



CO-CREATION IN URBAN DEVELOPMENT

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1 Introduction

This handbook is a practical guide to navigating the complex processes of Co-Creation in urban development. It functions as an intent to summarize our main learnings, and key take-aways of the project “Creating NEBourhoods Together”. 2.5 years of in-depth field work, cross-sectoral collaboration, and implemented projects; of highs and lows, of Do’s and Don’ts and countless hours of engagement in the district. Co-Creation in urban development is still in its exploratory phase, which makes documentation and knowledge dissemination crucial.

The handbook aims to provide practical advice for managing projects with diverse stakeholder groups in urban development projects. It doesn’t claim to be complete, yet, it might be of help for future projects in this realm. Despite the complexity of transsectoral innovation, and the long time spans of profound societal transformation, our future outlook is positive. We are convinced that bringing together people from diverse sectors, backgrounds, cultures, languages, income levels, age, gender, and enabling them to work, create, and innovate on their own living situations for the better; of understanding that sustainable development is not an “abstract” and “green-washed” term, yet, it can be a positive enhancement of one’s own living situation, is what the world needs today.

To facilitate transsectoral Co-Creation, empathy, trust, and time are critical success factors. Most importantly, one must guarantee that despite the sometimes “misleading” terms of e.g. “Living Lab”, the work in the district is done with “real” human beings. It’s about people living in the district for decades, of well-loved habits, and unstructured place-making. Trust needs to be earned and seeds need time to grow into plants. Change is slow and consistency is essential. We hope, that this handbook is of value for others, serving as a good starting point to engage with Co-Creation in urban development projects. With today’s tendencies of growing separation, and mistrust amongst people, projects of “Togetherness” are fundamental, both for democracies as well as for societal change towards sustainable living in urban contexts. Co-Creation can provide a suitable methodology to develop positive, future visions, to experience the power of community and collaboration, and to build bridges, dialogue, and trust despite existing differences.

HM:UniverCity is the innovation entity and network of the Munich University of Applied Sciences (HM). In our role, we are responsible for developing and implementing formats for the transfer between science and society. We have been working and enabling transsectoral co-creation processes in diverse contexts for the last seven years. As written word can not replace personal contact or on-site visits, we encourage everyone interested to get in touch with us and we’re happy to share our knowledge, and practical experience gained throughout the past years.



"Transsectoral Co-Creation Workshop" Image source: NEBourhoods/HM Patrik Thomas



"Transsectoral Co-Creation Workshop" Image source: NEBourhoods/HM Patrik Thomas

1.1 Project Overview

Creating NEBourhoods Together

“Creating NEBourhoods Together” is one of the six lighthouse demonstrators of the New European Bauhaus funded by the EU to address the great challenges of climate, environment, and health. The aim is to collaborate on the European Green deal to create more sustainable, inclusive, and beautiful living environments across the EU. In Munich-Neuperlach (NPL), one of Europe's largest post-war urban expansion areas, NEBourhoods is collaborating with citizens and stakeholders from culture, science, and business to implement ten actions from all fields of urban development, encompassing circular construction and redesign of residential and commercial buildings, innovative forms of mobility and energy communities, biodiversity and green space concepts and nutrition and youth culture. Encouragement of entrepreneurial thinking and action and practical implementation in Co-Creative processes support the formation of sustainable neighbourhoods in liveable, inclusive, and beautiful cities of the future.

Combining co-creation and entrepreneurship while putting culture and creativity at the core of the transformation process, the project is delivering accessible and empowering solutions, providing roadmaps and kickstarting actions to make the EU Green Deal beneficial for all in NPL and beyond. With meticulous care, the district is being

cultivated to become a resilient urban innovation landscape. Over this two-year period, we have been creating NEBourhoods together, demonstrating how circular thinking and acting in society and the economy can be realised, how the green transformation in construction, mobility, energy, food and health can be activated and how public spaces can be enhanced.



“Wohnring Neuperlach” Image source: NEBourhoods/HM Gustav Götze

Neuperlach and Surroundings - Our Area

NEBourhoods' project area is the municipal action area **“Handlungsraum Neuperlach and Surroundings”** (in short referred to as Neuperlach).



about 1.100 hectars (11 km²)



home to a population of more than **65.000 inhabitants**



increase of inhabitants by the year 2040 which induces an increasing demand for social infrastructure.



high-rise buildings in its center with extensive **open and green areas**.

The main area of Neuperlach is characterized by high-rise residential buildings and an urban design with semi-public open spaces. A network of pedestrian paths runs separately from the – by today's standards – oversized streets. Neuperlach has a culturally rich and diverse social life. The social institutions are well networked, meet-ups take place regularly for specific target groups, such as working groups focused on youth or senior citizen topics, and they provide

strong support to each other. Many residents consider Neuperlach beautiful, especially because of the extended and open green areas.

Still, the district is facing major challenges:

- increasing demand for housing, leading to extensive urban planning and construction activities.
- failing to ensure better, and more suitable educational support and opportunities for all children
- above urban average proportion of the population affected by persistent unemployment and dependence on government benefits.
- lack of cultural opportunities, of meeting places and of places and equipment for physical activities that meet today's standards, especially for younger people.

This project builds on and contributes to two important strategies and action plans by the City of Munich. Both address the challenges of Neuperlach and its surrounding areas, proposing explicit measures to leverage its potential. These are the Integrated Urban Regeneration Implementation Plan (ISEK) and the Integrated Urban Development Plan (IHRK). To support the implementation of these plans the City set up a Neighbourhood Management (Stadtteilmanagement), focused on the (smaller) area designated for formal urban regeneration, and the Action Area Management (Handlungsraummanagement), which covers the whole of Neuperlach and its surroundings (action area / Handlungsraum). Both work in close cooperation with each other and with NEBourhoods.

1.2 Objectives of the Transition Hub

The Transition Hub has been responsible for the design, set-up and implementation of Co-Creation in NEBourhoods. Among others, one task was to ensure, through Co-Creation, that the 10 NEB Actions could take root in the local context of Neuperlach. This was done in urban Living Labs. The 10 Actions are Animal Aided Design, Let's Plant a Tasty Neuperlach, Public Power, Circular Neuperlach, Redesigning Housing Structures, Private Spaces for Public Use, Mobility NEBourhoods, Energy Communities, Ecolopes, Places for Youth Culture - PEARL.

The NEB Actions address a variety of challenges that were identified earlier, as well as topics relevant to climate neutrality and resilience in the district. These actions had been prepared - but not fully planned - within Munich's innovation ecosystem and were informed by findings from two other large-scale concepts for integrated urban development currently being implemented by the City of Munich in Neuperlach (see page 14).

The purpose of the urban Living Labs was

- to align the projects of the NEB Actions with the needs and challenges of the district and its inhabitants
- to co-create prototypes and find suitable locations for the prototypes in Neuperlach
- to enable long-term continuation and replication of the prototypes.

1.3 Task-Team

Two partners in the Transition Hub formed the task team, these were HM:UniverCity, the Innovation network of Munich's University of Applied Sciences (Workpackage Lead), and the Team of Excellence for the Cultural and Creative Industries of the City of Munich (MUC CCI), who combined their knowledge and experience in the following fields to accomplish:

- the quadruple helix approach, i.e. the participation of actors from the four key sectors: civil society, government, academia and industry (HM:UniverCity),
- Co-Creation, i.e. collaborative processes, in which the four key sectors jointly create solutions and innovations leveraging the diverse expertise and perspectives of each sector to address complex challenges and optimize outcome (HM:UniverCity), and
- Cross-Innovation with the arts and the cultural and creative industries (MUC CCI), i.e. the initiation and facilitation of collaborations between the Cultural and Creative Sectors (CCIS) and other economic sectors, shaped by design-thinking.

1.4 Objectives of this Handbook

The handbook reflects our experiences in designing and implementing Co-Creation processes in the EU project Creating NEBOurhoods Together. The NEBOurhoods project started with ten proposals for the sustainable development of Munich's Neuperlach district. Our task was to figure out "how, with whom, and with what resources..."² these proposals can be adapted to local conditions and to implement in real-life settings. Moreover, the implementation of the proposals should contribute to sustainable neighbourhood development in line with the European Bauhaus initiative and implement long-lasting positive impact.

The handbook is divided into five chapters. After a short introduction with a brief project overview and the introduction of the concept Living Lab, Chapter 2 focuses on the why, with whom, and how of Co-Creation in Urban Development, followed by Chapter 3. Here, we provide an overview of methods, on how to find and involve stakeholders, and places. Those two provide the theoretical framing for Chapter 4, in which we concentrate on the application of co-creation in practice, and the key learnings made throughout the process, and also within the team. Chapter 5 is of great value, as it focuses and reflects on questions in regards to long-term continuation beyond the scope of the project duration.

This handbook aims to give municipalities, universities, civil society organisations, and other professionals involved in urban development, stakeholder engagement, and Co-Creation new tools, strategies, and insights for advancing Co-Creation processes in these realms. The handbook is not suitable as a step-by-step guide for sustainable urban development projects, nor does it outline a linear process like the one in design thinking. Our experience has shown that sustainable district development projects can only progress incrementally, as the final outcome is unknown and takes shape over time. Therefore, our proposed methodology focuses on non-linear processes. We used familiar creative methods when appropriate, but very often our workshops were quite tailor-made, and expanded beyond the scope and definition of a workshop format.

A glossary provides definitions of the specific terms used in the handbook (p. 131), followed by the list of acronyms (p. 137). The list of references can be found on p.129).

The annex contains a table of Living Lab actors, templates for Co-Creation tools as well as the graphic documentation of two Living Lab processes.

1.5 Preliminary Results of the Living Labs

The following section presents an overview of the Living Labs, showcasing examples through images and text. This overview aims to provide a vivid impression of the tangible outcomes of the project. While this presentation highlights the content and focus areas of the Living Labs, it does not delve into the methods and processes - those will be addressed in the subsequent chapters. Instead, this section emphasizes the potential and versatility of Living Labs as a tool for innovation and development.

It is important to note that these are not final results in a conventional sense, as Living Labs are inherently local and operate as prototypes. Some prototypes may remain, such as the improvements implemented in the schoolyard, but their primary purpose is to serve as test fields for broader applications. This dual role allows the Living Labs to deliver local benefits while also acting as platforms for experimentation, with insights and lessons that can be applied citywide or even across Europe.

Through this approach, the Living Labs demonstrate their multifaceted value, enabling both immediate improvements in specific locations and creating a foundation for scaling innovations to a larger context. What Living Labs are exactly and the role they play in the co-creation process are explained in Chapter 4.5



“Ständlerstraße Neuperlach” Image source: NEBourhoods/HM - Michael Droß




ANIMAL-AIDED DESIGN: YOUTH CENTER

This Living Lab focuses on urban biodiversity and coexistence with wildlife. Gardens at youth centers were transformed into wildlife-friendly spaces through Co-Creative workshops with children. Simple measures, such as planting hedges and arranging deadwood, created habitats for specific species.

To make the approach replicable, a toolbox was developed, enabling schools and other centers to create similar spaces. This lab combines hands-on learning with meaningful action for sustainability.

The initiative is part of the NEBourhoods Action on Animal-Aided Design, originating from an idea by Studio Animal-Aided Design.

How can we teach young children about biodiversity through hands-on, real-world experiences?



How can we promote biodiversity and integrate the immediate neighbourhood?

ANIMAL-AIDED DESIGN: SHOPPING CENTER

A second Living Lab of the same action was created through a collaboration between students from the University of Vienna and PEP, one of Europe's largest shopping centers. This led to plans for a biodiverse rooftop garden, with designs aimed for permanent installation.

While the garden's structural safety is still being finalized until spring 2025, the NEBourhoods Nesting Stool, a modular structure combining seating, plants, and habitats for animals, has already been installed in front of the shopping center. This prototype gives necessary insights if, and if yes, how it functions, both for humans, animals, and plants. A second nesting stool will be added to the rooftop community garden once it's completed. The community garden will be open for the neighbours of PEP.



LET'S PLANT A TASTY NEUPERLACH: NETWORK

The "Let's plant a Tasty Neuperlach!" project, a proposal from Green City e.V., MIN and MER, promotes sustainable nutrition and edible green spaces by involving residents in planting, cooking, and learning together. Through Co-Creative workshops, a mobile kitchen and raised garden beds were developed for inclusive, intergenerational use.

The project strengthens connections between community initiatives, local councils, and businesses to build a neighbourhood focused on local, sustainable food. Guided bike tours, organised with the City of Munich's adult education center, showcase these initiatives to the community.

The Co-Creation process is visualised in Annex 1 on p.143

How can we establish local food chains? How can we build and support a network to achieve this?

LET'S PLANT A TASTY NEUPERLACH: GARDENS

In this project, several mini-labs have emerged from networking activities. These labs are now testing and implementing the developed garden modules, ideas, and guidelines. They mark the start of local food chains, with some gardens supplying fresh produce directly to nearby neighborhood centers for cooking, fostering a "farm-to-table" mindset. With future funding secured through local sponsors and donated equipment, these gardens are becoming self-sustaining while remaining connected within the broader network. The initiators, Green City e.V., MIN and MER, will continue to offer advisory support and facilitate further networking activities.

The Co-Creation process is visualised in Annex 1 on p.143


How can we design gardens that are inclusive, intergenerational, culturally diverse, accessible to all, financially sustainable, and low-maintenance?

ECOLOPES

The ECOLOPES Living Lab, based on an idea from the Terrestrial Ecology Research Group at TUM, designs ecological building envelopes to create habitats for humans, plants, and animals in urban spaces. Using 3D clay printing, TUM develops adaptive façade elements and modular planter blocks to enhance biodiversity.

Prototypes are currently tested on the rooftop of the PEP shopping center in Neuperlach, with parallel trials in Genoa and Haifa. In May 2024, a Co-Creation workshop used LEGO to design ideal building envelopes, considering the needs of all species. A full-scale façade will be installed at Südpolstation youth center in spring 2025 for real-life testing.

How can we Co-Create building envelopes that meet the needs of both human residents and local wildlife, including plants and animals?



How can we design shaded spaces that provide protection from the sun while encouraging social interaction?


PUBLIC POWER

The "NEBourhoods Shading Architecture" was launched in August 2024 at Campus di Monaco in Neuperlach, offering shaded seating and free phone charging to help residents cool off. It is the first step in creating a shared community garden for the local school and neighbourhood.

Built from wood and bamboo, with solar panels and power outlets, this sustainable structure addresses the need for climate-friendly public spaces. It supports outdoor activities, classes, and community events, promoting a greener, more inclusive environment.

The Co-Creation process is explained on page 106 et seqq. and visualised in Annex 1 on p.139.

Public Power is originating from an idea by TUM Chair of Building Technology and Climate Responsive Design with support from str.ucture GmbH.



How can we upgrade rental housing to be energy-efficient and accessible, while maintaining affordability?

REDESIGNING HOUSING STRUCTURES

The NEBourhoods action "Redesigning Housing Structures" aims to refurbish and expand residential buildings in need of renovation, focusing on social, economic, and energy improvements. The initiative updates facades and enlarges living spaces using prefabricated timber elements or reused components to provide energy upgrades and enhance social benefits. In this lab, the residents of Neuperlach were engaged through an exhibition showcasing thoughtfully crafted models. These models were designed by students, with careful consideration of the New European Bauhaus Compass. A micro-camera was used to project these models life-sized onto walls, immersing the viewers in future living environments. Redesigning Housing structures is a proposal by the TUM Chair of Architectural Design, Rebuilding and Conservation & Chair of Design, Construction and Realisation at OTH.

Watch the exhibition film here

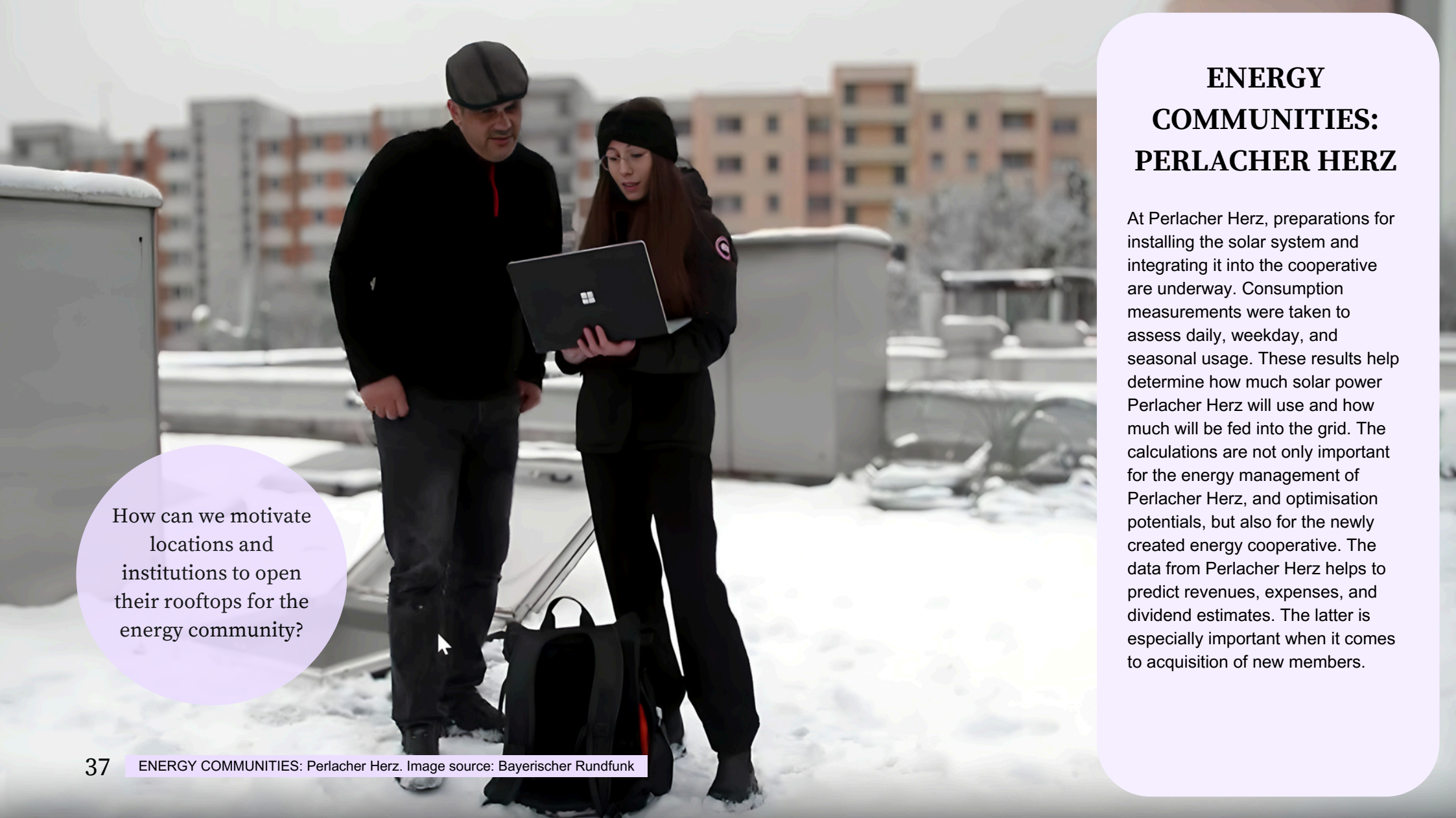


ENERGY COMMUNITIES: COOPERATIVE

Founded in July 2024, the cooperative enables Munich Neuperlach to produce its own electricity. This initiative is part of the NEB Action "Energy Communities", based on a proposal by the TUM Chair of Building Technology and Climate Responsive Design. It brings together local and academic energy groups and offers an open model for others to join. The cooperative focuses on sustainable, fair energy, ensuring all members benefit, regardless of income. In partnership with the Technical University of Munich, it turns research into practical solutions. The first photovoltaic system will be installed at the Perlacher Herz community center, with ongoing fundraising activities to ensure pre-financing.

How can we create a sustainable local energy system that benefits disadvantaged households?



A man and a woman are standing on a rooftop covered in snow. The man, wearing a black jacket and a flat cap, is looking at a laptop held by the woman. The woman is wearing a black jacket and a beanie. In the background, there are multi-story apartment buildings. A black backpack sits on the snow in the foreground.

ENERGY COMMUNITIES: PERLACHER HERZ


At Perlacher Herz, preparations for installing the solar system and integrating it into the cooperative are underway. Consumption measurements were taken to assess daily, weekday, and seasonal usage. These results help determine how much solar power Perlacher Herz will use and how much will be fed into the grid. The calculations are not only important for the energy management of Perlacher Herz, and optimisation potentials, but also for the newly created energy cooperative. The data from Perlacher Herz helps to predict revenues, expenses, and dividend estimates. The latter is especially important when it comes to acquisition of new members.

How can we motivate locations and institutions to open their rooftops for the energy community?

NEBOURHOOD HUBS

Originating from an idea by the TUM Chair of Architectural Informatics, "NEBourhood Mobility Hubs", are multi-functional stations designed to improve urban transportation and foster community engagement. Developed through workshops with local residents, these hubs are tailored to the needs of the community: STEINI, near a skatepark and sports area, and RESI, located next to the southern Neuperlach Metro Station.

Created by local manufacturer GRONARD, the hubs include shaded seating, book exchange shelves, a "library of things," a graffiti wall, and rental services for mobility aids and cargo bikes. Residents are encouraged to provide ongoing feedback to keep the hubs relevant and useful. Participatory tools using data from the city's digital twin also help shape the planning of public spaces and mobility services.




How can we promote alternative mobility and circular practices in the local community while strengthening connections between neighbours?

PLACES FOR YOUTH CULTURE

This initiative focused on creating spaces for youth culture in Neuperlach. By working with local young people, it identifies areas where youth can engage and influence their community. In partnership with the Münchner Kammerspiele, the project launched a theatre lab and offered opportunities in film, urban storytelling, and music, allowing youth to present ideas for sustainable change and cultural enrichment.

Two demonstrators were created: a mobile bike cinema, Cinevelocité, which became quite popular in Neuperlach due to the lack of a local cinema, and the sustainable transformation of a schoolyard. In collaboration with a local school and its pupils the yard was redesigned and rebuilt in one week, serving as a prototype for a municipal project. This initiative explores whether schoolyards can be used as gathering space under certain conditions.

Places for Youth Culture - PEARL - is proposed and developed by the HM Chair for Urban Design and Theory.



How can we co-create public spaces for young people?



CIRCULAR NEUPERLACH

This NEBourhoods Action aims to gather information on the spaces, usage, construction, and materials of non-residential buildings in Neuperlach to explore their potential for supporting circularity in the district's transformation.

The lab is creating a methodology to bring together stakeholders from real estate, city government, urban planning, and civil society. The goal is to align local needs with the utilisation possibilities of existing buildings. In this process, opportunities for owners to further develop their buildings and make them accessible for other uses will also be explored

A Circularity Roadmap is being developed to promote circular buildings and practices in Neuperlach, with the aim of expanding these solutions to other districts and cities in Germany and Europe.

Circular Neuperlach is an initiative of the TUM Chair of Energy Efficient and Sustainable Design and Construction.

How can we implement circularity in buildings to minimise resource use, prolong their lifespan, and close material loops?

Bringing together
various stakeholders
in a non-linear and
recursive process
generates **creative**
solutions that make
cities more liveable,
sustainable and even
more inclusive.

Co-Creation
Approach



2 How to Co-Create in Urban Development?

Urban development planning is and always has been a complex challenge. **It usually involves high levels of engagement and many different stakeholders and interests.** This leads to long planning processes that do not meet today's demand for participation and also fail to exploit the participative potential. Furthermore, it is clear today that **urban development planning is a crucial success factor for achieving climate neutrality** – a problem that urgently needs to be solved. Our experience clearly shows that **Co-Creation is a useful approach** in tackling these challenges.

In this chapter we will explain thoroughly why we are **rooting for the Co-Creative approach** in Urban Development (2.1) and explain **whom to involve** in these processes (2.2). In chapter 2.3 we will introduce the iteration model and steering elements that allowed us to work iteratively in Co-Creation-processes with **diverse prerequisites and requirements**. In the end of this part, we introduce our understanding of **Prototyping** as an essential factor for creating meaningful results (2.4).

The Co-Creation approach we present in this handbook addresses so-called “**Wicked Problems**”; precisely the kinds of issues that urban development has to cope with.

Co-Creation for
Urban Development

2.1 Why Co-Create in Urban Development?

Co-Creation is a process to tackle advanced, so-called “Wicked problems” that have no optimal solution, are complex and multidimensional, like global warming. **Nonetheless, partial solutions can be found**, and the complexity of the challenge can be reduced. The main argument for Co-Creation in wicked settings, however, is that possible solutions might be found by **integrating multiple perspectives** and their creative potential.

Cities today face challenges that are often complex and multidimensional. Through co-creation in the NEBourhoods project, we were able to develop partial solutions for Munich Neuperlach by integrating various societal sectors.

The EU Horizon project ACCOMPLISSH names the following **key features for Co-Creation**:

- “Brings together various stakeholders from all over society, with their respective expertise/experience;
- Has a purpose; it is not a finalised thing in itself, but a means to some other end;
- Tackles a ‘bigger challenge’ while helping each stakeholder to achieve their own goal(s);
- Needs structure yet it should also remain open to individual proposals and approaches. It needs to
- enhance creativity and problem solving;
- Is a non-linear process of thinking and creating”⁴.

Involve different societal sectors, especially civil society collaboratively in urban development projects. The sectors have distinctive contributions.

Urban development is Co-development!

Quadruple Helix approach



2.2 Who Should be Involved in the Co-Creation for Urban Development?

Improving the working and living environment of people is challenging, even if there are public strategies and actions plans. It is difficult to overcome legal or administrative restrictions, to initiate a change of mindsets inside organisations as well as on the ground, to find local agents of change, so with whom do we start?

We base our work on two key assumptions:

1. **Greater involvement of civil society:** Civil society should play a more active role in shaping its living environment. This means moving beyond mere consultation, where participation is limited to selected moments in the process. Civil society should actively co-shape the transformation of the city. Within the compass of the New European Bauhaus⁵, this is referred to as "co-development," as opposed to simple "consultation". A further step is "self-government," where civil society is empowered to "make decisions and govern the project" (ibid.). We will explore this concept further in Chapter 5.
2. **Collaboration across all societal sectors:** All societal sectors should contribute to sustainable urban transformation, as each has unique and essential roles in urban transformations. To simplify, we work with the Quadruple Helix model, which identifies four societal sectors: civil society, politics and administration, business, and academia. We will demonstrate how each of these groups can contribute to urban development.

It is also important to distinguish between organised and non-organised civil society. Our focus has primarily been on working with representatives of organised civil society, such as associations, unions, and churches.

Contributions of the societal sectors

Civil society: Local residents contribute their everyday knowledge. They know their immediate surroundings in great detail and are familiar with the challenges they face in the urban space as they go about their daily lives. These local experiences enable the creation of “...an early awareness of the complexity and scope of the respective challenges”⁶. On the other side local population is the one who has to live the outcomes of political decisions and urban development measures.

Civil society has to be a Co-Creator of the transformation process, as it sets transformation in motion and lends it the necessary legitimacy⁷. The participation of civil society is what makes it capable of action in the first place. Although civil society is well-organised in associations and groups, these entities have so far had limited opportunities to influence urban development processes.

Economy: Companies are seen as drivers of innovation. They integrate ecological and social goals into their business strategies and advance technological and social innovations crucial for tackling complex challenges. Through their influence on clients and

consumers, they enhance public acceptance of transformation processes. At the local level, they contribute in NEBourhoods by participating in the development and construction of prototypes (see Living Lab *NEBourhood Hubs* p.39 or the garden of *Let's plant a Tasty Neuperlach*, p.25) or by providing spaces for social innovations (see Living Lab *Animal Aided Design*, p.21-24). Therefore they can be drivers for long-term continuation.

Local Politics and City Administration: They are responsible for urban development planning and play a key role in promoting, testing, and implementing innovative approaches to city planning. The administration contributes essential expertise in decision-making processes, legal frameworks, and permits - particularly for prototypes that fall outside standard procedures. National legislation also plays a vital role in enabling special regulations or exceptions for these prototypes.

In addition, administrations often provide funding to support local projects. Successful social innovations can be adapted and scaled by local governments, allowing them to be replicated in other districts while tailoring them to local needs. Administrative staff bring a high level of professional expertise to co-creation processes, making them invaluable collaborators in driving urban innovation.

Science and universities: Universities and research institutions provide vital knowledge for urban development. Their researcher contribute essential expertise to Co-Creation processes. Transdisciplinarity is increasingly important, involving civil society, business, and politics in research and teaching. This allows research findings to be integrated into societal actions more quickly, while stakeholder needs are conveyed directly to universities. This shift is reflected in the **"third mission"**: Besides teaching and research, universities focus on transferring knowledge and technology to society and the economy. This makes universities particularly suitable facilitators of Co-Creation. They create experimental spaces such as Living Labs to test technologies and social practices under real conditions. Faculties or (transfer) departments of Universities with Co-Creation expertise can act as intermediaries and take on a moderating role. In this project, HM:UniverCity is taking on this role being responsible for Co-Creation in the NEBourhoods project.

The Arts and the Cultural and Creative Industries

The experiences and skills of artists and creative professionals evolve and are shaped by their way of working across and in between the societal sectors mentioned above. Having mostly at least two different legs in professional life, they develop products and services within companies and are entrepreneurs themselves, work for and in public cultural institutions as well as in cultural education, are activists initiating and engaging in debates on diverse societal challenges. Beyond being natural co-creators in this sense, they bring in the

reflection on, the application of and the experimentation with aesthetics – the “quality of experience and style, beyond functionality”⁸ in which the New European Bauhaus sees one of its core values. In Co-Creation, artist and creative professionals can support and drive the process to augment technical and social innovations for global sustainability and resilient societies to “meaning making devices [...] promoting new narratives that resonate, inspire and provide hope (...)”.⁹ In this project MUC CCI as a municipal intermediary¹⁰ promoting the CCIS has taken over the role to involve artists and creative professionals in Co-Creation.

Our experiences in the NEBourhoods project show that involving different societal groups in co-creation is essential for designing and testing prototypes. In Chapter 4.6, an example illustrates the development of the Living Lab “Public Power,” highlighting the contributions of different sectors.

Furthermore, the project also demonstrated that the Quadruple Helix approach is particularly important for the initial phase of the project, especially for stakeholder mapping (see 3.1). As the project progressed, it became evident that participants could take on different roles. For example, Neuperlach residents brought entrepreneurial knowledge to the Living Lab energy communities, which was crucial for forming the cooperative. Entrepreneurial knowledge, therefore, does not necessarily have to be contributed solely by companies in the co-creation process. Detailed information about participants' knowledge and experience often only becomes apparent during the process.

2.3

Non-Linearity

To manage these differences while staying flexible, we developed a process model that provided guidance without limiting open-ended processes. It balanced freedom with structure, making it easier for new participants to join and accelerating learning through quick cycles.

Given the project's diverse partners and interests, we prioritized simplicity over rigid phases. Instead, we embraced prototyping and iterative learning, inspired by **Participative Action Research**,¹² allowing for continuous experimentation.



Fig. 1: NEBourhoods/HM

The model is designed to guide teams in planning the next steps of each iteration. Its purpose is to provide support for thoughtful planning and the effective management of practical steps that build on one another.

The model consists of two interconnected cycles:

Co-Creation Cycle (Generating Ideas & Prototypes)

- **Co-Envision:** Developing a shared vision.
- **Co-Design:** Creating prototypes and tangible solutions.

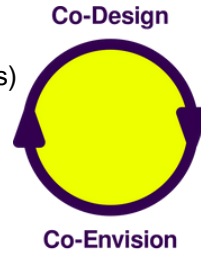


Fig. 2

Co-Evaluation Cycle (Assessing & Learning)

- **Co-Observe:** Gathering feedback from stakeholders.
- **Co-Reflect:** Analyzing insights to guide next steps.



Fig. 2.1

This cyclical structure ensures that projects evolve dynamically, accommodating diverse stakeholder input while maintaining a structured workflow. Ideally, **all participants engage in every step**, but in practice, some may be unable to take part in every phase.

The model focuses on **work steps** rather than **fixed project phases**, allowing greater flexibility. Each step should be completed with just enough effort to support the next one (see Good Enough) and done as

efficiently as possible. Instead of rigid long-term planning, it's more effective to define the next immediate tasks. The time required for each step varies based on the complexity of the work.

The Quadrants

The **Co-Creation** Cycle and **Co-Evaluation** Cycle are positioned in distinct quadrants within our model.

- **Co-Design** is situated at the top of the Make quadrant, as it focuses on collaboratively creating something new.
 - **Co-Reflect** lies diagonally opposite, deep in the Learn quadrant, where new knowledge emerges through shared reflection and interpretation.
- Meanwhile, **Co-Observe** and **Co-Envision** sit at the boundary between **Make** and **Learn** since they involve both creating and learning.

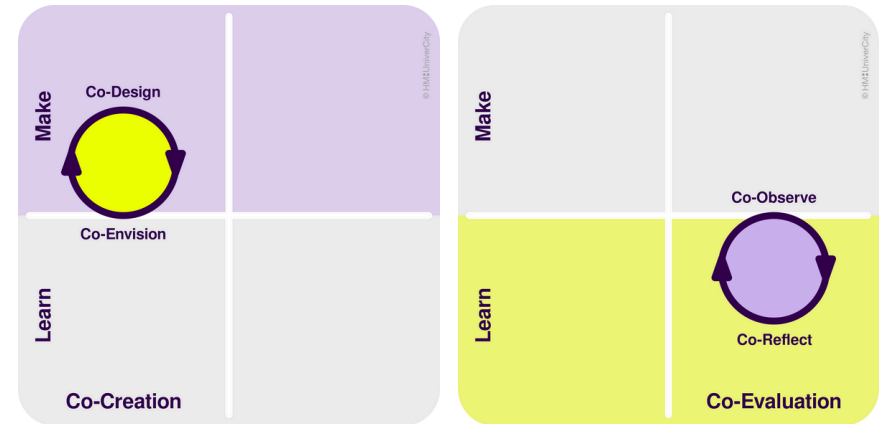


Fig. 3

How to Start

A co-creation project often begins with **Co-Evaluation** by understanding the local context through **Co-Observe**, involving research, conversations, and listening before moving into **Co-Creation**.

However, the starting point is flexible and depends on the situation. In the NEBourhoods Project, existing frameworks like ISEK and IHKM (see page 14) provided a foundation, while in other cases, **a bold idea** may be the first step.

Still, **Co-Observe** is strongly recommended to align with community needs before engaging stakeholders. This ensures meaningful participation, rather than promoting a project without considering prior efforts or motivations (see also 3.1 and 3.3).

Further Steering Elements

Greatest Uncertainty

One key principle of the **REDO Cycle** is prioritising the biggest unknowns—focusing on what could most significantly impact project success.

How to Identify the Greatest Uncertainty:

- **Legal & Administrative Risks** (e.g., Does the project need municipal approval?)
- **Stakeholder Buy-In** (e.g., Will residents accept the proposed design?)
- **Technical Feasibility** (e.g., Can the prototype be built with existing resources?)

Example: If a public intervention requires planning permission, that becomes the priority before further design work. If stakeholder engagement is uncertain, the next iteration should focus on outreach and dialogue.

Takeaway: Always ask: "What is the biggest risk right now?" and prioritize addressing it in the next iteration.

Triple Lens Model

To effectively assess **Greatest Uncertainty**, projects should be evaluated through **Desirability**, **Feasibility**, and **Viability**. **Desirability** ensures stakeholder acceptance, **Feasibility** considers technical practicality, and **Viability** addresses economic and legal constraints. A balanced approach is crucial, as neglecting any one of these aspects can jeopardise the project's success.

These dimensions are interconnected and often visualized as a Venn diagram. If funding (Viability) is a concern, a more technically feasible and cost-effective solution may help. Desirability issues can be addressed through better communication, pricing strategies, or usability improvements, while insights from arts and creative industries can enhance public appeal.

For public space projects, legal constraints are fixed, making early engagement with municipal authorities essential. Rather than merely seeking approval, inviting decision-makers into a co-creative process fosters collaboration and increases project viability (see also Q4-approach 2.2 p. 49).

The **Triple Lens Model** is a dynamic planning tool, not a rigid framework. Combined with Greatest Uncertainty and the REDO Cycle, it supports adaptive decision-making. Revisiting it regularly, especially in Co-Reflect phases, helps identify risks, faulty assumptions, and necessary adjustments, ensuring the project remains viable, feasible, and desirable.

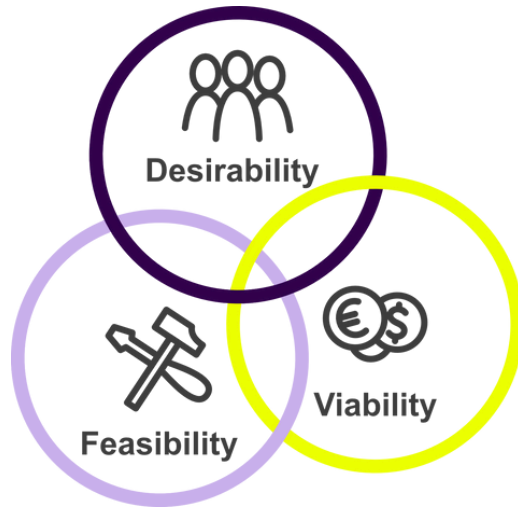


Fig. 4

Good Enough

Based on the **Build-Measure-Learn Cycle** from **The Lean Startup**,¹¹ the effort for each work step should align with what needs to be achieved in the next step (see also Greatest Uncertainty). When building prototypes in Co-Design, it is essential to consider the specific question you aim to answer in the following step, whether in Co-Observe or Co-Envision.

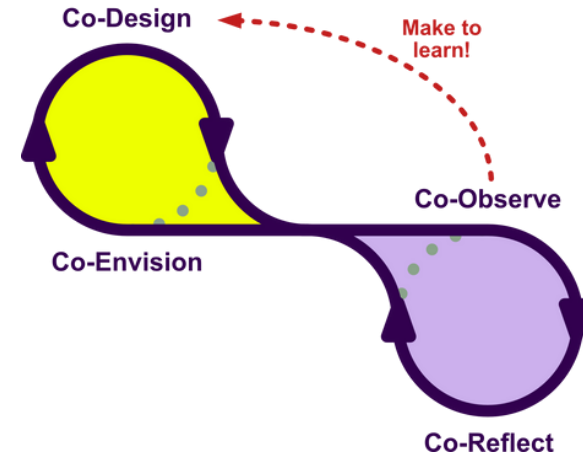


Fig. 5

To assess the acceptance of a proposed solution, a simple **visualisation** with a short verbal description may be sufficient, avoiding the need for a detailed model in the early stages. However, if a cost estimate or technical feasibility assessment (see Triple Lens Model) is required, a full-scale prototype may be necessary. In such cases, the prototype does not need intricate details - a basic version can effectively serve its purpose.

Ultimately, Good Enough means focusing on what is most important at the given moment while ensuring necessary diligence. A Co-Reflect session that fails to deeply analyze Co-Observe insights or clarify their relevance to upcoming work is hardly worth the effort.

Prototypes are the key to trial and error (and eventually trial and succeed): having something to test, to play with, broaden the imagination, makes developments quicker, better validated and adapted!

Prototyping



2.4 Prototyping as an Essential

Prototypes were a central element in our work. The engineering view of prototypes as pre-production models or demonstrators does not align with **their role in open-ended processes**. In these, instead of anticipating implementation and considering its technical and economic implications (> *Triple Lens Model*), their role lies much more in imagining.

Co-Creation participants often struggle to envision changes to the current state, especially if they have grown accustomed to it over decades. In complex Co-Creation projects, such as urban development, the role of prototypes- and design work more broadly- is to support **this imagination**. Prototypes can take many forms, depending on the experience they aim to create. Their type and quality are determined by the specific task and goals of the next step (> Good Enough). The focus is on how the proposed solution will be experienced by those who will ultimately need to adapt to or work with it.

For example, the question could be how raised garden beds can make a network of community gardens more visible and connected, helping new ideas and actions to develop. **Particularly in situations in which the feedback from different stakeholder groups diverges, a more detailed look at several prototypes is helpful and allows a "common denominator" to be found.**

In many cases, simple scale models or sketches are enough.

However, if the next step involves e.g. dividing an outdoor space - such as a youth center - between humans and animals, a large and detailed aerial photograph is necessary. In the NEBourhoods project, the children marked the different areas on the photo as part of the negotiation process (see p. 19).

Scale models, sketches, or aerial photographs do not fit the traditional definition of a prototype. However, they are essential in projects like this because they help participants visualize the new reality. **The key purpose of a prototype is often immersion - helping people experience and relate to what is being presented.** This determines the medium (e.g., 2D or 3D? A quick sketch, visualization, detailed model, spreadsheet, functional prototype, or even a video?) and the level of detail.

A prototype in co-creation, especially in a Living Lab, is never a finished product like a demonstrator. Instead, it is a tool for learning and a basis for the next iterative step.

It is also beneficial to compare several prototypes rather than evaluating just one. Comparing different versions, especially in detail, provides valuable insights that a single prototype could not reveal.

The artists and creatives in the pool set up by our partner MUC CCI designed prototypes of different types and in different working steps of our iterative process. **See detailed information focused on the role of arts and the creative industries in such projects like ours in DEL 2.3.**



"Let's plant a Tasty Neuperlach: Prototype Testing" Image source: NEBourhoods/HM - Alexander Ratzing

Focus on people,
organisations and
environments that are **open**
to take new, unusual paths,
to test new concepts and
solutions!

Stakeholders in Urban
Development



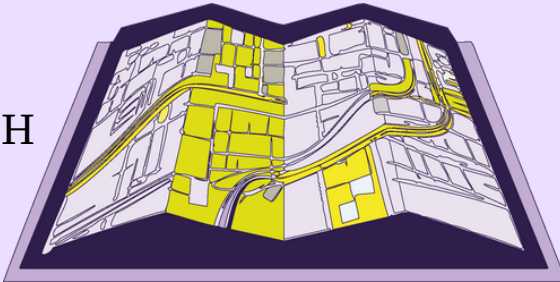
3 How to Find and Involve Stakeholders and Places?

In Chapter 2.2 we outlined whom to Co-Create with in urban development. We will now provide guidance on how to find and involve stakeholders in the Co-Creation process, applying and differentiating the Q4-framework:

- develop an understanding of **why you need Stakeholder Mapping** for your project (3.1)
- identify which local stakeholders to engage with in the Co-Creation process (**multistakeholder mapping**), as well as how to effectively reach them (3.2)
- we demonstrate how the **project's scopes were aligned with the needs of local stakeholders** to foster Co-Creation (3.3)
- we examine the **different motivational factors** driving each sector's involvement (3.4)
- we present different possibilities on **supporting emerging Bottom-up initiatives** and ideas (3.5).

Take plenty of
time and
care to really
get to know
the locals and
places!

MAPPING
NEUPERLACH



3.1 Mapping - Understand your District

Complex challenges typically share the characteristic that they affect multiple locations, stakeholders, and sectors simultaneously, creating an interconnected but often invisible system. Therefore, the hypothesis (now confirmed by our project experience) is that these challenges can only truly be solved **by involving this system**. To achieve this, the stakeholders must first be identified and categorised using an analysis tool. In line with our Quadruple Helix approach, we use a multi-sector mapping tool to organise the identified stakeholders into categories. This tool is used to review and reflect on current processes and to plan the next steps.

The initial work is often a long and detailed process (see next page), but it is essential for anticipating opportunities and risks. It minimises the risk of disadvantaging certain stakeholders or groups, fosters **multi-perspective thinking** within the project, and enables interdisciplinary and transdisciplinary collaboration. The mapping process can already involve project partners or experts to obtain the **most comprehensive understanding** possible, for example, through a mapping workshop. The method can also be applied with the stakeholders themselves to deepen the understanding of the system. Once the foundation is laid, it can and should be continuously **expanded through fieldwork**.

In addition, we have mapped the **development and participation in the Living Labs** to monitor how the stakeholder constellation evolves and to ensure no perspectives are overlooked (p. 75), enabling strategic decision-making.

3.2 How to Map Stakeholders and Places

Steps to Gather and Organise Data:

- 1. Explore and Identify Local Contexts:** Start by understanding how different neighbourhoods function. Combine desk research, social media analysis, and field observations, such as walks or bike rides. Fieldwork is especially effective for gaining an initial understanding of challenges and strengths.
- 2. Organise Your Findings:** Use tools like a digital or analog notepad (e.g., Miro) to visualise your data. Create a shared Excel database for stakeholders. Include key details such as names, organisations, addresses, contact information, and potential connections to your project.
- 3. Leverage Workshops and Existing Data:** Host a mapping workshop with local leaders to refine and expand your findings. Compare your database with older municipal records (if available) to discover new contacts. Update your database to include a variety of organisations, businesses, and institutions.
- 4. Categorise Stakeholders:** Sort stakeholders into four main sectors: public, civil society, businesses, and science. This "quadruple helix" model helps identify interactions and supports planning for later Living Labs. Create a stakeholder matrix in your notepad and update it regularly for ongoing collaboration.
- 5. Expand to Include Nature:** If desired, add a fifth sector for nature. Host a target-species workshop (see DEL 4.1 AAD on NEBourhoods Website) to map local wildlife. Integrate the results into your project and adjust your system mapping accordingly.

Stakeholdermatrix

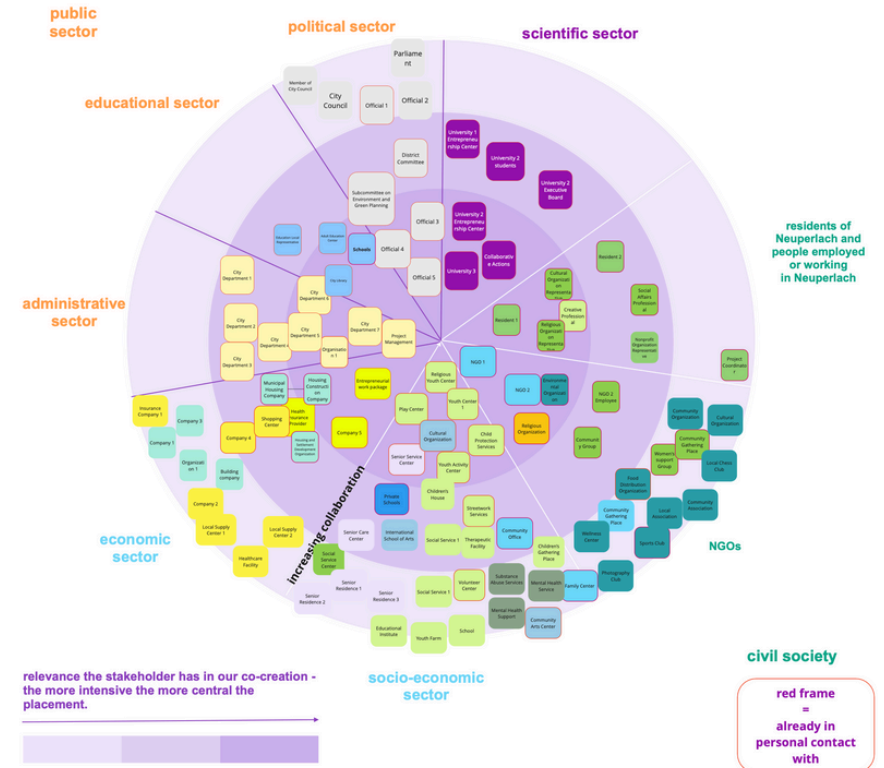


Figure 6: NEBourhoods/HM

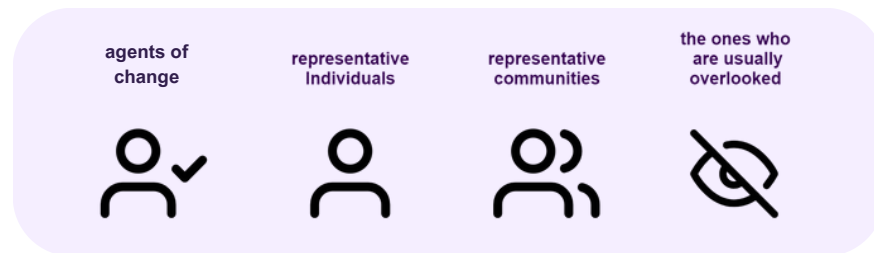
We additionally sub-divided the sectors, because the **sub-sectors have very different prerequisites and scopes for action**. The different colors of the actors display their target group (youth, seniors etc.). The color-coding is related in excel tables (see on the left side).

Which Stakeholders to approach first?

As the Co-Creation team, you need to be aware of and **connect with key parts of the stakeholder system** in a city quarter. To start this process, relevant community leaders and organisations must be identified.

- We focused on **ongoing projects and initiatives related to societal transformation**, particularly those already "in transition"—such as residents, spaces, and premises moving toward a more beautiful, sustainable, and inclusive city.
- As the NEB-Compass suggests, a guiding question to foster "Togetherness" could be: "Does the project help overcome segregation between different communities?"¹² Therefore, it is crucial to identify key actors, including residents, workers, local organisations, and politicians, to ensure broad community representation and diversity.

In the initial mapping phase, **target civil society and community groups to connect with the district's social fabric**. Then, establish relationships with **local governance structures**. Additionally, identify **relevant stakeholders within the city administration**. Collaborate with project partners who have an economic background and connections to **engage stakeholders from the economic sector**.

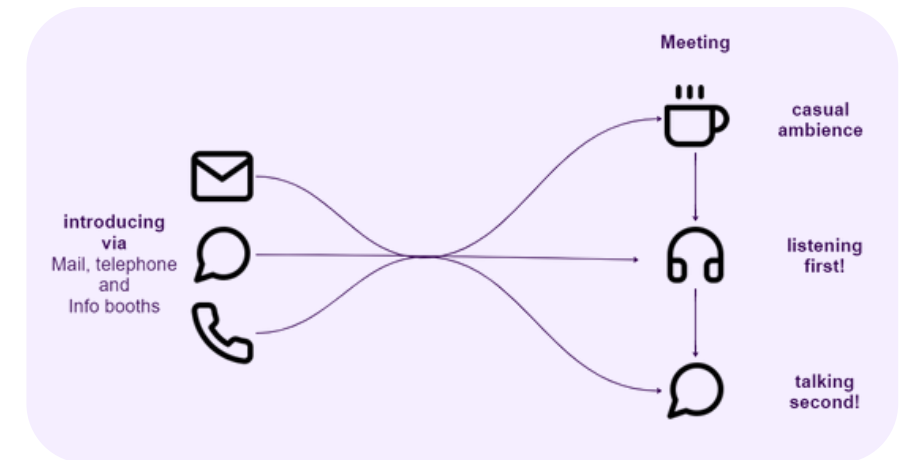


First encounters and meetings in the quarter

After identifying the key stakeholders, arrange personal meetings aimed at building relationships. Use appropriate methods for relationship building. We used semi-structured In-depth interviews.

For a broader introduction to your work, host an inaugural event to promote transparency and engagement. Discuss local needs, foster synergies, and explain the Co-Creation approach.

This can initiate conversations with interested groups, help establish ongoing communication and keep them informed about the project's progress.



Figures 7/8: NEBourhoods/HM

In-depth interviews

To ensure comparability across unique conversations, use a **structured interview format** with a consistent set of questions for two groups: representative individuals of organised civil society, community groups and companies, also residents or employees in Neuperlach.

Give the interviewees time to talk about their needs, problems, feelings about their neighbourhood. If they were representative individuals for an organisation or community, we also explored how their organisations could be supported and potential opportunities for collaboration.

After the interviews, **make audio summaries and written notes and share them on the notepad for all team members, highlighting key information and possible synergies.** The insights from the interviews are, alongside many other sources (documents, conversations with local leaders, etc.), a key foundation for identifying the needs and issues on the ground.

Stakeholder Profiles; Matching needs and scopes

To best prepare the later set-up of Living Labs, **place the various interviewed people in the stakeholder matrix. Create profiles in relation to your interview questions on the mapping notepad.**

Document the needs and synergy potentials as well as the connections between the different individuals and institutions on the board.

Continuous Mapping process

"The whole mapping process, as well as its individual steps, remains an iterative and ongoing process, as the visualization in the following figure demonstrates.

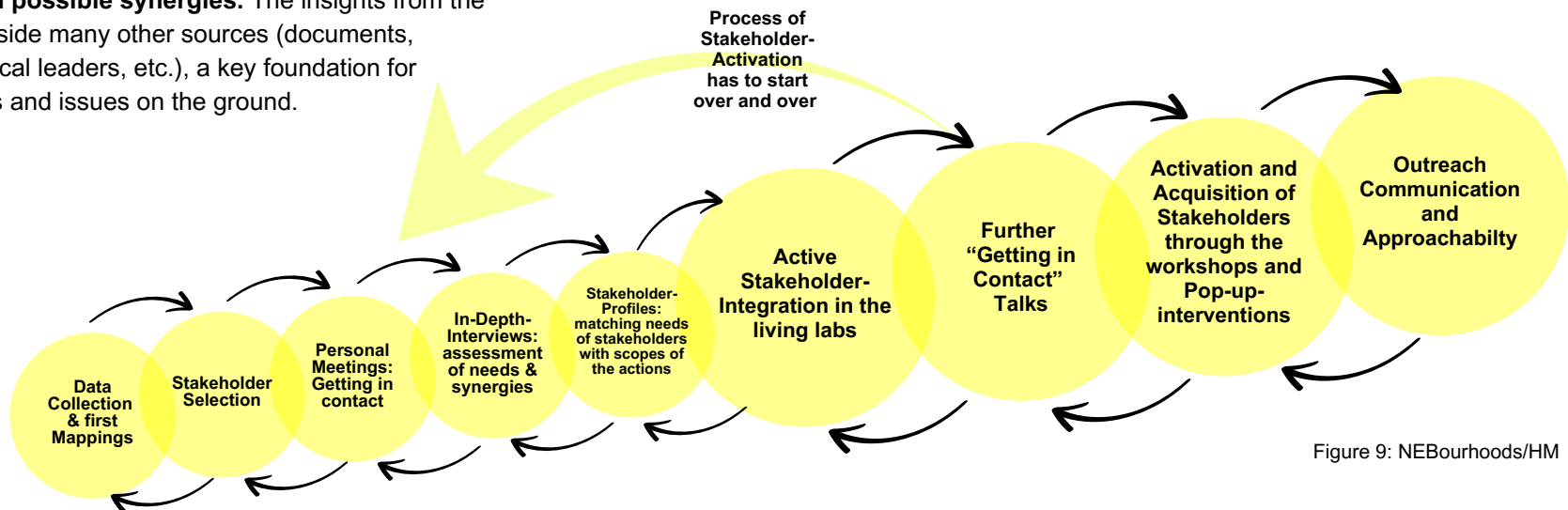


Figure 9: NEBourhoods/HM

3.3 Alignment of Needs and Possibilities

The interviews and follow-up meetings were primarily focused on building trust and determining whether our conversation partners could support us in the project, and vice versa. Once a certain level of trust was established, we became more specific - if this had not already happened naturally during the conversation. We aimed to align the needs of our conversation partners with our own. Additionally, it was important to understand whether any initiatives were already pursuing similar goals locally.

An example from the NEBourhoods project illustrates how alignment works in practice:

At the neighbourhood centre Perlacher Herz, we had already held several very pleasant and mutually informative discussions with the center's manager. During our next visit we told him about the Action Energy Communities and asked if the roof of the building, might be suitable for a solar installation. According to the manager who is also a pastor, the owner regularly attended his church services, and he would speak to him. This led to one of the many success stories of the project and the center co-producing, consuming and providing its own eco-friendly power. Another example will be showcased in Chapter 4.6.

For us, the **local needs and assets** proved to be an essential foundation for our Co-Creation work.

To align needs, assets and existing initiatives of stakeholders and the Co-Creation team (*Co-Observe and Co-Reflect*):

- **Do understand the local activities and needs thoroughly** through informal conversations and jointly identify aspects of alignment.
- Be open about your own objectives and - if possible - **align the needs of the stakeholders with your own to create a shared goal**.
- To achieve this allow for sufficient time to build trust and thorough mutual understanding.

Example from the NEBourhoods project

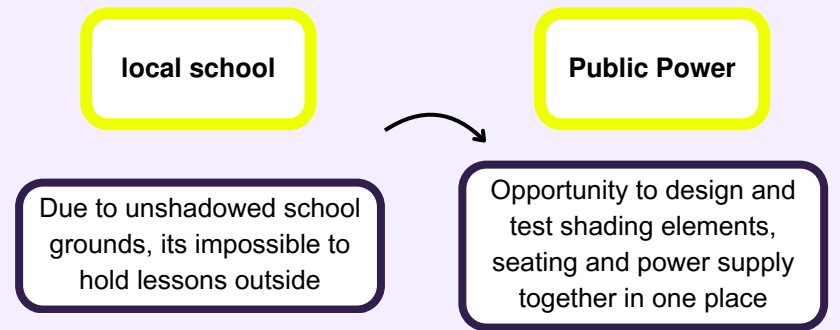
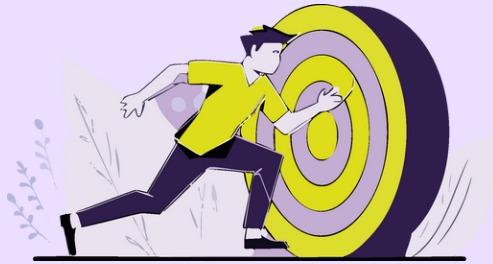


Figure: NEBourhoods/HM

By understanding what motivates different actors, you can try to provide them with what is beneficial to them.

Motivational factors



3.4 Motivational Factors for Co-Creation

Co-Creation addresses complex challenges while aligning them with the stakeholders' needs, goals, or interests. The reasons for participating in Co-Creative activities are as diverse as the individuals living in an urban district. However, we identified some recurring motivational patterns across the four societal sectors.

The foundation for participation - and the greatest motivating factor for everyone - is always the core of your work: this Co-Creation effort is being undertaken to achieve concrete results - results that will be implemented. And not after the project ends, but directly within the process, with the Co-Creation team's involvement.

Civil Society

1. Provide direct, personal incentives:

- Educational opportunities, such as scholarships for workshops (e.g., in makerspaces).
- Small material gifts, such as branded T-shirts or caps.
- Visibility through acknowledgment on project websites or social media platforms.

2. Give practical support:

- Providing childcare budgets to enable caregivers to attend.
- Offering direct assistance to civil society organisations, such as helping organise events or market them.

3. **Consideration of financial incentives:**

- Direct payments for participation are not recommended, because they can undermine local volunteering efforts. Instead, alternative forms of compensation, such as educational or material rewards, can foster intrinsic motivation and sustain engagement.

Business sector

Companies have specific goals. In recent years, many have shifted from focusing solely on growth to adopting more sustainable approaches, guided by tools like ESG (environmental, social, governance) criteria.

1. **Target the right roles:** Identify employees or managers responsible for ESG goals or sustainability strategies. These individuals are more likely to see alignment between your project and the company's internal objectives.
2. **Reach decision-makers:** Aim to contact someone in a senior position who can make quick decisions about participation.
3. **Show them the benefits:** Highlight how Co-Creation can support their ESG or sustainability goals while being a positive social impact factor for their quarter.
4. **Provide strong visuals:** Use images or mock-ups to show the potential outcomes of your Living Lab. This helps them imagine their role and the positive impact of their participation.
5. **Leverage marketing appeal:** Emphasise how involvement can enhance their public profile through compelling stories and visuals.
6. **Be concise and clear:** Prepare a short, concrete presentation with clear success opportunities. Companies often operate at a fast pace and value efficiency in communication.

7. **Know your city district:** You may find local companies that can build prototypes or at least parts of them. They might be interested because they gain experience and can develop their business areas or even open up new ones. In the NEBourhoods project, this approach enabled the realisation of two mobility stations.

Municipality

Cities are increasingly experimenting with new participation formats, such as social design labs or citizen councils. However, for administrations already burdened with a heavy workload, these new formats often mean additional effort. It can also be challenging because multiple departments are often important for Co-Creation in urban development.

1. **Start early to find participants:** Identify colleagues from local administration who are enthusiastic about Co-Creation or whose involvement is necessary. This process may take time.
2. **Highlight benefits for administration:** Some staff members will likely take an interest in your work, especially if it aligns with or complements their thematic responsibilities.
3. **Leverage their expertise:** Tap into the administration's extensive knowledge of processes and regulations. Involving experienced personnel can help you avoid mistakes that may have already been made in urban development projects.
4. **Find a "bridge builder":** Administrations can be complex, often not clearly indicating who is responsible for specific topics. Take the time to establish at least one strong connection per department to help you navigate this complexity if you don't already have one.

Science

Universities are experimenting with new approaches and formats as well. As explained in chapter 2.2 they are interested in knowledge exchange with society and keen on new formats like Living Labs. However, there may be constraints, as the primary pillars for scientists are research and teaching. While Knowledge Exchange, Transdisciplinarity and Co-Creation is developing as a third pillar, it is, at least based on our experience, still far from being equally balanced with the others. Thus, for many scientists, transfer projects involving Co-Creation elements may be seen as extra work, especially at the beginning of a project.

1. Leverage the strengths of scientists:

- Highlight their contribution of state-of-the-art knowledge. When they realise that this knowledge is "golden" because it finds real-world application, their motivation to participate may increase.

2. Emphasise the benefits of Co-Creation:

- Co-Creation fosters research through transfer, where real-life settings lead to more tangible and implementable results.
- It accelerates innovation through faster prototyping and testing
- This approach reflects the future of science and aligns with long-standing calls for science to take greater societal responsibility.

3. Utilise funding schemes focused on transdisciplinarity:

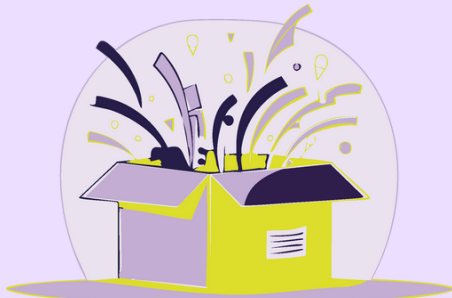
- Increasingly, EU funding programs emphasise transdisciplinary approaches and knowledge transfer. Similar trends can be observed in some national funding schemes as well.



"NEBourhood Hubs: Decision-Making Workshop" Image source: NEBourhoods/HM Patrik Thomas

Expect the unexpected!
Co-Creation is mutual: the people you get to know will come up with their own ideas and projects. Make sure to have time and space for that!

Support Your
Contacts



3.5 Emerging Bottom-up Initiatives and Ideas

The wind of change brought by a new project, especially when combined with a call for participation and significant funding, always sparks interest in the neighbourhood. Locals are inspired to come up with their own project ideas and hope to implement them as part of the initiative. Although there is often enough pressure and work involved with the project goals: take the time and listen. Co-Creation can only work if, in addition to involving stakeholders in your goals, you also listen to them and offer support:

- incorporate their ideas and concerns into the project
- inform stakeholders about funding opportunities and help them with applications
- connect stakeholders who share similar aspirations so that they can learn from each other and advocate for their interests with combined efforts
- utilise your own advertising opportunities for their topic.

Do not hesitate to
start co-creation.
**Keep the principles
in mind, use the
support of creatives
and students and
learn from anything
what happens!**

Co-Creation
framework



4 Co-Creation in Practice

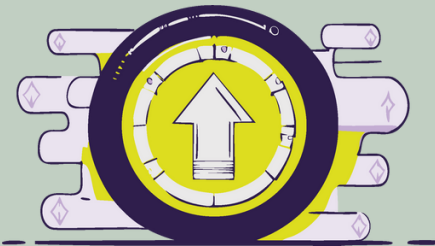
After outlining the basic principles of Co-Creation and identifying the stakeholders, places and assets to involve, the next question is **how to initiate the process**. For the purposes of this discussion, we assume that you have the necessary stakeholders for the next step (see Greatest Uncertainty in 2.5) on board and that they are motivated to engage in the process. Furthermore, a shared alignment between stakeholders and the Co-Creation team is established. Now, the goal is to have the stakeholders begin envisioning together, designing and building the first prototype, test it, and so on.

This chapter addresses:

- How to Start Co-Creation? (4.1) and
- Which Stakeholders to Address First? (4.2)
- How to set up good Communication and Keeping Contact with the stakeholders (4.3)
- What to keep in mind when choosing the right Setting of Co-Creation Formats (4.4)
- An exemplary process of one our Living Labs (Public Power, 4.5)
- Best practices, inspiring ideas and most useful failures from other labs (4.6)
- How challenges emerging in the quarter and in the Living Labs can be tackled by educational formats at universities (4.7)
- How learnings within the project can be included in the ongoing process by Mutual Learning methods (4.8)

When you have a topic to work on, prototype quickly and look for locations where your prototype fits!

Start
Co-Creation



4.1 How to Start Co-Creation?

Having reached a shared alignment between stakeholders and Co-Creation team on which topic you want to work in, the question is, where do you want to do this. **The stakeholders might have spaces or locations that could be used for prototypes.** For example, areas for raised beds or solar panels. Alternatively, additional stakeholders might need to be involved with their locations. Once locations are identified, the Co-Creation work focusses on these places. Here, ideas and interests converge into initial prototypes. The implementation of the jointly developed ideas is tested at these locations, and opportunities for long-term continuation are already being explored.

When Co-Creation reaches this stage of real-life setting, we refer to it as Living Labs (see also 4.2). If a setting or location proves unsuitable, the idea can be transferred and an iterated version can be tested.

Living lab work transforms stakeholder relationships, as the focus on a real-life application deepens collaboration. Weak ties¹³ with stakeholders participating in the Living Lab evolve into Strong ties.¹⁴ Strong ties indicate a commitment to and engagement in more intensive collaboration. This connection helps teams navigate challenging phases, even when significant outcomes seem uncertain.

Working in a Living Lab with closely connected stakeholders (Strong Ties) requires a different approach to communication. These stakeholders form the Living Lab team and must have continuous access to all relevant information.

The situation is different with less closely connected stakeholders (Weak ties). Here, leveraging targeted communication is sufficient (see 4.3).

Working in Living Labs encompasses the following steps:

- **Prototype rapidly** with the support and services of creative professionals who enable non-designers to prototype together or contribute attractive designs based on aesthetic research
- **Test with local stakeholders** (desirability): mockups and prototypes can be used for early testing, validating and iterating. These are not technically feasible and fully developed like the later demonstrators, more like tools for immersion in the development stage (see more about Prototyping in chapter 2.6)
- **Test within the given conditions** for an outlook on a long-term continuation (Viability)
- Make sure to have it technically **feasible** (Feasibility)
- Consider long-term continuation and sustainable implementation of the prototypes
- **Provide tools and events** that enable Co-Creation: do it yourselves as the Co-Creation team or use the artistic and creative resources available to your project

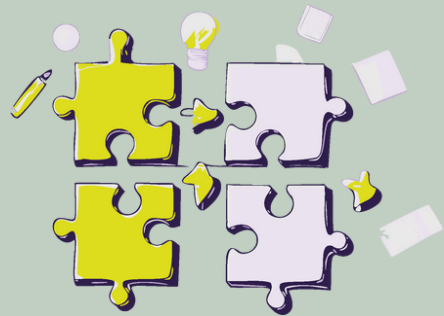
If the results don't build a good base for entering the next step/stage, remember the Iteration Model (see 2.5) and co-observe what has happened. Additionally, keep in mind that you might need to on-board more or other stakeholders.



"Prototyping NEBourhood Hubs" Image source: NEBourhoods/TUM

From a practical point of view, and especially when time pressure is high, **it can be better to work just with those stakeholders that are available** rather than aiming for a representation of all stakeholders and risk major delays.

DREAM TEAM



4.2 Which Stakeholders to Address First?

Stakeholder Mapping is an invaluable tool for gaining a comprehensive overview of potential participants (see 3.1). The next step involves achieving **alignment** (see 3.3) **between the stakeholders and the Co-Creation team**. Once an alignment is established, you will know with whom to engage in the initial co-creative step. When developing your first prototype, you may require additional stakeholders; for instance, technical support is essential for setting up the first solar roof for an energy community. In such scenarios, the availability and willingness of participants to engage is often crucial. A pragmatic approach centres on three key questions:

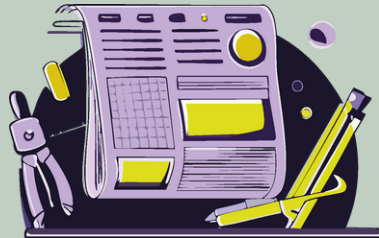
1. Who is **needed** for the next steps?
2. Who is **interested** in joining us?
3. Who do we know that could **provide assistance**?

This method, inspired by the **Effectuation**¹⁵ approach, emphasises working with available resources and addressing concrete, immediate needs. By prioritising participants who are both relevant (stakeholders) and ready to engage, the process can advance efficiently while **maintaining inclusivity wherever possible**.

***Effectuation** is a mindset and decision-making approach that emphasises how entrepreneurs actively shape their futures through action and initiative. Instead of relying solely on forecasts and long-term planning, it focuses on creating opportunities and solving challenges by making the best use of available resources.

Be mindful of your **influence to include and exclude** as a Co-Creation facilitator: ensure transparency to maintain a lively and accessible process!

Community
Management



4.3 Communication and Keeping Contact

Establish a Central Project Space

- A dedicated physical space on-site is invaluable. Use it to showcase results, host meetings, and organise events. This increases visibility and makes your team more accessible. The space can also function as a bulletin board to promote events, display outcomes, and present design options for community voting. Such a setup has proven effective in fostering collaboration.

Leverage Targeted Communication

- For stakeholders already engaged, focus on targeted communication.
- Set up a monthly newsletter to keep everyone informed about project updates.
- Invest in a secure and user-friendly newsletter tool that ensures compliance with data protection regulations and allows for collaborative content creation by the team.

Keep Co-Actors Engaged

- Regularly update participants who have been involved in specific workshops or processes. If they are unable to attend follow-up events, share updates and results via email or phone. This keeps them connected and valued, reducing the risk of disengagement.

Engage Local Politics

- Involve local political representatives early in the process. Form a small working group with district council members from all parties. Use this group to share project progress, gather feedback, and enhance transparency. This group can then present the project to the larger district council, fostering wider political support.

Ensure that the **room, language, and format you choose are inclusive and inviting** for as many groups as possible!

Co-Creation
Framework

4.4 Setting of Co-Creation Formats

Creating a setting for Co-Creation can be challenging. When it comes to finalising agreements, designs, or visions - especially with those responsible for implementing a prototype - individual conversations within their institution may be necessary.

However, at the start of a Co-Creation process, it's crucial to co-observe and Co-Reflect **with as many diverse participants as possible to broaden perspectives**. While a workshop isn't always essential, it can be beneficial if the timing is right. If so, bring key stakeholders together. See examples of how we approached this in various labs on page xx.

Key Considerations for Designing a Co-Creation Format:

Space: Choose a comfortable and suitable venue for the group size. For individual conversations, balance outreach work with inviting participants to your space. Ensure the location is accessible, including restrooms.

Budget: Use available funds to create a welcoming atmosphere - offering food and drinks shows appreciation and sets a positive tone.

Timing: For longer sessions, schedule regular breaks.

Engagement Style: Adapt to your audience. Some may prefer short, focused meetings, while others enjoy in-depth discussions.

Accessibility for Caregivers and Workers: Identify convenient times and durations for those who can only participate outside of work hours, especially members of the unorganised civil society.

Inclusive Communication and Moderation

Beyond Digital Invitations: Avoid relying solely on digital invitations, as older demographics may lack the necessary digital literacy and feel excluded.

Diverse Language: To engage a variety of resident groups, identify the most common languages in the neighbourhood, provide multilingual invitations, and use simple, concrete language.

Live Translation: Consider using live translation tools to eliminate language barriers and ensure all voices are heard.

Flexible Moderation: Effective facilitation requires flexibility. Instead of rigidly sticking to a schedule, an experienced moderator should adapt to the needs of the group. If valuable discussions or unexpected connections emerge, allow extra time to nurture them. These organic moments often lead to meaningful relationships and resilient outcomes that can strengthen future work.



“Let’s plant a Tasty Neuperlach: Green Dinner” Image source: NEBourhoods/Robert Haas

4.5 Living Labs in the NEBourhoods Project

A Living Lab represents the practical implementation of Co-Creation, where collaboratively developed prototypes are tested and realised in real-world settings. Living Labs emerge when stakeholders, themes, and specific locations align (see Chapter 4.1). According to the European Network of Living Labs (ENOLL), **"Living Labs are open innovation ecosystems in real-life environments based on a systematic user co-creation approach that integrates research and innovation activities in communities and/or multi-stakeholder environments, placing citizens and/or end-users at the centre of the innovation process."**³

Living Labs focus on Co-Creation, rapid prototyping, testing, and scaling innovations, acting as intermediaries between citizens, research organisations, companies, and government agencies. While Living Labs share common characteristics, their implementation varies, requiring flexible, iterative planning and management approaches (see Chapter 2.5).

In the NEBourhoods project, the focus is on integrating local residents, politicians, businesses, and municipal authorities into Co-Creation processes aimed at sustainable and socially inclusive development, with support from creatives and artists. Living Labs are

utilised to refine and enhance existing project ideas, assess their relevance for the local community, identify prototype locations, and plan for long-term implementation. Several of those Living Labs have been established at different locations in Neuperlach. They are directly embedded in the community to suit the district's needs.

On the following page, you will see a diagram illustrating an example of one of our Living Labs, "Shade and Energy in Public Spaces." The three circles represent the topic of the Living Lab, the team, and the Living Lab as a whole.

In the "Team" circle, for example, you can see the initiator of the NEBourhoods action "Public Power," the "Chair for Building Technology and Climate Responsive Design" (TUM). This action developed with our support the Living Lab.

The "Team" includes all actors who proactively organize the Living Lab. However, the Living Lab as a whole involves a broader group of stakeholders: occasional participants, other stakeholders, places, and assets that play a significant role in the Living Lab.

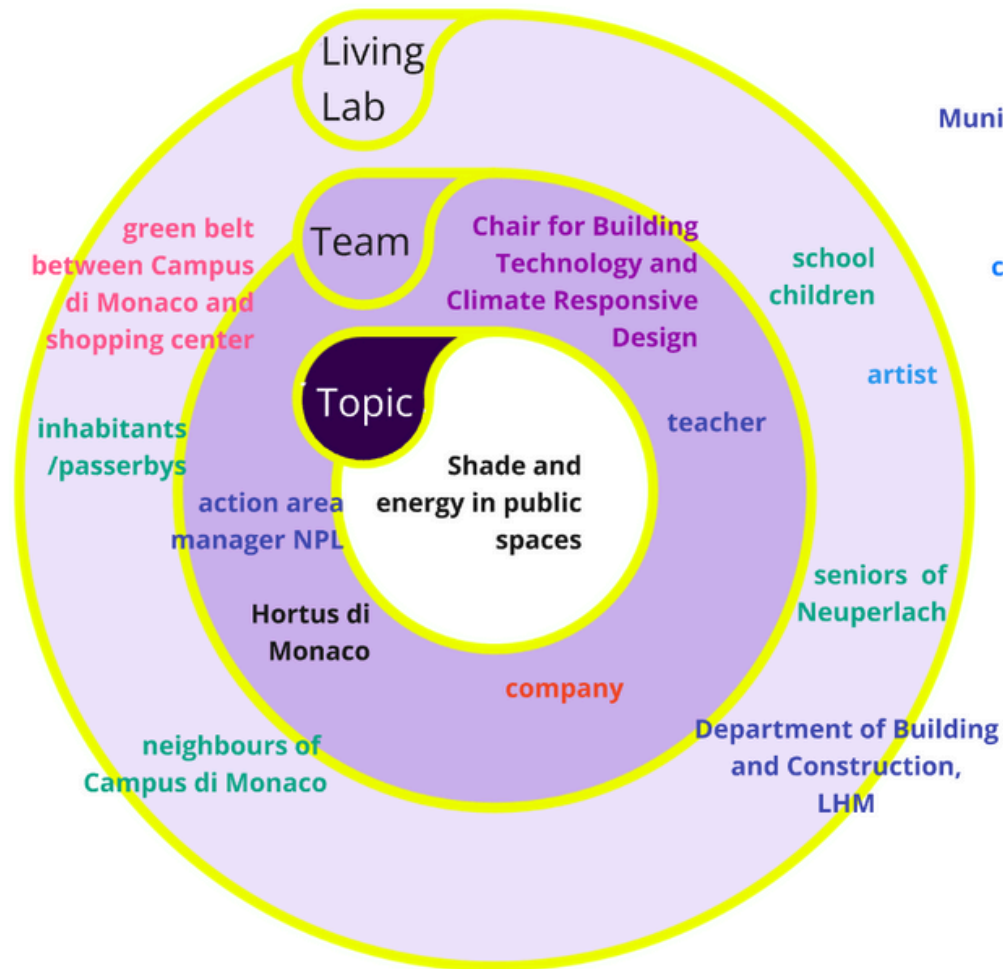


Figure 10: Diagram Living Lab NEBourhoods/HM

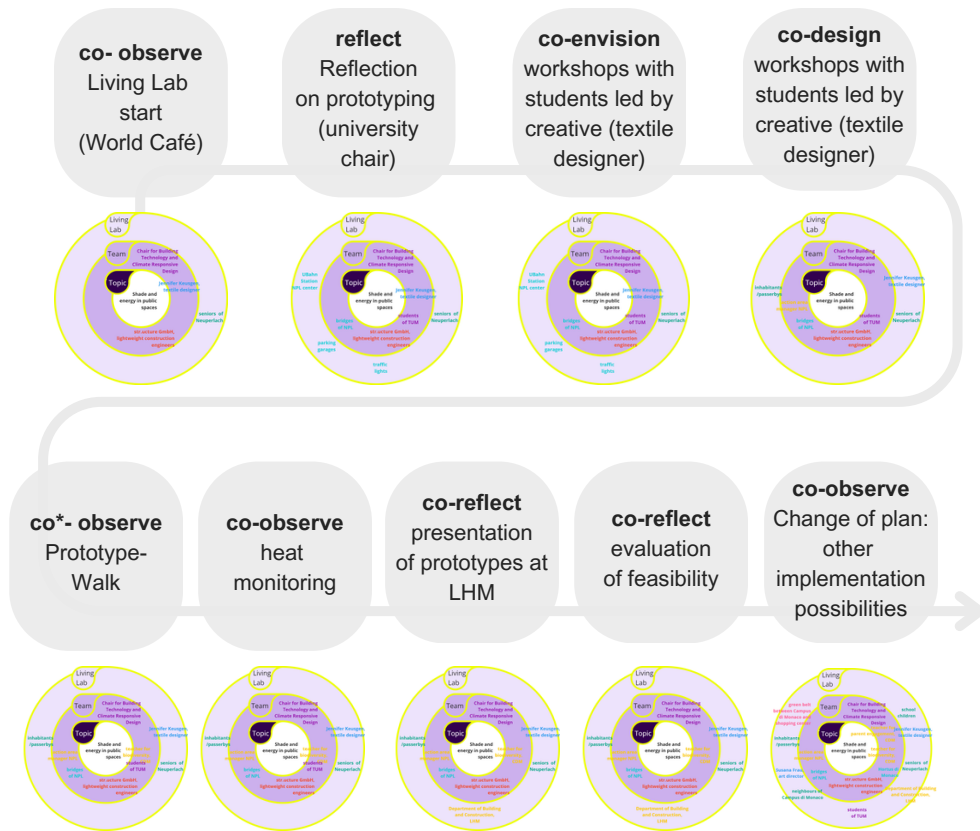


Figure 11: NEBourhoods/HM

Please see a larger version of the living lab visualisation in the **Input-Output-Outcome-Model** in Annex 1 on p.137.

4.6 Living Lab Process Example: Public Power

Making urban "hotspots" accessible through shading can transform them into welcoming spaces for vulnerable groups. The idea from the Chair for Sustainable Building (TUM) to combine shading with solar energy generation goes beyond simply cooling—it creates inviting places with seating, Wi-Fi, and charging stations for mobile devices.

However, placing shading elements solely based on scientific heat data is not enough. Both desirability (where residents actually want to stay) and feasibility (practicality of installation) must be considered. From the start, the project prioritised resident involvement. During the kickoff event for the Living Labs, citizens were invited to map local hotspots alongside the project initiators at the Public Power table. This collaborative session also introduced the concept of rapid prototyping and involved a creative professional specializing in solar textiles, as the shading design incorporated fabric elements. This expert worked with students from the project team to Co-Envision, Co-Design, and co-build prototypes, which were then installed at various locations in Neuperlach. These prototypes were showcased during "shading walks" with local residents, offering an opportunity for co-observation and feedback.

Finally, the insights gathered from these experiences were discussed in a workshop with local authorities, focusing on the feasibility and long-term sustainability of implementing such shading solutions across the district. In this context, civil society was not involved, as the focus was primarily on technological feasibility, norms, etc. The aim was to avoid discouraging

civil society due to a lack of decision-making power. With the results of this Co-Reflection, we intended to enter a Co-Envisioning phase with the responsible department to move toward a construction phase and co-testing with the local population. However, we had to revert at this step, as the responsible department did not see technical feasibility as guaranteed: the elements were to be built on bridges, which was unfortunately not possible within the project timeline due to nature conservation and traffic safety reasons.

To move into the testing phase, the team looked at other options for feasibility and sustainability on-site. They ended up making a valuable connection with a local school, which had a lawn in an area that was mostly paved, with no space for trees due to underground parking. This makes the shading solution truly useful and important in that location.

With the school, we could now enter the Co-Envisioning phase, focusing on concrete agreements and objectives. Together, we defined the design (Co-Design) so that the element could be built and installed in the summer. An important aspect of the Co-Design was the concern about viability and maintenance costs raised by the school. This concern could be alleviated through the additional production of replacement modules, which provided valuable insights for the chair. Now, the shading element has been established and is in use by the class. Classes are held there, and the space serves as a rest and meeting place for the neighbourhood.



"Public Power Shading Structure" Image source: NEBourhoods/Patrik Thomas

Best practice

Through our pre-existing connections to the local school, which was involved in another Living Lab ('Let's plant a Tasty Neuperlach'), we learned that the school was also looking for a way to create shading so they could conduct outdoor classes. This allowed two ideas to come together and initiate a successful Co-Design process in which the school closely collaborated with the action. Without the previously existing relationship, it would have been difficult to quickly get the school on board for the shading and to establish the shading in NPL at all. The initial idea to build the element on bridges did not pass the regulatory check (see most useful failure).

Inspiring idea

For the school, the biggest hurdle for the implementation was the fear of being unable to care for later repairs. This fear could be expressed in the step of Co-Envisioning, leading the scientific lead to instruct the engineering company to produce more modules so the element can be repaired easily by the school family without any extra expenses.

Most useful failure

The demonstrator was, after the initial round of codesigning, observing, and reflecting, planned to be built on bridges. As it was clear that there would be too much snow pressure and therefore risk on keeping them built up in winter, they would have been removed after one season. As it became clear that the responsible city department wouldn't allow the installation anyway due to the high risk, we made contact with the school, which led to a continuous implementation and test phase instead of a short-term effect.



"Public Power Shading Structure" Image source: NEBourhoods/Patrik Thomas

4.7 Good Practices, Inspiring Ideas and Most Useful Failures

Good Practices

1. Establish goals, tasks, and responsibilities as early as possible!

This approach was implemented in the first workshop with interested participants at the **Energy Communities** lab. By doing rather than just talking, participants not only gained a sense of self-efficacy but also fostered a group identity and genuine responsibility. This leads to commitment and sense of belonging, which is of utmost importance, if the project is to be continued long-term.



2. Promote networking and mutual learning!

We launched the Living Lab for Tasty Neuperlach with a networking event that brought together many participants from local NGOs and initiatives. The meeting began with the opportunity for everyone to describe sustainable practices and projects they had already performed or were currently applying. As a result, valuable connections among initiatives were formed. Mutual learning was set in motion through sharing practices. The development of future projects could start in a profound and efficient manner. This greatly strengthened the network, and now, one year

later, a robust network of several new gardens has emerged. This approach resulted in tangible implementation, rather than merely creating temporary, inspirational interventions.

3. Ensure that all voices are heard

In Co-Creation with many participants from the unorganised civil society who have no workshop experience, it is especially important to ensure that all voices are heard, not just those who are the loudest. Methods like the 1-2-4-All technique have proven to be very valuable in this context: participants brainstorm individually for one minute, then share their ideas with a partner. Next, they present each other's ideas to another pair, and finally, in groups of four, they present their key insights to the entire group. This process fosters a sense of collaboratively built results and distills the essence of all ideas in the room.

4. Co-create with the whole team

In the NEBourhoods project, the Co-Creation team was part of a larger interdisciplinary team. When we initiated our first Living Labs, it became more obvious than before that colleagues in the broader team possessed competencies and access to stakeholders that we lacked. For instance, they had established connections with large housing companies and various administrative departments.

To organise stakeholders for the Living Labs, we often needed input from the housing sector or administrative contacts, so we sought their support. This approach initially led to numerous individual arrangements. To reduce complexity and improve coordination, we established a “facilitation team”.

This facilitation team included all members who were involved in Co-Creation activities, had stakeholder access, or brought specific expertise in topics relevant to the Living Labs. The team met every two weeks to streamline efforts and enhance collaboration.



Inspiring Ideas



1. The whole city district in a room

When all the co-observation results were gathered during a decision-making workshop at the NEBourhoods Hubs Lab, we had a large, walkable aerial photograph in the center of the room. This allowed us to maintain an overview and have a more accurate representation compared to a small city map, enabling us to mentally navigate pathways, which was crucial for the topic of mobility. We continued using this mat in further workshops: stakeholders could stand on the locations where they operate, quickly identifying local connections and proximities.

2. Small but well-thought-out actions can be very effective

In the summer, we distributed refreshing watermelon slices to engage residents in conversations about overheating. For the energy communities, we offered "solar coffee" at our information booth to easily start conversations about solar energy. The solar panel visibly placed next to the coffee station (cargo bike with an electric moka pot) served as a very effective conversation starter. To recruit new gardeners for “Let's plant a Tasty Neuperlach”, we made herb butter. Offering small, free incentives that create an "aha!" moment connected to existing ideas - sparks interest and provides a glimpse of practical applications. We call these actions our "watermelon slices."



Most Useful Failures

1. Co-Creation cannot be planned and, our ideas of collaboration may not align with those of the stakeholders

Originally, the Co-Creation aspect of the NEBourhood project was designed as a series of regularly scheduled workshops. However, this approach did not work because, at the beginning, we struggled to motivate local stakeholders to participate in the workshops. For them, it was still too unclear what the project was about, and many of them were not accustomed to attending workshops.

Later in the project, we successfully organised workshops with strong stakeholder participation. However, this was on a different basis. By that time, the stakeholders knew us, and we knew them, and it was much clearer what a workshop would entail. Alternatively, the workshop had a very clear objective within a well-established topic, such as local energy production.

Of course, it is always possible to offer events at any time. However, there is a risk that they may not be well attended, and the effort might have been in vain.

2. If its hard to engage stakeholders due to an abstract topic, start with prototyping to stimulate the stakeholders imagination

In the Living Lab "Redesigning Housing Structures" (p. 31), initial efforts to engage participants were unsuccessful due to concerns about gentrification arising from the uncertain outcomes of co-creative processes in the built environment. Additionally, the project's realization was limited to a 1:10 scale demonstrator within our timeframe, so we couldn't put a real-life implementation in prospect. This sparked the idea of using small prototypes, specifically carefully crafted models by architecture students, as participation tools. To ensure the drafts and models aligned with NEB values, the NEB Compass served as an evaluation system during the semester. These prototypes were showcased in an exhibition in Neuperlach, providing a foundation for Co-Observation and Co-Reflection with the local community. Additionally, a film projecting life-sized images of the spaces onto the walls allowed for an immersive experience. The expertise of a creative professional skilled in exhibition design was essential, transforming the models into effective Co-Creation tools for the Co-Observe and Co-Reflect stages.



Although Living Labs are often multidisciplinary, they are often unable to address all the challenges posed by real-world environments.

Entrepreneurial thinking from students can significantly enhance the outcomes.

Hacking in
Living Labs



4.8 Hackathons with Students for Problem Solving

Working in Living Labs involves the implementation of pilot projects as user-centered, open innovation ecosystems established within real communities and on-site spaces, aimed at testing and refining existing ideas. Entrepreneurial thinking from students significantly enhances problem-solving capacity. Students might bring **different professional backgrounds** than those represented in the Living Lab, allowing them to propose **innovative solutions through an entrepreneurial lens**. Their relative distance from the real-world environment can offer an additional advantage, fostering **fresh perspectives**. See DEL2.4 for a detailed explanation of the approach.

Example from our Energy Communities Lab



The setup of an energy cooperative is the main goal of one of our Living Labs. As we **moved closer to a real-life setup**, it became obvious that different price models need to be found and tested for their attractiveness. Because German law does not yet allow the sale of locally produced power to households, the setup was already hard to understand for the average citizen. Investing money seemed even “scarier” for them. **A mixed team of students with various backgrounds developed several recommendations**; for example: Set one stake at no more than 50 Euros or a maximum of 100 Euros. Enable volunteering work valued at 20 Euros per hour to “earn” stakes. Thus, it becomes possible for low-income households to become members of the cooperative.

Regular reflection on Co-Creation iterations with all participants is crucial to fully harness the potential of Co-Creation.

Mutual Learning



4.9 Mutual Learning Formats

Co-Creation is challenging because you may anticipate the next step, yet the path beyond remains unclear. Moreover, it's often uncertain if new stakeholders will need to be involved as the process unfolds. This approach carries uncertainties, but over time, you adapt, eventually finding ease in the iterative process and appreciating the chance to reflect carefully on each step. To get there, you need mutual learning.

More than any traditional project work, Co-Creation depends heavily on continuous learning. Regularly revisiting past work to understand what did or did not happen - and why - is absolutely essential. Ideally, this reflection involves not only your core team but everyone engaged in the Co-Creation process. Mutual learning is the key to shaping a Co-Creation model that is both tailored to your project and responsive to its unique demands.

For example we discussed the following questions in a mutual learning context:

- How we can become visible locally?
- Which stakeholders are still needed?
- Which approaches have been successful in the work so far and might be transferrable?
- What distinguishes Neuperlach as a place and sets it apart from other urban districts?
- What kind of Long-term continuation of the prototypes is possible and which stakeholders can ensure this?

Some Mutual Learning sessions were planned as workshops, while others were spontaneous. Few of the planned workshops drew on established methods, such as standard techniques used in retrospectives. **Often, however, these common techniques were not sufficient because our methodology is specific and tailored to current challenges, as described earlier.** Therefore, most of the workshops were based on very specific questions like these ones on the page before.

On the next page, you will see the mutual learning workshops we have planned. They are labeled as formal mutual learning. The others are labeled as informal mutual learning. The formal ones were topic related or synergy workshops. These ones were designed to find synergies between the ten actions. The last one was prepared for general assemblies of the project. Since the whole team participates in general assemblies, they provided an excellent opportunity for mutual learning.

In the NEBourhoods project, we hold **Living Lab jour fixes** every two weeks. These meetings are a favorite space for Mutual Learning, as we discuss each Living Lab.

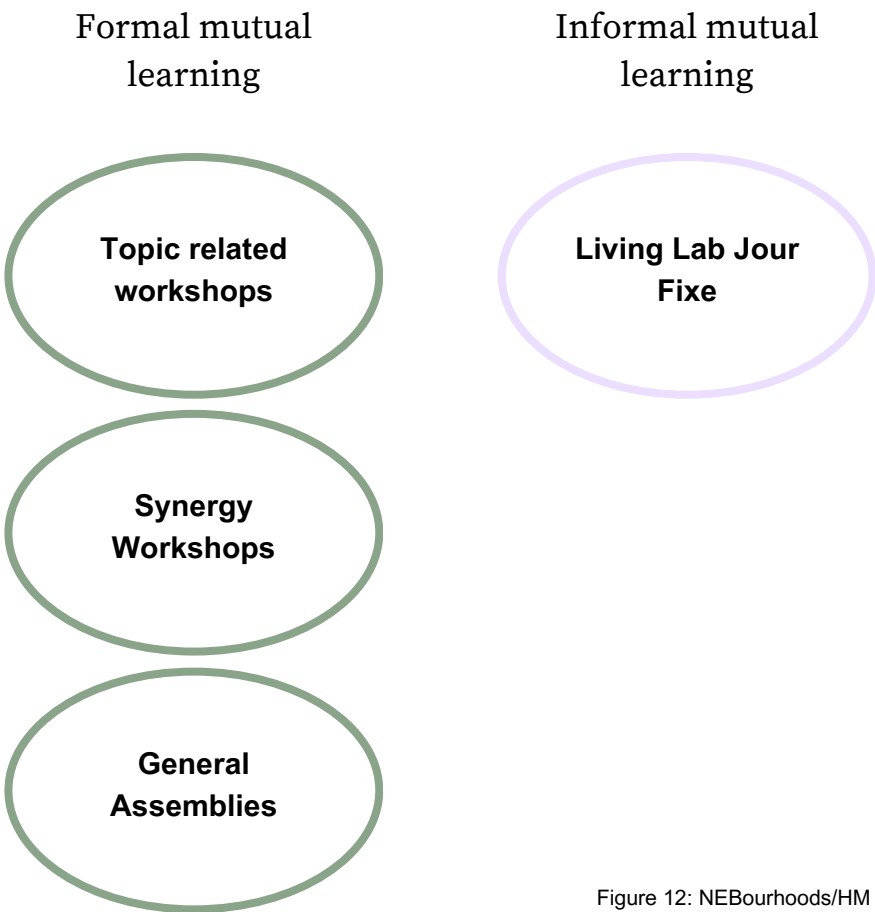


Figure 12: NEBourhoods/HM

Long-term continuation is not something that you take care of after the Co-Creation process; **it has to be thought through from beginning on!**

Long-term Continuation/
Institutionalisation



5 Long-Term Continuation

When initiating the Co-Creation process, **it is essential to plan from the start how the prototypes will be sustained and utilised over the long term.** At the end of the project your involvement may conclude, perhaps due to funding coming to an end, which makes it even more important to prepare for a handover to local stakeholders. Businesses or city administrations can also play a role in ensuring the continuity of initial outcomes from Co-Creation processes.

Ideally, locals co-design the prototypes, co-evaluate them, and are part of the entire creation process. **If this happens, they truly identify with the product of the process and are naturally interested in its long-term continuation.** However, in the most cases in the NEBourhoods project additional funding and other kinds of support is required, which could come from city administration, a foundation, a company, or a follow-up project.

City administrations may also have an interest in long-term continuation. **Prototypes can be scaled up across the city** and, with necessary adaptations to specific conditions, implemented in other areas. Moreover, prototypes can inspire new urban development projects or contribute to strategies currently being developed. **Companies can also play a key role in institutionalisation and continuation.** They may be interested in producing prototypes or parts of them or replicating strategies.

Examples from the NEBourhoods Project:

An **energy community** was developed through Co-Creation between interested people from Munich-Neuperlach, the Perlacher Herz, a

neighbourhood centre in Neuperlach known for its integrative and intergenerational projects, the TUM Chair of Building Technology and Climate-Responsive Design and members of the Academic Energy Community at TUM. “The energy community's primary goals are decentralising energy production, strengthening social cohesion, and actively engaging citizens in sustainable energy practices” (Deliverable No. D5.7, Demonstration of an Energy Community: Co-Creation and Implementation, p. 10).

The energy community founded a cooperative. “The **cooperative legal structure** was chosen because it promotes cooperation, shared responsibilities, and democratic decision-making, with each member having an equal vote” (Deliverable No. D5.7 p. 10). Particular emphasis was placed on a social pricing model to enable participation for low-income households as well. The pricing model was developed by students of the University of Applied Sciences (HM), please see details in chapter 4.8.

The cooperative is growing and will remain after the end of the project. The structure of the cooperative allows other communities in the City of Munich to join and strengthen its economic foundation. In this case long-term continuation is established through the founding of a cooperative with supporting measures like the mentioned possibility for other energy communities to join. **Moreover, the process of the cooperative-foundation is documented and can be used for other foundations.**

ChillspORT is a snail-shaped wooden structure situated in a schoolyard in Munich Neuperlach, designed to support what teenagers love most - chilling. The sculpture provides a range of seating options for various

group sizes, offering spaces that are sometimes more public and at other times more private. **ChillspORT** was developed collaboratively by students, creatives from Neuperlach, and architecture students of HM Chair of Urban Design and Theory and stands as a result of the Living Lab Places for Youth Culture - PEARL. Once the action had begun, the team decided on the name PEARL - in the sense of finding (new) places like pearls for youth culture.

ChillspORT is a permanent installation and will remain in its current location. The City of Munich gained valuable insights not only from the Co-Creative development process but also from the extended use of the schoolyard in the afternoons - a concept long approved by the city council but rarely put into practice. **ChillspORT as a pilot project has laid the groundwork for further schoolyard openings and the activation of school spaces.**



“Places for Youth Culture - PEARL” Image source: NEBourhoods/HM - Gabriella Guzman

The '**Nisthocker**' (Nesting Stool) is another wooden structure, this time located at the busy back exit of the large 'PEP' mall in Munich Neuperlach. The sculpture offers seating and lounging areas as well as spaces for trees, shrubs, and edible plants. It also includes sunshades and nesting aids for birds, bats, and wild bees. **It's a structure that brings together habitats for people, animals, and plants.**

The prototype is modular and can be relocated as needed, and it is a result of the Living Lab Animal-Aided Design, initiated by Studio Animal-Aided Design. From day one, the neighbourhood accepted and used the Nisthocker, and it's busy at all times of the day.

The area belongs to PEP. The manager of PEP aims to make the Nisthocker a model for sustainable connections to the neighbourhood that can be replicated at other companies.

However, the co-creative process does not end with the demonstrator. It is currently being continued through workshops: Due to the centre's efforts to involve the neighbourhood in a social project, the roof of the PEP shopping centre is being redesigned, and a community interested in engaging in community gardening is being established. It is crucial to find 1-2 local individuals who can organise the otherwise flat-hierarchy community and **ensure there is a connection with the centre management**. Foundations and NGOs with the aim of Commoning are involved to provide compensation, thereby ensuring the project's long-term maintenance.

In this case, NEBourhood initiatives and the demand of PEP for connecting with the neighbourhood, enabling a new community space and is intended to stay. If the PEP's strategy succeeds, similar sculptures for people, animals, and plants might appear in other locations as well.



"Nesting Stool Animal Aided Design" Image source: NEBourhoods/Patrik Thomas

Literature

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Glossary

Bottom-Up approach

pls. see **Top-Down** for description

Change Management is the structured process of guiding individuals, teams, and organisations through transitions to achieve desired outcomes.

Co-Creation is a bridge-building process that unites diverse stakeholders from across society, leveraging their unique expertise to address a wicked problem. It is purpose-driven, flexible yet structured, fostering creativity and collaboration to achieve collective and individual goals through a dynamic, non-linear approach.⁴

Co-Observe is that point in the process where you interact with and get feedback from stakeholders and eventually involved artists and creative professionals. It is important to involve the right stakeholders in this step. The aim is to understand their perspective and consists of qualitative ethnographic research in the beginning of the project. Later on stimulus material and prototypes might be used to further this understanding as well as to get feedback on the ideas. In a Living Lab setting these insights are gathered mutually, ideally by all stakeholders.

Co-Reflect involves collectively analysing the insights collected during Co-Observe create learnings. At Co-Reflect conclusions are being drawn by joint reflection. Comparing the actual outcome with the anticipated and the intentions from Co-Envision and Co-Design might help define the next

iteration (be it a Co-Evaluation or Co-Creation Cycle). As a starting point it might define the need to act in the first place. As a final step it might conclude that the project objective has been achieved.

Co-Envision means developing a shared vision and collaboratively planning the next step. Possible individual visions and intentions are to be aligned, at least partially. A shared vision then feeds Co-Design with an imagined outcome. The collective vision might be captured verbally, visually or in a combination of both. It might lack details and only sketchily outline a new scenario, but therefore include the greater impact or other anticipated consequences.

Co-Design is turning visions and plans into reality. This might be a simple sketch, a story board, small mock-ups made of cardboard and sticky tape or a full-scale prototype.

Desirability attractiveness and acceptance

DVF-Diagram A diagram with Desirability (attractiveness and acceptance), Feasibility (technical practicality) and Viability (economic and legal attainability) in overlapping circles

Effectuation is a mindset and approach to decision-making that emphasises how entrepreneurs shape their own futures through action and initiative. Instead of relying on forecasts and long-term planning, it focuses on generating opportunities and addressing challenges by leveraging the resources at hand.

Glossary

Feasibility technical practicality

Good-Enough-Principle suggests prioritizing practical, timely solutions that are sufficient to meet current needs rather than striving for perfection (see detailed description on p. 63).

Greatest Uncertainty refers to focusing attention and resources on the areas of a project or decision where the most significant unknowns exist. By addressing these uncertainties early, it helps reduce risks, improve decision-making, and set a clearer path forward (see detailed description on p. 60).

Integrated Urban Development Plan (IHKM) is the informal Integrated Urban Development Plan for the action area of “Neuperlach and Surroundings” (Integriertes Handlungsraumkonzept/IHRK).

Integrated Urban Regeneration Implementation Plan is the formal, legally binding Integrated Urban Regeneration Implementation Plan (Integriertes Stadtteilentwicklungskonzept/ISEK).

Living Labs are innovation ecosystems in real-life settings, using co-creation to integrate research with citizens and end-users at the centre (see detailed description on p. 17).

Non-Linearity is about the nature of open-ended processes that are impossible to plan, e.g. with the waterfall method (see detailed description on p. 53).

Quadruple-Helix: In the context of societal sectors, the "Quadruple Helix" model refers to the collaborative interaction between four key sectors: government, industry, academia, and civil society, to drive innovation and development.

Redo-Cycle is a steering element that allows us to work iteratively with meaningful results instead of following a linear predefined process.

Stakeholder is any individual, group, or organisation that has an interest in a particular project, decision, or outcome. Stakeholders can be directly or indirectly affected by the results.

Top Down Top-down approach, directives originate from higher authorities and flow downwards, ensuring structured implementation. Conversely, a Bottom-up approach begins with grassroots initiatives that move upwards, fostering innovation. The Both-directions method combines both, promoting interaction and feedback between all levels for balanced decision-making.

Triple Lens Model, see DVF-diagram on p. 61

Glossary

Transdisciplinarity refers to an approach that integrates knowledge and methods from different disciplines to address complex problems. It involves collaboration with stakeholders from outside academia, such as practitioners and the community, to find holistic, innovative solutions.

Viability economic and legal attainability

Wicked Problem is a complex issue that is difficult to define and has no clear solution, often due to incomplete or contradictory information. These problems involve many interdependent factors and stakeholders with differing perspectives and priorities, making them resistant to straightforward fixes. Addressing wicked problems typically requires collaborative, adaptive approaches rather than traditional linear problem-solving methods.

Acronyms

EC	European Commission
EU	European Union
HR	Urban Development Action Area / Handlungsraum der Stadtentwicklung
IHRK	Integrated Urban Development Plan / Integriertes Handlungsraumkonzept
ISEK	Integrated Urban Regeneration Implementation Plan / Integriertes Stadtteil-entwicklungskonzept
M	Project Implementation Month
NEB	New European Bauhaus
NEBourhoods	Creating NEBourhoods Together
NGO	Non-governmental Organisation
NPL	Munich Neuperlach
OA	Open Access
T	Task
WP	Work Package

Organisation Name (Consortium)

MUC	City of Munich/ Landeshauptstadt München
MUC CCI	Team of Excellence for the Cultural and Creative Industries
AGM	Architekturgalerie München e.V.
BYF	Bayerische Forschungsallianz/ Bavarian Research Alliance GmbH
GC	Green City e.V.
HM	HM Hochschule München, University of Applied Sciences

MGS	MGS Münchner Gesellschaft für Stadterneuerung GmbH
SCE	Strascheg Center for Entrepreneurship
STR	Structure GmbH
SAAD	Studio Animal-Aided Design GmbH
SSR	Studio Stadt Region Forster Kurz Architekten und Stadtplaner Partnerschaft MbB
TUM	Technische Universität München
UTUM	UnternehmerTUM GmbH
MS	UnternehmerTUM MakerSpace GmbH

Organisation Name (in Cooperation with)

MER	Münchner Ernährungsrat e.V.
MIN	Münchner Initiative Nachhaltigkeit
OTH	Ostbayerische Technische Hochschule Regensburg

Organisation Name (Associated Partners)

ByAK	BAK – Federal Chamber of German Architects/Bayerische Architektenkammer, Körperschaft des öffentlichen Rechts
BYD	Bayern Design GmbH
BDA	Bund Deutscher Architektinnen und Architekten e.V.
BDY-By	Bund Deutscher Architektinnen und Architekten Bayern e.V.

Annex 1 Co-Creation Input, Output and Outcome (1)

This graphics show how our Co-Creative approach transformed an idea into a Living Lab: it shows the **inputs from the Co-Creation team** and steps that enabled transitions to the next phase: The spirals show how more stakeholders gradually joined the Living Lab.

Living Lab Public Power

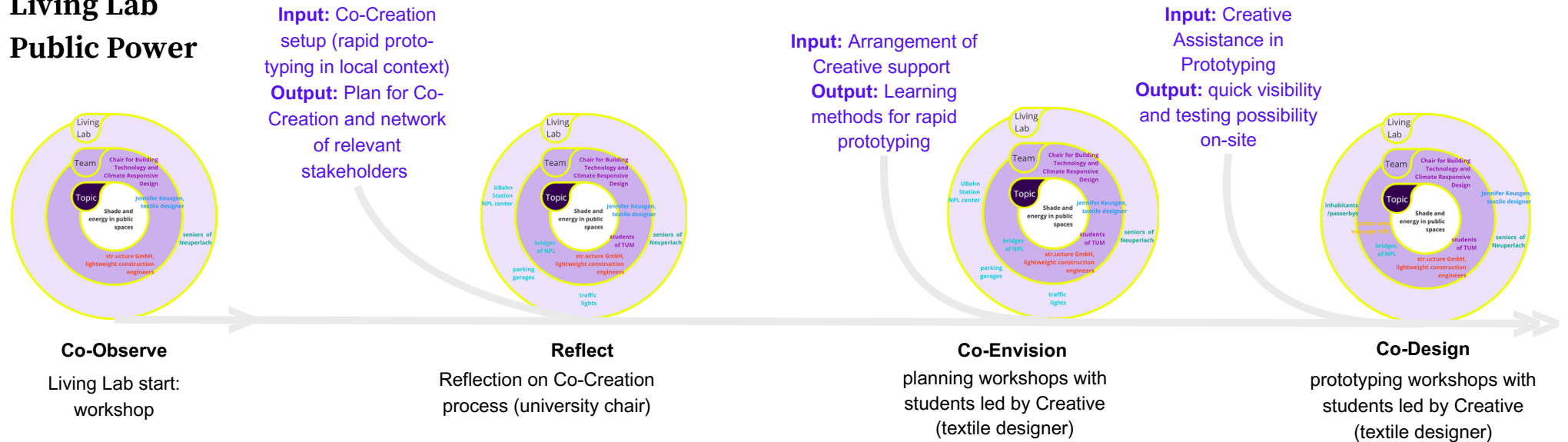


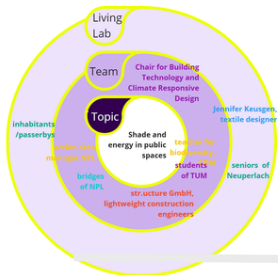
Figure: NEBourhoods/HM

Outcome:

Local awareness of urban overheating and local electricity production; the experience of self-efficacy for school-children; newly developed neighbourhood community; increased self-efficacy for students who built the prototypes

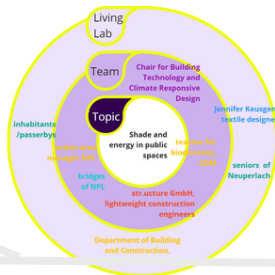
Input: Planning and preparing for presentation and moderation

Output: Feasibility check and municipality network for implementation



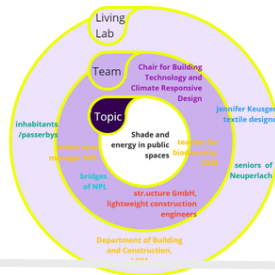
Co-Observe &-reflect

Guided tour to visit and reflect on the prototypes



Co-Reflect

presentation of prototypes in Department of Building and Construction, LHM



Co-Reflect

evaluation of feasibility: not possible to place it on municipal grounds

Input: Connecting Lab to local school whose need for shaded places was known to the Co-Creation team

Output: Possible implementation on-site



Co-Observe & Co-Reflect

Change of plan: other implementation possibilities

Co-Envision &-Design

planning process with those from school responsible and setup of the demonstrator on-site

Input: guiding the co-design-process, preparing site-visits and co-envision- sessions

Output : Long-term implementation on-site

Figure: NEBourhoods/HM

Annex 1 Co-Creation Input, Output and Outcome (2)

Living Lab
Let's plant a Tasty
Neuperlach!

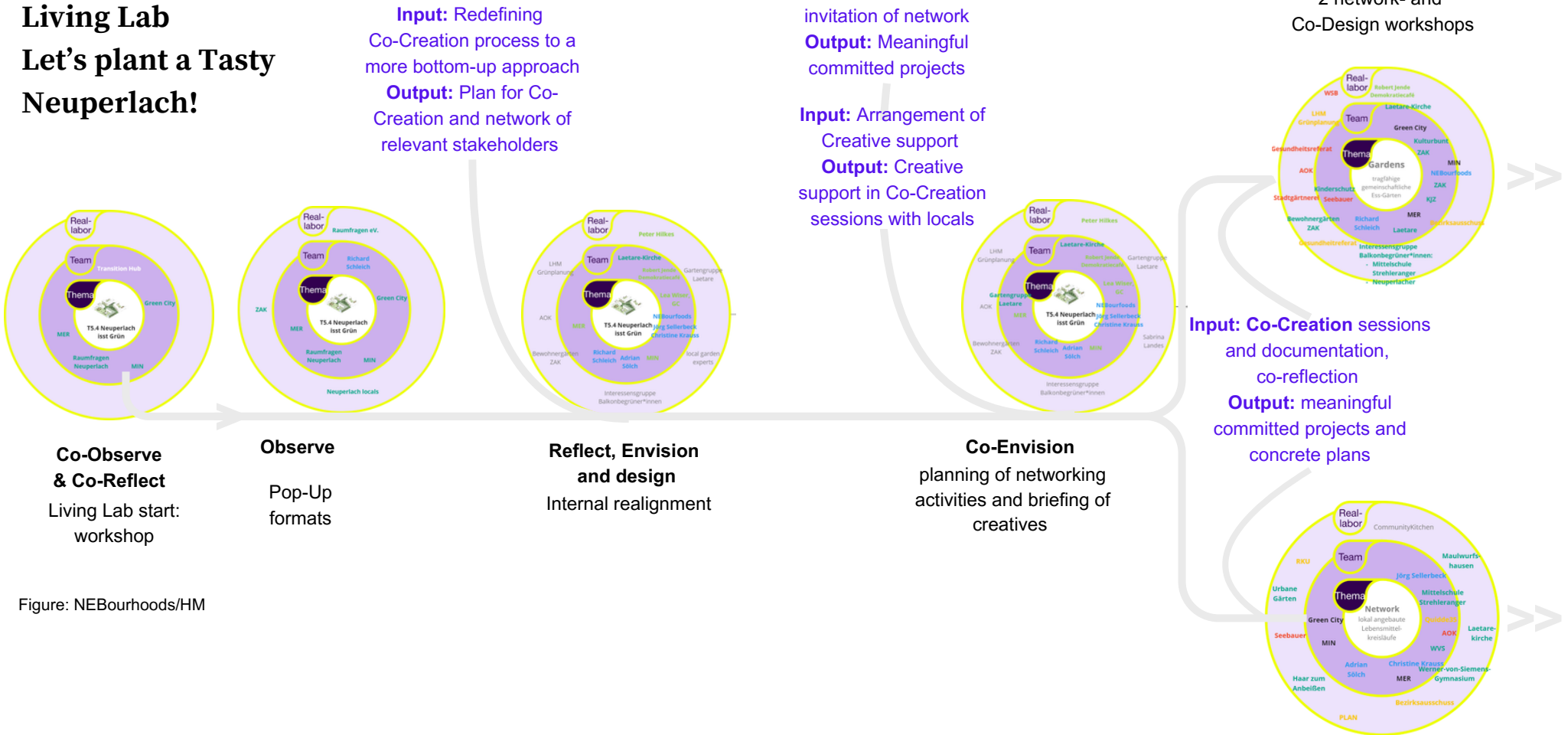
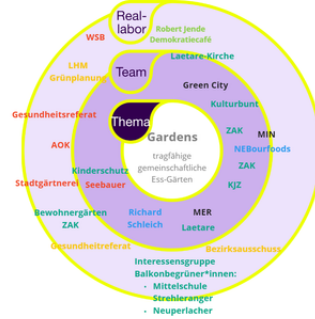


Figure: NEBourhoods/HM

Co-Design & Co-Build

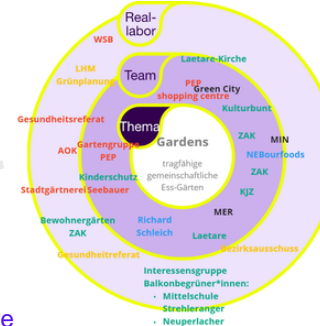
2 Design-Sprints for
gardens and nutritional
formats and tools



Input: ideation and facilitation of co-creative design-sprints, network communication,
Output: Ideas turn into real-life implementation and setting

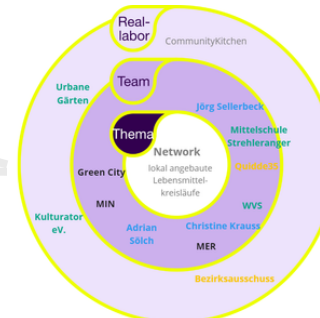
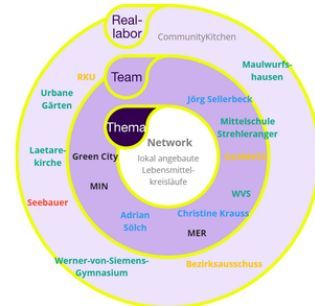
Co-Observe and -reflect

2 Design-Sprints for
gardens and nutritional
formats and tools



Input: ideation and facilitation of co-creative design-sprints, network communication, connections to funding opportunities
Output: Ideas turn into real-life implementation and setting, are tested and iterated

Outcome:
Residents of Neuperlach can benefit from locally produced food; self-efficacy is strengthened; education for sustainable development is enhanced; activities of individual institutions are reinforced.



Co-Observe & -reflect

3rd network
meeting

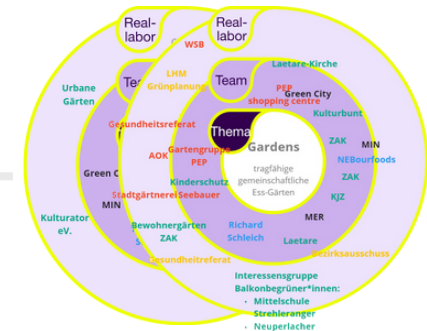


Figure: NEBourhoods/HM

Annex 2

Living Lab Actors

Living Lab	Action-Team/Lead Living Lab	Co-Creation Lead	Artists and Creative Professionals	Number of local participants*	Facilitation team
			matched and commissioned by Christina Schepper-Bonnet	matched and facilitated by Jana Köstler, Peter Brooren, Michael Droß	
Animal Aided Design	Studio Animal-Aided-Design: Christine Jakoby, Qingyu Liang, Thomas E. Hauck, Ariane Mutzel, Raheem Abdul, Beatrice Grill, Wolfgang W. Weisser, Beate Piecha	Peter Brooren (HM)	Sarah Dorkenwald	Living Lab Team: 5, Living Lab: 45	Tina Zoch (MGS), Peter Brooren (HM), Sylvia Pintarits (MUC), Michaela Busenkell (MUC)
ECOLOPES	Fabio Sweet , Wolfgang W. Weisser (TUM)	Michael Droß (HM)	/	Living Lab: 10	Tina Zoch (MGS), Michael Droß (HM), Peter Brooren (HM), Martin Luce (TUM)
Public Power	Team: Thomas Auer, Sebastian C. Koth, Julian, Lienhard (TUM) Andreas Schönbrunner (str.ucture GmbH)	Jana Köstler (HM)	Jennifer Keusgen	Living Lab Team: 4, Living Lab: 14	Tina Zoch (MGS), Christoph Heidenhain (MUC), Jana Köstler (HM)
Circular Neuperlach	Werner Lang, Carsten Schade, Johannes Staudt	Peter Brooren (HM)	Ursula Gaisbauer, Max Haarich, Michael Heiduk, Laura Maria Höpfner, Mattias Schelbert, Ana Eva Várnai	/	Peter Brooren (HM), Sylvia Pintarits (MUC), Nicola Borgmann (AGM), Christoph Heidenhain (MUC)
Redesigning Housing Structures	Andreas Hild, Caroline Dietmeier, Stefan Gruhne, Andreas Müsseler, Simon Pytlík, Mascha Zach, Thomas Auer	Jana Köstler (HM), Enrica Ferrucci (MUC)	Enrica Ferrucci, Susana Frau, Stephanie Maier	Living Lab: 15	Michaela Busenkell (MUC), Jana Köstler (HM), Enrica Ferrucci (MUC), Christina Schepper-Bonnet (MUC)
NEBourhood Hubs	Matti Drechsel, Nick Förster, Gerhard Schubert, Carla Sauviant	Jana Köstler (HM)	Enrica Ferrucci, Helen Simon, Sandra Singh, Ralf Otto, Ana Eva Várnai	Living Lab Team: 2 Living Lab: 25	Charlotte Poppa (MUC), Tina Zoch (MGS), Jana Köstler, Natalia Chikanchi (HM)
Energy Communities	Serena Keller, Thomas Auer	Michael Droß (HM)	Silvia Angel, Max Haarich, Laura Maria Höpfner, Mattias Schelbert, Patrik Thomas	Living Lab Team: 5, Living Lab: 45	Michael Droß, Natalia Chikanchi (HM), Tina Zoch (MGS), Marika Kuschan (MUC)
Let's plant a Tasty Neuperlach!	Magdalena Engl, Andreas Obermeier, Lea Wiser (Green City) Partners: Maren Schüpphaus, Stephanie Hirn (MIN) Susanne Bär, Verena Schlegl (MER)	Jana Köstler (HM), Christina Schepper-Bonnet (MUC)	Anna Diermeier, Janine Mackenroth, Richard Schleich, Jörg Sellerbeck, Adrian Sölch	Living Lab Team: 10, Living Lab: 130	Jana Köstler (HM), Christina Schepper-Bonnet (MUC), Sylvia Pintarits (MUC)
Places for Youth Culture - PEARL	Andrea Benze, Janina Sieber (HM), Elke Bauer, Martin Valdés-Stauber (Kammerspiele)	Peter Brooren (HM), Christina Schepper-Bonnet	Benjamin Calliari-Herzberg, Maja Das Gupta, Ruth Hahn, Raphael Krome, Adrian Sölch, Patrik Thomas, David Westphal	Living Lab Team: 6 Living Lab: 220	Christoph Heidenhain (MUC), Christina Schepper-Bonnet (MUC), Peter Brooren (MUC), Tina Zoch (MGS)

* Who "Living Lab Team" is and who is "Living Lab" is explained in 4.5 on page 101

Annex 3

Different Templates for Co-Creation tools

Multi-Stakeholder Mapping Template

please send an E-Mail to hmuniversity@hm.edu for high-quality templates

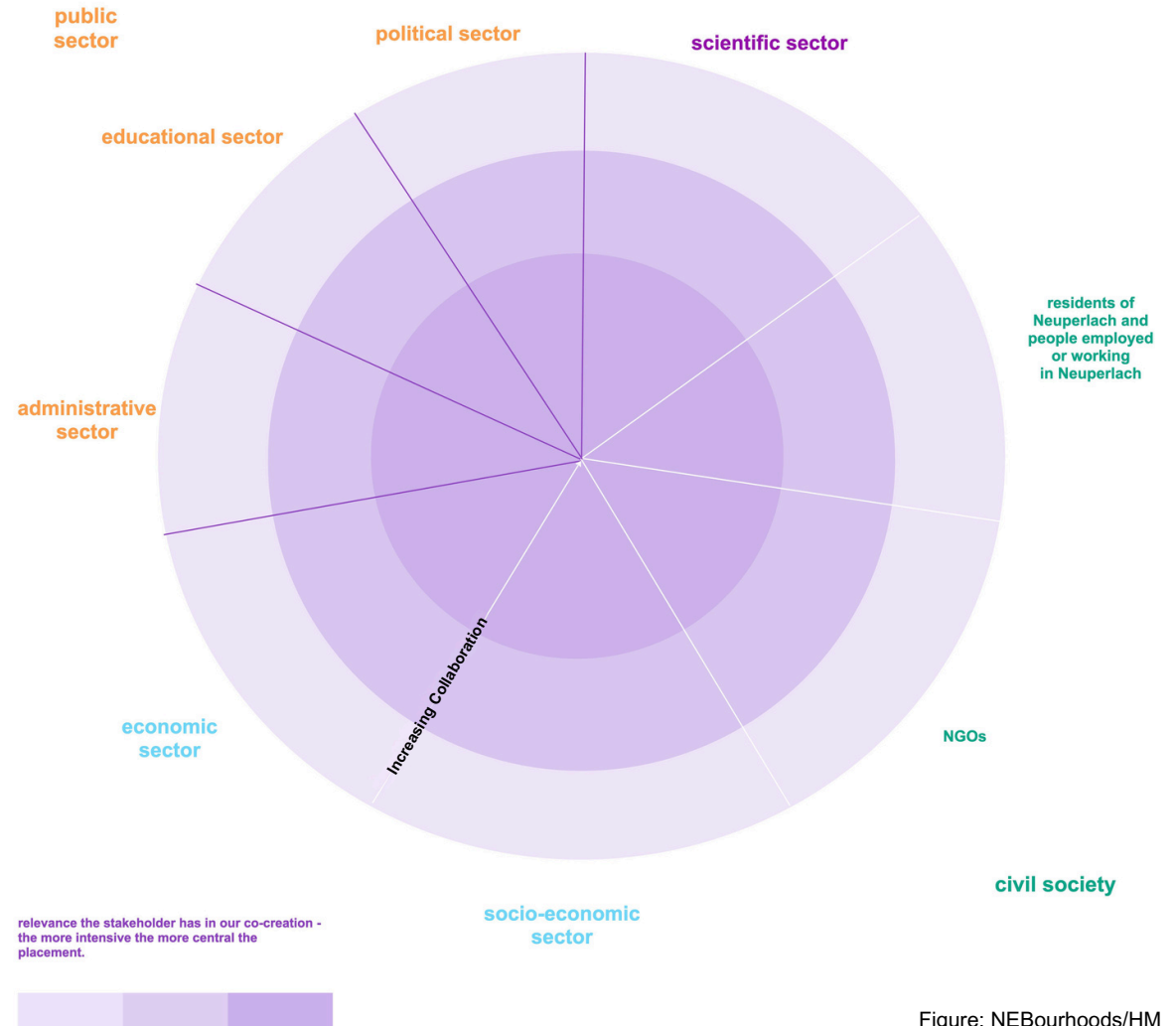



Figure: NEBourhoods/HM

Interview Guidelines and Templates for Stakeholder Profile

<p>Name   </p> <p>Background:</p> <p>Activities:</p> <p>Interests:</p> <p>Comments:</p> <p>Involved in:</p> <p>Potentially involved in:</p> <p>Location:</p> <p>Knows:</p>	<p>Interview Guideline for key individuals and/or leaders of NGOs and organisations from the (socio-)economic sector</p> <p>How long has your organization been operating? Wie lange gibt es euch schon?</p> <p>Could you describe your organization's main activities and programs? Was sind Eure Programme?</p> <p>What are the primary needs of your organization? Was sind Eure Bedarfe?</p> <p>What challenges do you face within your area of work in the community? Welche Probleme seht ihr?</p> <p>What are your sources of funding? Wie finanziert ihr euch?</p> <p>What resources or support would be beneficial to your work? Was könnte euch in Eurer Arbeit helfen?</p> <p>(How) does your work connect to sustainability-related themes? Wo findet ihr Anbindung an klimarelevante Themen?</p> <p>Do you foresee any potential synergies with our projects, or are there initiatives you have been contemplating that might match? Mit welchem Projekt seht ihr mögliche Synergien?</p> <p>What would be required to motivate and engage the members and visitors of your institution? Was bräuchte es, Eure Institutionsmitglieder und -besuchenden zu motivieren und aktivieren?</p>	<p>Interview Guideline for residents of Neuperlach and people employed or working in Neuperlach</p> <p>How long have you been living or working in Neuperlach? Wie lange leben Sie schon in Neuperlach?</p> <p>What areas are you particularly interested in? Was sind Deine Interessensbereiche?</p> <p>What issues do you identify within your district or neighborhood? Welche Probleme sehen Sie/siehst Du im Viertel?</p> <p>What are your talents or areas where you are particularly active or enjoy contributing? (Was machst du gerne/kannst Du gut?)</p> <p>What changes or developments would you find beneficial in your quarter? Was fändest Du/fänden Sie gut, wenn sich im Viertel entwickeln oder verändern würde?</p> <p>Which topics related to sustainability capture your interest? Welches Nachhaltigkeitsthema könnte Dein/Ihr Interesse wecken?</p> <p>Could you see yourself joining one of our living labs whose topic sparks your interest? Do you have time for such projects? Könntest Du/könnten Sie sich vorstellen, mit uns gemeinsam zu entwickeln und zu gestalten? Hättest Du zeitliche Kapazitäten hierfür?</p> <p>What would be required to motivate you and sustain your engagement? Was bräuchte es, um Dich/Sie dazu zu motivieren und motiviert zu halten?</p>
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please send an E-Mail to hmuniversity@hm.edu for high-quality templates

Figures: NEBourhoods/HM

Co-Creation Café Template

Co-Creation Café Part 1

**Eigener Arbeitsstand
(status quo)**

Wie geht's Euch?

Was habt Ihr seit Eurem letzten Austausch gemacht?

Wo seid Ihr grad dran?

**Vorbereitungen
die Living Labs**

Was ist das Problem und für wen?

Wer sind die Owner der Lösung?

Braucht Ihr spezielles Wissen? (z.B. bzgl. juristischer Fragen, planerischer Aspekte, technischer Art... Welches?)

Wo braucht Ihr andere Perspektiven? (Widerspruch, Disruption)

Wo erwartet Ihr Widerstände?

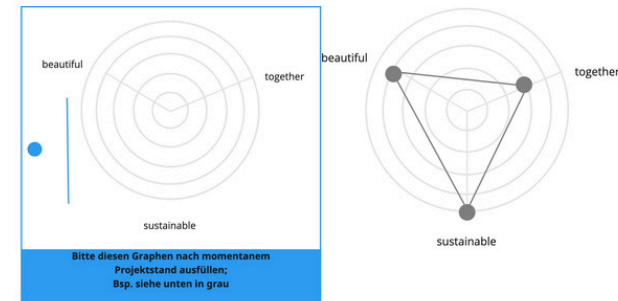
Formuliert eine "how might we?" - Frage

vor Ort in Neuperlach

An welchen Orten seid Ihr schon tätig oder welche sind für Euch relevant?

Wen habt Ihr bereits vor Ort kennengelernt/angesprochen?

Zu welchen Themen/mit welchen Projekten seid Ihr bereits in Neuperlach aktiv? (auch über NEB hinaus)



How-to:

Um das zu beantworten, formuliert ihr ein Problem Statement. Dazu führen Euch die folgenden Fragen:

1. **Who?** Wer hat das Problem? Die Personengruppe selbst? Ihr genau beschreiben!
2. **What?** Was ist genau das Problem, das die Zielgruppe hat?
3. **Where?** Galt es um bestimmte Orte in Neuperlach? Office oder online? So grenzt ihr den Raum besser ein.
4. **Why?** Warum soll das Problem gelöst werden? Welcher Mehrwert entsteht für die Zielgruppe?

Wer sorgt am Projektende dafür, dass die gefundene Lösung/der Prototyp in die Realität umgesetzt wird? Diese Institution wird als "Owner" bezeichnet. Beispiele sind: Vereine, Initiativen, Zielgemeinschaft (welcher Gruppe?), Bezirksausschuss, Unternehmen. Der Owner kann auch deckungsgleich mit der Zielgruppe sein, wenn z.B. Energy Communities von Mieter:innen gegründet werden, die den produzierten Strom nutzen.

Unterschiedliche Interessen? Technische Hürden? Administrative Hürden? Mangelndes Interesse der Zielgruppe oder der Owner?

Die How Might We Frage ist die Basis jeder Design Challenge und definiert die Probleme, welche gelöst werden sollen. Mit diesem Framework könnt ihr schnell eine passende Fragestellung entwickeln.

"Wie können wir ... dabei unterstützen/werkzeuge/helfen ... sodass ..."

Um eure How Might We - Frage mit dem Framework auszufüllen, ergänzt ihr im ersten Teil der Phrase, wer genau die Zielgruppe ist. Hierfür kann es helfen, vorher eine **Persona** zu erstellen, um ein möglichst genaues Bild der Zielgruppe zu haben.

Für den zweiten Teil sollte ihr ein passendes Verb auswählen und die Challenge, der ihr Euch stellen wollt, gutheißen. Gebt ihr am besten kurz auf die Situation und das **Location** ein.

Im dritten Part sollte der Nutzen bzw. der Mehrwert, den ihr mit Eurer Lösung erreichen wollt, beschrieben werden.

Beispiel:

"Wie können wir die Jugendlichen (x-jährig) Neuperlachs ermächtigen, Räume für sich nutzen und gestalten zu dürfen?"