



D4.3: Overview report on stakeholder engagement activities in pilots

VARCITIES | Work Package 4, Task 4.3

Final delivery date: 09-01-2026

Deliverable version	V2.0
Dissemination level	Public
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Document History

Project Acronym	VARCITIES
Project Title	VISIONARY NATURE BASED ACTIONS FOR HEALTH, WELL-BEING & RESILIENCE IN CITIES
Project Coordinator	Denia Kolokotsa TECHNICAL UNIVERSITY OF CRETE
Project Duration	60 M (September 2020 – August 2025)
Deliverable Number	D4.3
Deliverable Type	Report
Dissemination Level	PU - Public
Contractual delivery date	30-04-2025
Delivery date	09-01-2026
Version	2.0
Pages	104
Work package	WP4 – Stakeholder engagement & co-creation
Lead Beneficiary	Prospex Institute (PI)
Contributing beneficiaries	Pilot leaders Work package leaders
Keywords	Co-creation, stakeholders, engagement, communities



Revision History

Date	Version	Author	Description
11-05-2025	V0.1	James Cosier, Magdalena Janzic, Eleftheria Athanasa, Wim Cofino, Marc Gramberger	Initial version – PILOT specific engagement overview sent to pilot leaders for review
06-06-2025	V0.2	James Cosier, Magdalena Janzic, Eleftheria Athanasa, Wim Cofino	Updated draft following 1 st Review by Pilot leaders
01-07-2025	V0.3	James Cosier, Magdalena Janzic, Eleftheria Athanasa, Wim Cofino	Final draft – Reviewed by TUC
15-07-2025	V1.0	James Cosier, Magdalena Janzic, Eleftheria Athanasa, Wim Cofino	Final version
09-01-2026	V2.0	James Cosier, Magdalena Janzic, Wim Cofino	Resubmitted version

List of Abbreviations

Term	Description
GDEI	Gender, Diversity, Equity & Inclusion
H&WB	Health and well-being
NBS	Nature-based solutions
PI	Prospex Institute
SROI	Social Return on Investment
VS	Visionary Solution
WP	Work Package



Executive Summary

VARCITIES is an ambitious project advancing innovations in urban planning utilising nature-based and digital solutions to provide multiple social and cultural benefits. Based on inclusive and human-centred planning, it puts people at the centre of designing the cities of tomorrow, developing sustainable public spaces and facilities that support creativity, inclusivity, health, and happiness for the citizens. A central pillar of developing these Visionary Solutions is the co-creation process(es), engaging and empowering citizens and stakeholders to ensure solutions are locally adapted, provide multiple benefits and meet the needs of diverse users and communities. This deliverable details how the seven Pilot cities in VARCITIES (Chania, Greece; Castelfranco Veneto, Italy; Dundalk, Ireland; Gzira, Malta; Leuven, Belgium; Novo Mesto, Slovenia; and, Skellefteå, Sweden) went about engaging stakeholders in these co-creation activities.

The backbone to the co-creation process within VARCITIES was the series of multistakeholder workshops held in each of the Pilots and aligned to the different phases of co-creation in the project: 1) Co-identification of needs; 2) Co-design; 3) Co-implementation; and 4) Co-evaluations. Alongside the workshops, the Pilots employed an agile approach, organising a wide variety of engagement activities and events, that fit their local context and Visionary Solutions. This also enabled involving more stakeholders including participants unable to attend workshops. The result of this long term and committed stakeholder engagement by VARCITIES partners, with the local Pilot teams at the helm, was a rich mosaic of activities and events providing their communities and stakeholders with varied pathways into the project. These were opportunities not just for formal engagement but avenues for stakeholders to give informal feedback and suggestions in their cities.

The VARCITIES approach represented a stark departure from traditional urban planning practices. The co-creation of Visionary Solutions was a challenging yet rewarding endeavour for everyone involved. Beyond the visible outcomes of the project, it was also a valuable learning opportunity in participatory planning for the Pilot cities. The lessons learnt (detailed in this deliverable) can be utilised in the Pilots for future co-creation activities or else in other cities who might replicate the VARCITIES approach to co-creating healthy and sustainable cities.

VARCITIES demonstrates that even when projects predefine certain aspects of the visionary solutions to be developed, there remains a viable and constructive path for co-creation within these constraints. Structured stakeholder mapping was employed effectively during the planning phase to support inclusive engagement efforts. However, fostering broad-based participation



and maintaining stakeholder involvement throughout co-creation processes remain inherently complex tasks.

Transparency is essential—particularly in managing expectations of citizens and other stakeholders regarding the scope of their involvement and how they can meaningfully contribute to the project. Building trust and sustained engagement requires a multi-channel approach, including meetings, surveys, workshops, on-site presence at community events, and—most importantly—personal outreach. These direct contacts proved invaluable for establishing rapport, reinforcing mutual respect, and fostering a sense of ownership.

Clear and accessible communication is also critical. Special care must be taken to ensure that language and terminology remain understandable and consistent throughout the project's lifecycle—no small challenge in long-duration initiatives such as VARCITIES.

In line with EU policy, it is important to collect information on stakeholder participation to assess how gender, diversity, and equality considerations are addressed in both the design and implementation phases. As this data can be sensitive, it must be gathered with the utmost diligence to safeguard trust and avoid jeopardizing the integrity of the project. Data collection strategies should therefore be developed in close collaboration with pilot teams to ensure alignment with local social and cultural contexts.

VARCITIES built upon the existing practices and local networks of its pilot cities, offering a valuable platform to test broader and more inclusive approaches to stakeholder engagement. Through this process, pilots gained deep insights into both the theory and practical application of co-creation—lessons and experiences that remain highly relevant beyond the project's duration.

Pilots discovered the transformative potential of co-creation in the context of urban design. While the approach demands significant time, coordination, and effort, its impact is profoundly rewarding. Across all pilots, it became abundantly clear that citizens and stakeholders are not only willing to engage, but genuinely enthusiastic about shaping the future of their communities. Their energy, insight, and dedication represent an untapped resource for driving innovation and building urban resilience.

The positive experiences have left a lasting impression on the pilot cities, which now demonstrate a strong commitment to advancing co-creation methodologies. They are determined to further develop and implement the approaches introduced by VARCITIES in future urban initiatives.



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1 Introduction

The vision of the VARCITIES project is to utilise nature-based and digital solutions to provide future oriented, Visionary Solutions (VS) that safeguard and improve the health and well-being of citizens as cities confront new climate change realities. The multifunctional nature of these solutions with cultural, economic, environmental and social dimensions requires the blending of diverse expertise. Thus, the goal of the project was to develop VS as locally co-created initiatives involving a range of local institutions and actors.

Alongside these various stakeholders, and in line with a human centred planning philosophy, residents have also been engaged throughout the project to co-create the various VS in each of the seven VARCITIES' Pilot cities (Castelfranco Veneto, Chania, Dundalk, Gzira, Leuven, Novo Mesto and Skellefteå). To facilitate the co-creation process in the Pilots, Prospex Institute (PI) as the task lead, in consultation with Pilots and other project partners, developed the VARCITIES Co-creation Strategy (D4.2).

This document reports on the co-creation process and stakeholder engagement activities conducted as part of the project. It provides an overview of stakeholder engagement activities conducted in each of the VARCITIES Pilots and captures the lessons learnt about their experiences of co-creating Visionary Solutions.

Given the project started in late 2020 it is also important to acknowledge that this was an extremely difficult time in Europe as the COVID-19 pandemic was still very much a challenge communities and public authorities were dealing with. Restrictions on public gatherings and social distancing measures including within organisations, presented particular challenges to stakeholder engagement activities. In VARCITIES partners had to be very agile and adapt with much of the engagement activities in the first phase of the project shifting to online or hybrid formats.

About this document

Section 2 recaps what stakeholder engagement is and the objective for it within the VARCITIES project. This section also clarifies who the VARCITIES stakeholders are, and the methods utilized in the project to ensure inclusive participation.

In section 3, a brief introduction to co-creation is provided as well as a specific look at the co-creation strategy developed within VARCITIES.



Section 4 details the stakeholder engagement activities and co-creation process for each of the VARCITIES Pilots, the additional locally – tailored engagement activities, and the reflections on the co-creation process gathered during the interviews conducted in the framework of Task 4.5, Observation of New Governance Models of happy and sustainable cities.

Section 5 shares the outcomes from additional internal reflections sessions with Pilots following the completion of all co-creation activities. The focus of these sessions was on documenting stakeholders' suggestions and feedback stakeholder engagement and co-creation activities. These reflections also highlight the diversity of ways Pilots received input and evaluated the co-creation process itself. The section also discusses the importance of considering inclusivity in EU projects along with the challenges associated with monitoring it.

Section 6 reflects on the lessons learnt from the stakeholder engagement and co-creation processes across all the Pilots. Reflecting and adapting is a critical step within co-creation processes, and this section is intended to be a resource not just for the VARCITIES Pilot cities as a guide for how to possibly adapt their approaches, and how they could continue to co-create with stakeholders even after the completion of the VARCITIES project, so too for other cities interested in participatory urban planning.

Section 7 is the conclusion to the deliverable in which a brief narrative of the co-creation process and outcomes are details for each Pilot along with some final general reflections about stakeholder engagement and co-creation activities within VARCITIES.

2 VARCITIES Stakeholders

In VARCITIES, stakeholder engagement refers to the structured and continuous involvement of individuals and groups who are affected by or can influence the development of the project's visionary solutions. Engagement is based on an inclusive, dialogic co-creation process that runs through four key stages: co-identification, co-design, co-implementation, and co-evaluation. The main objectives of stakeholder engagement in VARCITIES are to ensure that the solutions are tailored to real local needs, to foster a sense of ownership among citizens and other actors, and to enhance the quality, sustainability, and acceptance of the implemented nature-based and digital solutions. Through systematic mapping, diversity-focused selection, continuous feedback collection, and participatory validation, the project aims not only to improve urban health and well-being but also to set a replicable model for citizen-centred innovation in other cities.



The Prospex-CQI method was used to map stakeholders in a systematic manner¹. It was elaborated and implemented in consultation with consortium partners. This method ensures a broad and representative selection, going beyond existing networks to include diverse voices.

VARCITIES stakeholders fall into three main groups: citizens, citizens with relevant expertise, and external experts. Stakeholders are segmented into key domains such as H&WB, NBS, social development, education, government, and economy, with each category further divided into subcategories tailored to the specific needs of each pilot site. The attention for inclusion, balance, and diversity in stakeholder identification and engagement is an important characteristic of the Prospex-CQI method. It is essential for fostering co-creation, as it helps pilot leaders systematically identify and categorize relevant actors involved in improving health and well-being (H&WB) through nature-based solutions (NBS) in urban areas.

This approach was particularly relevant to VARCITIES for several reasons. First, it ensured inclusive and balanced engagement, allowing both direct end-users (residents, students, local employees) and indirect experts (architects, policymakers, researchers) to contribute to the project. Second, it promoted systematic stakeholder identification, preventing biases and ensuring that key perspectives—ranging from local interests to policy and governance considerations—were represented. Moreover, by applying Prospex-CQI, pilot leaders were able to create comprehensive stakeholder databases, supporting decision-making, regulatory frameworks, and co-creation efforts.

Additionally, this methodology enabled scalability across different pilot sites. While each city had unique local conditions, Prospex-CQI provided a consistent yet adaptable framework for stakeholder engagement, ensuring effective collaboration and knowledge exchange throughout VARCITIES.

By using the Prospex-CQI method, VARCITIES strengthened its co-creation process, fostering meaningful participation, innovation, and long-term impact in urban sustainability initiatives.

¹ Gramberger, M., Zellmer, K., Kok, K., & Metzger, M. J. (2015). Stakeholder integrated research (STIR): A new approach tested in climate change adaptation research. *Climatic Change*, 128(3–4), Article 3–4. <https://doi.org/10.1007/s10584-014-1225-x>



3 Co-creation strategy

To address the challenges and specific needs of stakeholders in and around the VARCITIES pilot sites, and to ensure the suitability, sustainability, and ultimate impact of the project's solutions on health and well-being, VARCITIES implemented a comprehensive co-creation strategy. This strategy actively engaged stakeholders throughout the entire project lifecycle, ensuring their participation in shaping the VSs.

Co-creation in VARCITIES was an iterative and dialogic process in which stakeholders were actively involved through various interactive formats. These engagements enabled the collection and integration of suggestions and feedback into the project's outputs. The process unfolded in four key stages: co-identification, where the challenges and needs of stakeholders were identified; co-design, which involved designing, tailoring, and refining solutions; co-implementation, focused on executing the planned solutions; and co-evaluation, assessing their impact and effectiveness.

A key aspect of this approach was achieving stakeholder buy-in and co-ownership of the solutions developed. Ensuring this required coordination across different pilot sites and strong commitments from all project partners, including pilot leaders and Work Package (WP) coordinators. Each pilot site possessed material assets, such as land, gardens, or buildings, which, through the implementation of nature-based solutions (NBS), were transformed to benefit local communities. At the same time, urban citizens required improved environmental conditions and socially inclusive recreational spaces tailored to their needs. The co-creation strategy provided a structured framework for engaging citizens and other relevant stakeholders in defining and implementing these improvements.

By the end of the VARCITIES project, stakeholders across pilot sites had been continuously engaged in co-identifying, co-designing, co-implementing, and co-evaluating innovative solutions for enhancing urban health and well-being. Stakeholder engagement activities, including rounds of multistakeholder workshops, ensured the inclusion of diverse participants, from residents and local employees to external experts, all of whom were directly or indirectly affected by the VSs. Such activities were the centrepiece of a co-creation process, enabling stakeholders to influence the identification, design, execution, and assessment of solutions, which included both nature-based and digital innovations. By fostering a sense of ownership and incorporating their input, the project ensured that the co-created solutions contributed meaningfully to the well-being of

urban communities. Moreover, this participatory approach served as a model for other cities seeking to engage their citizens and stakeholders in urban development initiatives.

To achieve this vision, VARCITIES set clear objectives for co-creation. The first objective was ensuring the stakeholder mapping process was inclusive, identifying all relevant stakeholder groups that influenced or were affected by the pilot initiatives. This was achieved through a systematic approach using the Prospex-CQI methodology, which guaranteed the participation of diverse stakeholders. The second objective focused on ensuring that when engagement activities required the selection of stakeholders, this selection process was methodologically sound, ensuring balanced representation across genders, age groups, and minority communities. The effectiveness of this approach was measured through defined diversity quotas and direct stakeholder feedback.

The third objective ensured that all relevant stakeholder groups participated in every stage of co-creation, from co-identification through co-evaluation. This included sustained engagement of individual stakeholders throughout the project. The fourth objective was to ensure that stakeholder input directly and indirectly influenced the development, execution, and evaluation of solutions. This was measured by tracking how stakeholder contributions were incorporated into project outputs and verified through stakeholder assessments. The fifth objective aimed to foster a sense of ownership among stakeholders, ensuring that they felt invested in the solutions developed. This was measured through direct feedback and assessments from engaged participants.

The sixth objective was to ensure that the implementation of co-created solutions contributed to an improvement in health and well-being within the pilot cities. While co-creation alone could not achieve this, it played a fundamental role in enhancing the effectiveness of the solutions developed. Measurement strategies for this objective were defined in collaboration with WP7. The final objective was to establish VARCITIES' co-creation process as a replicable model for other cities, facilitating knowledge transfer and inspiring similar engagement strategies elsewhere. While this was challenging to measure within the project's timeline, WPs 6 and 9 played a key role in enabling this outcome.

The success of the co-creation strategy depended on clearly defined roles and responsibilities. PI served as the coordinator, providing guidance and support for pilot and WP leaders, particularly regarding the implementation of multistakeholder workshops during each phase of the co-creation process. Thus, as the task lead PI sought to ensure coherence and structure across pilot sites while allowing flexibility to accommodate local contexts. Furthermore, since



different WPs had varying stakeholder engagement needs, careful coordination was necessary to optimise stakeholder interactions and prevent engagement fatigue. Each pilot site was responsible for organising and executing local stakeholder engagement activities, managing stakeholder data, and reporting on engagement outcomes. All personal data collected during these activities were included in updated project documentation.

The COVID-19 pandemic introduced challenges to traditional engagement formats, necessitating digital and hybrid approaches. While digital engagement ensured continued stakeholder participation, it also presented accessibility challenges, particularly for individuals with disabilities or limited digital literacy. To address this, pilot sites carefully designed digital engagement strategies, selected appropriate tools, and provided necessary support to underrepresented groups.

To effectively carry out co-creation activities, strategic actions were outlined for each of the four co-creation stages. As reported in D4.4, opportunities for sharing good practices among the pilots were actively monitored and discussed in internal Cross-learning workshops. Multi-stakeholder workshops served as a key engagement tool, ensuring diverse participation in each of the four co-creation stages through the Prospex-CQI method. The workshop approach ensured efficient and structured stakeholder contributions while allowing for cross-fertilisation of ideas.

Despite the intensive nature of workshops, their ability to facilitate meaningful stakeholder engagement justified their use. However, alternative engagement formats were included in the co-creation strategy to ensure flexibility and scalability. Focus groups allowed for deeper discussions on specific topics, surveys enabled broader but less in-depth input collection, and public events helped raise awareness and engage a wider audience. Additional formats were introduced as needed to address gaps in stakeholder representation or refine collected inputs. These strategies collectively ensured that VARCITIES' co-creation process remained comprehensive, inclusive, and impactful throughout the project's duration and beyond.



3.1 Co-identification of needs

The co-identification stage (S1) of the co-creation process focused on engaging diverse stakeholders to gather insights on local needs, drivers, and barriers while refining the initial VSs. A key component of this stage was a closed-door multi-stakeholder workshop (WS1), where stakeholders provided qualitative feedback on early solution drafts developed by the consortium. Their input was analysed within WP3 and WP6 and integrated into the next phase, ensuring a better alignment with end-user needs.

To support this process, several strategic actions were carried out. Stakeholder mapping and analysis were conducted to identify relevant participants, followed by the development of a stakeholder database to facilitate engagement. The project also defined communication channels for stakeholder interaction, ensuring effective outreach during WS1. Additionally, WP3 developed a knowledge base, characterising the pilot sites' challenges and needs, and explored alternative approaches to nature-based solutions.

Mock-ups and use cases for the digital health and well-being platform were also created to provide concrete references for stakeholder discussions. To ensure a structured approach, a process design for WS1 execution was developed, equipping pilot teams with the necessary tools and guidance. The WS1 workshop itself was then organised across pilot sites, using the PESTLE framework to co-create and refine nature-based solutions with direct stakeholder involvement.

Following the WS1, feedback and Gender, Diversity, Equity, and Inclusion (GDEI) forms were distributed to capture participant responses and assess engagement effectiveness. These insights contributed to the ongoing development and refinement of solutions, marking the transition to the co-design stage.



3.2 Co-design

The co-design stage (S2) marked the next critical phase of stakeholder engagement, building upon the insights gathered during the co-identification process. At this stage, a second closed-door multi-stakeholder workshop (WS2) was held at each pilot site, bringing together many of the same stakeholders involved in WS1. This workshop provided an opportunity to present the refined VSs, shaped by previous stakeholder feedback and WP3 and WP6 analysis, and to collect final input before broader dissemination. The goal was to validate the proposed solutions, ensuring they were well-adapted to local needs and expectations.

Throughout this stage, the stakeholder database was regularly updated to reflect evolving participation. The design of the health and well-being platform, as well as digital solutions, was finalised based on insights from WS1, while NBS were further developed with direct stakeholder contributions to enhance their relevance and impact. In parallel, preparations for WS2 included defining communication channel testing methods and developing a structured process to guide workshop execution.

WS2 itself was a pivotal moment for co-creation, allowing stakeholders to assess progress since WS1, refine the proposed solutions, and provide their final recommendations. The interactive discussions ensured that all perspectives were accounted for before moving forward. After the workshop, feedback and GDEI forms were distributed to capture reflections on the process and ensure inclusivity.

As a final step in this stage, the updated Visionary Solutions were shared for public review and approval, reinforcing the commitment to transparency and ensuring that the co-created solutions were not only shaped by stakeholders but also embraced by the wider community.



3.3 Co-implementation

The co-implementation stage (S3) marked a shift toward continuous stakeholder engagement, ensuring that the VSs were effectively delivered and adapted to real-world needs. Unlike the earlier phases, which focused on shaping and refining ideas, this stage prioritised real-time feedback mechanisms and proactive communication about ongoing implementation activities. A flexible approach was employed, enabling each pilot to customise engagement methods according to their specific requirements, while continuously assessing and incorporating additional mechanisms such as webinars, interviews, specialised working groups, and public events.

Keeping stakeholders informed and involved required a dynamic approach. The stakeholder database was continuously updated to reflect changing participation. A public town hall event which each Pilot hosted played a crucial role, offering a transparent forum where residents and other stakeholders could both receive updates on planned activities, make suggestions and voice concerns about potential impacts. Additionally, mock-ups of the health and well-being platform and the GoNature Game were presented to collect early-stage feedback, ensuring that digital solutions aligned with user expectations.

To encourage ongoing engagement, an online suggestion box was introduced, allowing citizens and end-users to provide continuous input via pilot-specific webpages and local outreach initiatives. Furthermore, regular risk management cycles were implemented, consisting of structured calls and reports designed to address challenges and ensure smooth progress. These cycles provided a structured way to monitor implementation while maintaining open communication with stakeholders.

As the co-implementation phase progressed, external uptake engagement sessions were held to explore how insights from this stage could inform broader replication efforts. Digital solutions underwent real-world testing through dedicated booths, where stakeholders had the opportunity to interact with and evaluate the tools firsthand. Finally, stakeholder evaluation and equality data collection remained a priority, with feedback mechanisms refined based on lessons learned to enhance inclusivity and representation.

By integrating these diverse engagement methods, the co-implementation stage ensured that stakeholders remained at the heart of the process, actively contributing to the realisation of the VSs while shaping their impact on urban well-being.



3.4 Co-evaluation

The co-evaluation stage (S4) focused on assessing the effectiveness of the VSs, their implementation, and their impact. The evaluation was carried out in close collaboration with stakeholders, providing both quantitative and qualitative feedback to support the results of WP7. The stage included various engagement methods, such as crowd-sourced surveys, focus group discussions, webinars, and public-facing events, which were carefully considered and tailored to the needs of each pilot site and WP.

A key action in this stage involved developing a KPI framework for each pilot to track and report progress. This ensured that all stakeholders were aligned in terms of expectations and outcomes. Additionally, an active stakeholder list is compiled, giving pilot sites an overview of all participants who have been involved throughout the project. This list helps ensure transparency and continued engagement as the project progresses.

A major event in this stage was the co-evaluation workshop (WS4), where all pilot sites hosted a multi-stakeholder meeting to assess project results with local stakeholders. This workshop while originally scheduled for Spring 2024 was pushed back to late 2024 and early 2025, reflecting the delayed implementation of VS and ensuring that citizens and stakeholders could experience them more before being asked to participate in the co-evaluation process. It provided an important opportunity for stakeholders to reflect on the outcomes and suggest final improvements.

Finally, stakeholder evaluation and equality data collection are refined, considering feedback and insights gathered throughout the project. This data ensures that the co-creation process remains inclusive and that the voices of all stakeholders are heard and considered in the final evaluation.

3.5 Other engagement activities

As well as hosting the series of co-creation workshops designed and coordinated by PI as were outlined in the VARCITIES co-creation strategy (D4.2), each Pilot additionally organised various local stakeholder events and other engagement activities (surveys, interviews, etc) which were largely designed and implemented locally although PI held regular check in calls with Pilots and provided support when Pilots sought it.



4 Engagement in the Pilots

Before detailing the stakeholder engagement activities in the Pilots, it is important to commend all Pilots and their many stakeholders for the considerable time and effort they devoted to the co-creation activities in their sites.

This chapter outlines the stakeholder engagement and co-creation activities carried out across the pilot sites within the VARCITIES project. It presents an overview of how diverse community members, professionals, and institutions contributed to shaping and refining VSs through workshops, events, and collaborative processes. Emphasis is placed on participatory design, inclusivity, and the integration of health and well-being into urban green spaces. The chapter also reflects on lessons learned, challenges encountered, and the evolving role of stakeholder engagement in driving sustainable urban transformation.

As flagged above, Pilots were supported in adapting the VARCITIES co-creation framework to their own local contexts. The contextual factors in the Pilots (size, demography, culture, etc.) coupled with the diversity and specificities of the VSs being developed means that each of the Pilots' co-creation journeys were unique and thus it is inadvisable to attempt to draw empirical comparisons regarding engagement and co-creation activities across the Pilots. Rather the project focused on supporting cross learning among Pilots and the sharing of good practice and experiences – these activities are documented in Deliverable 4.4.

4.1 Castelfranco Veneto

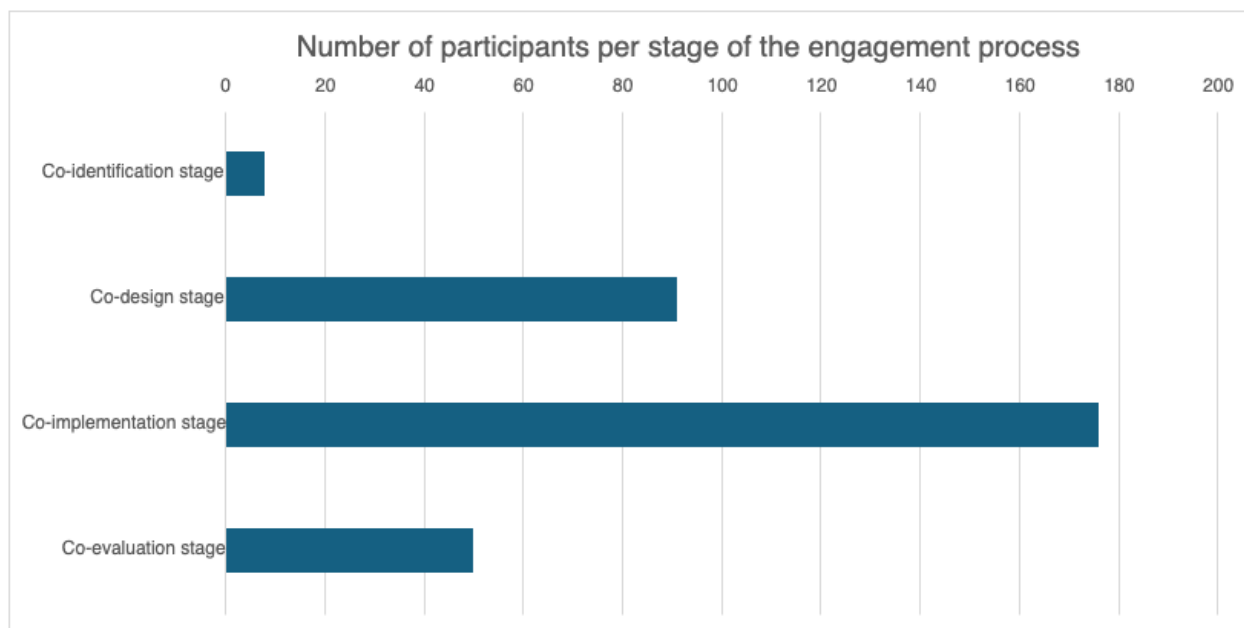
The VARCITIES Castelfranco Veneto pilot brings new life to Villa Revedin Bolasco's historic gardens, creating a therapeutic green space for elderly residents and individuals with dementia. Social challenges revolve around accessibility, public awareness of green space benefits, and ensuring continuity beyond the project. The city's visionary path focuses on co-design, health-focused landscape management, and cross-sector political support to guarantee the space's long-term sustainability and impact

Visionary Solutions

- **VS1 – Creation of garden access routes to ensure an improved access according to the needs of the garden users**
Design and implement accessible pathways in a therapeutic garden for elderly users and individuals with dementia.
- **VS2 – Analysis and monitoring of psychological and physiological Well-being for elderly people and people affected by Alzheimer**
Integrate psychological and physiological monitoring tools to assess the impact of nature exposure in the therapeutic setting.
- **VS3 – Full monitoring of microclimatic conditions in the different areas of the garden (forest area, Open area, lake area)**
Deploy sensors to monitor environmental and microclimatic conditions in the green space.
- **VS4 – Development of a green public spaces (re)design toolbox and establishment of the “Local observatory on therapeutic effects of the landscape “**
Develop a toolbox for redesigning green spaces that integrates health, biodiversity, and inclusive design principles.
- **VS5 – Implementation of virtual and ICT tools to support a rewarding experience of garden users & for the assistance of visitors with disabilities**
Provide digital tools and technologies to improve navigation, safety, and access for people with disabilities.
- **VS6: Adaptive & intelligent visitor information systems**
Use intelligent information systems to enhance visitor orientation and interaction with the therapeutic garden environment.

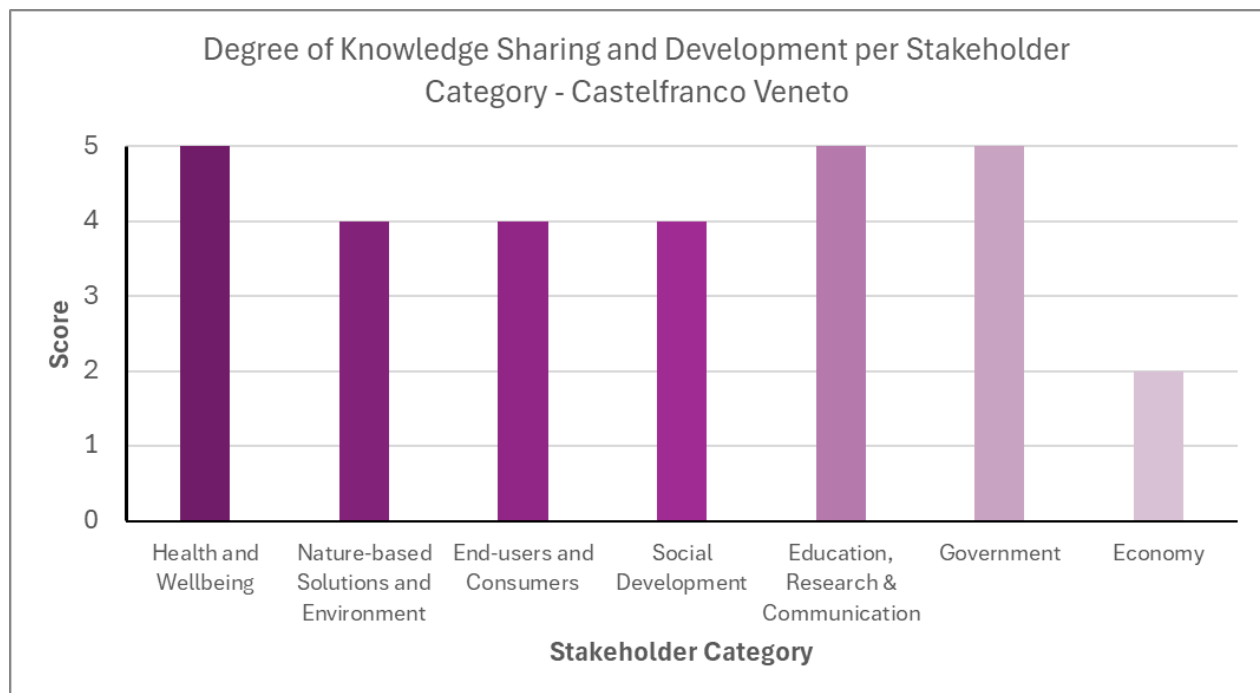
Stakeholders

As was evident across many of the Pilots, initial participation in the co-creation process was highly affected by COVID-19 circumstances at the time, while subsequent in-person events and a diversified approach to engagement activities over the course of the project brought in a greater number of stakeholders into the engagement activities. Aggregate participation numbers for events organised by the Castelfranco Veneto Pilot during each stage of the co-creation process are detailed in the graph below (Graph 1). High participation levels in the co-implementation stage reflects the format of the third co-creation workshop, organised as an open Town hall event: a format that facilitated large engagement numbers.



Graph 1. Number of participants per stage in the engagement process in Castelfranco Veneto

Detailed figures on the profile of stakeholders participating in engagement activities across the project are not available since certain events (i.e. Town hall event) were not conducive to collecting such information. An estimate of the importance of different stakeholder groups to each Pilot was obtained through interviews with Pilot representatives conducted as part of the work documented in the addendum to Deliverable 4.5. The estimated degree of knowledge sharing with representatives from the different VARCITIES Stakeholder categories is given in the next figure (Graph 2). The scores on the y-axis range from 1: no input to 5, extensive interactions and contributions.



Graph 2. Degree of Knowledge Sharing and Development per Stakeholder Category - Castelfranco Veneto

4.1.1 Co-creation process

1st phase of co-creation

The first multistakeholder workshop brought together a diverse group of professionals and stakeholders to explore the potential of VEs in enhancing health and well-being in Castelfranco Veneto through nature-based and digital approaches. Participants included representatives from academia, local governance, elderly care facilities, social enterprises, architecture, education, and the private sector. The session focused on evaluating the proposed VEs and aligning them with the needs of various user groups, particularly older adults and individuals with disabilities.

A central theme throughout the workshop was the importance of accessibility and integration. Participants highlighted the need to improve access routes to the Villa Revedin Bolasco garden, especially for people with reduced mobility. Suggestions included the creation of external drop-off points, the introduction of accessible transport platforms, and the integration of routes from nearby urban infrastructure such as schools and the train station. Several stakeholders noted

the lack of adequate parking and stressed the importance of connecting the garden more effectively to the city to foster inclusion.



Figure 1. First co-creation workshop in Castelfranco Veneto

There was broad support for the creation of variable-sized paths and micro-spaces within the garden to accommodate individuals with cognitive impairments, such as Alzheimer's disease. Stakeholders discussed the psychological importance of clear and intuitive navigation, with one participant highlighting that circular routes can be particularly effective for individuals experiencing the park was noted to be favourable in this respect.

Another focal point was the analysis and monitoring of psychological and physiological well-being (VS2). Participants emphasised the importance of inclusive design and recommended expanding the solution beyond Alzheimer's patients to include other vulnerable groups, such as individuals with sensory impairments or mobility limitations. The therapeutic potential of the garden was widely acknowledged, with suggestions to introduce intergenerational interactions, informative signage, and shuttle services to improve access. The idea of measuring the emotional and behavioural impact of specific plant species on individuals with different sensitivities also emerged.

In the discussion around microclimatic monitoring (VS3), stakeholders expressed interest in capturing not only environmental data but also the perceptual and emotional responses of visitors. Suggestions included the use of light and sound installations to enhance the user experience, with one participant proposing interactive features responsive to mood and social interaction, inspired by smart urban installations in other cities.

For the development of a green public space redesign toolbox and the establishment of a local observatory (VS4), stakeholders highlighted the potential for the observatory to extend beyond the immediate scope of the project. It was seen as a platform for knowledge-sharing and coordinating the use of therapeutic gardens among various Alzheimer's care providers. The observatory was also considered a tool to build synergies with the wider community.

Although there were fewer specific comments on the digital tools (VS5 and VS6), stakeholders suggested that data from environmental monitoring could support these solutions. Ideas included the development of virtual windows and augmented reality content to increase garden accessibility for those unable to visit, particularly during adverse weather conditions.

The conversation around drivers and challenges underscored the need to integrate low-cost sensor technologies, improve environmental awareness, and overcome urban and architectural barriers. Several stakeholders emphasised the importance of transforming the Villa from an isolated site into a central node within a broader, inclusive, and accessible green network.

During the session, participants were invited to reflect on the success criteria for the VSs. One suggested metric was the number of visitors to the garden. Others emphasised the importance of creating inclusive and stimulating public spaces that foster both social interaction and opportunities for solitary enjoyment of nature.

The workshop concluded with a strong sense of commitment among participants to continue collaborating and contributing to the development of visionary, inclusive, and evidence-based interventions that reflect the diverse needs of Castelfranco Veneto's residents.

2nd phase of co-creation

The second VARCITIES stakeholder workshop gathered a wide array of participants for an in-depth discussion on the implementation and impact of the VSs. The session served as a platform to share diverse perspectives, particularly on how these solutions could enhance inclusivity, accessibility, and well-being across different community groups. Stakeholders provided both technical and experiential feedback, highlighting the importance of designing interventions that are functional, culturally sensitive, and socially empowering.



Figure 2. Second co-creation workshop in Villa Revedin Bolasco

A recurring theme in the discussion was the critical importance of accessibility in green spaces, particularly related to VS1. Participants emphasised the need for physical supports like handrails and smooth paths, especially for people with disabilities, cognitive challenges, or frailty. There was also a strong emphasis on using environmentally integrated materials and addressing sensory and visual impairments. Stakeholders advocated for thoughtfully designed resting areas and preserving the cultural and historical identity of the space while making it more inclusive. The aim was to design spaces that invite everyone—regardless of ability—into the social fabric of the community, promoting inclusivity and dignity.

In contrast, VSs 2 and 3 were acknowledged as more research-oriented, with less immediate relevance to stakeholders' daily experiences, and thus received limited feedback during the session.

VS4 prompted a rich discussion around participatory planning and the potential of the proposed Observatory as a tool for community engagement. Attendees stressed the importance of making the Observatory a community-driven space for citizen science and collaboration among local organisations. Suggestions included rethinking green spaces as providers of ecosystem services and clearly defining the objectives and success metrics for manuals and best practices. Some scepticism was voiced regarding the actual implementation of the Observatory, underscoring the need for awareness-raising to ensure its effectiveness.

Discussions on VS5 focused on integrating digital safety tools, such as wearable devices and augmented reality features, to improve the experience and security of garden users. While stakeholders appreciated the potential for increased safety and interactivity, concerns were raised about usability, particularly among older or less tech-savvy individuals. Participants stressed the importance of adapting technological tools to diverse user needs and supporting them with human presence, such as volunteers or staff, to ensure continued engagement and safety.

VS6 extended the conversation into the digital realm, proposing interactive screens and virtual tools to broaden access to the garden experience. While the idea was well received—especially for its potential to integrate cultural and natural elements—concerns were raised about practicality, maintenance, and the risk of digital overstimulation among vulnerable users. Some proposed complementary approaches such as sensory panels, guided educational content, or placing digital tools indoors to offer controlled and context-sensitive engagement.



Figure 3. Visit to the garden with the workshop participants

Throughout the workshop, participants repeatedly emphasised the need to remove both physical and social barriers. Poll results showed cautious optimism, with stakeholders rating the project as “somewhat effective” to “effective,” depending on the long-term implementation and societal uptake. The digital health and well-being platform was seen as an opportunity to

showcase community stories and reinforce local identity—provided it remains grounded in authentic human experiences.

As the session drew to a close, participants reflected on the potential of the VARCITIES project to serve as a model for similar initiatives. Emphasis was placed on integrating biodiversity, historical value, and community participation in the design and use of garden spaces. Suggestions included hosting events, embedding educational elements, and promoting intergenerational and intercultural dialogue to transform these areas into vibrant, inclusive community hubs. The session ended with a shared sense of purpose and the understanding that continued collaboration, adaptability, and a human-centred approach will be key to unlocking the full potential of the VSs.

3rd phase of co-creation

The Town Hall event at Villa Bolasco was designed as both an educational and participatory experience, allowing attendees to explore the implementation of the VARCITIES project while enjoying cultural activities. As part of the engagement strategy, participants followed a pathway through the villa's gardens, stopping at stands dedicated to the six VSs and their related pilot activities. The inclusion of live solo concerts enriched the atmosphere, reinforcing the project's aim to blend natural, cultural, and technological elements in service of human well-being.

During the second part of the event, attendees gathered in the villa's main hall for a presentation outlining the broader objectives of VARCITIES and the progress made locally. This moment of collective reflection encouraged community feedback, highlighting both hopes and concerns regarding the project's future. Many participants expressed appreciation for the project's scope, particularly its innovative approach and emphasis on nature as a tool for improving urban life. Several praised the peacefulness and value of the green space, viewing the initiative as a sign of positive change for the city. The integration of community involvement and a human-centred design approach was widely recognised as one of the project's key strengths.





Figure 4. Town Hall event at Villa Bolasco

Participants shared positive impressions of the co-creation process that has guided the development of the VSs. Many agreed that involving community members from the outset increases both the relevance and sustainability of the proposed interventions. There was a shared belief that when people are included as co-designers, the outcomes are more aligned with real needs and more likely to endure beyond the formal project timeline. This collaborative approach was seen as empowering and essential for fostering local ownership and long-term impact.

Reflecting on the VSs, participants expressed strong support and enthusiasm for future engagement. The integration of nature as a central element was widely appreciated, with many noting the therapeutic and inclusive potential of the historic garden. Both younger and older community members were seen as likely beneficiaries, and several attendees highlighted the importance of accessible green spaces in urban environments. Specific solutions—such as those focused on strategic mapping or enhancing user experience through nature-based interactions—were particularly well received. These interventions were recognised not only for their innovative use of space and technology, but also as replicable models for other settings.

However, some concerns were raised regarding implementation risks. Participants pointed out that the highly site-specific nature of the project might limit its scalability. Others noted potential

administrative or regulatory hurdles that could delay progress. The lack of available green space in some urban areas was also identified as a factor that could hinder broader adoption. These risks were generally considered medium to high in impact, with likelihood varying depending on context.

On the topic of replication, responses revealed a broad vision for extending VARCITIES solutions beyond the pilot site. Suggestions included adapting them for use in other cities, healthcare settings, and work environments to address issues such as stress, anxiety, and cognitive decline. The solutions were also seen as relevant for social assistance programs, particularly those supporting youth or individuals with disabilities. Overall, participants felt the project's core ideas were not only adaptable but urgently needed across different sectors and regions. The feasibility of replication was considered case-dependent, with some applications viewed as relatively straightforward to implement.



Figure 5. Left: Pilot representative talking about VSs. Right: Stakeholders trying out the VR.

Although digital tools like the Health & Well-Being Platform and the GoNature Game were presented during the exhibition, they were not fully experienced due to background noise at the event. Nevertheless, the visual appeal of the materials was acknowledged, suggesting potential for deeper engagement under more suitable conditions.

The event closed on an optimistic note. Through open dialogue, hands-on exploration, and cultural celebration, the Town Hall created a meaningful opportunity for the community to connect with the VARCITIES vision. The thoughtful integration of nature, innovation, and public



participation was widely recognised, and attendees left with a clearer understanding of how these elements can shape healthier and more inclusive urban environments. As the project progresses, the enthusiasm and insights gathered during the event will help ensure that the solutions remain rooted in the community's real needs and aspirations.

4th phase of co-creation

The workshop began indoors at Villa Bolasco with an introduction to the day's objectives and a presentation of the VSs. This was followed by a guided site visit, during which each VS was described in context throughout the park, with stops at relevant locations. As the visit progressed, participants shared observations and comments, which were noted and organised according to the specific VS discussed.



Figure 6. Evaluation workshop with the stakeholders.

Regarding VS3, a representative from a local association stressed the importance of ensuring that sensor data is standardised and comparable across pilot cities to enable meaningful benchmarking and collaboration. In relation to VS6, a question was raised about whether the digital totems include content in English to accommodate international visitors and tourists. For VS1, participants expressed interest in knowing when access to the park via the entrance near the Barchessa degli Strepiti—future site of the local observatory on well-being and landscape—



would be opened. Concerns were also noted about the relocation of parking spaces for elderly individuals and those with mobility challenges due to ongoing restoration works, which may temporarily impact accessibility.

Some feedback was broader and not tied to a specific VS. One participant inquired whether recreational activities such as boating on the park's internal pond—once allowed—could be reintroduced. Others suggested improving the visibility of the park from the outside, noting that the existing wooden perimeter fence currently obstructs views. This comment was considered especially relevant now that a new bike path has been constructed alongside the park, which could attract more passersby if visual access were improved.

Additional locally tailored activities



Figure 7. Castelfranco Veneto's pilot representative at the HELIX event

In June 2024, the HELIX event in Castelfranco Veneto brought together local authorities, experts, and citizens to explore sustainable urban solutions aligned with the VARCITIES project. Centred on health, inclusivity, and climate resilience, the event fostered a collaborative atmosphere in which participants exchanged ideas on co-creating greener and more liveable urban spaces. Discussions highlighted the vital role of NBS and citizen engagement in shaping cities that prioritise well-being and environmental sustainability.

In October 2023, a group of international architecture students and professors visited the Castelfranco pilot site to examine how urban planning can incorporate NBS. The visit served as a hands-on learning experience, offering students practical insight into real-world applications of sustainable design. It also created a platform for dialogue between local planners and emerging professionals on how public spaces can be reimagined to serve both ecological and community needs.

In May 2023, a dynamic hackathon at Villa Revedin Bolasco invited students and young professionals to develop creative ideas for enhancing Castelfranco's urban environment. Working in teams, participants tackled design challenges aligned with the VARCITIES vision blending innovation, sustainability, and civic engagement. The event underscored the importance of involving youth in the planning process and showcased new perspectives on improving quality of life through green infrastructure and inclusive public space design.



Figure 8. Students participating in the hackathon event.

4.1.2 Pilot reflections on stakeholder engagement and co-creation

According to the pilot representative, community engagement in the city was limited before the launch of VARCITIES.

The stakeholder mapping process was considered highly effective. The project significantly enhanced participation, particularly during the co-identification and co-design phases, where local associations and organisations were actively engaged from the outset. The representative highlighted successful collaboration with a broad range of stakeholders, including local government, academia, healthcare professionals, and civil society actors. However, engagement during the co-implementation and co-evaluation stages was described as more limited.

A key challenge identified was the difficulty in aligning diverse institutional perspectives—especially those of policymakers and research communities. While most stakeholder groups were involved in the process, the economic sector, including small businesses and entrepreneurs, remained underrepresented. Nevertheless, the pilot benefited from knowledge exchange at both local and national levels, particularly through participation in networks focused on NBS.

The Pilot representative expressed strong interest in continuing to apply the co-creation methods developed during VARCITIES. Plans are underway to compile and disseminate the



pilot's experiences through a best practices manual, with the goal of influencing future projects across the Veneto region.

4.2 Chania

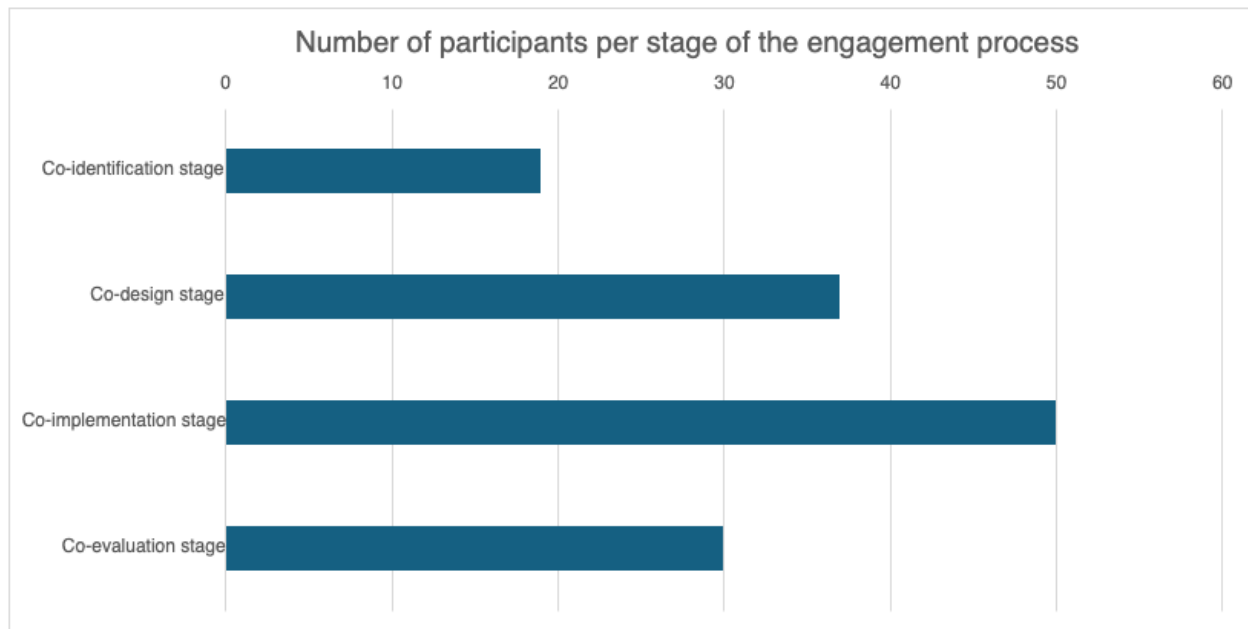
Situated on the island of Crete, Chania combines historical charm with a commitment to urban sustainability. The city's pilot—centred around a Mobile Urban Living Room—reclaims underused public space and fosters inclusive engagement, especially for those affected by mental health challenges. Social obstacles include stigma, political scepticism, and resistance to municipal projects. VS development focussed on transparency in co-creation, early involvement of mental health groups and families, and using technology to support community well-being and sustainable mobility.

Visionary Solutions

- **VS1 – Mobile Urban Living Room (MULaR)**
Create a temporary or semi-permanent Mobile Urban Living Room in public spaces to support well-being, social interaction, and cultural activities.
- **VS2 – Sensors on bikes and bike stations**
Use bike-mounted and station-based sensors to gather data on urban mobility patterns, promoting sustainable transport and healthier lifestyles.

Stakeholders

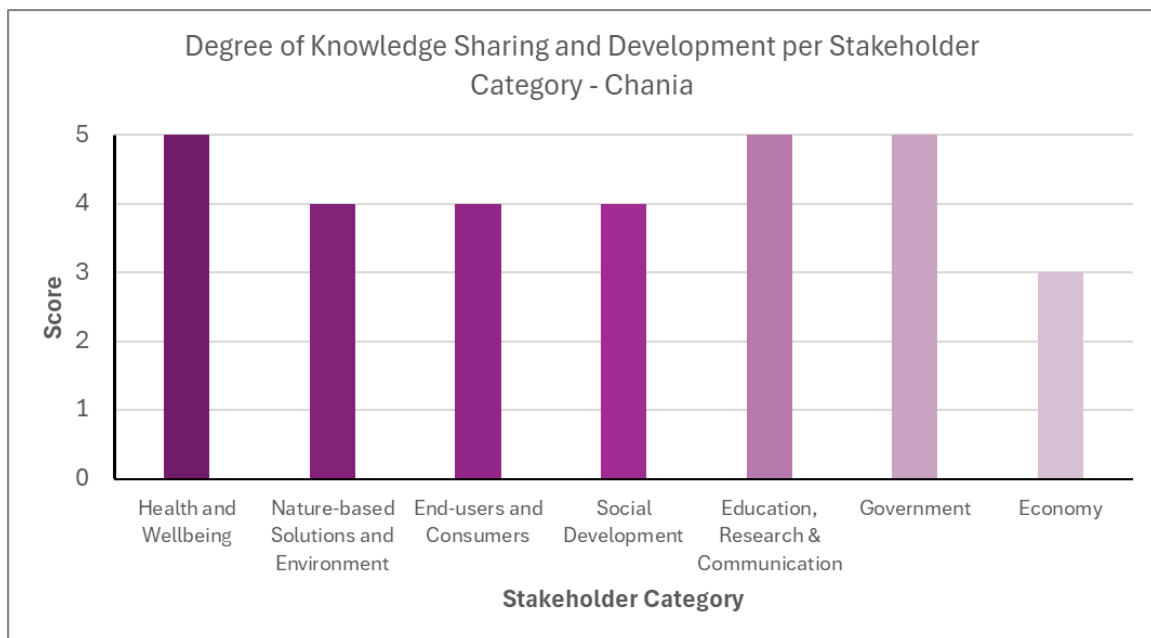
As observed across many of the pilots, initial participation in the co-creation process was significantly affected by the COVID-19 circumstances prevailing at the time. In later phases of the project, however, the introduction of in-person events and a more diversified engagement strategy led to the involvement of a broader range of stakeholders. Aggregate participation numbers for events organised by the Chania Pilot during each stage of the co-creation process are detailed in the graph below (Graph 3).



Graph 3. Degree of Knowledge Sharing and Development per Stakeholder Category in Chania

Detailed figures on the profile of stakeholders participating in engagement activities across the project are not available since certain events (i.e. Town hall event) were not conducive to collecting such information. An estimate of the importance of different stakeholder groups to each Pilot was obtained through interviews with Pilot representatives conducted as part of the work documented in the addendum to Deliverable 4.5. The estimated degree of knowledge sharing with representatives from the different VARCITIES Stakeholder categories is given in the next figure (Graph 4). The scores on the y-axis range from 1: no input to 5, extensive interactions and contributions.





Graph 4. Degree of Knowledge Sharing and Development per Stakeholder Category - Chania

4.2.1 Co-creation process

1st phase of co-creation

The first multistakeholder workshop in Chania, held in July 2021, brought together local actors to assess the envisaged VSs and their impact on urban well-being. Participants shared insights into the strengths and shortcomings of the initiatives, emphasising the importance of co-creation in ensuring long-term success.

Several stakeholders praised the environmental and social benefits of the proposed solutions, particularly those promoting accessibility and green infrastructure. One participant noted that the revitalisation of open spaces had contributed to a stronger sense of community, encouraging social interaction across different age groups. However, concerns were raised about the inclusivity of certain installations, with some residents expressing frustration over limited accessibility for people with disabilities. Another recurring theme was the need for better integration of digital tools, as several participants found existing platforms unintuitive or underutilised.

Feedback on the co-creation process was generally positive, with attendees acknowledging its role in strengthening collaboration between municipalities, businesses, and citizens. Nonetheless, a few voiced scepticisms about how much public input had truly influenced decision-making. Some felt that engagement remained largely institutional, rather than genuinely grassroots.

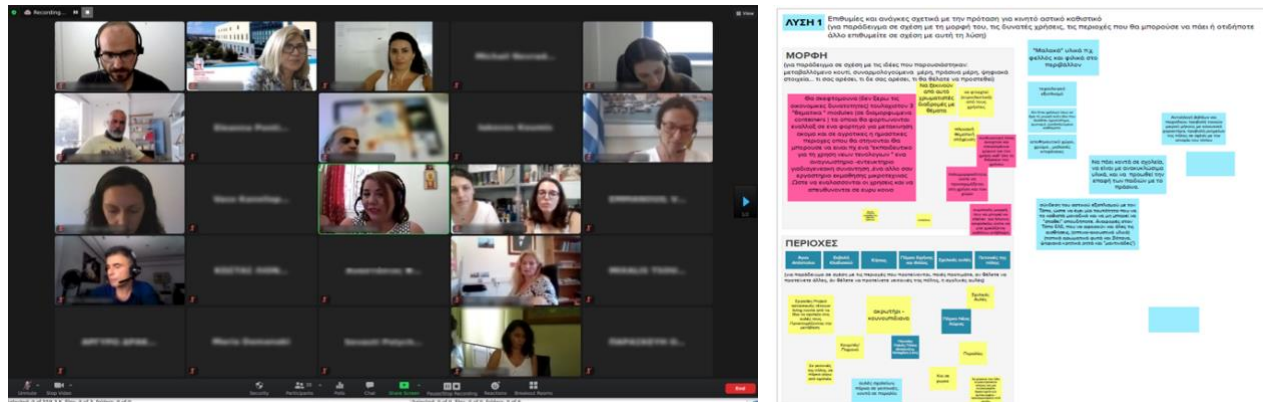


Figure 9. Chania's first co-creation workshop

Challenges were also identified in terms of awareness and adoption. While the solutions were seen as promising, several participants pointed out that many citizens were still unaware of their benefits or how to interact with them. In particular, language barriers and a lack of targeted outreach campaigns were noted as obstacles, especially in multicultural communities.

Looking ahead, the workshop underscored the need for continuous monitoring and adaptation. Recommendations included simplifying digital interfaces, expanding awareness campaigns, and ensuring a more equitable distribution of resources. Participants stressed the importance of transparent communication to build trust and sustain long-term engagement. Ultimately, the session reaffirmed the value of an inclusive and adaptive approach to urban transformation, ensuring that VARCITIES' VSs remain both impactful and accessible.

As the design process progressed, a follow-up workshop was organised to present updated VS1 concepts and gather feedback on two proposed implementation options: a converted minivan and a converted container. Participants explored the functional, spatial, and logistical differences between the two formats, with particular attention to how each could support outdoor activities and adapt to Chania's favourable climate. Discussions highlighted the minivan's enhanced mobility, potential for outreach in remote areas, and flexibility in accommodating diverse public actions. Concerns about space limitations were met with suggestions for modular expansions, while most agreed that the ability to activate open spaces was more critical than fixed

infrastructure. The final segment of the workshop involved a vote among participants, which resulted in unanimous support for the minivan option. This consensus marked a pivotal moment in the co-design journey, allowing the pilot team to finalise the MULaR design in alignment with community needs and stakeholder input.

2nd phase of co-creation

The second workshop, held in June 2022, provided a platform for stakeholders to assess the progress of the VSs and reflect on their impact on community well-being. Participants engaged in open dialogue, highlighting both achievements and persistent challenges.



Figure 10. Focus group discussion at the second co-creation workshop

A key highlight of the discussion was the positive reception of green infrastructure initiatives. Several attendees emphasised their role in enhancing urban resilience and improving mental health. One participant observed that access to well-maintained green spaces had clearly

improved social interaction and provided a welcome escape from everyday stress. Others, however, raised concerns about maintenance and long-term sustainability, warning that without durable strategies, the benefits could fade over time.



Figure 11. Pilot representative showing different design options to stakeholders

While the co-creation process was again praised for fostering collaboration, some participants expressed concerns about its inclusivity. Institutional actors and municipal representatives played a central role, but certain community groups felt their perspectives were not adequately considered. A few called for more interactive and informal engagement formats, such as community-based workshops and neighbourhood gatherings.

The integration of digital tools remained a recurring challenge. Although technological solutions were developed to support well-being, their adoption—particularly among older residents—was limited. Stakeholders recommended creating more intuitive interfaces and offering clear, user-friendly guides to promote wider participation.

Public awareness was also flagged as a critical issue. While the project's initiatives held great potential, many attendees felt they lacked visibility. Suggestions for improvement included

targeted social media campaigns, multilingual informational materials, and partnerships with local organisations to better reach underrepresented communities.

The workshop concluded with a shared commitment to refining and adapting the existing solutions. Participants emphasised the need for continuous evaluation, open communication, and stronger community partnerships to ensure lasting impact. The session reinforced the importance of an inclusive, flexible, and community-driven approach to urban innovation.

3rd phase of co-creation

The Chania Town Hall event in November 2022 drew over 40 attendees, including 25 stakeholders. The event featured presentations from the Municipality of Chania, the Technical University of Crete, and Cyclopolis, covering the VARCITIES project, the Visionary Solutions, the Health & Well-Being Platform, and the GoNature Game. Attendees then interacted with a series of stands showcasing these initiatives.

An introductory presentation recapped the outcomes of previous workshops. Another official emphasised the significance of participatory planning and the ongoing collaboration with the Technical University of Crete. Stakeholders were then guided through interactive booths to further engage with the proposed solutions.

VS1 focused on the Mobile Urban Living Room (MULaR), where stakeholders provided feedback on façade materials—natural wood emerged as the preferred choice. Participants also suggested incorporating additional features such as health monitoring devices, compost bins, and smart wearables.

VS2 introduced a sensor kit for monitoring air quality and noise levels. Stakeholders favoured mobile app notifications and public displays as effective means of disseminating data. A bike-mounted sensor kit was also proposed, with five participants expressing interest in piloting it.

The Health & Well-Being Platform presentation highlighted key performance indicators for Chania's pilot. Participants appreciated the use of heat maps and emoji-based visuals and proposed enhancements such as size-adjustable dots for pollutant levels and added mapping of bike lanes and tourist points of interest.





Figure 12. Stakeholder trying out VR.

The GoNature Game introduced an augmented and virtual reality experience, which attendees explored using HoloLens. Most participants found the AR experience engaging and recognised its potential for raising environmental awareness. Suggestions included developing an interactive avatar responsive to real-time environmental data.

Although time constraints prevented the Risk and Replication Canvas session from taking place, engagement remained high throughout. In closing, stakeholders were encouraged to invite more community members to future workshops. As a gesture of appreciation, all attendees received small plants—symbolising VARCITIES’ ongoing commitment to sustainability.

4th phase of co-creation

The final co-creation workshop in January 2025 marked the conclusion of Chania’s participation in the VARCITIES project. Hosted at the Centre for Mediterranean Architecture (KAM), the session brought together municipal representatives, academic partners from the Technical University of Crete, local educators, and stakeholders to reflect on the implemented VSs and assess their long-term value. A particular focus was placed on the Social Return on Investment (SROI) methodology as a framework for evaluating the wider social and economic impact of the interventions.



Figure 13. Up and down: Evaluation of the VSs with the stakeholders.

Two central VSs were reviewed during the session. The MULaR was commended for its role in activating public space and supporting inclusive social and cultural use. In parallel, the deployment of environmental sensors on bicycles and bike stations provided data-driven insights into urban mobility and environmental conditions, promoting healthier, more sustainable transportation habits. Participants were also reintroduced to the VARCITIES Health & Well-Being Platform and GoNature Game, both recognised for their potential to boost public engagement and environmental awareness through digital interaction.

In addition to reviewing outcomes, the workshop initiated a forward-looking dialogue on how the MULaR could continue to serve the community. In partnership with the Physical Education departments of local primary and secondary schools, the municipality co-designed a follow-up initiative, culminating in an event on February 26. This activity aimed to strengthen the connection between the MULaR and the educational community, with a focus on promoting outdoor and alternative sports—such as cross-country running and mountain biking—as tools to support children’s engagement with nature and encourage healthy, active lifestyles.

Participants shared feedback and suggestions for enhancing the long-term relevance of the Visionary Solutions. Ideas included expanding educational partnerships, tailoring programming to local interests, and continuing the use of monitoring tools to support community well-being goals. The SROI analysis helped capture these dimensions, offering a structured way to define the broader social value generated by the project beyond its physical outputs.

The workshop concluded with a shared commitment to build on the achievements of the VARCITIES pilot. The session reinforced the idea that co-creation is not only a design process but an ongoing conversation—one that continues to shape how Chania’s public spaces evolve to support health, sustainability, and community life.

Additional locally tailored activities

In Chania, more than eight additional stakeholder events took place throughout the project, particularly to showcase and test out the MULaR as a new community space. Below a selection of these events are detailed.

In June 2023, the city celebrated World Environment Day by collaborating with the Technical University of Crete to set up a dedicated VARCITIES booth in the Markoupolo area. This event attracted thousands of attendees who explored the new urban public space and participated in activities aimed at raising environmental awareness. Visitors interacted with the MULaR designs and experienced the GoNature game through virtual reality, enhancing their understanding of the project's vision.



Figure 14. Public showcase of the VARCITIES' GoNature game at the World Environment

In July 2024, the MULaR took part in Chania's Book Festival, held in the Municipal Garden. As part of the event, the VARCITIES team organised engaging activities around storytelling, nature, and sustainability. Children and adults alike were invited to interact with the MULaR, which was presented as a tool for learning and imagination. Educational sessions combined literature with environmental themes, creating a unique space for dialogue and reflection. The festival drew in a diverse audience and highlighted the role of the MULaR in fostering eco-literacy through creative community engagement.

Later that summer, in September 2024, the MULaR participated in Chania's 8th International Comic and Animation Festival, "Chaniartoon." The installation was transformed into a colorful, interactive hub where visitors could explore the intersection of art, technology, and urban ecology. Through comic-inspired visuals and digital storytelling elements, the MULaR invited festival-goers to reimagine the future of public spaces. The playful and artistic approach resonated particularly well with younger audiences, illustrating how sustainability and innovation can be communicated in accessible and entertaining ways.

On October 15, 2024, the Technical University of Crete celebrated its 40-year contribution to society with a special event at the "Mikis Theodorakis" theatre in Chania. A highlight of the celebration was the presentation of the MULaR, developed in collaboration with the Municipality of Chania as part of the VARCITIES project. Positioned prominently at the venue's entrance, MULaR served as an interactive exhibit, engaging attendees and showcasing the university's commitment to sustainable urban innovation. Its presence at the event attracted significant interest, especially from visitors keen to learn about VARCITIES' initiatives. The celebration also featured musical performances, speeches, and awards honouring individuals who have significantly contributed to the university's development over the years.



Figure 15. Pilot representative at the 11th Panhellenic School Sports Day.

In October 2024, the MULaR was featured during the 11th Panhellenic School Sports Day in the courtyard of the 2nd Junior High School of Chania. This socio-cultural activity brought together students, teachers, and the broader school community around themes of wellness, environmental awareness, and civic participation. Interactive workshops using the MULaR encouraged students to reflect on healthy lifestyles and the value of green urban environments. The integration of technology with educational content

made the activity both engaging and impactful, reinforcing the VARCITIES vision among a younger generation.

During the European Week for Waste Reduction in November 2024, the MULaR was repurposed as a platform for promoting eco-conscious behaviours. Educational materials and interactive displays were set up, offering citizens practical tips and insights on minimizing waste. The initiative aimed to connect environmental responsibility with everyday choices in a creative, hands-on way.

4.2.2 Pilot reflections on stakeholder engagement and co-creation

The pilot representative from Chania noted that, prior to VARCITIES, community engagement in NBS was limited. While planning processes included meetings and consultations, final decisions largely remained with government authorities, and public involvement was often constrained by legal frameworks. Non-governmental organisations occasionally played a more influential role, especially when leading externally funded projects, but overall citizen participation was modest.

The VARCITIES project significantly enhanced engagement, particularly during the co-identification and co-design phases. These early stages saw robust participation from a diverse group of stakeholders, including local citizens, who contributed ideas and feedback through structured consultations and advisory committees. However, engagement declined during the co-implementation phase, and the co-evaluation process was still in its early stages at the time of reporting.

The pilot's engagement strategy relied primarily on informing and consultation, both of which were implemented extensively. While citizens sometimes struggled to engage with the project's more technical aspects, their contributions—especially during advisory committee meetings—were integrated into planning discussions. More advanced forms of shared decision-making were not pursued, largely due to existing legal limitations.

Stakeholder mapping played a critical role in ensuring diversity and inclusiveness. The process successfully identified a broad range of participants across sectors including government, education, health, environment, civil society, and the local economy. While some participants lacked technical expertise, their perspectives—particularly during brainstorming sessions—were regarded as valuable and treated with respect by other stakeholders.

Knowledge development and exchange occurred at varying levels. It was especially strong among governmental and academic stakeholders and moderate to strong across the health,



environment, and social development sectors. Contributions from citizens, as end-users, were considered particularly meaningful, providing practical insights that informed planning and decision-making.

The pilot team expressed a clear intention to apply the VARCITIES co-creation approach in future nature-based solution projects. The experience introduced new models of collaboration and experimentation that were previously uncommon in the local context. Municipal administrators acknowledged the added value of the methodology, and the project was seen as a successful step toward more participatory urban development.

4.3 Dundalk

Dundalk, situated near the border with Northern Ireland, is a medium-sized city recognised for its active role in sustainable energy innovation. The pilot is reimagining the town's Library and Museum Quarter as an "Outdoor Learning Hub" featuring a sensory garden and green public seating. Socio-economic hurdles include managing post-pandemic and post-Brexit recovery, addressing the social behaviour, and ensuring safety in public spaces. Visionary responses include pedestrianizing the area, engaging local business networks, and anchoring the project in education and community heritage to promote well-being and civic pride.

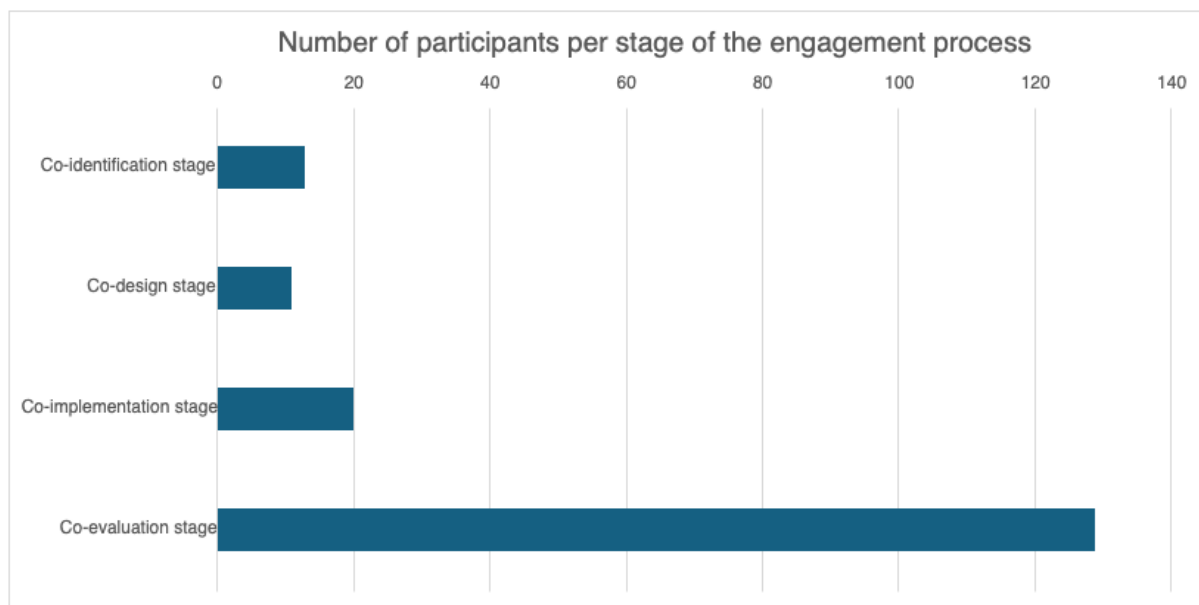
Visionary Solutions

- **VS1 – Creation of Outdoor Learning Pod between Dundalk Library & Museum Quarter to showcase the newest technologies and host shared functions**
Establish an Outdoor Learning Pod located between the Library and Museum Quarter, promoting green education in the heart of the town.
- **VS2 – Outdoor Urban Green Learning and Sensory Garden for health and well-being**
Create an Outdoor Urban Green Learning and Sensory Garden designed for inclusion, learning, and mental well-being.
- **VS3 – Bike Stations and Sensors on Bikes**
Install sensors on bicycles and bike-stations to gather data on mobility patterns and support active, sustainable transport initiatives.

Stakeholders



Aggregate participation numbers for events organised by the Dundalk Pilot during each stage of the co-creation process are detailed in the graph below (Graph 5). The significant jump in participation during the final stage of the co-creation process in Dundalk, reflects the adaptive approach the Pilot employed to engagement activities. This included running of three separate SROI workshops targeting different stakeholder groups, resulting a successful involvement of additional stakeholders who might not have been willing to attend the final workshop. It is also important to note that the official opening of the Pilot site in Dundalk, is included in the co-evaluation stage figures below, while this was a well-attended social-cultural event which was opportunistically utilised by the Pilot team with PI's support to conduct surveys and conversations with stakeholder to collect feedback specifically on the GoNature Game and H&WB Platform.

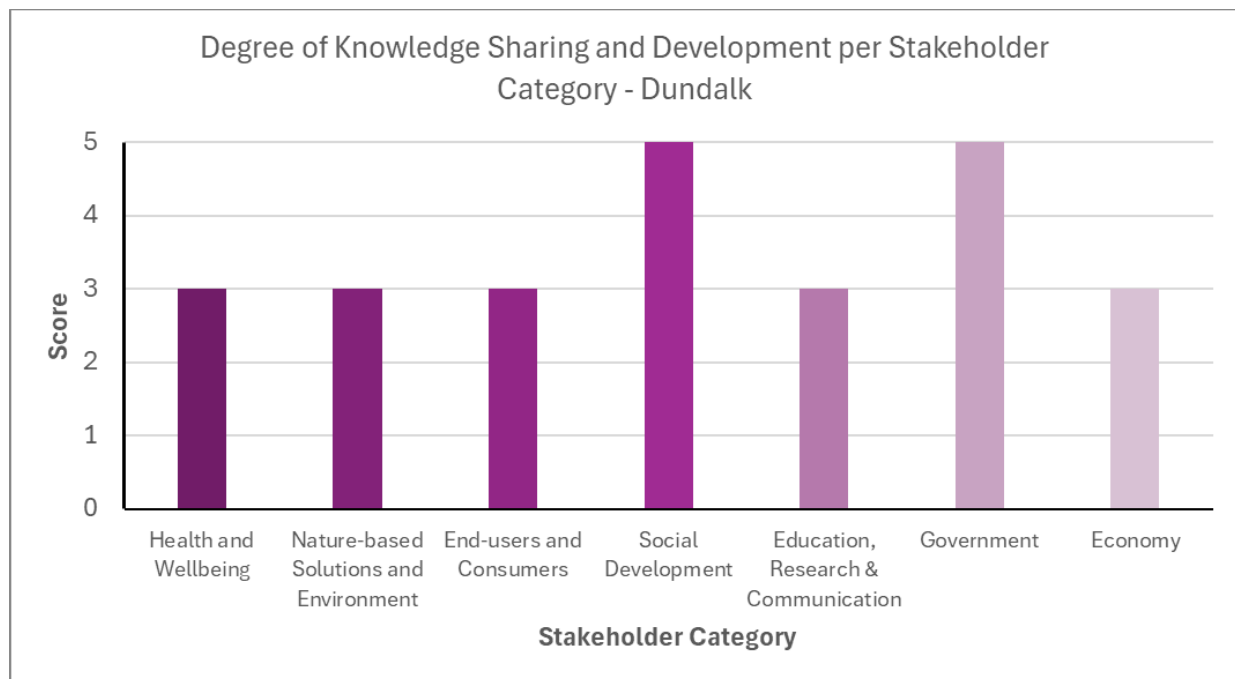


Graph 5. Number of participants per stage of the engagement process - Dundalk

Detailed figures on the profile of stakeholders participating in engagement activities across the project are not available since certain events (i.e. Town hall event) were not conducive to collecting such information. An estimate of the importance of different stakeholder groups to each Pilot was obtained through interviews with Pilot representatives conducted as part of the work documented in the addendum to Deliverable 4.5. The estimated degree of knowledge sharing with representatives from the different VARCITIES Stakeholder categories is given in the



next figure (Graph 6). The scores on the y-axis range from 1: no input to 5, extensive interactions and contributions.



Graph 6. Degree of Knowledge Sharing and Development per Stakeholder Category – Dundalk

4.3.1 Co-creation process

1st phase of co-creation

The first Dundalk co-creation workshop, held in June 2021, brought together a diverse group of stakeholders — including municipal representatives, health professionals, educators, urban planners, and residents — to explore the potential of the VARCITIES Visionary Solutions (VSs) in shaping a healthier, more inclusive urban environment. The session created space for meaningful dialogue around key challenges such as underused public spaces, fragmented infrastructure, safety concerns, and limited community involvement in urban development.

Discussions underscored the value of St. Helena’s Park and the Library/Museum Quarter as vital spaces for social connection, health promotion, and environmental enhancement. Participants voiced strong support for greening interventions, accessible design, and community-led programming. A recurring theme was the revitalisation of these spaces through nature-based

solutions (NBS) — such as shaded seating, sensory gardens, rainwater harvesting, and low-maintenance green infrastructure. Emphasis was also placed on improving pedestrian safety, promoting active mobility, and reclaiming neglected urban corners for public benefit. However, concerns were raised about anti-social behaviour, lack of visibility, and the current absence of CCTV coverage in the area.

Stakeholders praised the project's human-centric approach, which aligns health and urban planning with community needs. Ideas for multipurpose spaces — blending education, play, and cultural activities — sparked particular interest, especially in connecting schools and youth centres with the park and courtyard. Participants envisioned these interventions as “living classrooms” that would engage residents of all ages. The proposed outdoor learning pod was welcomed, though feedback included calls to better integrate it with nearby buildings and ensure soundproofing to respect both library users and youth programming.

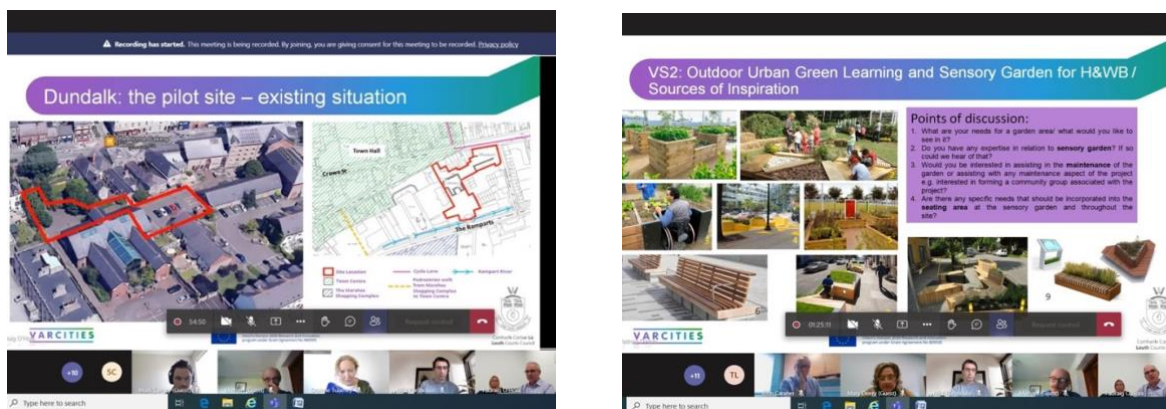


Figure 16. First co-creation workshop in Dundalk

Concerns were also raised about long-term maintenance, inter-agency coordination, and the risk of repeating past planning missteps. Some attendees questioned the relocation of car parking and access for emergency services, while others called for design solutions that would attract foot traffic from the town centre and encourage positive use of the space. Safety, noise management, and clear signage were identified as essential to fostering a welcoming environment.

Nevertheless, the overall mood was optimistic. Attendees expressed a desire for sustained citizen engagement, proposing neighbourhood advisory groups, co-creation workshops, and inclusive outreach strategies. Volunteering was highlighted as a key driver of health and wellbeing, with suggestions for volunteer-led tours, maintenance support, and public

programming. Youth involvement and intergenerational participation were seen as critical to building shared ownership and long-term value.

The workshop concluded with a strong commitment to turning ideas into action. Participants called for future sessions to refine the VSs and ensure local voices remain central to the design process.

2nd phase of co-creation

The second workshop, held online in November 2021, brought together a mix of city representatives, researchers, health experts, urban planners, and EU-level stakeholders to reflect on the VSs being developed across the project's pilot sites. The session provided a meaningful platform for exchange, showcasing the potential of nature-based solutions (NBS) to enhance public health, promote environmental sustainability, and support citizen-centred urban transformation.

Participants discussed the evolving role of NBS in cities, emphasising the importance of co-creation, inclusive design, and trust-building. Many noted that success depends not only on physical interventions but also on ongoing community engagement, addressing safety concerns, and ensuring long-term maintenance. Stakeholders shared experiences from their local contexts, highlighting common challenges such as siloed governance, youth disengagement, and difficulties in attracting diverse users. Despite these issues, there was broad agreement on the power of urban greening to improve both physical and mental well-being.

Health and well-being were central themes throughout. Discussions highlighted how public spaces can function as preventative health infrastructure, especially in the context of post-pandemic recovery. Stakeholders stressed the need for accessible seating, shade, safe surfaces, and flexible use to accommodate a wide range of needs — from older adults and people with disabilities to school groups and counselling services. Cultural programming, outdoor therapy, and active mobility were all seen as valuable components in meeting diverse well-being goals.

The role of technology and innovation was also explored, particularly in supporting evidence-based planning. Participants discussed proposals for interactive touchscreens, real-time sensors, and a 3D digital health platform. While many welcomed these tools for their educational and engagement potential, concerns were raised around digital exclusion, screen fatigue, and the importance of preserving space for quiet reflection and nature connection. Balancing digital and human experiences was seen as key.



Throughout the session, stakeholders recognised the Council's responsiveness to previous feedback — including updates to the pod design, integration of flexible seating, and attention to security and aesthetics. There was strong support for keeping the space open in the evenings, inviting community groups to co-manage activities, and framing the site as a vibrant, shared civic hub. Inclusivity, flexibility, and beauty were repeatedly emphasised as guiding design principles.

The workshop concluded with a strong sense of momentum and shared purpose. Stakeholders reaffirmed their commitment to the VARCITIES vision, recognising that greener, healthier, and more inclusive cities will only emerge through continued dialogue, cross-sector collaboration, and genuine citizen participation. With the right partnerships and community input, Dundalk's transformation was seen as both achievable and already underway.

3rd phase of co-creation

The November 2022 town hall event in Dundalk brought together local authorities, VARCITIES project partners, and community stakeholders to reflect on the town's ongoing transformation through health-focused, nature-based interventions. The session provided an opportunity to share progress, gather feedback, and reaffirm a shared vision for a more inclusive, sustainable urban environment.

Participants reviewed the implementation status of the project's three Visionary Solutions: an outdoor learning pod, a sensory garden, and upgraded bike infrastructure. Two phases had been completed, including the detailed design process and public consultation. New features such as green spaces, seating, energy-efficient lighting, environmental sensors, and rainwater harvesting systems were presented, along with plans for digital engagement tools like a health and well-being platform and touchscreen monitors.





Figure 17. Left and right: Town Hall event at Dundalk's pilot site

Stakeholders welcomed the site's evolving character, noting the potential for improved safety, social interaction, and environmental benefits. The sensory garden was seen as a key asset, while the learning pod sparked discussions on materials, energy use, and flexibility. There was interest in expanding the site's uses — from outdoor exhibitions to therapeutic services — and in ensuring it remained accessible and active beyond business hours.

At the same time, concerns were raised about long-term maintenance, anti-social behaviour, coordination, and inclusivity. Suggestions included involving volunteers, supporting underrepresented groups, and consulting with local schools and specialists. A steering group was proposed to guide implementation and encourage community ownership.

The event concluded with strong support for the project's direction. Participants expressed confidence that continued collaboration, adaptive planning, and citizen involvement would help deliver a healthier, greener, and more connected public space for Dundalk.

4th phase of co-creation

The fourth workshop in March 2025 was held at the Museum of Dundalk and focused on evaluating the project's VSs and co-creation process in its whole. The workshop gathered diverse participants who discussed successes, challenges, and areas for improvement.

The Learning Pod was highlighted as a frequently used resource, while green spaces were praised for enhancing tranquillity. Sensory pods were particularly valued for their inclusivity.



Suggestions included repositioning digital monitors and increasing promotional efforts through guided tours. The co-creation process was recognised for fostering collaboration, though engagement with schools remained a challenge. Honest feedback from children provided valuable insights.



Figure 18. Pilot representative with the stakeholders at Dundalk's sensory garden.

A presentation on KPIs showcased the project's impact, followed by a guided reflection session. While stakeholder engagement was extensive, there was a strong call for greater consultation, transparency in public funding, and improved outreach. A stress-reduction space was recommended for increased use, particularly during exam periods, with suggestions for better media promotion.

Stakeholder engagement remains a priority, with efforts to map involvement across industries, schools, and public institutions. Approximately 50 stakeholder groups have participated in the project, and discussions emphasised the importance of sharing sensor data across departments to enhance impact. The workshop reaffirmed the commitment to a co-creative approach, ensuring solutions remain community-driven and effective.

To deepen the co-evaluation, PI, in collaboration with the pilot's coordinators, conducted seven structured interviews with stakeholders who couldn't attend the workshop. These included two local politicians, a social worker from a non-profit, an architect who had been involved in the project, and a councilwoman from Louth County Council. The conversations, each lasting about



10 minutes, offered rich personal reflections. One local politician emphasised the value of accessible public places, saying, *“It’s somewhere to come down and sit, and it’s not somewhere you necessarily have to pay for. You can’t have enough of those spaces. And it’s designed in a way that allows their public surveillance and discourages any anti-social behaviour.”* A social worker reflected on the scarcity of free community facilities in Dundalk, sharing, *“There are very few community spaces in Dundalk for communities to use. There’s nowhere that you can use for free. The design is aesthetically soft on the eye. It’s a lovely space — you feel like you’ve gotten away from the town and you’re somewhere different.”*

The architect highlighted the influence of public input during the co-creation process: *“All these different groups that were giving us feedback during the co-creation phase — it was about many positive changes. For example, they wanted it to be bright and beautiful, so we looked at the possibility of creating a mural.”* Reflecting on the transformation of the space, one of the managers of the nearby library added, *“The previous use of the space didn’t contribute to anything. It was just a car park — a waste of space. What we’ve noticed is that now people come and take advantage of a quiet green space. There wasn’t really a space to take a break, to have their lunch.”* The Learning Pod in particular has become a vibrant community hub. As one interviewee described, *“The Learning Pod is being used constantly. As you saw, you couldn’t use it today because it was booked. There are poetry reading clubs, two choirs, and many more. So, all aspects of community are being met there — and that’s hard to achieve.”* Another added, *“Any issue that we anticipated is very minor. It’s just that the Learning Pod is a victim of its own success, because it’s very popular and is always booked — foot clubs, Climate Action Week.”*

However, not all VSs have seen the same level of use. One interviewee pointed out, *“We haven’t seen lots of bicycle users using the bike station, so that’s something that could use a social media campaign. We could do some huge events right there — like a concert or a film night — so you physically gather people on the spot.”*

Additional locally tailored activities



Figure 19. Dundalk's pilot site official opening

In Dundalk, an official opening event for the VSs was held on June 24, 2024. Although it was considered too early to formally launch the co-evaluation process—since users had not yet had sufficient time to experience the new facilities—the well-attended event served as a valuable opportunity to collect initial feedback from both the community and stakeholders. Special attention was given to showcasing and evaluating the GoNature Game and the Health &

Wellbeing Platform (H&WB). PI provided on-the-ground support during the event and collaborated with the Dundalk VARCITIES Pilot and WP5 partners to ensure relevant stakeholder input was gathered.

In November 2023, as part of the Louth Science Festival, Louth County Council organised an event at Dundalk Library, adjacent to the pilot site. Attendees explored the three Visionary Solutions designed to enhance health and well-being in the area. The event featured a demonstration of the GoNature VR game, which offered a 3D immersive experience of the envisioned future of Dundalk's Library and Museum Quarter.

In February 2024, the Dundalk Pilot Team partnered with Ireland's Sustainable Energy Authority (SEAI) to host an Energy Clinic at Dundalk Library. The event showcased the H&WB Platform, which provided real-time environmental data, and included another demo of the GoNature VR game. Attendees—ranging from families to individual residents—took part in discussions on home energy efficiency and participated in interactive workshops offering energy-saving tips.

In October 2024, during Climate Action Week, "The Still" hosted a series of events including the Smoothie Bike Challenge and a Bike Repair and Maintenance Workshop. These activities aimed to promote sustainable practices and engaged local schoolchildren, families, and cycling enthusiasts—highlighting the community's growing commitment to environmental awareness.

The culmination of these efforts was recognised in November 2024 when Dundalk received a Gold Medal in the SuperValu Tidy Towns competition. Judges praised the VARCITIES pilot site for its focus on inclusivity, health, and the creation of an age-friendly, green, and accessible urban

environment. This accolade underscores Dundalk's dedication to fostering a sustainable and community-oriented town space.

4.3.2 Pilot reflections on stakeholder engagement and co-creation

The pilot representative from Dundalk described a strong tradition of public consultation within statutory planning processes prior to VARCITIES. While citizens had opportunities to comment on planning applications and participate in public consultations, decision-making authority ultimately rested with the local authority or elected representatives. Structured stakeholder engagement, particularly in the early stages of project development, was less common.

VARCITIES introduced a more collaborative and continuous approach to engagement. According to the representative, community involvement was achieved across all phases of co-creation. Co-identification, co-design, and co-implementation were rated highly, with the project team emphasising early involvement and the shaping of ideas through public input rather than presenting finalised plans. The co-evaluation phase was still in progress at the time of reporting and had proved more challenging due to lower participation, particularly in completing evaluation forms.

Stakeholder engagement was conducted through multiple channels, including stakeholder meetings, town hall events, cultural and science-themed activities, and collaborative events with national partners such as the Sustainable Energy Authority of Ireland. Citizens and their representatives were consulted effectively, and the project was regularly reported on in monthly updates to elected councillors. This ensured a consistent flow of information to the wider community through political channels.

A collaborative spirit underpinned the project from the start. The VARCITIES team deliberately took a participatory approach, seeking input from residents and stakeholders to inform decisions and shape the design process. In some cases, such as objections from local landowners, direct negotiation and compromise were required. These discussions led to mutually agreeable solutions that aligned both with project goals and local concerns, such as maintaining certain rights of way.

While some stakeholder groups, notably in the education sector, were initially underrepresented due to timing constraints, lessons were learned, and later events were adjusted to ensure broader participation. The representative acknowledged that certain stakeholders played a key



role in influencing the design and programming of the space, resulting in a stronger sense of local ownership.

Overall, the VARCITIES experience in Dundalk demonstrated the value of early, sustained engagement. The pilot team recognised that this approach fostered better design outcomes and greater public support. Looking ahead, they expressed a clear intention to adopt similar co-creation methods in future projects—particularly in the early stages of development planning—provided that sufficient time and resources are available.

4.4 Gzira

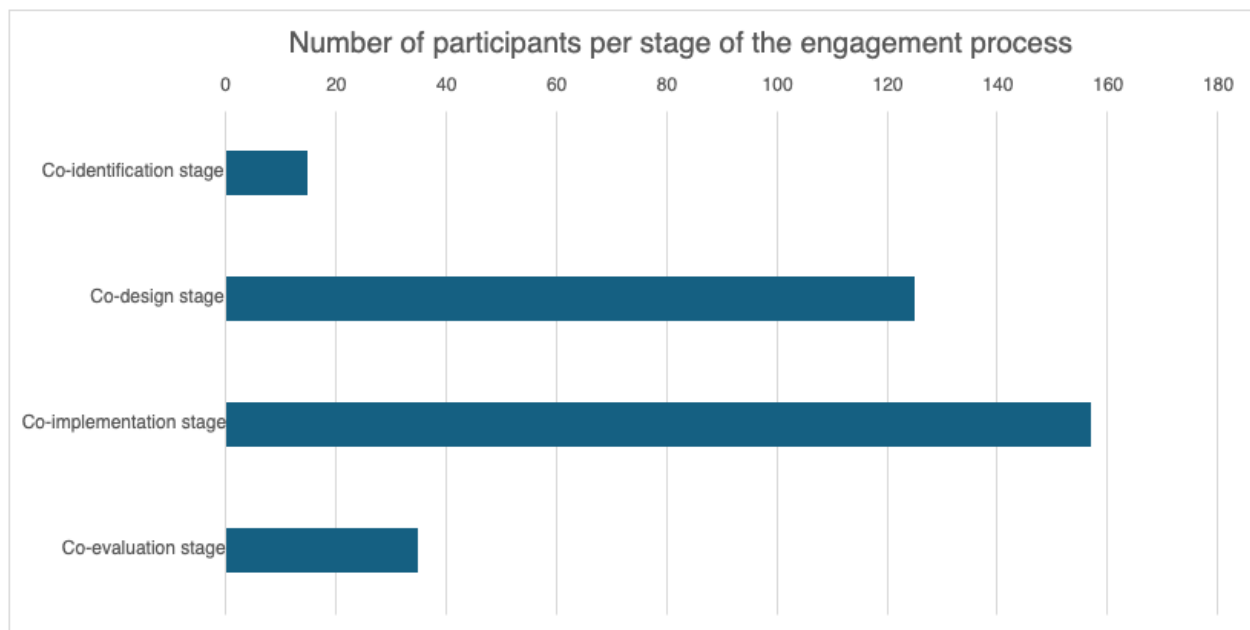
Gzira is the smallest and most densely populated pilot city, located on the Maltese coast. The city is transforming Rue D'Argens—a traffic-heavy artery—into a greener, healthier corridor with widened walkways, native planting, and community spaces. Gzira's socio-economic landscape is shaped by traffic congestion, limited green space, and business pushback. The city's VSs tackle these by promoting air quality, walkability, and accessible design while working closely with local businesses and administrators to align timelines, gain support, and minimize disruptions.

Visionary Solutions

- **VS1 – Rue D'Argens: Micro-greening Interventions through a Participatory Design Process**
Regenerate Rue d'Argens, a traffic-dense urban corridor, by introducing micro-greening infrastructure through a participatory design process.
- **VS2 – Citizen Science on Air/Noise quality to increase H&WB awareness**
Sensors are to be installed at public and residential spaces within Gzira, to collect and compare data at different geographical points to identify the various pollutants and the amount of noise and air pollution there is in the area.
- **VS3 – Urban Biodiversity, Education and Engagement through a Co-Created Community Garden Project**
NBS interventions and citizen engagement activities were implemented at St. Clare School, Stella Maris School and Gzira Gardens with the intention of embedding a greener perspective into our educational institutions and cultural context.

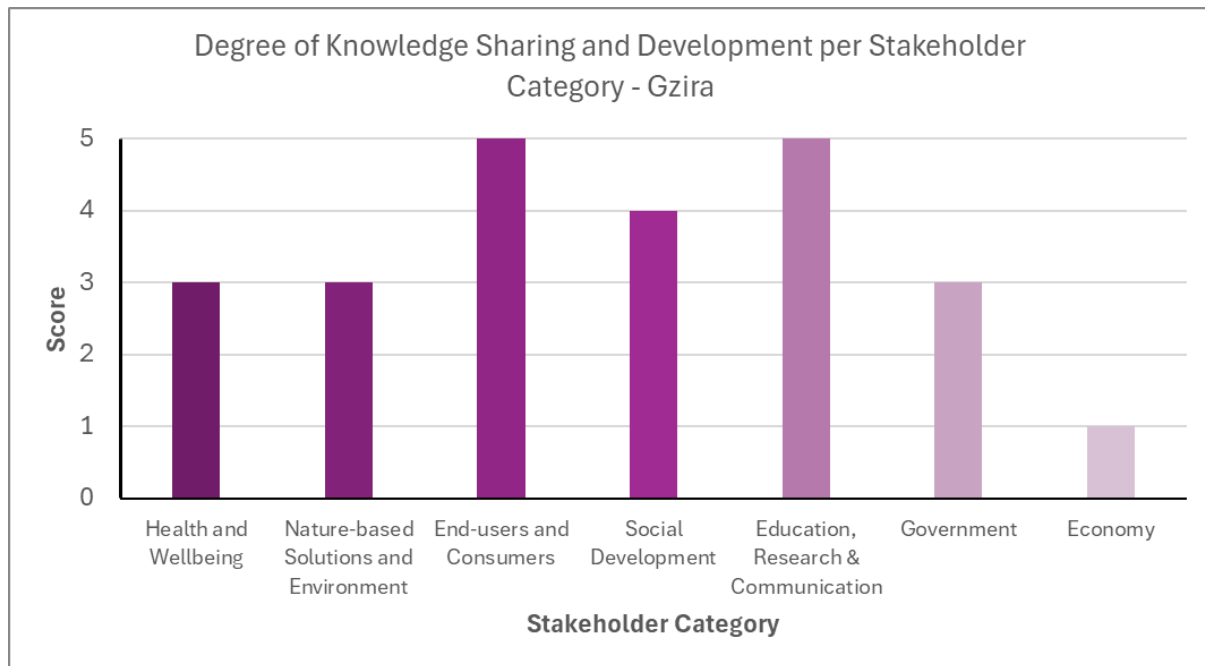
Stakeholders

In Gzira early co-creation efforts were also influenced by COVID-19 conditions. Later in the project, however, the return of in-person activities and a more varied engagement approach helped broaden stakeholder participation. In the case of Gzira the high participation levels in the co-design and co-implementation stages of the project reflects the targeted engagement activities that were conducted with students, parents and teachers connected to the Pilot sites. Aggregate participation numbers for events organised by the Gzira Pilot during each stage of the co-creation process are detailed in the graph below (Graph 7).



Graph 7. Degree of Knowledge Sharing and Development per Stakeholder Category in Gzira

Detailed figures on the profile of stakeholders participating in engagement activities across the project are not available since certain events (i.e. Town hall event) were not conducive to collecting such information. An estimate of the importance of different stakeholder groups to each Pilot was obtained through interviews with Pilot representatives conducted as part of the work documented in the addendum to Deliverable 4.5. The estimated degree of knowledge sharing with representatives from the different VARCITIES Stakeholder categories is given in the next figure (Graph 8). The scores on the y-axis range from 1: no input to 5, extensive interactions and contributions.



Graph 8. Degree of Knowledge Sharing and Development per Stakeholder Category – Gzira

4.4.1 Co-creation process

1st phase of co-creation

The first multistakeholder workshop in Gzira brought together a broad and diverse group of stakeholders, including architects, researchers, educators, students, artists, and residents, to discuss the development and implementation of the VARCITIES VSs for the area. The event served as a meaningful space for dialogue on pressing urban issues, fostering open discussions on the challenges of dense development, the need for accessible public space, and the value of community-driven initiatives. Participants emphasised a shared desire to improve the quality of life in Gzira, particularly through environmental and social interventions that reclaim public space and promote well-being.

Early comments reflected a strong local identity and connection to place. Several attendees described their professional and personal ties to Gzira, expressing a commitment to contribute to its transformation. Many welcomed the project's human-centric approach, highlighting the need for inclusive design that reflects the realities of both long-term residents and more transient populations, such as students. Throughout the workshop, participants voiced

frustration with overdevelopment, traffic congestion, and the privatisation of public space. There was a shared sense that the city's infrastructure prioritises commercial activity and vehicle access at the expense of pedestrian safety and community health.

The discussion underscored the need for sustainability, both in the environmental and social sense. Social accessibility to green and cultural spaces, greening of public infrastructure, and alternative mobility were identified as critical drivers for successful urban transformation. Stakeholders highlighted the value of cultural programming — such as concerts and events — in strengthening social bonds and enhancing well-being. Several participants called for greater collaboration with private stakeholders and developers, encouraging them to see the long-term value of investing in public infrastructure and the shared reputation of the area.

Specific insights around the VVs included strong support for improving Rue D'Argens through micro-greening, shading interventions, and reimagining the street as a cooler, greener corridor. Participants suggested a range of enhancements, from breathable pavements and green roofs to climbers instead of heavy green walls, emphasising the need for practical and maintainable interventions. There was also support for installing shelters at bus stops and integrating greening with basic urban services.

In relation to the proposed community garden and playscape at the school, stakeholders widely agreed that the space should be accessible to the public beyond school hours. This was seen not only to expand public access to green space but also to foster intergenerational interaction and community ownership. Participants shared ideas for social programming, including workshops and cultural events, that could activate the space while remaining aligned with the educational environment. Suggestions were also made to explore existing unused or overlooked spaces in the city, such as rooftops, garages, or underutilised buildings, to creatively expand the scope of interventions.

Several participants emphasised the importance of citizen involvement and participatory processes. Comments indicated that visibility, transparency, and community outreach will be key to ensuring long-term engagement. Ideas like neighbourhood committees and co-creation of interventions were seen as essential tools for building a sense of collective responsibility and ownership. Stakeholders also discussed the potential of working collaboratively with public authorities, local councils, and developers to unlock funding and support.

Barriers to implementation included a lack of available space, coordination challenges between different authorities, and concerns about long-term maintenance. Air pollution, particularly on

heavily trafficked streets, was identified as a growing concern, though views differed on the degree to which green infrastructure alone could mitigate this. While some participants highlighted the filtering capacity of diverse plant life and soil ecosystems, others pointed out the limits of greening in reducing harmful pollutants from vehicles.

Despite these challenges, there was a strong sense of optimism about the potential of the VSs to contribute to a more liveable Gżira. The workshop concluded with a renewed commitment to community inclusion, with plans to organise future sessions aimed specifically at engaging residents. Participants recognised that citizen voices are essential in shaping and sustaining the interventions. The energy and collaborative spirit of the session reflected a collective willingness to take ownership of the urban environment and transform it into a space that better supports the health, well-being, and social life of all who live and work in Gżira.

2nd phase of co-creation

The second workshop in December 2021 brought together a diverse group of local stakeholders, researchers, and project team members to revisit the VARCITIES VSs, review progress, and continue the collaborative process of shaping a healthier and more inclusive urban environment. Held in a hybrid format, the session created space for open dialogue, practical feedback, and cross-sector input, emphasizing co-creation and citizen involvement at every stage.

Participants included representatives from the environmental sector, education, culture, architecture, mental health, and local government, many of whom had also taken part in the first workshop. The tone was both constructive and community-driven, with stakeholders sharing their personal and professional connections to Gżira. There was a strong shared concern about overdevelopment, pollution, and the erosion of public space, alongside enthusiasm for the regenerative potential of the VARCITIES project.

The workshop began with a presentation of the overarching project goals, stressing its human-centred approach and focus on NBS to address urban challenges such as heat stress, noise, air pollution, and lack of green areas. Presenters introduced the updated designs for VSs and explained how previous stakeholder feedback had been integrated into the revised plans.

VS1, which focuses on micro-greening interventions along Rue D'Argens, sparked thoughtful discussion. Participants emphasised the need for sustainable, heat-resistant materials, noise-reducing plant choices, and consistent integration with wider urban mobility strategies. Several noted the importance of ensuring that interventions do not simply relocate traffic and pollution



to neighbouring areas. Concerns were raised about long-term maintenance, waste management, and the role of local businesses in supporting and benefiting from these interventions. A recurring theme was the potential for Rue D'Argens to become a more social and interactive space through thoughtful design, including public seating, shading, bike and scooter parking, and spaces for cultural programming.

VS2, centred on citizen science and environmental monitoring, was well received. Stakeholders highlighted the importance of accessibility and inclusivity in both data collection and communication of results. Several participants recommended simplifying participation, offering non-digital engagement channels, and creating visible links between local air quality and health outcomes. Others suggested exploring creative ways to raise awareness, such as sound scaping interventions, public fountains to mask traffic noise, and digital updates through community messengers or local councils. The potential for using citizen-collected data to shape behaviour and policy was widely acknowledged.

In discussing VS3, which involves a co-designed school garden and playscape, participants applauded the project's emphasis on youth involvement and community education. There was strong support for the co-design process, particularly for including children in the planning and planting of the garden as a means of fostering ownership and environmental literacy. Suggestions included incorporating intergenerational features, elements of inclusive design, and opportunities for passive and active recreation. Stakeholders also pointed to the importance of long-term engagement strategies, such as community caretaking, involvement of local NGOs, and use of the space for ongoing educational and cultural programming.

Throughout the workshop, the need for inclusive, culturally sensitive urban spaces was echoed by many attendees. Stakeholders discussed the potential for small-scale public events—such as street closures, community markets, or pop-up performances—as tools for social cohesion and visibility. Several proposed hosting these events in underused spaces and integrating local bars or shops to encourage broader participation. The conversation also explored how public space can be used to address fragmentation and build a stronger sense of shared identity among the city's diverse communities, including migrants, expats, and long-time residents.

Mentimeter polls and live feedback collected during the session confirmed widespread support for the VSs. Many called for continued assessment of their social and environmental impact, as well as documentation that could serve as a model for future interventions in other Maltese cities. Stakeholders emphasised the importance of embedding resilience, flexibility, and artistic



expression into urban design, while aligning with broader goals such as climate adaptation and mental well-being.

As the session ended, participants expressed appreciation for the transparent and collaborative process, reaffirming their willingness to stay involved. Some volunteered to assist with survey distribution or to contribute materials, while others offered to host events or support communications. The energy in the room reflected a strong sense of shared purpose, as well as recognition that collective action—anchored in thoughtful design and community engagement—will be vital to making Gzira a greener, healthier, and more connected place for all.

3rd phase of co-creation

The third workshop in March 2023 marked another key step in the VARCITIES co-creation process, to reflect on the finalised VS and discuss their implementation. The session built on earlier workshops, providing space for feedback and ideas to further adapt the solutions to the local context.

Following an introduction to the project's goals, including its focus on NBS and replicable models for healthier cities, participants engaged in active discussions around each VS. The Rue D'Argens greening initiative (VS1) drew interest, particularly around the practicalities of balcony greening. Questions were raised about plant care, summer heat, and sourcing sustainable materials. Participants proposed training and visual examples to support residents and suggested enhancing the impact of interventions like the green bus stop by incorporating art, seating, and space for community feedback. Consequently, Artworks were incorporated in pop-up activities, among many other types of activities, where UM have also captured verbal inputs from participants on the need for shared public spaces.



Citizen science (VS2) was recognised as a powerful tool to engage the public in air and noise pollution monitoring. Stakeholders emphasised the need for visual and accessible communication—charts, school materials, and even simple displays like dust-collecting cloths. Digital tools should be user-friendly and inclusive, with some suggesting more physical prompts



Figure 20. Left and right: Gzira's Town Hall event

to link data to daily experiences. The importance of connecting environmental data to health awareness and policymaking was widely supported.

The community garden and playscape (VS3) also received strong support, especially for its educational and inclusive potential. Ideas included opening the school space to the wider public, integrating biodiversity elements like insect gardens, and organising awareness days and green festivals. The co-design approach was praised for encouraging ownership among children, parents, and educators.

Overall, participants saw the solutions as opportunities to promote well-being, social interaction, and environmental awareness. While some concerns about maintenance, construction disruptions, and policy support were raised, the mood remained optimistic. Stakeholders shared ideas for replicating the interventions in other areas, including more bus stops, larger green zones, and extended school initiatives.

As the event wrapped up, there was strong support for continued involvement through suggestion boxes, community events, and innovation labs. Once again, the workshop reinforced the value of inclusive urban planning and the collective commitment to building a greener, healthier, and more connected Gzira.

4th phase of co-creation

The co-evaluation workshop in April 2025 focused on assessing the implementation and impact of the VSs in the urban landscape. The discussion centred on the micro-greening intervention at Rue D'Argens, where local authorities leveraged the project as a stepping stone to secure additional funding. Plans for expansion include a pedestrian corridor and bioswales to improve water management. However, a key challenge remained: shifting public perception, particularly in balancing green infrastructure with parking space concerns.

The Health & Well-Being Platform was also highlighted, with stakeholders expressing interest in air quality data and its integration with other environmental monitoring efforts. Concerns were raised about sensor calibration, with experts noting the challenges of deploying high-resolution yet affordable sensors in dense urban environments. Despite technical limitations, the data collected offers valuable insights into local air quality trends.

During discussions, participants reflected on the project's broader implications, emphasising its role in encouraging authorities to prioritise environmental sustainability. The co-evaluation segment reinforced the importance of inclusivity, with participants affirming that project outcomes should benefit all residents, not just Maltese citizens. The workshop also underscored the value of collaboration, as researchers and policymakers expressed interest in aligning efforts on health and well-being indicators.

The wrap-up session highlighted both the enthusiasm, and the challenges faced in implementing these solutions. While barriers to behavioural change persist, the workshop reaffirmed that VARCITIES served as a catalyst for long-term urban transformation. Future initiatives were proposed, including citizen science activities involving local schools to foster community engagement and co-maintenance efforts.

As part of the complementary co-evaluation efforts beyond the main workshops, an additional short interview was conducted in Gżira with a local resident who has been actively engaged with the VARCITIES project. The interview, held online, aimed to gather personal reflections and insights from a participant who has contributed using a handheld sensor placed on her balcony. Although it was just one interview, her responses offer a unique, everyday perspective on both the tangible and emotional impact of the project's initiatives. It also demonstrates the value of potentially replicating such alternative feedback formats in future projects.



Speaking about the greening initiatives introduced in her child's school, the resident shared a heartfelt observation: *"I ask my 6-year-old daughter what she thinks about the greening and she loves it, she says it makes her so happy, and it's a far more positive, calm environment. So, the school has been a huge hit."* This comment highlighted the emotional and psychological value that nature-based interventions can bring, particularly in spaces designed for young children.

Regarding her involvement in data collection through the handheld sensor, she expressed a quiet sense of pride in the ease and purpose of her contribution: *"It's great, it makes me feel like I contribute to something, and I don't have to do anything. It's there on my balcony and knowing that it contributes to collecting data and hopefully to improvements in the future is great."*

Looking back on her role during the earlier co-creation phase, she reflected positively on being part of the process: *"I remember, years ago, in the very beginning of all this, when I was sharing my ideas and experiences, it was great. It felt nice to share my feedback and inputs and it's been great to see how it's been worked out."* However, she also voiced a more critical perspective on the uneven distribution of benefits, noting, *"All the benefits have gone to the school and Rue d'Argens is still painfully loud and visually challenging."* She recalled an idea raised during one of the workshops: *"I remember during one of the workshops, an idea that popped up about greening balconies, but I see the challenge because they're private balconies. For example, I have a front and back balcony, and I don't have time to green both, so putting it on the private citizen is challenging."* Her reflections underscore the complexity of extending green solutions into semi-private spaces and the need for broader systemic support to balance responsibility and feasibility.

Additional locally tailored activities

A door-to-door survey was first introduced in 2022 to collect pre-implementation results in Rue d'Argens and adjacent streets, focusing on collecting baseline health and wellbeing data directly from the immediate community where the VSs were implemented. Additionally, input to the co-design process was collected from residents to better understand their needs, challenges, opinions and suggestions. Some of the questions included questions about their favourite type of activities or opinions about having greenery in their residential spaces. The process was repeated in 2025 to identify and measure any direct improvements in health and wellbeing. A total of 425 responses were collected (215 responses for the pre-implementation surveys, and 210 responses for the post-implementation surveys). The survey questions, as well as the results are available in D7.3.



In September 2024, the Gżira Pilot team from the University of Malta participated in the *Science in the City Festival*, part of European Researchers' Night. Their stand featured hands-on activities like StreetMix and a kid-friendly collage version to help families reimagine Rue D'Argens. Children



Figure 21. Future of the Rue d'Argens imagined by a child at the Science and the City festival

also explored the GoNature game, learning about pollution and NBS through play. With 94 participants, the event effectively raised local awareness about the VARCITIES project.

At Playcon 2024, Malta's leading gaming expo, the VARCITIES team showcased *GoNature*, a digital game blending real-time environmental data with immersive gameplay. Set in cityscapes like Gżira, the game let players tackle pollution challenges using IoT-powered insights. Its open-world format and AR/VR features stood out, engaging both kids and adults and demonstrating how gaming can support environmental education.

In 2023, Gżira hosted *Culture Garden: Green Gżira!*, a local awareness event focused on climate change and environmental responsibility. Aimed at building stronger community ties and greener habits, it aligned with VARCITIES' vision of sustainable, citizen-centred urban spaces.

Also in 2023, *Valletta Green Festival* brought together several environmental organisations to promote green living and urban sustainability. The GoNature game was featured again, drawing

strong interest from the public and government officials. It's realistic, data-driven gameplay showcased the potential of digital tools in urban transformation, especially through the familiar lens of Gżira's pilot site.

4.4.2 Pilot reflections on stakeholder engagement and co-creation

The pilot representative from Gżira noted that, prior to VARCITIES, community engagement in the planning and implementation of NBS was minimal, primarily due to the limited role of local government under Malta's centralized governance structure. While Gżira's local council has long prioritised community involvement, national-level planning often excludes local voices, particularly in major development decisions. The representative emphasised the tension between local efforts rooted in good governance and national practices that tend to favour private development interests.

Under VARCITIES, the pilot made significant progress in community engagement across the co-creation stages. The co-identification and co-design phases saw strong participation, including through workshops and an extensive door-to-door survey that reached over 900 residents. Citizens offered ideas, contributed to events, and some even took on organisational roles. However, participation decreased in the co-implementation phase, particularly in more formal events like a town hall meeting, although school-related and hands-on activities were well attended. The co-evaluation phase included a SROI workshop that was considered successful even though the topic was quite technical and complex.

The representative acknowledged that engagement levels varied due to time constraints and personal availability among citizens. Some participants remained involved throughout, while others gradually disengaged. Informing and consulting citizens were key engagement strategies, but deeper levels of participation, such as shared decision-making, were not pursued extensively. Nevertheless, VARCITIES provided a platform for local authorities to act more autonomously within a defined context.

Knowledge-sharing within the project was considered a valuable learning experience. The co-creation workshops facilitated meaningful exchanges with stakeholders from the health, well-being, environmental, and education sectors. Engagement with economic and business stakeholders remained limited, reflecting broader structural and cultural barriers. Schoolchildren, teachers, and parents were actively involved, particularly in the implementation of school-based activities. While citizens' input was sometimes difficult to translate into technical



knowledge, their contributions helped highlight local priorities and fostered greater social cohesion.

Stakeholder mapping was seen as a helpful tool for identifying relevant expertise and understanding community needs. While not all invited stakeholders participated, those who did offered meaningful input. The pilot also saw more balanced and inclusive discussions, with no dominant voices overshadowing others.

Reflecting on the overall experience, the representative expressed strong support for incorporating VARCITIES' co-creation practices in future projects, despite the influence of external limitations. Key lessons learned included the value of collaborative governance, the importance of citizen involvement, and the benefits of cross-sector cooperation. The project helped strengthen Gżira's commitment to good governance and has contributed to a more mature, participatory planning culture at the local level.

4.5 Leuven

The VARCITIES pilot in Leuven initially aimed to redevelop the former Hertogensite hospital into a mixed-use, green urban hub. However, the original VS was not accepted by the municipality. In response, Leuven reimagined the pilot and introduced a new concept—Veloodrom and subsequently the Olevodroom —focused on mobility, inclusion, and youth engagement.

This pivot prompted the Leuven VARCITIES team to restart the stakeholder engagement process from the ground up in May 2023. The new focus centred around young people with migrant backgrounds, ensuring they played a central role in co-creating, including collaborating on the construction itself, a meaningful and accessible urban intervention.

Initial Visionary Solutions

- **VS1 – Riverside Urban Living Room**
Install a mobile riverside urban living room along the tracks of the old city wall to host cultural, educational, and social activities, supporting physical and mental well-being.
- **VS2 – Sensors for Health and Water measurements**
Deploy environmental sensors to measure air quality, temperature, and water parameters for real-time monitoring and public awareness.



- **VS3 – Health Trail with Sensory Elements**
Create a health trail featuring a moving bench and a sensory garden designed for older adults and individuals with reduced mobility.
- **VS4 – IoT infrastructure for smart lighting and noise measurements**
Integrate smart lighting systems and sound-level sensors to create adaptable, quiet, and well-lit environments.
- **VS5 – Measuring sustainable mobility**
Use sensor networks to track pedestrian and cyclist flows, as well as local microclimate conditions, to inform data-driven planning.

Revised Visionary Solutions

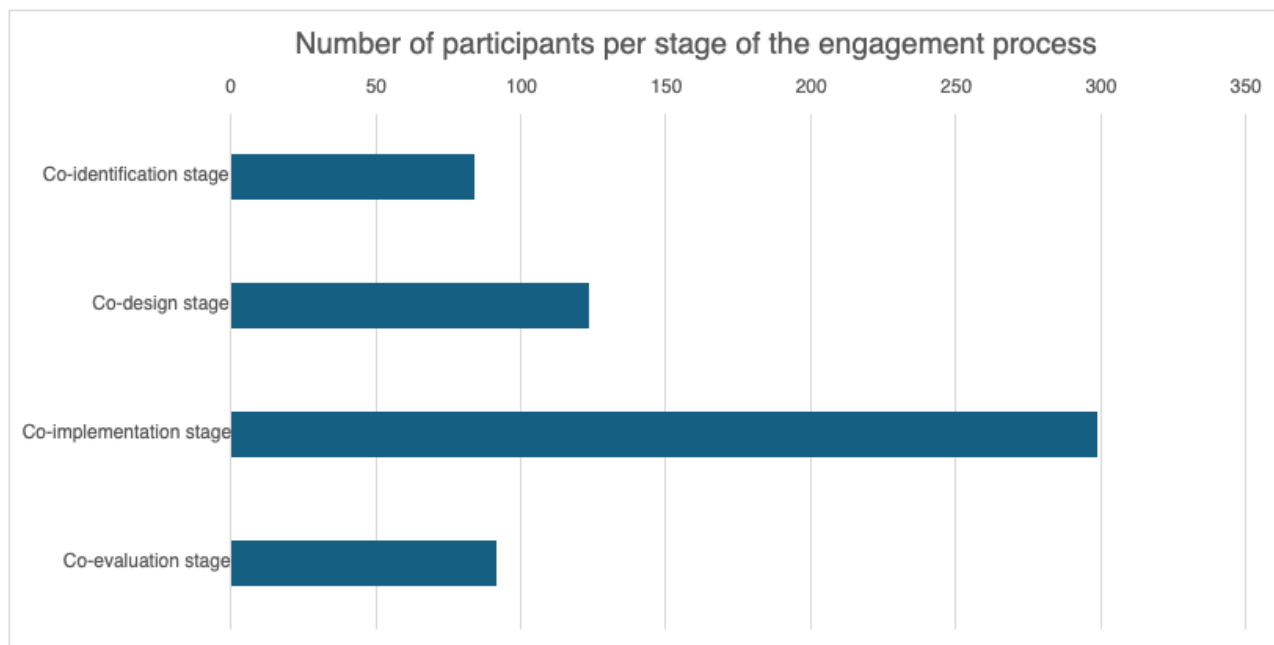
- **VS1 - VS3 - Mobile urban living room for cultural activities - Health trail: the “Olevodroom”**

A health trail along the river at the Hertogensite featuring a mobile urban living room (VS1) to host cultural activities, social gatherings, and community events, and integrated exercise elements (VS3) to promote physical activity and well-being.

Stakeholders

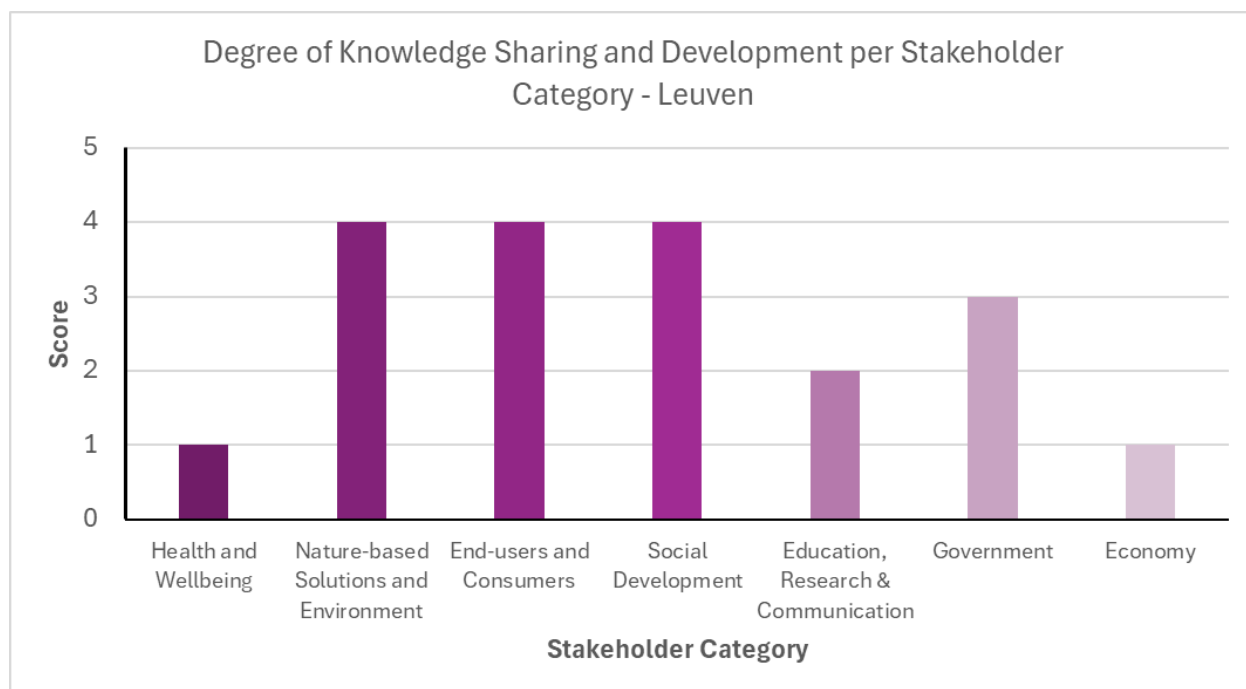
As mentioned for other Pilots already, also in Leuven early engagement activities were affected by COVID-19 circumstances at the time. As restrictions on gatherings eased, more in-person events were organised by the Pilot and a diverse range of engagement activities enabled the participation of a larger and more diverse group of stakeholders. In the case of Leuven, the high participation levels in the co-implementation stage also reflects the format of the third co-creation workshop, organised as an open Town hall event that facilitated large engagement numbers. Aggregate participation numbers for events organised by the Leuven Pilot during each stage of the co-creation process are detailed in the graph below (Graph 9).





Graph 9. Number of participants per stage of the engagement process in Leuven

Detailed figures on the profile of stakeholders participating in engagement activities across the project are not available since certain events (i.e. Town hall event) were not conducive to collecting such information. An estimate of the importance of different stakeholder groups to each Pilot was obtained through interviews with Pilot representatives conducted as part of the work documented in the addendum to Deliverable 4.5. An estimate of knowledge sharing with representatives from the different VARCITIES Stakeholder categories is given in the next figure (Graph 10). The scores on the y-axis range from 1: no input to 5, extensive interactions and contributions.



Graph 10. Degree of Knowledge Sharing and Development per Stakeholder Category - Leuven

4.5.1 Co-creation process

The co-creation process in Leuven unfolded through four structured phases—co-design, co-implementation, and the Town Hall—each contributing to the gradual refinement and contextualization of the Visionary Solutions within the VARCITIES project. This iterative engagement process focused on stakeholder dialogue, critical reflection, and alignment between conceptual ambitions and local needs.

1st phase of co-creation

The first multistakeholder workshop in June 2021, served as an exploratory moment to gather insights on how the public space at the Hertogensite could support health and well-being. Stakeholders emphasised the importance of accessibility and inclusion, particularly for individuals with limited mobility or specific needs. Contributions highlighted a desire for spaces that balance activity and rest, and that provide both openness and moments of quiet. Cultural references, sensory elements such as water and shade, and play areas were also identified as desirable features. Participants stressed the need to connect the site with its surrounding neighbourhoods and to ensure seamless physical transitions across zones. Concerns were raised about the potential for interventions to inadvertently exclude certain groups or create isolated, over-designed environments. While there was openness to the use of technology and data collection, the discussion underscored that digital tools should serve clear, inclusive purposes and avoid unnecessary complexity.

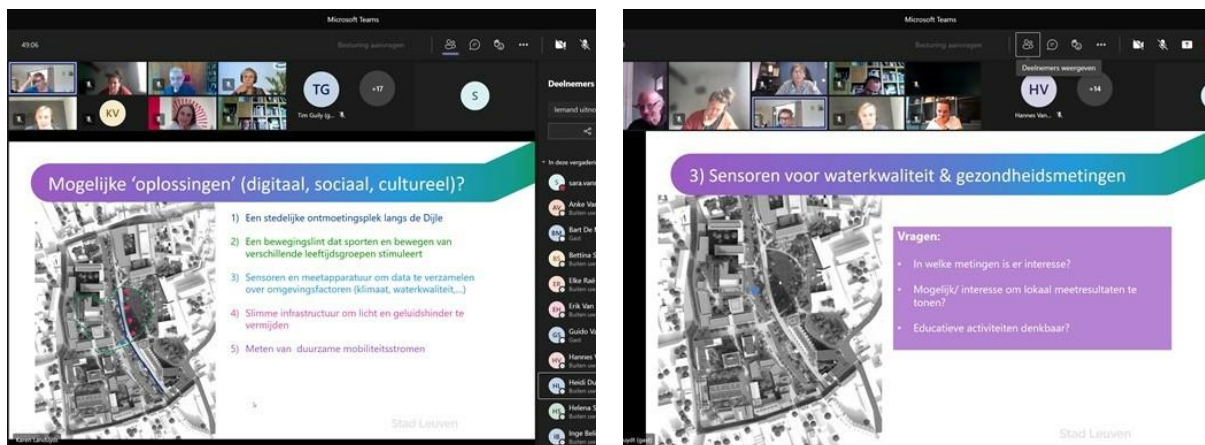


Figure 22. Leuven's first co-creation workshop

2nd phase of co-creation

The second workshop, that took place in December 2021, concentrated on reviewing the proposed VSs and collecting feedback on their evolving designs. The session, held online, allowed participants to comment on the technical and experiential aspects of the interventions. In relation to VS1, several contributors discussed possibilities for integrating digital elements in the public space, referencing examples such as QR codes and screens. Others proposed flexible uses for physical structures like pergolas, suggesting potential for informal performances or neighbourhood activities, while also noting practical limitations and spatial constraints. Attention

was also given to safety and accessibility, particularly near the water. The inclusion of natural buffers and sloped banks was acknowledged positively. The presence of young people with disabilities on-site was highlighted, alongside an ambition to promote inclusive engagement with the environment. Regarding VS2, participants emphasised the need to frame environmental measurements—such as air quality, humidity, and temperature—in ways that are understandable and relevant to the public. Collaborations with institutions such as Health House and Vesalius were proposed to support interpretation and communication. For VSs 4 and 5, stakeholders focused on the measurement of pedestrian and cyclist flows, discussing how these could inform design adaptations and improve connectivity to surrounding streets. The potential of using monitoring to reduce conflicts between users was also raised.

While VS1 was the most extensively co-designed and documented, other solutions also moved forward during this time. These include smart lighting and noise measurement infrastructure (VS2), sensors to monitor water quality in the Dijle River (VS3), mobility sensors for tracking pedestrian and bike flows (VS4), and climate stations to monitor local environmental conditions (VS5).

3rd phase of co-creation

During the third co-creation phase, a Town Hall event was held in June 2022 as part of the “Benedenstad op zondag” public programme, providing a broader platform for community engagement and outreach. A dedicated VARCITIES space was set up, including a project corner with information stands, interactive materials, and guided walks through the Hertogensite. Approximately 500 to 600 people attended the overall event, with 300 participating in site tours and around 50 engaging directly at the VARCITIES corner.

Prior to the event, brochures were distributed to 10,000 local households. Feedback collected on-site reflected a wide range of interests and concerns. Several participants commented on the potential impact of the interventions on evening activities and raised questions about long-term maintenance and safety. Others saw opportunities for the site to support diverse age groups and proposed using educational tools—such as air and sound measurement devices—as part of school-based awareness programmes. Interest was also expressed in expanding the scope of environmental monitoring to areas of the city affected by nightlife, reinforcing the desire for visible and actionable outcomes stemming from data collection. The importance of linking interventions to tangible benefits for residents remained a consistent theme.



4th phase of co-creation



Figure 23. Co-evaluation with the stakeholders

The fourth co-creation phase focused largely on the VS1, the Olevodroom, as the most prominent and community-oriented VS in Leuven. Its process is reported in the following chapter.

Throughout all four phases, the Leuven pilot demonstrated a structured and participatory approach to shaping urban space through stakeholder input. The process enabled local perspectives to inform key design decisions, clarified technical and operational priorities, and reinforced the importance of inclusivity, transparency, and ongoing dialogue. This foundation has contributed to preparing the VS for implementation in ways that reflect the needs, expectations, and values of the local community.

Revised Visionary Solution 1: The Olevodroom

In Leuven, the implementation phase of the VARCITIES project began in autumn 2022, with the goal of completing the VS by February 2024, followed by a year of monitoring and evaluation. VS1, initially conceived as a moving wall, underwent a major change in 2023. A new concept was developed: an urban living room, eventually named the “Olevodroom.” This installation was designed to unite meeting, cultural programming, and movement, and was placed on the former Velodrome site, to remain until construction begins for a new performing arts building. Later in 2025 it will be relocated to a new location in the Hertogenpark.

The shift from the original plan led to a new implementation timeline. Between April and July 2023, the city finalised procurement documents and prepared the new project. This was followed by a procurement procedure in August and September. Two artists submitted proposals, and to support the selection process, three stakeholder consultations were organised in early October 2023.

From December 2023 through March 2024, the project moved into the construction phase. This phase was grounded in collaboration. The artist led several consultations with stakeholders to present the preliminary design and gather feedback. In the first phase of development, the artist collective worked with the City of Leuven and the designers of the Velodroom to determine the design and the extent to which materials could be reused. Meetings also included public workers and community workers to prepare for participatory construction activities.

The second phase took place at Decoratelier in Molenbeek, where young people from Molenbeek and Leuven participated in the construction of the artwork. This collaborative process focused on sawing, painting, and assembling elements of the installation. The workshops provided opportunities for participants to gain practical experience in a non-formal learning environment.

The third phase involved assembling the artwork on the Hertogensite, organised as a construction camp. Local residents and young people from Leuven participated in these activities. A neighbourhood gathering was held on 3 March 2024 to share progress and inform nearby residents.

The Olevodroom was officially opened on 31 March 2024. A series of public events have taken place at the site since its opening, including a mobile skate park, a hip hop festival, performances during the CIRCL 2024 festival, a theatre event, an open dance floor, and a Neighbours' Day celebration. Additionally, children's after-school activities were scheduled every Wednesday in June 2024.



Figure 24. Official opening of the Olevodroom



The fourth and final co-creation phase centred on the evaluation of the Olevodroom's use and impact. Two co-evaluation sessions were held on 28 and 30 November 2024, offering a platform for neighbourhood residents, stakeholders, city services, and visitors to share their experiences. Participants praised the Olevodroom as an approachable and accessible place that successfully brought together diverse age groups and communities, thanks in part to supporting infrastructure like the bar and toilets. The site was also appreciated for encouraging physical activity through features like the pumptrack and dance floor, although there were calls for broader programming—particularly for elderly users—and for improved accessibility for wheelchair users.

The sessions underscored the Olevodroom's unique value as a community-building space and a visible example of Leuven's "Yes City" approach, where bottom-up initiatives are supported with technical and logistical assistance. Stakeholders emphasised the importance of maintaining the collaborative spirit of the site, with continued attention to good communication, clear agreements on use, and low-threshold access. As the Hertogensite continues to evolve, participants urged the city not to let the current energy fade, but to nurture and integrate the Olevodroom into the long-term development of the park and performing arts building. In 2025, the installation will remain in its current location, after which it will be moved to the Hertogenpark. There, it will continue to serve as a "Yes spot"—a low-barrier, inclusive space for community use—contributing to the activation of public space and the further realisation of a shared and vibrant city.

Additional locally tailored activities

Complementing the development of the VS in the Leuven Pilot, a wide range of social events were organised at the Velodroom and subsequently Olevodroom sites to activate the community, foster inclusion and bolster social cohesion. While these can largely be considered social and cultural events as opposed to stakeholder engagement activities some of them such as the regular community drinks served as useful, less structured and more informal opportunities for stakeholders to provide feedback to the City of Leuven not just about the VARCITIES activities and VS but more broadly on issues local residents wanted to address with the city.



Figure 25. Citizen-led dance activity at the Olevodroom

For example, in June 2022, the City of Leuven hosted *Benedenstad op zondag*, a public event offering the latest updates on local urban projects and future plans for the *Benedenstad* and the *Hertogensite*. Aimed at Leuven residents, tourists, and anyone interested in the city's development, the event provided an engaging platform to communicate the vision behind these urban transformations.

Alongside this, *Benedenstad Actua*, a printed brochure, was distributed to around 10,000 households in Leuven in June 2022 and again in October 2023. The brochure provided residents and stakeholders with regular updates on ongoing and upcoming projects in the *Benedenstad* area, including information about the VARCITIES project and its visionary solutions.

In November 2023, a press release announced the expansion of the Leuven Velodroom, featuring a mobile urban living room for cultural activities. The news received positive coverage and reached an estimated 1,000 people through local media channels.

The following year, at the end of March 2024, Leuven held a press conference announcing the *Olevodroom*, a new artistic project on the *Hertogensite* developed with support from VARCITIES. The announcement generated widespread coverage in local and national media. The following day, a public opening event drew about 300 visitors, who explored the new mobile urban living room and celebrated the project's launch.

4.5.2 Pilot reflections on stakeholder engagement and co-creation

The pilot representative from Leuven explained that, prior to VARCITIES, community engagement was generally present in the planning and design of green spaces—particularly parks—but did not consistently extend to broader NBS. Engagement primarily took place through informative and neighbourhood meetings, with participation often limited to select citizen groups rather than the wider community.

The Stakeholder mapping process was highly valued. STKs were identified and invited that had not been considered previously.

Under VARCITIES, engagement efforts varied across the different co-creation phases. According to the representative, co-implementation was the most successful phase, marked by active involvement from various neighbourhoods and youth groups. In contrast, the co-identification and co-design phases received lower ratings due to stakeholder turnover following a rejected initial design. A new round of engagement had to be initiated with different participants.



Engagement practices largely focused on informing and consulting citizens, and while stakeholder committees were involved in advising on planning, responsibility for final decisions remained with project leads. The representative noted that knowledge and skills shared within the project were moderately beneficial. While early efforts to involve stakeholders from the health and well-being sector were promising, sustained engagement proved challenging. In contrast, participants from environmental, end-user, and social development backgrounds were more consistently involved.

The pilot faced difficulties in generating deeper knowledge exchange, particularly with regard to engaging citizens in substantive knowledge development. However, the representative emphasised the social cohesion that emerged through community involvement as a meaningful outcome. Stakeholder mapping was viewed as successful, bringing in individuals who would not typically be involved in such initiatives. Although some identified stakeholders did not participate, no single group dominated discussions, and participants were generally well-informed.

The unexpected rejection of the first, co-created, design of VS1 by the decision makers constituted a major governance challenge. This experience led to a stronger emphasis on involving key decision-makers throughout the process to avoid similar setbacks. Looking ahead, the pilot representative expressed interest in incorporating elements of the VARCITIES co-creation approach into future projects, recognizing its added value despite the time and resources required.

4.6 Novo Mesto

Set in a hilly region of southeast Slovenia, Novo Mesto is a compact city with a robust academic presence and innovation initiatives. Its pilot is transforming a former military site into a vibrant recreational zone with nature-based fitness, horse therapy, and inclusive play areas. Social challenges include engaging people with special needs in co-design and avoiding opposition from NGOs. The city's VSs emerged through inclusive planning, proactive dialogue, and designing for multi-generational, accessible public health benefits.

Visionary Solutions

- VS1 – Brownfield remediation and greening with plant species indigenous to the nearby Natura 2000 areas.



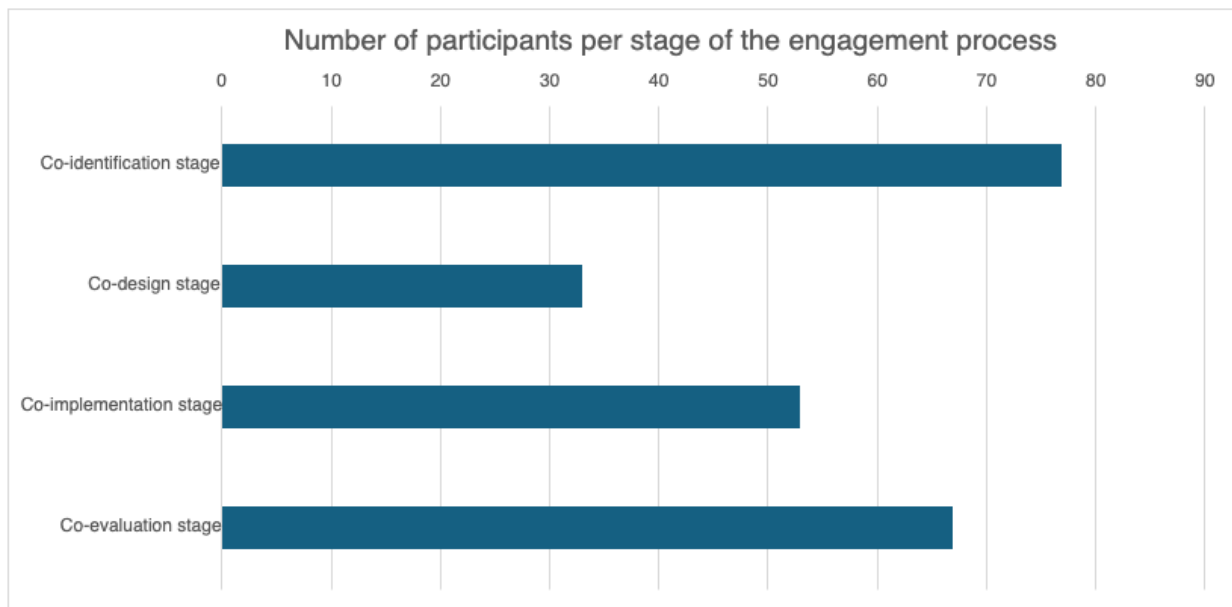
Remediate and green an industrial brownfield site using indigenous species to support biodiversity and community renewal.

- **VS2 – Creating sustainable forest trails**
Create sustainable forest trails that support therapeutic, recreational, and educational activities.
- **VS3 – Interconnectedness of sports, recreational and therapeutic facilities**
Integrate sports, therapeutic, and leisure features into the green corridor, tailored to all age groups.
- **VS4 - Integrated management of the facilities**
Develop a unified ICT platform for managing park facilities, visitor flows, bookings, and real-time data from IoT sensors.
- **VS5 – IoT solutions for measuring the H&WB-being of visitors**
Implement IoT-based systems to monitor the health and well-being of visitors using wearable and environmental sensors.

Stakeholders

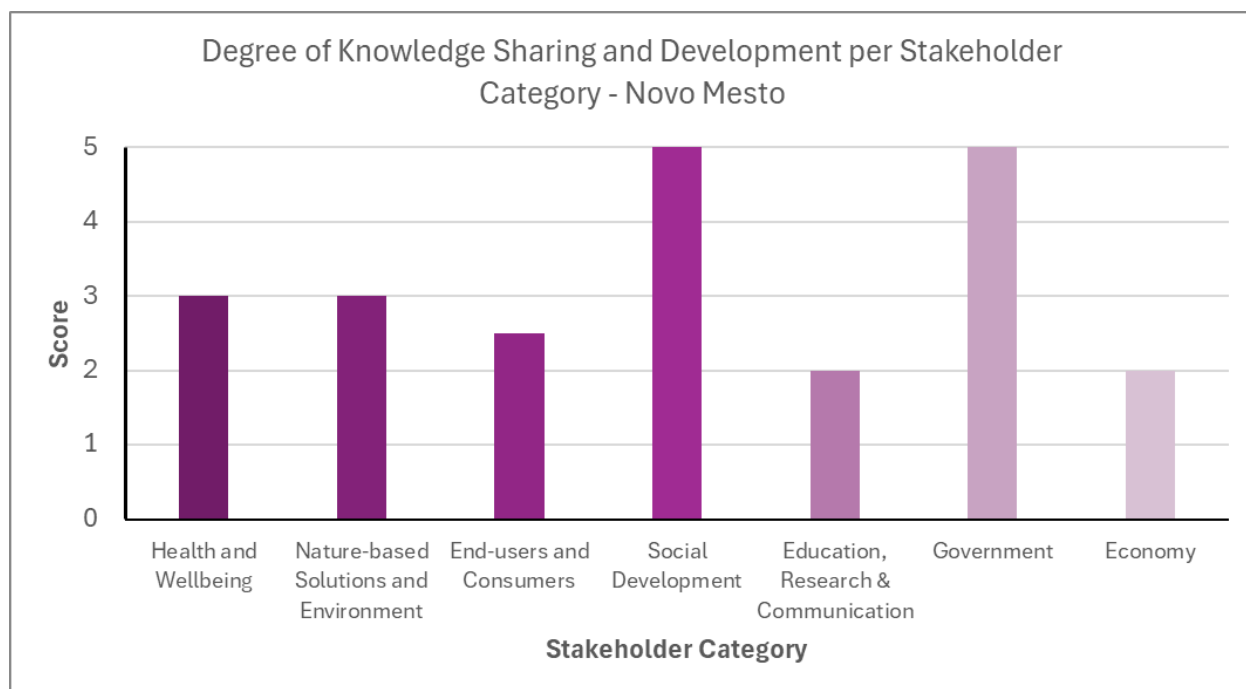
Aggregate participation numbers for events organised by the Novo Mesto Pilot during each stage of the co-creation process are detailed in the graph below (Graph 11). As opposed to many of the other Pilots in the project, the Novo Mesto Pilot was fortunate that COVID-19 restrictions did not force all initial engagement activities online. While the Pilot also conducted a number of targeted additional engagement activities early in the project alongside the official first co-creation workshop meaning that there was very good participation levels right from the start. As is reported in Deliverable 9.1, the Novo Mesto Pilot also maintained high level of engagement of stakeholders throughout the course of the project, hosting a very large number of social and cultural events alongside the workshops and meetings captured in the figure below.





Graph 11. Number of participants per stage of the engagement process in Novo Mesto

Detailed figures on the profile of stakeholders participating in engagement activities across the project are not available since certain events (i.e. Town hall event) were not conducive to collecting such information. An estimate of the importance of different stakeholder groups to each Pilot was obtained through interviews with Pilot representatives conducted as part of the work documented in the addendum to Deliverable 4.5. An estimate of knowledge sharing with representatives from the different VARCITIES Stakeholder categories is given in the next figure (Graph 12). The scores on the y-axis range from 1: no input to 5, extensive interactions and contributions.



Graph 12. Degree of Knowledge Sharing and Development per Stakeholder Category - Novo Mesto

4.6.1 Co-creation process

1st phase of co-creation

The first workshop in Novo mesto in June 2021 commenced with an introduction to the initiative aimed at integrating the Češča vas area into a comprehensive sports and recreation complex. The city's Mayor emphasised the project's focus on creating new recreational infrastructure while preserving natural heritage and incorporating digital solutions. He encouraged active community participation, highlighting the importance of public input in shaping the project.

The Municipality of Novo mesto presented to transform a former military site into a vibrant hub for sports, health, and social activities, particularly benefiting youth, the elderly, and people with special needs. Plans include a healthy lifestyle centre, an Olympic sports facility, and a motoric and sensoric park, among others.

Key VSs were outlined, beginning with the remediation of brownfields through indigenous vegetation to enhance biodiversity and serve an educational purpose. Smart sensors will monitor environmental conditions, linking the project with the LifeHabitats Temenica initiative. Experts underscored the need for sustainable forest management, balancing visitor impact with conservation efforts.

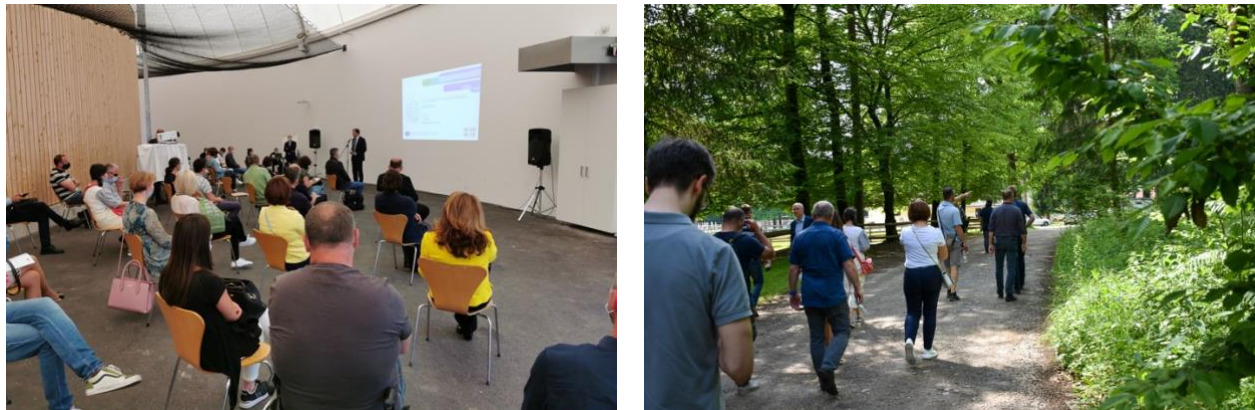


Figure 26. Two parts of Novo Mesto's first co-creation workshop

A sustainable running trail was also proposed, incorporating educational stations and tracking sensors. Stakeholders recommended integrating this trail with existing cross-country routes for a seamless recreational network. Accessibility concerns were raised, emphasizing the need for surfaces suitable for wheelchair users.

Further discussions revolved around the integration of sports, recreational, and therapeutic services, particularly aligning with another EU-funded project establishing an equestrian therapy centre. A unified ICT platform will manage park facilities, offering real-time visitor insights and service coordination through IoT technology.

The workshop concluded with a commitment to developing inclusive programs that encourage physical activity. A tour of the Češča vas Sports Centre followed, with discussions on infrastructure planning, visitor access, and environmental considerations. The next steps were agreed to be a stakeholder feedback collection through questionnaires, ensuring the project's alignment with community needs and sustainable development goals.

2nd phase of co-creation

The discussion in the second workshop (in November 2021) focused on movement, especially for children and vulnerable groups, and the need for innovative recreational spaces. The vision

included a multifunctional park with a velodrome, equestrian centre, and swimming pool, fostering inclusivity for all generations.

Breakout discussions focused on different user groups. Sports clubs stressed the need for structured programmes promoting lifelong exercise, while educators proposed school sports days, family activities, and reward-based participation. Stakeholders working with vulnerable groups highlighted the need for accessibility, trained facilitators, and financial support. Concerns were raised about the coexistence of animals and human activities in therapeutic settings.

Technology played a central role, with ideas for wearable sensors, digital information boards, and a centralized platform to monitor participation. Suggestions included expanding exercise trails to connect urban and natural spaces, ensuring a holistic approach to recreation.

The session concluded with reflections on practical implementation, including sustainable business models and infrastructure improvements. Stakeholders recognised the project's potential as a model for urban recreation, emphasizing continued collaboration among educators, sports organisations, and municipal authorities. The event reinforced the value of collective input in designing inclusive and sustainable public spaces.

3rd phase of co-creation

The town hall meeting in January 2023 invited the attendees to share their ideas through a digital platform, shaping plans for a multi-functional park featuring a motoric park, equestrian centre, multipurpose hall, swimming pool, and camping area—all designed to encourage movement and healthy lifestyles.



Figure 27. Novo Mesto's Town Hall event

Discussions centered on the five Visionary Solutions of VARCITIES: revitalizing degraded areas, creating a sustainable trim trail, integrating recreational and therapeutic activities, managing facilities efficiently, and using digital tools for health tracking. Participants shared valuable insights on exercise stations, biodiversity conservation, and making the park accessible to everyone.

Concerns were raised about infrastructure, transport links, and sustainable mobility. Questions emerged about ensuring proper training facilities, wheelchair accessibility, and public transport connections. A local sports club representative highlighted the importance of structured

programmes to encourage lifelong exercise habits, while another speaker stressed that financial support would be necessary for clubs and associations to run activities effectively. The municipality acknowledged these challenges and committed to working with local organisations to find practical solutions.

The municipality acknowledged these challenges and committed to working with local organisations to come up with practical solutions.

The introduction of digital tools sparked interest, particularly in visitor tracking systems, fitness wearables, and augmented reality features. While these innovations were welcomed, attendees requested clearer explanations on their practical applications and benefits. On that note, a health professional noted that integrating digital incentives, such as rewards for frequent park visits, could help motivate people to stay active.



Figure 28. Novo Mesto's stakeholders trying out the VR GoNature game

As the meeting wrapped up, the emphasis was on collaboration. The municipality encouraged ongoing community input, recognizing that the success of the project depends on continuous dialogue and adaptable solutions that evolve with residents' needs.

4th phase of co-creation

The fourth co-creation workshop in January 2025 marked the conclusion of the local stakeholder engagement process within the VARCITIES project. Held at the Janez Trdina Cultural Centre, the event brought together municipal representatives, project partners, and community members to reflect on the implemented Visionary Solutions and their long-term potential. The workshop combined presentations, live illustration, music, and audience interaction, creating an open and engaging atmosphere.

The session was opened by project manager Peter Geršič, followed by Deputy Mayor Urban Kramar, who emphasised the importance of VARCITIES for the city and its alignment with broader developments at the Olympic Centre in Češča vas. He underlined the added value of a participatory approach in shaping inclusive and health-promoting spaces.

Each of the five Visionary Solutions was presented and discussed in turn. VS1 involved greening a former brownfield with native vegetation and adding a sensory trail, which received positive feedback for its accessibility and educational value, though limited transport access was noted. VS2 established a forest fitness trail with outdoor equipment, appreciated for its integration with nature and broad usability. VS3 focused on inclusive sports and recreational events, which reached over 1,200 participants and successfully engaged diverse user groups. VS4 introduced a real-time digital management platform, praised for features like the swimming pool occupancy indicator. VS5 implemented IoT-based monitoring of physical activity through wristbands, which participants found motivating, particularly for younger users.

The workshop also featured an award ceremony recognising individuals and organisations for their contributions to accessibility, physical activity, and inclusive programming. In the final discussion, participants offered suggestions for ongoing improvement, including expanded para-sports opportunities and better changing room facilities.

The event closed with an invitation to continue providing feedback through surveys and informal dialogue. The session reflected the success of the co-creation process in fostering community ownership and ensuring that the Visionary Solutions remain responsive to local needs.

Following the 9th VARCITIES progress meeting in Castelfranco Veneto, where PI shared insight on complementary co-evaluation approaches it was exploring, specifically short, recorded conversations enabling direct documentation of Pilot stakeholders' views, the Novo mesto pilot team also adopted this approach conducting a series of recorded conversation.



Additional locally tailored activities

Novo Mesto steadily advanced its VARCITIES pilot project, with a focus on inclusive infrastructure, sustainability, and active community participation.

In September 2023, the city celebrated the grand opening of its new 25-meter swimming pool at the Češča vas sports and recreation centre. Designed to serve as part of a future Olympic Center, the facility provides diverse recreational opportunities for all generations, especially children and vulnerable groups. The event marked a significant leap toward improving public health and physical activity through accessible infrastructure.



In December 2023, the pilot site hosted the second edition of Pistafest, an international cycling festival organised by the Cycling Association "Sprint." The event welcomed cycling enthusiasts and amateur athletes from Slovenia, Croatia, and Italy, including paracyclists, emphasising inclusivity and promoting healthy lifestyles through outdoor activities.

That same month, Novo Mesto marked International Volunteer Day with a special celebration recognising volunteers from over 40 organisations. The event acknowledged their contribution to various social and environmental initiatives, reinforcing the importance of active citizenship and community support in building a resilient and cohesive urban space.

In February 2024, the newly opened swimming pool was further upgraded with a mobile pool lift to improve accessibility for people with mobility impairments. This addition aligns with the city's inclusive design philosophy and ensures that everyone, regardless of physical ability, can enjoy and benefit from the facility.

4.6.2 Pilot reflections on stakeholder engagement and co-creation

The pilot representative from Novo Mesto described community engagement in NBS as moderate prior to VARCITIES, supported by mechanisms such as participatory budgeting and advisory committees. Citizens were traditionally informed and consulted, with occasional opportunities to contribute to planning through local initiatives.

Under VARCITIES, stakeholder engagement varied across the four co-creation phases. The co-identification phase saw limited involvement, as the initial proposal was largely developed

internally by municipal experts with only brief external input. Engagement improved significantly in the co-design phase, where a range of stakeholders—including NGOs and nature preservation experts—contributed meaningfully to the development of project ideas. The co-implementation phase was less participatory, with decisions largely finalised before execution, though stakeholders were invited to suggest minor post-implementation adjustments. In contrast, expectations for the co-evaluation phase were higher, as the municipality planned to actively collect feedback on the usage and performance of new facilities.

The representative highlighted the challenge of maintaining stakeholder interest over time. Repeated engagement can lead to fatigue, particularly if stakeholders feel they have already contributed substantially. Balancing continuity and freshness in the process proved essential.

Engagement practices primarily focused on informing and consulting citizens, supported by surveys and public meetings. While planning and decision-making responsibilities remained with the municipality, stakeholder input was considered and occasionally incorporated. The participatory model was moderately successful in this respect, with joint policy boards or planning groups contributing to the process.

Stakeholder mapping was described as helpful for structuring engagement, though achieving fully balanced representation remained difficult. Some groups were less responsive—either due to lack of interest, misunderstanding of the project’s aims, or outright opposition, as in the case of residents from a neighbouring community who viewed the project as disruptive. Nevertheless, the stakeholders who did participate were knowledgeable and contributed actively to discussions.

Knowledge sharing was moderate to strong across most stakeholder categories, especially in the health and well-being, NBS/environment, and social development sectors. The municipality noted a mutual learning process, with stakeholders and officials benefiting equally from the collaboration. Engagement with the education sector occurred, albeit modestly, and involvement from the economic sector was limited but expected to increase in future initiatives.

Citizens' input was viewed as moderately valuable in contributing to knowledge exchange. Their feedback, especially during the evaluation of implemented features, helped identify areas for improvement in future nature-based interventions.

Looking ahead, Novo Mesto has already begun applying lessons from VARCITIES in a new green infrastructure project within the historic city centre. This initiative is adopting the same



structured co-creation model, with multiple stakeholder meetings held across different phases. The representative emphasised that stakeholder involvement adds complexity to project management, requiring strong coordination to balance inclusiveness with project goals. Nonetheless, the co-creation approach is now seen as a key element in shaping successful and sustainable urban green spaces.

4.7 Skellefteå

Skellefteå is a northern Swedish city navigating demographic shifts and socio-economic fragmentation. Challenges include an ageing population, uneven access to services, and youth outmigration. Through VARCITIES, the city is transforming a former landfill into a green, accessible residential and educational area that connects neighbourhoods with nature. The pilot tackles complex issues—from legacy pollution and stormwater runoff to inclusivity for people with special needs. Visionary Solutions focus on co-creation, multifunctional public spaces, and a thoughtful balance between quiet recreation and active use, all while managing governance tensions and ensuring effective collaboration across research, government, and civil society.

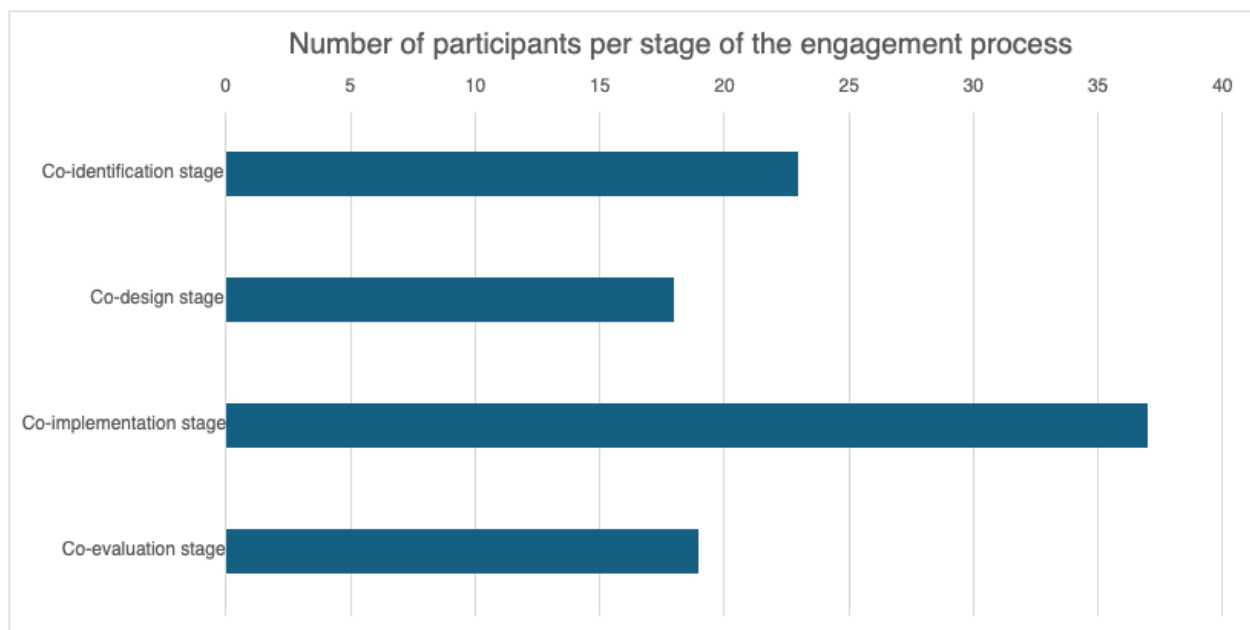
Visionary Solutions

- **VS1 – Build natural infrastructure to create urban resilience.**
Transform a former landfill area into a new residential and educational space, using green and blue infrastructure to support urban resilience and biodiversity.
- **VS2 - Creation of a wetland bed to increase biodiversity.**
Establish a wetland bed to attract biodiversity and support ecological restoration within the urban park.
- **VS3 - Installation of smart lighting to contribute to an inviting environment and encourage activities in the park.**
Install intelligent lighting systems in the park to improve accessibility, usability, and safety during darker hours.
- **VS4 - Educating and engaging citizens in the area to level up their awareness of climate change and the importance of biodiversity**
Develop educational tools and engagement programmes to raise awareness among citizens about climate change, biodiversity, and sustainable urban living.
- **VS5 - Creation of space in the park with bee hotels/insect habitats, permanent school-material**

Create insect-friendly spaces and install permanent outdoor school materials to promote environmental education and pollinator support.

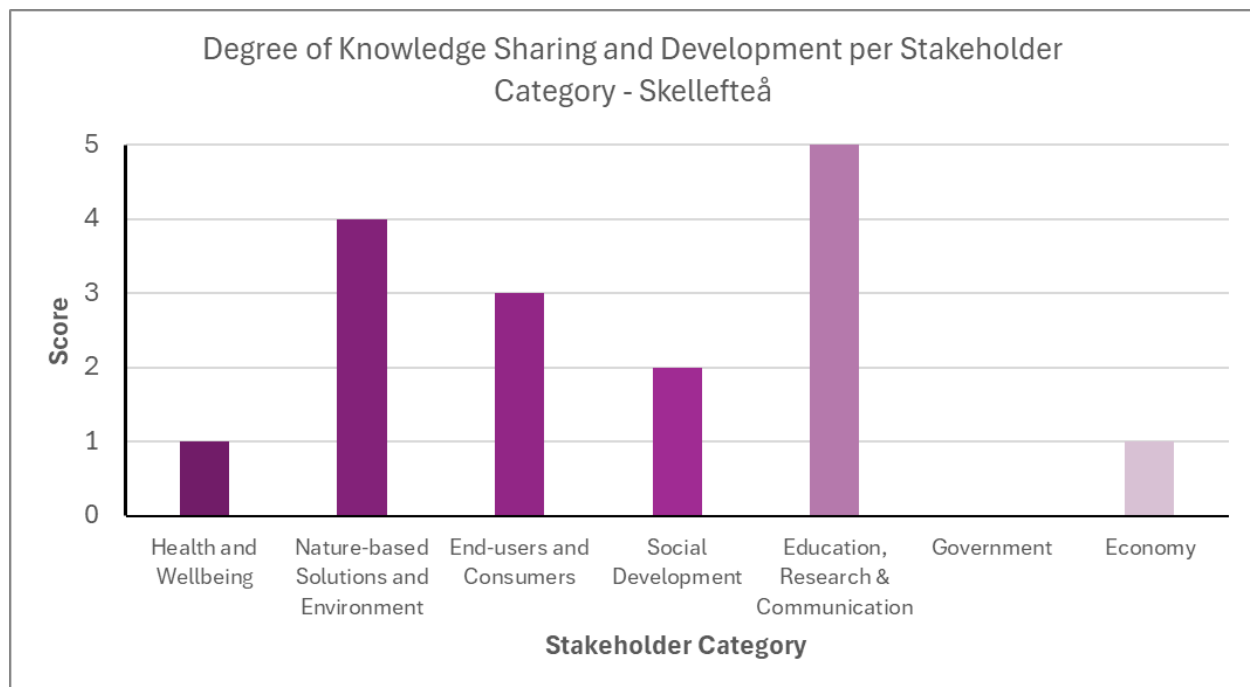
Stakeholders

Aggregate participation numbers for events organised by the Skellefteå Pilot during each stage of the co-creation process are detailed in the graph below (Graph 13). In addition to the figures below, it is important to note that significant engagement with schools that occurred in the Pilot throughout the project. While principally categorised as social and cultural events (documented in Deliverable 9.1), these interactions enabled the Pilot team to also collect feedback from students, parents and teachers with more than 100 such stakeholders involved in various events and activities the Pilot hosted.



Graph 13. Number of participants per stage in the engagement process in Skellefteå

Detailed figures on the profile of stakeholders participating in engagement activities across the project are not available since certain events (i.e. Town hall event) were not conducive to collecting such information. An estimate of the importance of different stakeholder groups to each Pilot was obtained through interviews with Pilot representatives conducted as part of the work documented in the addendum to Deliverable 4.5. An estimate of knowledge sharing with representatives from the different VARCITIES Stakeholder categories is given in the next figure (Graph 14). The scores on the y-axis range from 1: no input to 5, extensive interactions and contributions.



Graph 14. Degree of Knowledge Sharing and Development per Stakeholder Category - Skellefteå

4.7.1 Co-creation process

1st phase of co-creation

The first multistakeholder workshop on June 2021 focused on visionary, NBS to improve health, well-being, and resilience in urban environments. Participants from various sectors, including universities, municipal departments, and local associations, engaged in discussions on water quality, biodiversity, urban accessibility, and community engagement.

Concerns were raised about water quality and monitoring, especially regarding contamination from old dumps and precipitation effects. Participants emphasised the importance of clear communication on water safety and the role of sensor technology in monitoring these issues. Biodiversity discussions highlighted the management of invasive species and the need for green corridors to support pollinators. The integration of lighting solutions sparked debate on their potential effects on insects and nighttime accessibility.

Stakeholders emphasised the importance of outdoor learning and intergenerational community spaces, supporting infrastructure such as seating, fire pits, and educational signage. Concerns about climate change, water scarcity, and mosquito control were also raised, particularly in relation to seasonal fluctuations.

Challenges in maintaining the park and ensuring sustainable management were highlighted, with suggestions for involving local communities in its upkeep. Accessibility, both in terms of physical infrastructure and public awareness, was another key focus. Transportation links, parking solutions, and cycling regulations were discussed to enhance public use.

Participants expressed a need for better communication channels, favouring email updates and online platforms for ongoing engagement. While technical difficulties affected interactive polling, discussions confirmed a strong interest in making the proposed solutions effective and inclusive. The workshop concluded with positive feedback, highlighting the value of collaboration and shared vision for a greener, healthier urban space.

2nd phase of co-creation

The second workshop in November 2021 brought together a diverse group of local stakeholders, including residents, educators, developers, and representatives from the Science Park and municipal authorities. The session aimed to explore and refine VSs for the pilot area, a site that combines natural features, such as the Klockarbäcken stream and parklands, with opportunities for community engagement, education, and environmental enhancement.



Figure 29. Skellefteå's second co-creation workshop

Discussions emphasised the need to ensure year-round accessibility and functionality of the site, particularly during the long winter months. Participants proposed grooming trails for walking and skiing, compacting snow with snowmobiles, and installing adequate lighting along key pathways to increase safety and encourage seasonal use. Accessibility for people with disabilities and elderly residents was also a shared concern, highlighting the importance of inclusive infrastructure in future plans.

Environmental sustainability was a central theme, with many focusing on the role of the stream as both a natural asset and a challenge. Concerns were raised about erosion, contamination risks, and stormwater management. At the same time, stakeholders suggested exploring the educational and energy-generating potential of the stream, such as installing a water mill or using it for hands-on environmental learning activities.

The idea of an outdoor classroom near the stream was met with enthusiasm. Participants saw it as an opportunity to link green space with local educational programs, particularly through partnerships with the Science Center Exploratoriet. The importance of biodiversity, native plantings, and fostering a healthy microclimate was also emphasised, with stakeholders suggesting features like wetlands, shade trees, and pollinator-friendly landscaping.

Several attendees highlighted the significance of strengthening connections between different parts of the site—linking the Science Park, the residential area, and the allotment gardens. This included improving pedestrian access, creating gathering spaces, and enhancing the visual and ecological quality of the area. Concerns were also voiced about land ownership and long-term maintenance, underscoring the need for clarity in roles and responsibilities across public and private actors.



Figure 30. Stakeholders visiting Skelleftea's pilot site



Throughout the workshop, participants expressed a strong sense of local identity and a desire to preserve the site's natural character while making it more usable and welcoming. There was broad support for continued community involvement in the planning and implementation phases, with many calling for transparent communication, collaborative decision-making, and sustained engagement over time.

3rd phase of co-creation

The Skellefteå Town Hall workshop gathered local stakeholders including municipal officers, educators, landlords, accessibility experts, and university representatives to reflect on the implementation and future use of the VARCITIES VSs. The discussions highlighted the ambition to create accessible, inclusive, and data-informed public spaces that support well-being and engagement across diverse user groups.

Stakeholders expressed interest in the potential of smart infrastructure, particularly in VS3, which includes lighting and sensor systems for enhanced safety, accessibility, and planning. Municipal accessibility officers emphasised the importance of thoughtful lighting design for individuals with visual impairments and appreciated the active-control features near the sleigh slope. Participants saw value in sensors offering real-time data on park conditions, parking availability, or firewood supply—supporting a smoother visitor experience, especially for those with disabilities or mobility constraints.

Educational institutions welcomed VS5, which involves outdoor learning spaces, noting their existing use and calling for booking systems to ensure coordinated access. They also raised concerns about material choices, suggesting durable and fireproof options to reduce vandalism



Figure 31. Skellefteå's Town Hall event



and maintenance costs. The idea of linking outdoor classrooms and enabling wider public access was seen as a way to increase impact and visibility.

Stakeholders appreciated the overall design process and the co-creative engagement that shaped the solutions. Several pointed to opportunities for replication in other parts of the municipality, including nature trails, schoolyards, and winter play areas. Potential risks were noted, such as crowding, traffic concerns, and snow-clearing operations during peak usage. Suggestions included monitoring systems for shelters and continued collaboration across departments to ensure safety and efficiency.

Digital tools like the Health & Well-Being platform and the GoNature game were welcomed but flagged for language localisation needs. Participants saw potential in these tools for outreach and education but stressed the importance of regular updates to reflect new developments in the area.

Overall, the workshop confirmed strong community interest in the proposed interventions and a commitment to long-term usability, inclusivity, and environmental integration. Participants endorsed continued co-creation, supported future engagement activities, and highlighted the value of data-driven, participatory urban design in shaping a healthier, more connected Skellefteå.

4th phase of co-creation

The fourth workshop explored how VSs can enhance urban sustainability, focusing on water quality, biodiversity, accessibility, and community engagement. Participants discussed the challenges of replicating such initiatives in rural areas, where securing competent actors and funding is often more difficult. In contrast, Skellefteå benefited from favourable conditions, including suitable land, project actors, and necessary permits.

Klockardalsparken has undergone a significant transformation, with improved lighting making the area more inviting, particularly in the evening. The discussion centred on water sensors intended to monitor quality, but concerns were raised about the complexity of identifying relevant substances to measure, given fluctuating conditions. High iron levels from a nearby road were noted, with implications for local agriculture and animal use. Wetland biodiversity improvements were observed, with ongoing municipal efforts to remove invasive species, though challenges remain in managing grass collection.



Stakeholders reflected on the park's past neglect and praised the new barbecue areas and infrastructure, which have made the space more attractive to visitors of all ages. The role of lighting in enhancing the park's appeal was widely acknowledged, with suggestions for smarter, app-controlled systems. However, caution was advised regarding potential disruption to birds and insects during breeding seasons.

The micro-sensors, originally intended for educational use, faced technical difficulties, limiting their effectiveness in school curricula. However, the outdoor classroom concept was recognised as a valuable resource for sustainability education, providing an inclusive space for all users. There was discussion about its potential for broader cultural activities, such as music and theatre, as well as its integration into the municipality's venue rental system.

Feedback on the health and well-being platform was mixed. Some found it difficult to use, particularly due to language barriers, and felt that digital representations failed to fully capture the essence of Klockardalsparken. There were also reflections on educational resources, with teachers appreciating ready-made materials that facilitated outdoor learning. Budget constraints in schools, however, may be limiting their use.

In closing, participants discussed ways to maintain engagement with the park, suggesting organised events and incentive-based activities like a "park walk" challenge. The importance of cross-municipal collaboration was emphasised, alongside considerations for improving evaluation methods and refining biodiversity assessments. Despite some challenges, the workshop highlighted a shared commitment to fostering green, accessible, and engaging urban spaces.

In addition to the formal workshop in the 4th phase of co-creation, in February 2025 the Skellefteå Pilot team also organised a follow up less structure more informal stakeholder event, designed to showcase the VSs and capture additional stakeholders feedback about them.

Additional locally tailored activities

Building on stakeholder engagement via the workshops, the Skellefteå pilot actively engaged in knowledge exchange and stakeholder dialogue through a series of targeted events. These activities not only fostered cross-sectoral collaboration but also helped embed the principles of sustainable urban development into the city's broader planning and community strategies.

On 28 January 2021, Skellefteå participated in the Intelligent Cities Workshop as part of the Intelligent Cities Challenge, where the city is recognised as a core participant. The workshop



brought together 20 stakeholders, including actors from the construction sector, infrastructure development, and community planning. Focused on the integration of green and blue infrastructure, the discussions explored how ongoing and future construction projects in Skellefteå could support the city's long-term development strategy. This collaborative platform encouraged knowledge sharing across sectors and promoted alignment between infrastructure initiatives and the city's sustainable urban vision.

Later that year, Skellefteå contributed to public awareness and youth engagement during the Researchers' Night event, a European initiative aimed at bridging the gap between science and society. A combined presentation by doctoral students affiliated with the city administration and local social science researchers was delivered to an audience of approximately 50 high school students. The event provided a dynamic space for young participants to engage with contemporary urban challenges, while also introducing them to the research underpinning Skellefteå's urban and social development.

4.7.2 Pilot reflections on stakeholder engagement and co-creation

The pilot representative from Skellefteå described the city's approach to community engagement prior to VARCITIES as structured but passive, primarily involving consultation through neighbourhood meetings, hearings, and online surveys. While information was disseminated effectively, citizens were not typically included in decision-making committees or empowered to shape planning outcomes directly.

VARCITIES introduced a more participatory and iterative co-creation process. Engagement in the co-identification phase was weaker than anticipated, mainly due to COVID-19 restrictions and the reliance on remote formats. Interaction was limited, although participants were present. In contrast, engagement in the co-design and co-implementation phases was significantly stronger, supported by a consistent core group of participants who remained involved throughout. The co-evaluation phase was still underway when the representative was interviewed, although they noted engagement had proved somewhat challenging in the final phases, with lower levels of participation.

Information and consultation remained the dominant forms of engagement, consistent with Skellefteå's broader community engagement practices. However, the pilot also introduced structured workshops and activities that successfully brought together a diverse mix of stakeholders. Participants included representatives from the university, municipal services,



housing companies, and nature preservation organisations, fostering meaningful dialogue and collaboration across sectors.

Stakeholder mapping was seen as one of the most valuable tools introduced by VARCITIES. It enabled the team to identify and target a wide range of relevant actors, although not all those approached were able—or willing—to participate. Scheduling posed a particular challenge, especially for individuals with demanding work or family commitments. The pilot team recognised the need for greater flexibility, suggesting that future efforts could include multiple meeting times to accommodate different schedules, even if this compromises the integration of diverse stakeholder perspectives in a single session.

Engagement with some stakeholder groups proved difficult. For instance, efforts to involve a local mountain biking association were unsuccessful, possibly due to tensions with other users of the pilot site. Nonetheless, most participants were knowledgeable and engaged, and active moderation helped ensure inclusive discussions. While some individuals were less prepared or unsure of their role, this was the exception rather than the rule.

Citizens' contributions helped the team better understand community values and priorities, which, fortunately, aligned well with the project's initial goals. Although sustained engagement across all phases was difficult, particularly with certain demographics, the co-creation process was largely effective in building local insight and support.

Looking beyond the project, the pilot team expressed interest in incorporating elements of VARCITIES' co-creation model in future nature-based solution projects, particularly stakeholder mapping and early engagement strategies. However, they acknowledged that further discussion is needed on how and to what extent such approaches can be integrated into smaller-scale projects. Overall, the experience highlighted both the potential and the practical challenges of deepening stakeholder participation in urban planning.

5 Reflections on the co-creation process and inclusive engagement

At the beginning of the co-creation process, PI, with the support of University of Malta partners, developed evaluation forms intended to be used in of each local workshops. These forms were



designed to collect feedback from participants and to inform and adapt the subsequent stages of the co-creation process. However, the distribution and systematic use of comprehensive evaluation forms proved challenging across many pilot sites. As a result, several pilots scaled back the formal evaluation loop initially envisioned.

Given the diversity of approaches adopted to engage local communities, much of the feedback collected remained informal and undocumented. This variability highlighted the need for more flexible, yet structured, mechanisms to capture community input effectively.

To address these challenges and derive valuable lessons for future practice, PI organised two online sessions in June 2025 with the pilot representatives, structured as reflective exercises. These exercises explored different formats in which the feedback was received, the bottlenecks encountered, community responses to the evaluation process, the perceived importance of monitoring the diversity of the participants, and strategies for optimising evaluation methods in future initiatives.

In Dundalk, for instance, representatives from Louth County Council raised concerns about the sensitivity of certain questions about GDEI included in the evaluation forms. Although these questions were marked as optional and anonymous, participants expressed discomfort—particularly when asked about income levels or gender identity. As a local authority that also provides social services, the Council was wary of how these questions might be perceived by residents, fearing that they could be misinterpreted as data collection for other municipal purposes. As a result, the team made the decision to omit some of the more personal questions from the forms altogether.

While the formal evaluation tools provided a structured method for gathering insights, many pilots reported that the most valuable feedback came through informal channels. In Novo Mesto, informal conversations after events—sometimes over coffee or during casual community meetups—proved far more revealing than structured forms. Similarly, in Leuven, the team noted that trust and long-term relationship-building with residents created an open space for honest feedback, often delivered verbally rather than through written responses.

This trend was repeated in Chania and Gzira, where the teams developed a variety of alternative formats for engagement. In Gzira, for example, the pilot team encountered low attendance at the workshops and responded by adopting a more embedded strategy—going directly into communities, conducting surveys door-to-door, and hosting pop-up events. These informal settings not only improved access to feedback but also helped build stronger ties with the



community. In Chania, the team reflected on how initial structured workshops laid the foundation for more organic and continuous exchanges with local residents, including those who had previously been difficult to reach.

In Sweden, the team highlighted the difficulty of preserving anonymity in small workshops where participants could be easily identified. Questions about demographic background—especially in workshops with only eight attendees—risked undermining trust. Language also posed a challenge; project terminology, often developed at the EU level, did not always translate cleanly or resonate with local communication norms. In response, Skelleftea called for more resources and time to adapt materials to local standards.

Despite these challenges, pilots demonstrated strong commitment to inclusive practice. Tailored outreach and varied engagement formats ensured the inclusivity of the VARCITIES co-creation process. In Gzira, people with impaired mobility were directly involved in public space activations, and in Leuven, community-driven programming for summer events reflected the long-term investment in shared ownership of urban spaces. These efforts often had a direct impact on the visionary solutions themselves—whether through design adaptations, reallocation of resources, or the continuation of projects beyond VARCITIES' official timeline.

The reflection sessions reinforced the need for future projects to balance structure with adaptability. Evaluation tools should be structured enough to generate meaningful insights, yet flexible enough to respect local realities and stakeholder comfort. Similarly, diversity monitoring should support inclusive practice without becoming an administrative burden or a source of disengagement. The VARCITIES pilot cities illustrate that when communities are genuinely engaged—whether through formal tools or informal dialogue—feedback becomes a foundation for collaboration and long-term impact.

6 Lessons learnt

6.1 The paradox of co-creation within EU projects

The ambition for co-creation is to inclusively engage stakeholders from the start and develop VSs collaboratively with experts, users and citizens. The reality is that during the proposal phase of EU projects there is often a requirement to already specify details about planned activities



and predefine to some extent what VSs will be developed. This means that the co-creation process is not a completely bottom-up exercise and the scope for stakeholder participation in the identification and design phases varies depending on the VS in question. Furthermore, when it comes to digital health and well-being monitoring solutions, technical factors, procurement procedures and regulatory issues can limit the influence stakeholders have in shaping the solutions. The co-creation process within VARCITIES took place within a preestablished frame and was pursued as an iterative process of stakeholder engagement which in some VS could be characterised as a consultative approach. The Pilots can build on the insights, stakeholder contributions, and networks established through the co-creation process to sustain and deepen collaboration with stakeholders.

6.2 Diversified stakeholder engagement

Stakeholders represent a diverse group, so no one-size-fits-all approach works. What is effective for one group may be counterproductive for another. Multi-stakeholder workshops formed the backbone of stakeholder engagement by providing a structured avenue for feedback. It proved essential, however, to connect through multiple channels—meetings, surveys, workshops, presence at events—with a view to build trust, establish personal connections, and ensure that stakeholders felt respected.

In all Pilots dedicated efforts were made to identify and involve diverse stakeholders, utilising the Prospex-CQI methodology. The Pilots utilised diversified engagement activities including holding events out of business hours and on the weekend to accommodate people who were unable to attend events during the day. In contrast, institutional stakeholders usually participate during business hours in a professional capacity as part of their job, whereas for many, particularly local residents, participation is a voluntary endeavour. These points underscore that despite efforts to inclusive involve diverse stakeholders, the fact remains that people face different constraints, and in turn have different capacity and willingness to participate in such co-creation processes.

VARCITIES was conducted over a four-year time span. Local projects often have a much shorter duration. Special attention needs to be paid to adapt the engagement strategy to the time frame of the project as there is a limit to the amount of time that stakeholders can and/or will commit to projects. The (potential) impact of the totality of actions on stakeholder fatigue needs to be monitored, actions should be taken as appropriate.

The challenges of ensuring and maintaining participation are especially relevant in projects such VARCITIES employing an iterative co-creation approach that seeks to have ongoing stakeholder



involvement throughout the project. Specificities of VS meant that scope for participation varied across the different phases of co-creation. In particular, during the implementation phase of VS there was more limited potential for stakeholders to actively participate. Thus, in some pilots, such as Skelleftea, it was noted that the stakeholders showed more interest in participating in the co-design phase but were less interested to participate once the design was completed and implemented. An exemption to this was the Olevodroom in Leuven which involved stakeholders in the construction of the VS. Special attention needs to be paid to adapt the engagement strategy to the time frame of the project as there is a limit to the amount of time that stakeholders can and/or will commit to projects. The (potential) impact of the totality of actions on stakeholder fatigue needs to be monitored, and actions should be taken as appropriate.

Alongside the variety of engagement formats to accommodate different stakeholder groups, the language used is an important factor in maintaining the stakeholders' interest to participate. This is of particular importance for projects with a long duration such as VARCITIES: staff changes occur, leading to differences in expressing actions and descriptions of the project. The vocabulary must be tailored for each audience, with a strong emphasis on eliminating jargon and ensuring clarity. Centrally produced texts should be collaboratively refined by pilots and work packages to ensure they resonate within local contexts. Moreover, maintaining consistent terminology is essential—especially for long-term EU projects, where staff turnover may lead to varying translations of centrally developed materials.

6.3 Inclusive planning remains a challenge

The European Union requires a proper consideration of gender, diversity, and equality (GDEI) issues². Excluding certain populations raises ethical concerns, especially when those groups are later expected to benefit from the research and innovation outcomes. Such exclusion may contribute to health disparities and perpetuate social injustices. Incorporating diversity in research design and project implementation enables the development of culturally sensitive methodologies, resulting in more meaningful and valid results. By including a diverse range of participants, research and innovation projects become more representative of the broader population and are less likely to be biased or stereotyped.

² <https://erc.europa.eu/news-events/magazine-article/diversity-research-research-diversity>

The stakeholder mapping process adopted by VARCITIES considered various aspects of GDEI, encouraging an inclusive approach to the involvement of stakeholders. Going further than this the EU requested information about the stakeholders participating in the project to assess the extent to which gender, diversity, and equality issues are addressed in both design and implementation. In collaboration with the VARCITIES sister projects (IN-HABIT, GoGreenRoutes, and euPOLIS), and led by TUC, considerable effort was invested to develop a GDEI framework and a questionnaire to monitor in greater detail inclusivity aspects in the Pilots. VARCITIES actively contributed to a common GDEI deliverable (Deliverable 9.6a) that outlined this framework and served as a shared reference point across all participating projects.

At the same time, GDEI data collection was new for the pilots and had no equivalent in local policies and practices. Some evaluation questions on GDEI were perceived as overly intrusive. The questionnaire was seen to conflict with efforts to make activities as accommodating as possible for stakeholders. Nonetheless, the project highlights the need for pilots to determine whether they require such information—for example, to assess whether a balanced mix of stakeholders has been achieved in their projects—and to establish effective monitoring mechanisms. A key lesson for VARCITIES was that sensitive issues like GDEI must be discussed more intensively with the pilots and that questionnaires should be developed together to ensure that they align with local social and cultural contexts.

6.4 Co-creation and (co-)governance

Governance and co-creation are inherently interlinked in NBS and the VSs of VARCITIES.

Co-creation refers to the active involvement of diverse actors—citizens (organised or not), political representatives, public officials, private stakeholders, and researchers—in participatory, collaborative, or co-productive processes. These processes are often supported and amplified through co-governance structures.

Governance in the context of NBS and VSs encompasses a broad spectrum of social and political actors, each bringing distinct perspectives on government-society relations. It is shaped by both formal and informal rules, decision-making processes, and mechanisms. Co-governance of NBS and VSs involves collaboration in the design, implementation, maintenance, and monitoring of solutions, engaging local communities—including NGOs and private sector stakeholders—to foster a sense of ownership, enhance capacities, and build new knowledge.



Co-governance can be viewed through two primary lenses.³ The first is a technical, efficiency-oriented perspective, which emphasises the pooling of resources and expertise to generate innovative, effective solutions that might not be possible through traditional governance approaches. The second is a political, transformation-oriented perspective, which values co-governance in addition to efficiency gains for its potential to democratize decision-making processes and promote the common good. Depending on which perspective is emphasised, the roles and degree of stakeholder involvement in policy development and implementation may vary.

VARCITIES emphasises active local user and stakeholder involvement in co-creation. Key components include inclusive stakeholder identification, measurable feedback mechanisms, participatory knowledge generation, and facilitation processes designed to encourage meaningful exchange and direct contributions to research and development. VARCITIES did not express a preferred model for co-governance. The pilots had to embed co-creation practices in their governance structures. Deliverable D4.4 examines and describes the challenges these pilots faced in adapting their governance structures. Most pilots had limited experience with co-creation and co-governance and implicitly took a technical, efficiency-oriented view. In this context, co-creation was largely approached as an iterative stakeholder engagement process, often consultative in nature but not exclusively so. The VS of VARCITIES featured small-scale, localized interventions characterized by deep, albeit informal, stakeholder engagement. Through these experiences, pilots gained valuable insights into the theory and practice of co-creation. This learning remains relevant beyond the project's completion and offers a foundation for the continued development and implementation of co-governance and co-creation practices

6.5 Future utilisation of VARCITIES co-creation experience

VARCITIES built on existing practices and gave its pilots the opportunity to test broader and more inclusive stakeholder engagement. The Pilots experienced that the Stakeholder mapping methodology resulted in a more inclusive and balanced set of stakeholders and will consider the application of modern stakeholder mapping techniques in future projects. The structure of the co-creation process helped stakeholders understand their roles and enabled them to contribute effectively. In many cases, citizens and other stakeholders played a more active role in decision-

³ JUSTNature, Yirang Lim, Martina van Lierop, Juliane Meister, Eleanor Chapman, Viktor Bukovski, Samir Amin and Tannya Pico (Eds), D7.1 State-of-the-art Report on Good Practice for Co-governance of NbS (<https://justnatureproject.eu/resources/https-justnatureproject-eu-resources-public-deliverables/d7-1-state-of-the-art-report-on-good-practice-for-co-governance-of-nbs>)



making, which cities appreciated and saw as a benefit for future governance. In one pilot, initial scepticism from the local administration gave way to a more positive outlook as the benefits of co-creation became clear.

The co-creation process encouraged creativity and innovation and was effective as it included the people directly impacted by the outcomes—"there are details that are very important for users that otherwise may be overlooked."

While not all projects can afford the same level of time and resources, many cities said the positive experience convinced them to keep pursuing co-creation methods.

Stakeholder involvement varied across VSs depending on their focus. Engaging the business sector was often challenging, and views differed on how to best share knowledge with citizens. Still, citizen input was valued, especially for making the projects fit local needs. One pilot noted that community involvement even strengthened neighbourhood cohesion.

Strong collaboration from the start proved crucial. Involving stakeholders early—in both the design and concept phases—built trust, identified potential risks and challenges early on, and gave people a sense of ownership. However, too many stakeholder ideas could make it harder to stay focused. Finding the right balance between being too detailed (which limits input) and too broad (which risks disengagement) was a common challenge. A key takeaway: different groups need different engagement strategies. Tailoring methods to each group helps maintain involvement and ensures more meaningful participation.

Respect and transparency were key. Stakeholders needed to feel their input was genuinely respected and considered, and decisions—especially when input wasn't used—had to be clearly communicated. Some cities warned that administrative unwillingness to act on feedback can damage trust and lead to "token" participation. Still, several reported that their experience with VARCITIES inspired them to continue co-creation efforts.

The process was resource intensive. Adequate funding, staffing, and organisational support were seen as essential for success. Past co-creation wins can help make the case for future investment. Keeping stakeholders engaged throughout was a challenge—interest sometimes faded when people felt they'd already contributed enough, when project focus shifted, or due to fatigue from repeated requests for input.



7 Conclusions

This deliverable gives a comprehensive overview of the stakeholder engagement and co-creation activities undertaken in VARCITIES and it is important to acknowledge again the substantial efforts and commitment the seven Pilots and their stakeholders invested into co-creating their cities' VSs.

The **Castelfranco Veneto** pilot successfully demonstrated how collaborative planning and nature-based solutions can reshape urban spaces to promote well-being, inclusivity, and environmental resilience. Through a series of dynamic events, workshops, and cross-sector collaborations, the pilot fostered a shared vision for healthier cities and empowered diverse stakeholders to contribute meaningfully to urban innovation. Despite challenges in sustaining engagement during later project phases, the experience laid a solid foundation for continued co-creation, offering a replicable model for citizen-driven transformation in mid-sized European cities.

The **Chania** pilot illustrated the transformative potential of inclusive co-creation in embedding sustainability and well-being into the urban fabric. By blending digital innovation, environmental education, and stakeholder engagement, the city created multifunctional public spaces and tools that encourage active, health-conscious lifestyles. While legal and technical barriers limited deeper forms of citizen involvement, the pilot introduced a new participatory culture that local actors are eager to sustain. The experience not only strengthened community partnerships but also positioned Chania as a forward-thinking example of adaptive urban planning in the Mediterranean context.

The **Dundalk** pilot site exemplifies how sustained, participatory engagement can lead to more inclusive, community-driven urban development. Through a diverse range of activities—from cultural events and public demonstrations to strategic collaborations with national bodies—the project successfully involved citizens, stakeholders, and local authorities in shaping a shared vision for health and well-being in the urban environment. While challenges such as low participation in co-evaluation were noted, the overall approach fostered local ownership, adaptability, and innovation. Dundalk's recognition in the SuperValu Tidy Towns competition further validates the impact of the VARCITIES model, setting a strong precedent for future co-creation efforts in urban planning.



The **Gżira** pilot site in the project stands as a powerful example of how community-driven co-creation can shape more inclusive, sustainable, and health-oriented urban environments. Over multiple phases of engagement—from initial visioning and design to implementation and evaluation—the project fostered deep collaboration between local authorities, residents, educators, experts, and students. Despite institutional constraints and varying levels of participation, stakeholders consistently demonstrated a shared commitment to reclaiming public space, enhancing well-being, and integrating nature-based solutions into the fabric of everyday life. Initiatives such as the greening of Rue D’Argens, citizen science efforts, and the co-designed school garden reflect a growing culture of ownership, innovation, and care for Gżira’s urban future. While challenges around long-term maintenance, public perceptions, and governance persist, the pilot has successfully catalysed a shift toward more participatory and human-centric urban planning, laying the groundwork for lasting impact and replication across Malta and beyond.

The co-creation process in **Leuven** under the VARCITIES project exemplified a dynamic, participatory approach to urban transformation, grounded in dialogue, inclusivity, and responsiveness to local needs. Through structured phases of co-design, co-implementation, and community outreach, stakeholders played an active role in shaping the Visionary Solutions—most notably the Olevodroom—into interventions that reflect shared values and priorities. Despite challenges such as stakeholder turnover and governance hurdles, the pilot fostered meaningful community engagement, strengthened social cohesion, and demonstrated the potential of collaborative processes to inform both design and decision-making. These experiences offer valuable insights for future projects seeking to embed co-creation in sustainable urban development.

The **Novo Mesto** pilot stands out as a gradual but meaningful shift toward more participatory urban development. What began as a municipality-driven initiative matured into a collaborative process, where citizens, organisations, and experts had a growing influence in shaping a multifunctional, inclusive recreational space. From restoring degraded land with native vegetation to integrating cutting-edge digital tools and promoting para-sports, the project responded to diverse local needs while experimenting with new forms of engagement. Challenges around sustained participation, balanced representation, and translating input into action did arise—but so did a stronger sense of ownership among those involved. Importantly, the experience sparked a cultural change in how the city approaches planning, with co-creation now informing new projects beyond VARCITIES. Rather than a one-off experiment, this pilot has helped embed a more responsive, community-oriented mindset into Novo Mesto’s future.



The **Skellefteå** pilot showed that it is possible to get diverse stakeholders meaningfully involved in transforming complex, underused urban areas through co-creation and NBS. By redeveloping a former landfill into an inclusive, biodiverse park, the city addressed pollution, accessibility barriers, and social fragmentation while promoting environmental education and community well-being. Structured workshops and cross-sector collaborations supported the design and implementation of smart infrastructure, outdoor classrooms, and green-blue networks. Although early engagement was hindered by pandemic restrictions and participation varied across phases, later activities fostered stronger involvement and ownership. The pilot introduced tools like stakeholder mapping and real-time data monitoring that enhanced transparency and adaptability. Despite technical challenges and tensions around long-term maintenance, the process set a valuable precedent for participatory planning in northern, climate-resilient cities, embedding co-creation more firmly into Skellefteå's urban development approach.

This deliverable illustrates the transformative potential of co-creation as an approach to urban design—demanding in effort and coordination yet profoundly rewarding in impact. When cities and funders embrace flexibility and commit to Visionary Solutions, the scope for meaningful engagement expands dramatically. Across all Pilots, one message rang clear: citizens and stakeholders are not only ready to participate—they are eager to co-shape the future of their communities. Their energy, insight, and commitment represent an untapped force for innovation and resilience.

This insight has been wholeheartedly embraced by the pilot cities. Inspired by the positive experiences, they have expressed a strong commitment to advancing co-creation methodologies—refining and applying the approaches developed in VARCITIES within future urban initiatives.

Harnessing this momentum offers decision makers a rare opportunity to foster cities that are not just planned for people, but with them—cities that reflect the values, aspirations, and creativity of those who call them home.

