and mobility policies, respectively. Each workshop took place at the beginning of a new co-creation cycle.

In MUV, co-creation cycles are a process that developed around:

- how to link mobility to gamification (through the app and game design elements centred on users and neighbourhoods' identity) and free play (at street level as a form of engagement)
- how to link gamification and free play to services (e.g. using also monitoring stations)
- how to give feedback to urban mobility policies (e.g. starting conversational planning) (D2.4).

During each co-creation cycle, partners (re)visited their core team, contextualized their work, built a community, and co-created with that community and other stakeholders a workspace. Following that process, partners then had the opportunity to meet and exchange experiences, reflect and share knowledge, and to prepare for the next co-creation workshop to iterate the process again in an improved manner.

This report thus contains brief summaries of each of the physical internal co-creation knowledge sharing workshops. The rest of the content in this deliverable comes from dedicated interviews which were held from May 20-22, 2019, in Ghent. These interviews focused on knowledge sharing amongst MUV consortium members, particularly in relation to the co-creation process and the development of partner knowledge throughout the project.

Much of the shared knowledge in MUV comes in the form of best practices, tools, and methods for co-creation. These resources have been gathered along with other resources

from MUV's sister project¹, Cities-4-People², in the co-creation navigator³. Other insights which do not have a place in the co-creation navigator are found in this report.

1. MUV Approach to Knowledge Sharing and Co-Creation

1.1 Approach to Knowledge Sharing

In order to provide a definition, various partners from the consortium were asked: "How do you define knowledge sharing in MUV?". This impromptu question generated a discussion on the partners' implicit understanding of knowledge sharing, and shed light on its qualities and possible effects within the project.

Generally, partners focused on two types of knowledge sharing related to co-creation: *objective and subjective knowledge*. Objective knowledge sharing involved sharing concrete tools, methods, and strategies that could be translated and applied from one local context to another. Subjective knowledge sharing included the discussion of insights built on experiences, professional expertise and local knowledge amongst pilot partners.

Applied outcomes included the sharing and re-application of tools, methods, and the identification of best practices from one pilot context to another. More intangible outcomes of the knowledge sharing include stronger bonds among partners ideas and consortium relationships, deeper engagement with the project from facilitators, and a more cohesive and improved final project outcome.

A few excerpts from pilot partners' answers to the question of 'what is co-creation knowledge sharing?' are included below⁴:

"In this context, knowledge sharing means mostly sharing experiences and communication among the six pilot cities of MUV. This includes best experiences, lessons learned, and methodologies. It is directed at the collaboration between

¹ MUV is part of the Civitas network. It officially has three 'sister projects', Cities-4-People, Sunrise, and Metamorphosis, which are funded by the same MG-4.5-2016 H2020 call.

² <https://cities4people.eu/>

³ <https://ccn.waag.org/>

⁴ Interviews were conducted verbally in Ghent, May 2019. Language has been slightly modified for the written format.

the different pilot cities and what they can learn from each other” (Pilot coordinator, FVH).

“For me the idea is to take different approaches of tools that different pilot managers are using to organize workshops, connect with communities, create co-creation workshops ... The idea is to build global knowledge, based on different pieces of local knowledge and to combine it together. This is one of the greatest richnesses of our project, and at the same time it’s interesting to apply knowledge in different contexts and see how it can be reused. So it’s about putting together different approaches, aggregating knowledge, and making use of the inherent knowledge of all actors. This is one of the values that is shaping MUV—to share different approaches, try to create greater value by adding to and combining them” (Pilot coordinator, PUSH).

“Knowledge sharing should be a tool to help understand from other people in the same situation what works, what doesn’t work, and why it does or does not. You could transfer knowledge between people in the same setting, or you could organize knowledge sharing sessions with people from other contexts and see if you can apply methods from other contexts in yours” (Pilot coordinators, LUCA).

“Sharing in itself is important: a nice and important side effect of this knowledge sharing workshop is that it intensifies consortium relations, and ultimately leads to better project outcome” (Pilot coordinators, LUCA).

“In MUV, knowledge among pilot coordinators allows each partner to not have to reinvent the wheel, but rather to build upon knowledge, methods & tools, and insights that you can replicate, alter, and then use in your own context and pilot” (Pilot coordinator, Waag).

1.2 Approach to Co-Creation

Deliverable D3.3 defined the MUV approach to co-creation as follows:

“MUV aims to build capacity at the neighbourhood scale where citizens, local business owners and public authorities will become an active part of the change towards more sustainable mobility urban values in their city. Ideally it facilitates public participation of citizens to make informed choices about their mobility options, to gain a sense of ownership on the quality of their neighbourhood environment, and to contribute to feedback on policy making through data

gathered and exchanged through mobility habits, behaviour and lifestyle” (MUV D3.3).

Co-creation is the method through which MUV effectively approaches citizen participation. It is a citizen-led process that facilitates collaboration amongst various stakeholders in order to allow citizens’ concerns to be addressed and solutions to be enabled, with regard to both capacity (the ability to act) and mandate (the legal right to act).

The co-creative process for working with communities in MUV followed the following stages across the pilots for each team:

1. Foundation - building (or re-building) the pilot core team and preparing for the co-creative process
2. Context - immerse the pilot team into the world of neighbourhood community problems and stakeholders to reassess the assumptions made during the 'Foundation' stage 1.
3. Community - build a pilot community of co-creators, reach out to them, and begin engaging them with the topic at hand (in this case, on mobility issues, gamification design and free play within the neighbourhood).
4. Workspace - ideate, prioritize, and build along with the pilot co-creative community
5. Assessment - reflect on the process and consider aspects that can be sustained and improved.

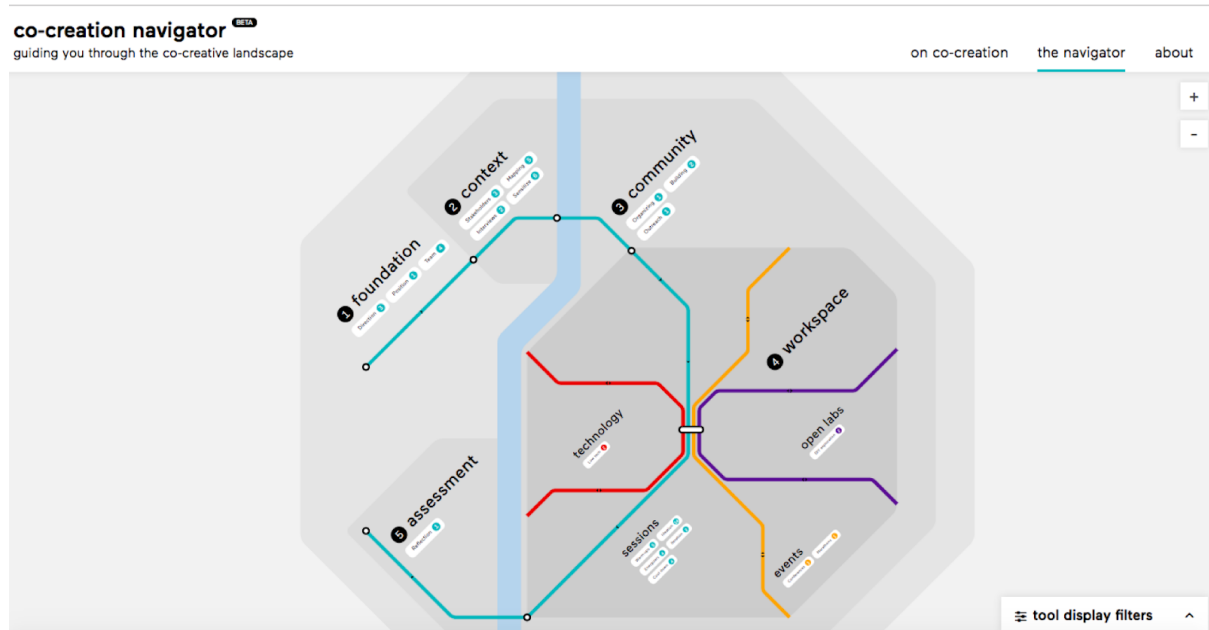


Figure 1: Screenshot of the co-creation navigator, which follows a path through the co-creative stages undertaken in MUV.

This entire process was performed **three times** in MUV. The completion of all these phases (1-5) of this process is referred to as a **cycle**.

Each of these three co-creation cycles was launched with a consortium meeting in which partners took part in hands-on co-creative methods that they could then facilitate once back in their local setting. These consortium meetings also gave pilot partners an opportunity to reflect on, assess, and share their experiences, best practices, and lessons learned from the previous co-creative cycle. In this way, the consortium meetings were an opportunity to both assess previous co-creative cycles and lay the foundations for the following cycle.

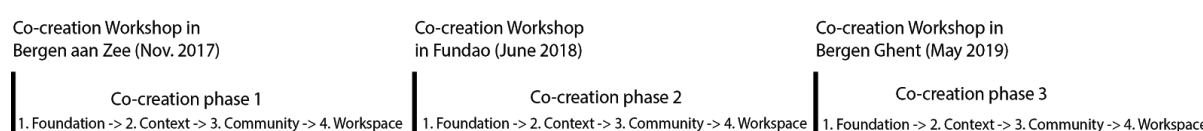


Figure 2: The structure of the co-creation cycles in MUV

2. Co-creation knowledge sharing workshops within the consortium

2.1 Workshop in Bergen aan Zee

This workshop (November 2017) focused on preparing partners for the first MUV cycle of co-creation, with a particular focus on the first stage of the co-creative process (Foundation). In this stage, the facilitators (Waag society) engaged the MUV consortium members in shaping the MUV co-creative community and inspiring the pilot coordinators to begin the co-creation process in their local environment. With Waag as a facilitator, project partners used tools and methods (now available on the CCN) to help them identify their team's values, goals, strengths, and weaknesses. In doing so, partners contributed to the **foundational** phase of co-creation, whereby they defined and oriented their facilitation teams in preparation for the following stages of co-creation.

Deliverable D3.3 describes the workshop's activities:

During the community co-creation knowledge sharing workshop, the different MUV pilot teams sensitised with the pilot contexts and the communities they were aiming to engage. Secondly, all partners shared knowledge and experiences on co-creation and co-design methods and tools. Thirdly, each pilot made a concrete

action plan by designing a roadmap. After this first knowledge sharing workshop, the different partners started their community and stakeholders outreach and prepared and organised their co-creation sessions (D3.3).

Specifically, the workshop included the following activities:

- Team building exercise
- Positive & negative mobility experience
- Building MUV tools & template database
- Sessions: Build a game; build a monitoring station
- Roadmap design (co-creation cycle 1)

Throughout the workshop in Bergen aan Zee, there was a focus on tools and methods for co-creation. Partners shared co-creation methods that they usually applied in diverse contexts. These methods and tools were then collected and shared at first internally among consortium members, and later publicly through the [co-creation navigator](#). The co-creation navigator serves as a repository of tools and methods used in MUV and its sister project, Cities-4-People, among others.

Following the workshop, pilot partners returned to their local cities to begin building their communities around local interests surrounding mobility and citizen sensing. The phase of foundation and community-building were followed by a workspace phase to ideate game design elements built along co-creative communities. From November 2017 to January 2018, local partners worked in tandem with citizens, city officials, and knowledgeable experts to apply citizens' needs and desires to the design of the MUV app, local monitoring stations, and the second co-creation cycle.

2.2 Workshop in Fundao

This workshop (June 2018) prefaced the 2nd cycle of co-creation in MUV (August-October, 2018), with a particular focus on the 'context' and 'community' stages of co-creation. In that time it was important for project partners to revisit their assumptions, for example, about their target groups and stakeholders, and to fine-tune their approaches for working with these groups. This workshop's focus was therefore on the practical planning with local communities. The workshop included the following activities:

- Reflection on the previous co-creation cycle (cycle 1)
- Monitoring stations: why, how, and what?
- MUV app demo/quests training
- Focus of neighborhood efforts

- MUV project challenges
- Co-creation navigator presentation and input session
- Roadmap Design (co-creation cycle 2)

The meeting was thus largely about addressing **practical issues** related to involving, solidifying relationships, and working with **communities**. This included issues as identifying strategies for the location (**'where'** to host sessions), but also on the orientation of topics (**'what'** to discuss, and which methods and tools (**'how'**) **to carry on co-creation sessions**.

These questions were largely based on the groups and communities that pilot managers had experienced already during the 1st cycle of co-creation. For example, Palermo's pilot managers have built communities around an active lifestyle, rather than around traffic problems; thus, their workspace was not static, and rather moved to different parts of the city. Helsinki's pilot community was largely situated within an existing 'mobility ecosystem' within the city; thus, they planned to host their pilot activities in a community center where other mobility-related projects and initiatives were physically present.

Setting up locations was a concrete activity that also required pilots to revisit their considerations about who will be included within their community and how those different groups within their community would be involved. For example, in Palermo, pilot coordinator collaborated with the Municipality to help organize the Open Day during the EU Sustainable Mobility Week. In this way, the coordinator more deeply engaged the Municipality's commitment to the project. This also had a practical benefit, as the Municipality often has access to community spaces, experience in hosting events, and mandate to use spaces. This mandate would also be crucial later in the project to implement community solutions; thus, it was beneficial to formally involve the Municipality as partner of the MUV project. Finally, providing organizational support enhances Municipality's capacity to connect to communities and to act upon the agency, creativity, and potential groups and communities, such as local residents.

The workshop in Fundao illustrated how the on-the-ground work, done during the 'community' stage (see [Figure 1](#)) can feed into the previous 'context' stage, allowing MUV consortium's partners to revisit earlier stages of co-creation using the new knowledge they have gained. It also provided the opportunity to visit relevant sites in Fundao and meet with community members there.

2.3 Workshop in Ghent

The workshop in Ghent (May 2019) addressed the current and future project work in three ways: First, it gave pilot coordinators the opportunity to reflect on the previous work in co-creation cycle 2 and to exchange both successful and improvable experiences. Second, it helped to define and narrow down pilot and project goals as well as the roadmaps for the third and last co-creation cycle. Third, the workshop gave an opportunity to further dive into technical, MUV application and monitoring stations related questions based on the gathered experiences.

The two and a half days workshop took place at LUCA School of Arts. Attendants included one to three pilot representatives of each pilot city, excluding Fundão. Other participants included representatives from Aalborg University (also present at the workshop in Fundao), the City of Ghent, the Municipality of Oostende, and LINKS (Turin).

The workshop in Ghent also provided room for explicit co-creative knowledge sharing. During this workshop, the interviews that provided much of the input for this document were conducted.

Summary of activities

The pilot coordinators present in Ghent underwent a number of activities to reflect on previous work, share co-creation knowledge, and develop their plans for the third and final cycle of co-creation. These activities included the facilitation of various activities, on the following topics:

- Reflections on co-creation cycle 2
- Definition of each pilot's 'playing field': main ingredients, uniqueness, minimal viable results and opportunities.
- Defining impact: scalability, replicability and policy impact
- Knowledge sharing I & II: What do you want input on from your peers?
- Roadmap: from building blocks to action plan
- Interviews with Waag regarding 'co-creation knowledge sharing'.

Together, these activities oriented pilot coordinators towards their next steps in co-creation cycle 3. These next steps will be discussed in the forthcoming deliverable D3.4 'Community co-creation outcomes: Final Release'.

2.4 Community Learning Calls

Community learning calls (occurring biweekly since the beginning of the project) allow pilot coordinators to discuss and share knowledge about co-creation on an ongoing basis throughout the project via video conference. The calls give pilot coordinators an opportunity to stay up-to-date with each other's progress, to share insights gathered, and to ask questions and help one another. Rather than providing the more reflective and general assessments that occur during the co-creation workshops (Berg aan Zee, Fundao and Ghent), community calls allow partners to address current and pressing needs. The calls are often formatted around a general theme, while allowing partners to raise any issues or topics that they would like to discuss as well. This format, which is facilitated with an agenda but not binding, helps to keep conversations constructive and on-topic while also allowing freedom and room for pilot coordinators to explore those areas which are most important to them. As such, community learning calls are the forum wherein specific, pointed, and practical co-creation knowledge sharing takes place—for example, exchanging experiences from the field when one pilot city's activity has taken place before another's.

3. Co-creative Learning Curve

The insights in this chapter are organized according to the co-creation process as it has occurred in MUV (for an overview of this process, see [Figure 1](#)).

3.1 Foundation (Learning Curve)

"A co-creation process starts with a question or a problem, but it requires a team that is equipped to host it and is well prepared for the (uncertain) things to come. Co-creation can only be done together. Building a balanced team, with clear tasks and values, and a shared understanding of your goals, is essential for a smooth process in co-creation" ([co-creation navigator](#)).

MUV pilot coordinators were asked about the steps taken to form their core team and to reach out to different 'allies and ambassadors'. They were also asked how this approach to their own team and to allies and ambassadors changed or developed during the first two co-creation cycles, and how it will change in the upcoming cycle (cycle 3, following the workshop in Ghent). The next paragraphs present a collection of co-creation learning curves that were identified and shared in MUV.

Diverse expertise and backgrounds within the core team

At the very moment when the pilot coordinators wrote the H2020 proposal, they also built their core teams. Reflecting on the last two years of co-creation, one particular learning experience stands out: the more diversified the core team is in terms of background, experience and/or expertise, the more creative their solutions, strategies, and approaches during the co-creation processes become. To add to the diversity of pilot teams, partners identified the possibility to include experts in their network of allies and ambassadors.

For example, while PUSH in Palermo was setting up their core-team, they focused on including different people with different backgrounds in the same activities. PUSH's team already consisted of architects, urban planners, developers as well as UX designers. These were all involved in designing the first co-creation session because the goal of the session was to customize the MUV game dynamics and the app's overall experience together with local communities. "[This diversity] is a key feature of PUSH design lab. It was interesting because in every workshop we try to create new tools or reuse existing tools in order to create new methods, new paths in order to gather outputs we would like to receive" (Domenico (PUSH), Interview on 21 May 2019).

If not within the core team, then there are other ways to make sure the relevant knowledge is produced within the co-creation process. For example, as the second co-creation cycle aimed to gather insights from local communities for the design of the monitoring stations, PUSH collaborated with Fablab Palermo, who was recently selected to develop and deploy the devices in the neighbourhood Centro Storico. There was one expert from the FabLab for each working group who could explain the technical possibilities of the monitoring stations to participants while collecting ideas and inputs from them.

Sharing these insights, the roadmap exercise during the workshop in Ghent showed that the teams in Amsterdam and Helsinki are also planning to work more with experts in the upcoming co-creation cycle.

This is a fundamental insight: One of the key points of MUV is to create a solution able to tackle different mobility issues in different contexts with different people. This complex goal requires teams consisting of people with a diverse set of knowledge, experience and skills that can be applied when needed.

Nurturing existing networks and stacking different projects

The interviews with project partners indicate that the communities in co-creative European projects are rarely built up from scratch. In most cases, there is already an existing network of active citizens in place that offers an ideal platform to nurture what we call the 'Foundation' of co-creation. This was also the case for most of our pilot teams from MUV.

Municipalities often concentrate initiatives in one geographical area, either organically because many citizens feel the need to tackle a certain issue or directly initiated by the city government in order to build synergies and larger entities around a certain concern. The traffic in the port area of Helsinki, for example, is perceived as a serious issue by both citizens and municipality. For this reason there have been various mobility initiatives going on in this neighbourhood. As a company incorporated into the city government, the pilot partner Forum Virium Helsinki (FVH) carried most of these initiatives, which set the scene for FVH to approach active groups and living labs dealing with mobility and traffic issues with MUV.

PUSH also made use of previous collaborations and existing networks in Palermo. The same applies for Waag in Amsterdam, who are continuously trying to find synergies with other projects that allow for sharing knowledge, data or networks. For example the link between MUV and the Making Sense project will be continued in the third co-creation cycle as the Amsterdam-based MUV community aims to connect and share further with Mobility Data Commons projects. Aligning the experiences from different projects provides the opportunity to add value and synergize projects and therefore to achieve a greater impact.

In Fundao, the local community was quite small and many people involved already knew one another. One challenge for Fundao involved developing a setting where these familiar people would be able to comfortably discuss mobility on equal terms with one another. They found the co-creative space to be a conducive setting opening up these sorts of discussions.

As it is usually the case, there are also exceptions—not all MUV communities were formed from or based upon existing communities. For example, the pilot coordinator from i2Cat in Barcelona joined the project after the first co-creation cycle was over. Unlike his predecessors, he was not only new to the team but also to the neighbourhood Sant Andreu and its initiatives around mobility. The pilot coordination in Barcelona had thus to build a community from scratch. Yet, this offered an opportunity to have an

objective view on the neighbourhood and the opportunity to build new and stronger collaborations.

Collaborating with the pilot city municipality

As an additional point in regards to the foundation, the interviews revealed a special focus on the role of the municipality in the different cities. Questions included: What is the municipality's role in the pilot? How do they see urban mobility issues? It is important to acknowledge at this point that it is essential to formulate clear goals and communicate the added value of the partnership for the municipality. The pilot cities have different experiences in this regard:

PUSH reported that the municipality of Palermo supported the pilot team from the beginning and expressed its confidence in MUV. This is likely due in part to the need of innovation in the mobility public sector which could be equilibrated through a partnership with PUSH and participation to the project

The municipality in Ghent, in particular the Open Data Manager, also became more involved during the second co-creation cycle and joined some sessions with citizens. With their engagement and potential to secure a mandate for the take up of citizens' solutions, the municipal actors saw the value of motivating citizens and building confidence for public objectives and plans related to mobility and mobility data.

These experiences show that the active (or even passive) support of the municipality at least legitimizes and at best educates participants on the role and incentives of the municipality to be involved in a project like MUV. The involvement of the municipality gives the opportunity to minimize the distance and equalize communication between public authorities and citizens. Moreover, the municipality can make clear which of the project goals are realistic and pursuable in their context and which are not meaningful.

The pilot team as a neutral actor

While pilot coordinators experience advantages with a diversified participation in the core team, they also see advantages when taking a neutral stance during co-creation sessions. This is an important factor since the pilot teams' role in MUV is to run pilots in their neighbourhoods, and to be open and inclusive in their approach to constructive feedback and learning. The aim should thus be **facilitation** of the community's efforts.

This neutral attribute is particularly visible in Helsinki. As mentioned, FVH is not only partner in the consortium but also a non-profit company owned by the city. In the

conversation with the MUV pilot manager at FVH, we learn that this is a two-sided coin. On the one hand, as an innovation-driven, participation-focused department they are more agile in their actions than other municipality departments. On the other hand, their official status as being part of the city authorities legitimizes certain actions and gives credibility to their work.

All in all, it is helpful to be aware of both sides and to transform it into a neutral stance: The pilot team, especially in the case of Helsinki, do not work as urban planners, civil servants or citizens with their own agenda but instead performs as a team of experts providing the knowledge and methodologies for learning to be applied among different stakeholders.

3.2 Context (Learning Curve)

“After you’ve created the foundation for your project, it is important that you challenge your own assumptions in regard to the context, which also includes your target groups and stakeholders. With that knowledge and attitude, you can fine tune your approach. The best way to immerse yourself into the world of the subject and its stakeholders is to be open and emphatic to other agendas and solutions. This process of opening up is what we call sensitizing” ([co-creation navigator](#)).

After contemplating the development of the core team throughout the different MUV pilot coordination and co-creation cycles, Waag asked pilot coordinators about changes in their assumptions during the development of the co-creation cycle in their city. Some of those will be elaborated upon in the following pages to demonstrate the learning curve of the context sphere.

Defining and re-evaluating the (mobility) values of your stakeholders

Different stakeholders are motivated by different factors, in particular in the context of urban mobility. While for some people, mobility is a concept of getting from point A to B, others perceive it as a way to stay fit and healthy and some others also relate it to safety or the environment. Moreover, abrupt changes may alter such individual concepts. Contrasting assumptions on these incentives arise and become challenged throughout the three co-creation cycles of MUV.

For instance, one of the three neighbourhoods Waag initially focused on in their pilot in Amsterdam was Buitenveldert. It is a residential neighborhood in the south of Amsterdam with an above-average rate of elderly (65+) inhabitants. When the

municipality changed the local bus line in Buitenveldert, the distances to the bus stops for many residents became longer, which proved to be a mobility barrier particularly for the elderly. Waag took up this urban mobility issue as an important and interesting case for MUV.

After the first co-creation cycle and testing the MUV app with the elderly community it became clear that the app was not suited to address their core needs. The values of the local community turned out to be focused more on social interaction and cohesion; of being able to continue participating in society and fighting loneliness. Another priority of this community was to engage in somewhat demanding physical activity tailored to an elderly group. While MUV can indeed be leveraged for community activities, environmentally friendly ways of moving and staying healthy, the goals of citizens in the other neighborhoods (Buiksloterham and Zeeburgereiland) were able to be more directly addressed by MUV technology. This is why Waag will focus in the last co-creation cycle on the Buiksloterham and Zeeburgereiland neighbourhoods. The insights gathered through the co-creative work with Buitenvelder's community are, however, very valuable and can be pursued through future works focused at the identified need of more social interaction. These findings have also been presented to the local government, neighborhood leaders, and local physiotherapy and community groups to help them continue to address the needs in this community.

A different learning curve was experienced in Ghent. LUCA initially decided to focus their pilot in the neighbourhood of Muide/Meulestede. Located in the harbor of Ghent, surrounded by water and lacking an adequate infrastructure, the neighbourhood is perceived as extremely unsafe for cyclists and pedestrians. A mobility citizen community was formed to create awareness around these issues.

During the second co-creation cycle and while testing game dynamics of the MUV app with the different target communities, LUCA realized that the app and the behavioural mobility change was not the most interesting value for the mobility citizen community. Instead, the data gathered by the citizens themselves turned out to be far more valuable. This is because the citizen mobility group was gathering mobility data themselves, subsequently giving inputs to policy makers. For example, the citizens hired a speed-gun and tracked the speed of cars in the neighbourhood. It turned out that the data gathered through the app is very important to make a believable case for a change in the neighbourhood. The added value of MUV for them is thus to collect the necessary data.

These experiences reveal two main strands of learning: First, it is essential to define and continuously re-assess the incentives and (added) values of your stakeholders. Second, the experiences emphasize the need for flexibility and openness when collaborating with different stakeholders and methodologies, and never stop questioning your own assumptions. This also offers the lesson learned that co-creation and co-design with citizens and stakeholders can cause a single objective to give diversified contextualized returns in different neighborhoods.

Emotion and mobility

The conversations with pilot coordinators identified that mobility and planning are emotional topics. This is part of the context that coordinators were more or less aware of since the beginning of the project. Since mobility is a topic with daily relevance and individual perspectives, citizens oftentimes arrive with their own concerns. This includes not only active communities but also professionals like urban planners, architects and the like. How can a facilitator deal with individual and public concerns and values? And how do they show empathy while making sure to pursuing a constructive result from the co-creative cycle?

In Helsinki, some inhabitants who joined the first co-creation sessions came with their own agenda, wanting to make sure their personal living space would not be impaired through urban planning and development. This mentality and strong opinion on behalf of a few individuals can create conflicts and contradictions as well as can generate false expectations during a co-creation session. FVH tried to deal with this conflict by keeping a focus on MUV objectives, as well as trying their best to create a relaxed atmosphere, for example through encouraging open communication and providing snacks during the co-creation sessions. By highlighting the positive added value that MUV can bring for the community, participants came to understand that this was not the forum for their personal topics.

We see that communicating clearly the project goals, the positive added value for the various stakeholders as well as the limitations of the project is the way to go with issues like mobility. Co-creation is intended to shape communities as based on common (rather than individual) needs and opportunities via a fruitful and positive workspace for common concerns like traffic and mobility issues.

3.3 Community (Learning Curve)

“Without people to co-create with, there is no co-creation. Each co-creative process will require the involvement of various stakeholders that represent a variety of experts on a

specific topic, like users, citizens, policy makers, business owners, scientists, children, etc. You need to work on a strategy to get them involved in some way, and to bring them together, working in a co-creative community” (description of community from [co-creation navigator](#)).

Long-term engagement of communities and stakeholders

For most of the pilot coordinators, the engagement of their communities, be it target groups, business communities or other experts, has proven to be difficult. This is particularly challenging when sustaining this engagement on a long-term basis, not only with the goal of pursuing high rates of participation at the co-creation events but also the goal of securing a sustainable impact in the neighbourhood.

The issue of engagement originates in seemingly basic circumstances: for example the **availability and motivation of participants**. With different people attending the co-creation sessions, different stories emerge. Families with kids might have other time slots available than students or the elderly. For some people, it might be fun to use the MUV app to stay fit, others have serious traffic safety concerns as a reason to join co-creation sessions. These are all factors that play a role in the long-term engagement of users.

Throughout the conversations with pilot coordinators, it became clear that the engagement of communities and stakeholders involves various layers and questions. What is the **added value for the participants and partners**? What kind of **reward scheme** (i.e. extra points in the MUV application, prizes or incentives through businesses) is fitting and feasible? How can your project **remain visible and present** in the community? How can you make sure all stakeholders have an **equal and fair opportunity for communication**? What kind of **engagement activity** can you provide to convince people to join? The answers to each of these questions will have a significant impact on how a community develops, what capacities that community holds, and how involved and motivated the members of that community will be.

Engagement activities

Different engagement activities can help to create an interesting environment for co-creation among participants to stay involved. These can range from choosing an inviting venue and a program for a co-creation session to experimenting with both analogous and technological methods and tools. For example, PUSH had great success when organizing the second co-creation session in a multiethnic restaurant and coworking space which is local supporting organization of the MUV project and a place

with a strong role in the integration process of migrants' community in Palermo. Participants were invited to this workshop during the MUV Open Day organized a few days earlier and the lottery event promoted to engage more and more community members which took place in the same restaurant the day before the workshop. More than 50% of the participants of the lottery came back the day after for the workshop curious and willing to contribute to the future development of MUV at local level, demonstrating that combining a stimulating venue with engaging activities attracts participants.

Collaborating with gatekeepers

Working with gatekeepers has proven to be highly successful. A gatekeeper is a person with established access to a community. The collaboration with the gatekeeper thus provides access to a community or a thematic area in which a community is situated. For example, in Ghent, the pilot coordinators initiated contact with the neighbourhood managers of different neighbourhood groups, one of which is the citizen mobility group. In the second cycle of co-creation and thanks to the invitation of this neighbourhood manager, the pilot coordinators were able to join community meetings and use other's platform. "[The neighbourhood manager] knows when the Ghent team would be added value [at the meetings] or not. She would be honest when it would be irrelevant for us to be there, thinks actively with us. She is the right person, very dedicated and socially oriented and wants to involve the neighbourhood" (Inge and Wio (LUCA), Interview on May 22 2019).

In Amsterdam, Waag reports that approaching communities through gatekeepers is the most efficient way to grant access to a dedicated network. In Buitenveldert, Waag collaborated with the so-called "gebiedsmakelaar" (Eng.: field manager), a civil servant functioning as a mediator between citizens and municipality. Each neighbourhood in Amsterdam has its own 'field manager' who works to provide an equal context for communication and citizen participation. In Buiksloterham, Waag is collaborating with the coordinators of the Circulair Buiksloterham community, who are actively positioned within the community and organize regular meet-ups. In Zeeburgereiland, Waag was approached by a worried citizen who represents the inhabitants of an apartment building and, after reading about MUV on the website of Waag, initiated the contact to share air quality and infrastructure concerns in his neighbourhood. In all cases, the gatekeepers were the key persons to the active involvement of the community in the co-creation sessions.

There are numerous opportunities to create a sense of ownership and a strategy for long-term engagement of stakeholders. While a suitable reward scheme can be advantageous when having identified the communities' needs, it is also beneficial to consider time, place and varied kinds of activities for co-creation in a careful manner. Additional measures include the collaboration with universities or schools, which offer the opportunity to, for example, use the momentum of an assignment for a co-creation session, or to collaborate with gatekeepers who are trusted members of their community.

Managing co-creation “fatigue” and expectations

From the interviews, two particular issues have been identified as important when involving communities in co-creation: first, the issue that was termed a co-creation “fatigue” (LUCA, Interview on May 22 2019). Pilot coordinators reported a high concentration of co-creation events in pilot areas and cities, creating a context of competition to attract participants as well as an atmosphere of weariness with regard to co-creation amongst citizens. “By the time something comes out of [the co-creation session], that takes so long and people start to lose interest or faith that something will actually change. That’s why we want to be very careful with introducing the [MUV] application to bigger groups. If we lose them we won’t get them back” (Inge and Wio (LUCA), Interview on May 22 2019). Careful preparation and clear and positive communication can help to counteract this weariness that was underlined by most of the MUV pilot managers.

The second and even more important issue is the one of expectations and promises on behalf of participants. Especially when working with vulnerable communities, pilot coordinators underline that it is essential to be clear on the project goals and feasible outcomes, and to be aware of the responsibility that comes with the involvement of communities.

In both cases, honesty and openness about what communities can expect to achieve, both in the short term (for example, during a single co-creation session) and in the long term (through the course of the project) should be part of the focus of the pilot manager.

3.4 Workspace (Learning Curve)

“When you know your scope and limitations, you know your own mandate, and you can give that mandate to your co-creators. When you have gathered a community of co-creators around you, you can start co-creating in the workspace. The workspace is

not necessarily a physical space, but it could be. It is the enabling environment in which you do your actual co-creation with your community using various methods and tools. Take your time to stay in this space to explore, iterate, and improve concepts and ideas” (description of “workspace” from the [co-creation navigator](#)).

Co-creative insights and community motivation

Active engagement in the workspace leads to new co-creative insights and helps to increase motivation among community members. This was found to be the case during both co-creation cycle 1, which focused on the co-development of the MUV app, and co-creation cycle 2 which focused on the development of the monitoring stations. Working towards a concrete outcome—such as a monitoring station or an app—provide a solid foundation around which collaboration can occur. Likewise, these outputs allow for people to see and experience their own contributions embodied in something physical.

In MUV, the co-design of monitoring stations offers a valuable tangible opportunity for hands-on engagement for the community. The monitoring stations basically consist of different sensors and monitoring tools used in the pilot cities to gather data on urban mobility issues, for example air quality sensors measuring the concentration of particulate matter in the air. Citizens were invited to learn how to install and use the stations in their own homes, and to continuously report on their findings. Citizens in all pilot areas have accepted this positively, indicating the willingness to participate, learn and contribute to the data collection phase or workspace.

For instance, FVH in Helsinki organized a session with a demo-version of an air quality sensor. With one sensor in the room and a real-time measurement projection on the wall, the pilot team demonstrated the sensor by playing with dust and observed together with the technical experts and citizens how the measured units changed. This demonstration was followed by numerous participants volunteering to install a sensor in their home. This outcome does not only fuel an active citizen community but is also a valuable data contribution.

Insights into previous co-creation

Working together can also provide a pilot coordinator with insights into the previous stages of co-creation.

How is our core team functioning together? How well are we addressing the community’s needs? How do our stakeholders and community members work together, and what could be improved? Working together in a physical workspace setting sheds light on

these questions. In this way, the workspace provides fertile grounds for not just co-creation, but also for co-assessment. In MUV this was particularly valuable, as the insights that occurred during the workspace often fed directly into changes and improvements that were made during the subsequent co-creation cycle.

The monitoring stations are an example of the benefits of working with something physical and tangible alongside community members in a co-creative workspace. These insights demonstrate that the monitoring stations as physical objects communicate the values of MUV, and create a valuable feeling of ownership and contribution amongst citizens in all pilot areas.

4. Conclusion, Best Practices and Takeaways

This section summarizes the learning curves from the three co-creation cycles, identified within the different zones, followed by a final reflection on the learning outcomes. Subsequently, the section concludes with a table listing some of the best practices and insights that different pilot teams have used with reference to certain tools or methods.

The co-creative method undertaken in MUV involves working long term with communities, throughout the lifetime of the project. The process allows these communities to identify how MUV (technology and community) can have relevance in their lives. Conversely, this process also allows pilot coordinators to better understand the perspective of the communities with whom they work. Ultimately, this process ensures that the solutions and interventions themselves will be relevant.

4.1 Best Practices 'Foundation'

The core team, its allies and ambassadors within the citizen community and authorities, backed by people with various expertise and backgrounds, forms the foundation of a successful co-creation project. Building on this insight, some of the pilot coordinators voiced another endeavour for the upcoming and last co-creation cycle of MUV: to intensify the knowledge-sharing within the consortium. As much as the variety of expertise is of great opportunity for the pilot team, it is also an opportunity for the consortium. While the opportunities for transferring skills and insights for a team collaborating from five different countries can be challenging, the learning curve shows that this knowledge transfer is of great value.

The learning curve of 'Foundation' includes:

- Diverse expertise and backgrounds within the core team

- Nurturing existing networks and stacking different projects
- Collaborating with the pilot city municipality
- The pilot team as a neutral actor

Example best practices and tools of pilot coordinators related to 'Foundation':

Best practice	Method/tool	Pilot partner	Co-creation cycle
<p>Waag continuously uses the value ladder as a tool to define values for any stakeholder group and to prioritize them. It is useful in order to define consensus and outlines the format which to revisit throughout the following processes.</p> <p>Example questions: What are the core values of your xy stakeholder group? Are the values still matching with the ones from the beginning of the project?</p>	Value ladder ⁵	Waag (Amsterdam)	<p>Co-creation cycle 1-3</p> <p>Foundation (can be revisited in all other stages)</p>
<p>In preparation for the workshop in Ghent, PUSH developed a map for each pilot city, on which you can see the different forms of mobility (i.e. biking routes; metro) used by MUV application users.</p>	Map with mobility trips	PUSH (Palermo)	<p>Workshop in Ghent (end of co-creation cycle 2)</p> <p>Foundation/ Context</p>

⁵ <https://ccn.waag.org/navigator/tool/values-tree>

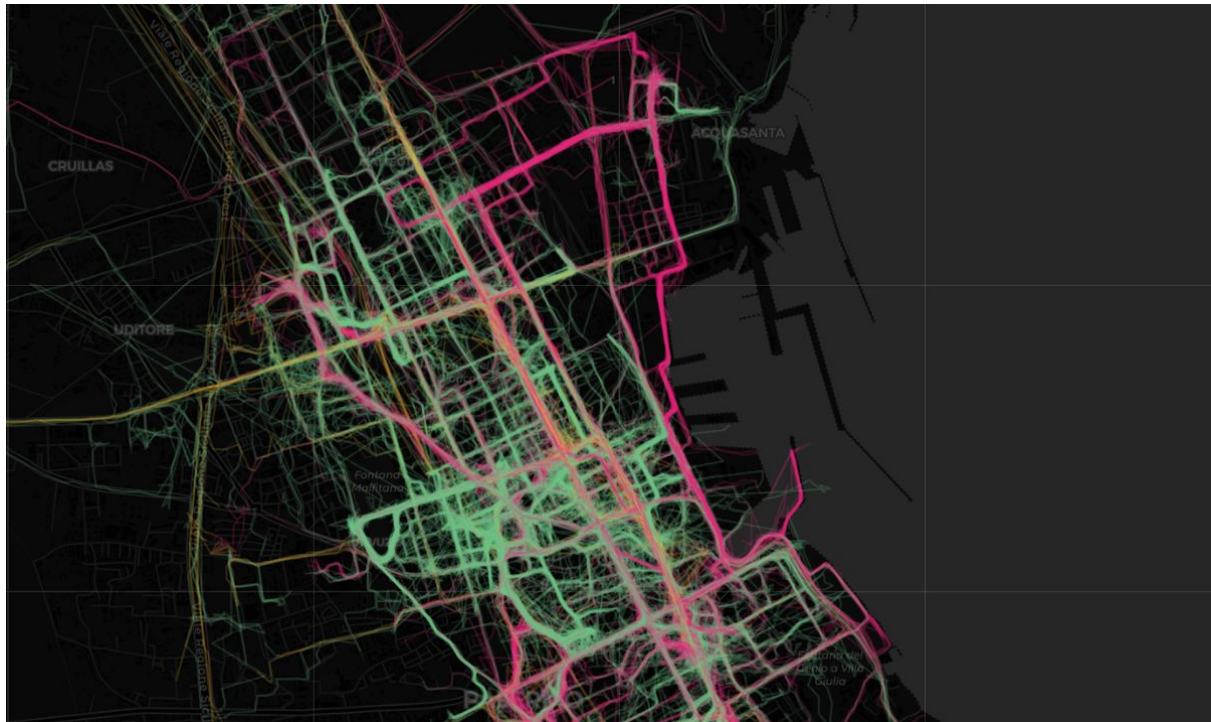


Figure 3: Example of modality map created by PUSH

4.2 Best Practices 'Context'

Wherever there are individual needs and perceptions around a common concern, there are assumptions. It is therefore extremely important to scrutinize these assumptions, limit their impact where needed and contemplate the ones that are relevant for your project. Throughout the evaluation of the second co-creation cycle, it became clear that the core theme of MUV, mobility, can be not only an emotional topic but also has strong interconnections with other thematic areas. Therefore, it is essential to reflect on mobility in the city as a whole as well as socio-political and environmental factors, people's needs and their happiness.

Moreover, being open to constructive feedback, embracing unavoidable and fruitful challenges and finding new ways to convey with your community if the old approach did not work, nurtures continuous learning and ensures high accuracy of small impactful achievements.

The learning curve of 'Context' includes:

- Defining and re-evaluating the (mobility) values of your stakeholders
- Emotion and mobility

Example best practices and tools of pilot coordinators related to 'Context':

Best practice	Method/tool	Pilot partner	Co-creation cycle
i2Cat used this method to avoid an abstract discussion and instead focus on one particular issue, with the size and format attracting participants' attention.	Large-size question cards hung up on the wall. Prepare the questions according to participants' knowledge and insights.	i2Cat (Barcelona)	Co-creation cycle 2 Context/ Community
This tool is planned for co-creation cycle 3. Example statement: There are daily xyz cyclists on this street.	'Conversational urbanism': dialogue with citizens by spreading informative drawings and statements on streets throughout the city, related to the mobility.	PUSH (Palermo)	Co-creation cycle 3 (planned) Context/ Community

<p>LUCA used this method in order to re-evaluate the added value for the neighbourhood.</p> <p>Example question: This will be the outcome - the question is not how we can modify it but how we can use this for our neighbourhood?</p>	<p>Reverse engineering exercise</p>	<p>LUCA (Ghent)</p>	<p>Co-creation cycle 2</p> <p>Context/ Community</p>
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4.3 Best Practices 'Community'

With an engaged, well-informed and active community around your team come great opportunities. One important learning factor from the second co-creation cycle is, however, that project goals and high ambitions can also entail expectations to achieve impact. While impact is a desirable and honorable goal for a project like MUV, it should be kept in mind that also a small but sustainable impact is of great value. As the focus of MUV is embedded in a broader discourse of sustainability, the impact can already be achieved by communicating sustainability in a positive way and spread motivation and inspiration to communities all over Europe.

The learning curve of 'Community' includes:

- Long-term engagement of communities and stakeholders
 - Engagement activities
 - Collaborating with gatekeepers
- Managing co-creation "fatigue" and expectations

Example best practices and tools of pilot coordinators related to 'Community':

Best practice	Method/tool	Pilot partner	co-creation cycle
<p>PUSH used a self-designed brainstorming tool starting with a question related to the neighbourhood.</p> <p>Example question: What place/thing/incident</p>	<p>(Self-designed) brainstorming tool: Starting with a general discussion, based on which clusters on topics that are important can be created. These topics can guide the following</p>	<p>PUSH (Palermo)</p>	<p>Co-creation cycle 2</p> <p>Community/ Workspace (monitoring stations)</p>

in your city made you smile today? If you were the mayor of [example city], what would you put at every train station in the city?	practical part.		
The partner used a digital survey during a co-creation session to evaluate the workshop. A time-efficient and effective way to gather feedback in a real-time manner.	E-participation and surveys Example application: Mentimeter	i2Cat (Barcelona)	Co-creation cycle 2 Community/Workspace
PUSH bought a fake microphone and installed a fake MUV billboard; in front of which they invited city representatives to give short interviews to promote MUV. i2Cat showed a video from WHO during a co-creation session to reinforce the health concerns of air pollution.	Supportive material: (promotional) videos Alternatively: inviting experts	PUSH (Palermo); i2Cat (Barcelona)	Co-creation cycle 2 Community/Workspace

4.4 Best Practices 'Workspace'

The workspace, where the strategies and means to reach project goals are further co-created with the community, offers the opportunity to scrutinize the approach built up from the foundation. In MUV, the workspace particularly refers to the further implementation of the monitoring stations, that ranges from the familiarization with the technical opportunities to the installation of sensors at participants' homes. As all pilot coordinators have reported, this hands-on work environment implies great motivational drive for all participants involved, meaning that the communities understand the concept and added value of such measurements. Subsequently, the individual collection of data promoted a feeling of independent contribution and ownership. Additionally, as

demonstrated by the example of Waag in Amsterdam, knowledge-sharing activities with hands-on work also offers the opportunity to create new collaborations among communities.

The learning curve of 'Workspace' includes:

- Active engagement in the workspace leads to new co-creative insights and helps to increase motivation among community members.
- Working together can also provide a facilitator with insights into the previous stages of co-creation

Example best practices and tools of pilot coordinators related to 'Workspace':

Best practice	Method/tool	Pilot partner	Co-creation cycle
LUCA printed a large-sized map and asked participants to mark the possible locations for installing monitoring stations as well as discussing their purpose and benefits.	Mapping exercises as storytelling This exercise is easily combinable with other exercises (i.e. brainstorming) and particularly useful if you want to receive both quantitative and qualitative data.	LUCA (Ghent) Partners who used similar methods: PUSH (Palermo); FVH (Helsinki)	Co-creation cycle 2 Community/Workspace (monitoring stations)
LUCA used this brainstorming exercise in combination with mapping in order to determine the measurement trajectories. Example questions: What do we want to measure? Why? What data do we need? How can we bring the data back to the community? How reliable is this data?	Evaluation of methodologies through brainstorming	LUCA (Ghent) Partners who used similar methods: PUSH (Palermo); FVH (Helsinki)	Co-creation cycle 2 Workspace (monitoring stations)
LUCA aims to include students from an Advertisement Study Program in the design	Assignment with (university) students	LUCA (Ghent) Partners who have similar plans: i2Cat (Barcelona)	Co-creation cycle 3 (planned) Workspace

assignment for the communication of the MUV application in the third co-creation cycle.			
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