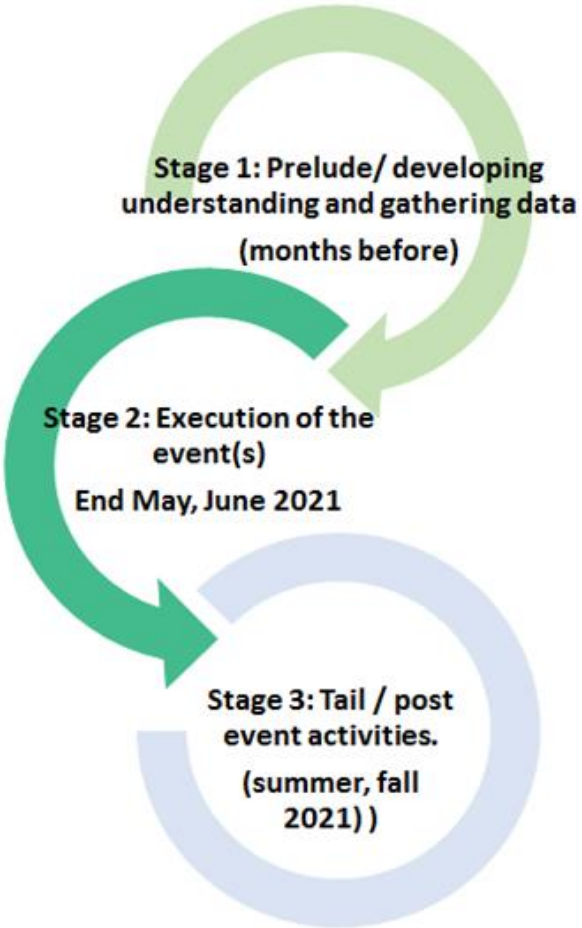
Hackathons for inclusive urban planning: Exploring divergence to co-create convergence

Deliverable 3.1.a



VIVA PLAN

FORMAS

PROJECT COORDINATOR

PARTNERS

Led by the Swedish University of Agricultural Sciences, VIVA-PLAN involves six institutions in fields including urban governance, ecology, landscape architecture, geography and natural resource management. We will draw on multiple methods to assess the co-benefits and costs of nature-based solutions, including green spaces and meeting spots, in vulnerable residential housing areas in cities in Sweden and Denmark. Project results may support the creation of sustainable spatial planning frameworks that promote biodiversity conservation, social inclusion and well-being (including safety and security) in cities in Sweden, Denmark and other parts of the globe.

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More information	www.viva-plan.eu

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1. Introduction

1.1 VIVA-PLAN

The exponential growth of cities in both the Global North and the Global South in combination with global climate and ecological crises urge governments and scientists alike to mitigate the negative effects of urbanization and densification through urban greening. Nature-based solutions are innovative solutions which are inspired and supported by nature, and support a range of co-benefits for e.g., biodiversity and well-being (Raymond et al., 2017). Increasingly, issues regarding environmental justice and urban green equity are considered key in transitions towards just and sustainable cities (Calderón-Argelich et al., 2021). Such issues not only relate to equal distribution of and access to urban green spaces, but also to inclusive planning processes. The VIVA-PLAN project (www.viva-plan.eu) aims to contribute to inclusive urban green planning through developing a new sustainable spatial planning framework for promoting biodiversity, social inclusion and human well-being. The project has a specific focus on marginalized groups such as young people and immigrants.

A key element in the VIVA-PLAN case-study approach is the use of two hackathons in each of the case-study areas Urbanplanen (Copenhagen) and Ronna (Södertälje). Traditionally, a hackathon is a multi-day event in which a diverse set of experts and stakeholders is brought together to develop initial solutions to complex problems (Celi, Ippolito, Montgomery, Moses, & Stone, 2014). Within VIVA-PLAN, the hackathon approach is used to collaboratively find solutions for complex issues related to spatial urban planning at a local scale.

The VIVA-PLAN hackathons are embedded within the wider VIVA-PLAN multi-methods approach, featuring a diverse array of social science methods to elucidate local practices related to urban green spaces, including ethnographic investigations, socio-ecological value mapping, interviews and focus-groups and ecological mapping (see Figure 1).

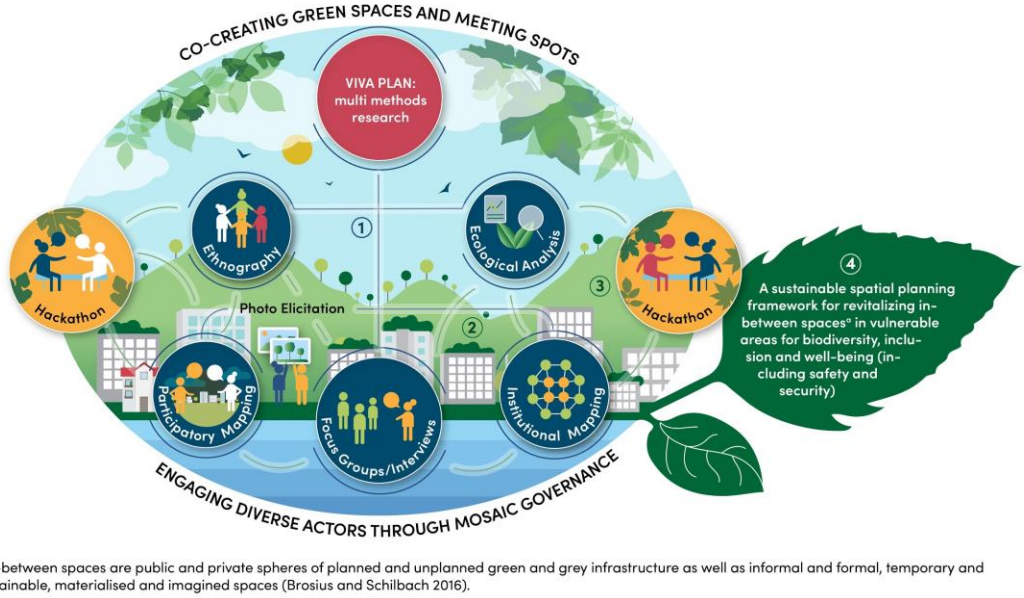

Figure 1: VIVA-PLAN multi-methods approach, including the Hackathons. **Cluster 1** combines participatory mapping and ethnography to identify issues of social inclusion, safety and security in green spaces and meeting spots in vulnerable residential housing areas, in addition to residents' values and preferences for management of green spaces and meeting spots. **Cluster 2** combines focus groups and interviews with institutional mapping and photo elicitation to identify social networks of importance to vulnerable residents, and how these networks can be strengthened to address residents' needs. **Cluster 3** builds on work packages 1 and 2 to inform the implementation and evaluation of Hackathons. **Cluster 4** draws together insights from Clusters 1-3 to inform a sustainable spatial planning framework for revitalizing green space and meeting space design in order to improve social inclusion, biodiversity and well-being (including safety and security).

This discussion paper aims to develop a structure for such Hackathons within a Covid-19 context. It aims to stimulate discussion about the aim and structure of Hackathons. Based on previous analysis of the social, environmental and governance context of the two case-study areas, the outline for the Hackathon events is developed, with the ultimate aim of engaging with diverse groups to contribute to inclusive sustainable spatial planning. Framed by a three-step approach to the Hackathons (*prelude-execution-evaluation)* (Figure 3), options are developed for developing practical guidelines for organizing, hosting and evaluating Hackathons to support sustainable spatial planning. This discussion document outlines aims and structures for the Hackathons. In addition, it describes social learning processes and potential outcomes that are helpful for the evaluation of the hackathons. Based on this evaluation, in a separate document, options for practical guidelines for practitioners and researchers will be developed.

1.2 Mosaic Governance

VIVA-PLAN aims to embed the Hackathons in existing governance structures, taking into consideration both local governments and housing agencies, as well as local residents, active

citizens and local NGOs. These governance structures at the local level can be viewed as “mosaic governance” (A. Buijs et al., 2019; A. E. Buijs et al., 2016). Mosaic governance has been conceptualized as the multitude of governance processes in which municipalities, housing agencies and other professional organizations responsible for urban green planning and management collaborate with multiple grassroots initiatives, NGOs and/or individual citizens (A. Buijs et al., 2019). It has been theorized that through enlarging the network of involved actors, and through articulating the needs and visions from underrepresented groups, mosaic governance may also contribute to more inclusive planning (Ambrose-Oji et al., 2017) upscaling and mainstreaming of bottom-up approaches (Mumaw & Raymond, 2021; Van der Jagt, Kiss, Hirose, & Takahashi, 2021). Because mosaic governance structures consist of a high variety of actors, emerging from different localities, cultures, age-groups and educational levels, they may offer new modes of collaboration and give access to difficult to reach socio-cultural networks (Sinclair & Diduck, 2017). Many civil society actors explicitly aim to empower and articulate voices from marginalized groups to local decision-making actors and processes. Doing so may bring to the fore the diversity of knowledges, values, practices and visions typical of current hyper-diverse cities (Elands, Ambrose-Oji, Haase, & Peters, 2020). In VIVA-PLAN, we use local hackathons to capitalize on opportunities that come from engaging with active citizens and local NGOs in order to mobilize, articulate and voice visions and needs from marginalized social groups whose voices have insufficiently been included in decision-making processes.

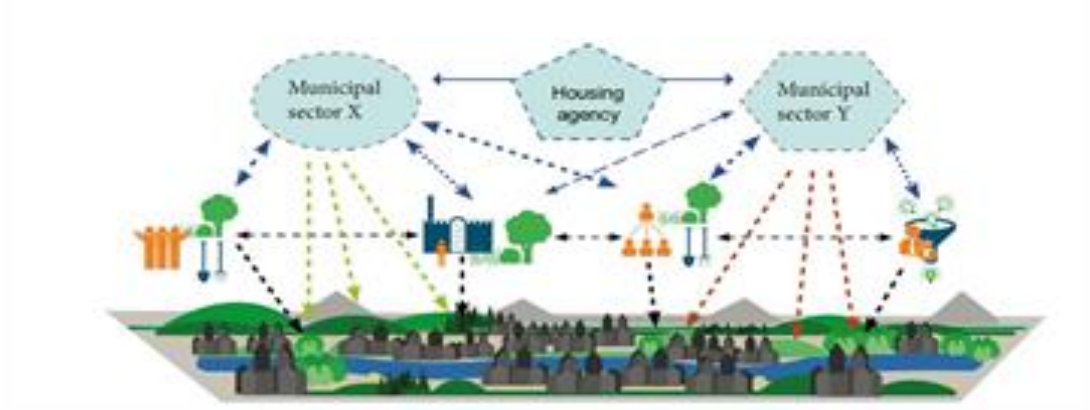

Fig 2: Mosaic governance in the city (Adapted from Buijs et al, 2016)

VIVA-PLAN focuses on local youth in our two case-study areas and aims to contribute to equity in access to urban greenspace and greenspace planning. From the perspective of mosaic governance, local youth are embedded in broader social structures that include other residents who may have other and sometimes stronger connections to local planners and other institutions. Local organizations, such as formally organized resident groups may play an

important role in connecting between formal institutions and unorganized residents, including local youth. Consequently, we also include civil society organizations and non-organized residents who may act as "bridging organization", linking social capital of actors across scales and across class, ethnicity or other group characteristics (Agger & Jensen, 2015).

In the Hackathon, we bring together the different stakeholder groups, stimulate the articulation of values, visions and preferences, and facilitate discussions on a concrete planning issue. In a first step during the planning process for the hackathons, to ensure diversity and a balanced representation of the various groups participating in the hackathons, four different types of social groups with which we want to engage were distinguished:

1. Local youth, who may feel marginalized and express different preferences for and behaviors in urban green spaces areas relative to other local residents. This group is at the core of the research in VIVA-PLAN.
2. Local "champion" residents from the area, who are not formally organized but who are champions for particular causes such as urban gardening, up-cycling, social justice and local activism.
3. Local organizations, including formally organized resident groups and local NGOs, who explicitly aim for or implicitly contribute to representing local residents, and especially local youth to formal institutional actors, such as municipalities and housing agencies and companies.
4. Formal institutional actors on and off site who hold decision-making power to plan, develop or manage urban green and in-between places at the local level. These actors include, but are not limited to, municipalities, housing agencies, and companies.

1.3 The Hackathon

A hackathon is commonly referred to as a tech-centric speed event (Johnson & Robinson, 2014). Originating as a venue for programmers and tech skilled people to meet and do exploratory programming (thus a place for few), with the current transition to open data and an open society hackathons have attracted the interest of other sectors. For instance, recently, a trend in the public sector can be observed where municipalities have increased their capacity for collecting vast amounts of data (aka big data) and now seek to capitalize on the opportunity. There has been a substantial growth in the use of hackathons in the public sector. In such cases, hackathons are organized with the ambition for the participants to innovate on public service provision using big data and/or open source data (Johnson & Robinson, 2014).

Generally, the definition and ambition of hackathons differ across in literature (Jordan, 2016). However, the format does seem to generally involve the combination of i) technology, ii) team

work, iii) diversity of expertise, and iv) a final outcome, or product, which very often comes in the form of a technological innovation. The duration of hackathons varies greatly and might run as a continuous event over 24 hours or more, but may also run in blocks of hours over several days over weeks (Flus & Hurst, 2021).

The literature related to design and process puts forward discussions about the potential of hackathons to drive innovation (Lodato & DiSalvo, 2016). For instance, Flus and Hurst (2021) comment on how participants are often led over what is known in design studies as a divergence–convergence pattern, which includes the initial effort to form teams, and subsequent efforts of working on what is then presented as a solution to the challenge introduced at the beginning. This process dynamic is what some have pointed out as key in giving space to the innovative drive of speed events of this type (Lodato & DiSalvo, 2016).

Most of the academic literature reports on hackathons done in person, as there is a recognized value in networking and socializing. However, more recent trends in open data and recent Covid-19 restrictions have pushed the emergence of remotely held digital hackathons. Among all, Devpost.com is perhaps the most used online matchmaking platform servicing the organization of digital hackathons (https://devpost.com).

It has been shown that Hackathons have a solid potential to be a platform for innovation and agile solutions, i.e., creation of working solutions over a short timescale. Lodato and DiSalvo (2016) elaborate on this and discuss a variant which they refer to as issue-oriented hackathons, which they distinguish from the more classical format centered on technological exploration. Their formulation of issue-oriented hackathons is one organized around socially relevant themes in a non-technical sense (societal structure, relations, and effects). In this they build upon ideas of pragmatism and design studies with the objective to better understand how issues are articulated and how publics interested in these are formed. It is interesting to point out that recently critical voices have noted that while hackathons offer an opportunity to innovation due to the format used, they can also end up being venues of exclusion (Richterich, 2017). For instance, it has been discussed that when teams compete over a price, competition prevails over collaboration (Jordan, 2016), which cuts on the opportunities of individual and group learning (Richterich, 2017). Additionally, the gender imbalance of these events which commonly involve a majority of males has been identified as an issue (Flus & Hurst, 2021). The literature on hackathons is fast growing and interesting reports are expected in the coming years.

Hackathon in VIVA-PLAN

As part of the VIVA-PLAN project, our team took inspiration from a few elements of the original hackathon approach but modified the technique on more normative grounds.

The VIVA-PLAN hackathons are events developed around challenges our team identified in collaboration with local communities during two or more years of engagement.

The project sees opportunities in the use of mixed research methods (Figure 1) resulting in different types of scientific data that are ultimately helpful for governance involving diverse groups of stakeholders. The VIVA-PLAN hackathons do not invite participants to develop technological solutions to a challenge, but rather to explore and discuss a given (locally relevant) challenge related to urban green issues, to better understand its roots and presence in the community. At our event, we thus supply input to the participants in the form of qualitative and quantitative data, which the participants use to develop questions and collaboratively seek to explore possible answers to these. It is not expected for the outcome to be a final solution to the challenge but rather an improved understanding of the context and of the concurring causes that contributed to shape it. Stakeholders step in with different roles, expertise and expectations. As such, VIVA-PLAN hackathons aim to offer a platform for individual and social learning.

The Hackathon as co-creation event is a key element in the ongoing mosaic governance process we are trying to strengthen through VIVA-PLAN. Within this context, the aim of the events is to contribute to environmental justice through strengthening participation and collaborations between formal and informal groups in our case study areas.

Consequences and options under Covid-19 conditions

Due to the Covid-19 pandemic, concurring with the lifespan of the VIVA-PLAN-project, we had to design these Hackathons in a Covid-19 context, with hybrid and/or online participation.

2. Focus areas Urbanplanen and Ronna

2.1 Urbanplanen in Copenhagen

Urbanplanen is a socially and economically diverse neighborhood located in Copenhagen, Denmark. It was built in 1971 and is one of Copenhagen's and Denmark's largest cohesive social housing residential areas. The neighborhood aims to open up both socially and physically to the rest of Copenhagen through nature-based solutions for climate adaptation and social cohesion. Urbanplanen houses approximately 6.000 residents and the 450-hectare site has 50 hectares of public urban green spaces. It has a highly diverse population, with around 50% of the residents having another ethnic origin than Danish. Remiseparken, a municipal public park in the heart of Urbanplanen, has recently been renewed to act as a climate sponge park, in addition to an attractive green meeting spot for residents and outsiders alike. Fruit trees have been planted in one end to make the park edible while a new skater park has been installed to provide lively

recreational opportunities for youth. Two staffed municipal playgrounds provide vibrant green meeting spots for children and parents and both playgrounds have a strong focus on nature education. The common green spaces in Urbanplanen are characterized by homogeneous fields of grass in addition to well-trimmed shrubs surrounding housing areas and parking lots. Recently, the housing company that runs Urbanplanen, KAB, initiated a campaign across all of their housing areas to increase biodiversity in the common green areas. A larger green infrastructure renewal process in Hørgården, a housing block in Urbanplanen, focuses largely on increasing biodiversity in the areas through resident engagement in planting and maintaining native flower beds and pollinator-friendly plantings.

The nested social networks of green governance in Urbanplanen are divided into four layers moving from the very local to national: (1) Urbanplanen has over 70 active resident groups involved in formal and informal initiatives many of which are green; (2) The Partnership program at Urbanplanen is a social masterplan to support social and ecological development. The project is driven by close partnerships between social workers and local grassroots initiatives, yet the success of the masterplan is evaluated on measures of safety, employment, education, and criminality informed by national policies; (3) The City of Copenhagen is committed to increasing the amount and quality of urban nature to support more green meeting places while meeting climate adaptation goals. Engaging unemployed and under-skilled residents in the job market is a top municipal priority and marginalized neighborhoods such as Urbanplanen are in focus; (4) The Danish State actively mandates cultural integration in marginalized social housing areas with state-set performance criteria around income, percentage of employment, levels of education, and proportion of residents with criminal conviction Additionally, the state mandates that all municipalities, including Copenhagen, have a climate adaptation plan and this mandate informs the overall management and planning of urban green infrastructures at the municipal level, including the public green spaces in Urbanplanen.

Overarching results from our social network analysis reveal that residents and diverse actors are working together to adapt to and re-author social and ecological policies at all levels of green governance in Urbanplanen: (1) to give more power to residents in decision making and (2) to increase their overall safety, security, and wellbeing. The majority of green initiatives at the local level are vehicles for social cohesion as well as political resistance. Specifically, social and political networks at the local and district level coordinate efforts to create collective approaches to re-employment schemes, providing “safe spaces” for more vulnerable and marginalized residents.

PLANNING ISSUE FOR THE URBANPLANEN HACKATHON:

Through a participatory action research approach, we have identified aspects of youth ownership over local greening initiatives and resident values associated with biodiversity as key areas of

discussion and contestation in the neighborhood. To discuss these issues and work towards identifying youth preferences for urban green space, day one of the hackathon will feature a youth-led greening day in Hørgården, a section of Urbanplanen, to observe and discuss on-site questions of youth preferences for involvement and empowerment in the planning and maintenance of green meeting spots. We have partnered with a local organization called FRAK who will pay local youth to lead the day, maintain the green areas, and generate awareness around green leadership in local youth circles. Day 2 will be a digital meeting with local planners, activists, and scholars discussing findings from the overall research project and our observations from day 1. We will debate and share experiences regarding how to best identify and scale-up youth preferences for a more just and sustainable approach to spatial planning.

2.2 Ronna in Södertälje

Ronna is a smaller size neighborhood located at the north-west of Södertälje with a total population of 8 000 residents (Statistiska Centralbyrån, 2021). The neighborhood was included in the Swedish "Million Program" which was a social housing project that put up one million dwelling units across Sweden during the 1960s and 1970s (Mack, 2021). The Million Program is now subject to policy debate, and different views can be found on that. One such view advances that it contributed to segregation, reinforcing socio-economic differences, which shape urban exclusion up to this day (Molina, 2018, p. 26f).

The first high-rise buildings from the Million Program in Ronna were completed in 1962 and hosted predominantly Finish families who were economic migrants. Then in the 1970s further waves of immigration followed, including Assyrian/Syrian and Iraqi migrants (Södertälje Kommun, 2011). The Christian Assyrians/Syrians now appear to make up the majority of the population in this district.

Ronna is located close to urban nature, specifically a larger urban forest area in western Ronna (Södertälje Kommun, 2011, 2021b). A pressing issue for urban governance is that some outdoor environments, playgrounds, green areas and infrastructure are experienced as worn and under maintenance, and residents report a lack of public places and areas where they can meet and hang-out, especially for youth (Södertälje Kommun, 2013). Contrary, although it is argued that there is a pessimistic and stigmatizing framing of the area, locals also report on their experience of Ronna as "visually and socially attractive, a friendly and beautiful place" (Mack, 2021).

Rental apartments prevail. In 2018 about 65% of the total housing in Ronna were rental apartments (Statistiska Centralbyrån, 2021). The centrally located shopping area with services and shops is privately owned by Ginatas AB. Ronna hosts one public school and four communal kindergartens. In 2010, a multifunctional sport activity area was built near the primary school

(Södertälje Kommun, 2011), and is today a popular place for residents of all ages to engage in a diverse set of activities. The district has one youth center managed by the municipality, which is staffed with educators and youth workers.

Södertälje has many active civil society groups and NGOs with 247 registered associations, however very few are located in Ronna (Södertälje Kommun, 2021a). Those most active are cultural and sports associations which seek to reach out to local residents to engage in different activities. Sports associations are focusing on the young population aiming to engage them in afterschool activities. There are no specific associations that focus on enlarging or improving access to and use of urban nature. There are however a few associations, which have a close link to nature, such as Scouts or the Dog Walkers for whom access to nature is very important, and a matter of close interest. The municipality of Södertälje engages in ongoing collaborations with local NGOs and provides funding opportunities to the different associations to run outreach programs. These collaborations are generally perceived as positive and important for Ronna, and the wider community.

It is relevant to note that Ronna has been identified by the Swedish authorities as a vulnerable area characterized by above average unemployment, low income, low education levels and above average criminal activity (Underrättelseenheten, 2017). Another pressing concern is that northern Ronna measures one of the lowest voter turnouts in both the general election and for city council (Statistiska Centralbyrån, 2021).

PLANNING ISSUE RONNA:

We took a participatory approach for identifying a relevant planning issue for the Ronna hackathon. During the first period of qualitative data collection, we sought to understand how different social actors position themselves within this multi-ethnic community and what they see as being pressing issues in the community in terms of access to nature and public places. During field observations, we identified an important need to give a voice to youths' values and preferences for green spaces and meeting spots. This topic will be an area of focus during the Hackathon.

For the Ronna hackathon that will take place in August 2021 we plan to organize activities on site collaboration with a local NGO, and have structured the work in three steps. In a first step we plan to engage local youth in a creative workshop to discuss current use of and access to urban nature and public places, and to share their visions for a more fun and livable Ronna in the future. In a second step, we will organize an on-site expert workshop with planners, educators, social workers, activists, and others, to discuss the outcomes from step 1 and locate them in the context of spatial planning in Södertälje. This workshop shall serve as an opportunity to reflect on which

of the articulated needs and ideas by the local youth are more feasible to become implemented, than others. In order to share the outcomes of the hackathon with interested participants, in a third step, we will organize a closing event where we will display the artifacts produced and the outcomes of the workshop that will be open to the whole community.

3. General structure for VIVA-PLAN Hackathons

In this section, the general structure for the VIVA-PLAN Hackathons will be described. Within VIVA_PLAN, we will deploy two hackathons with the aim to:

- Discuss, identify and explore a given problematic planning issue with relevant stakeholders and co-develop solutions
- Create space for building relationships between different actors and contribute to trust-building between groups

Hackathons are not a stand-alone activity, but need to be embedded in the wider planning and governance context. Consequently, the impact of the event not only depends on the structure of the hackathon, but also on the processes before and after the hackathon. The Hackathon needs to be placed in a wider historical context, including the environmental, socio-political, cultural, planning and governance context and history. Within this historic context, the specific aim needs to be co-developed with all relevant stakeholders. In addition, the hackathon should not be considered the end stage of the process. As such, we propose a three step-process for the Hackathon, with three phases: prelude, implementation and tail (see Figure 3).

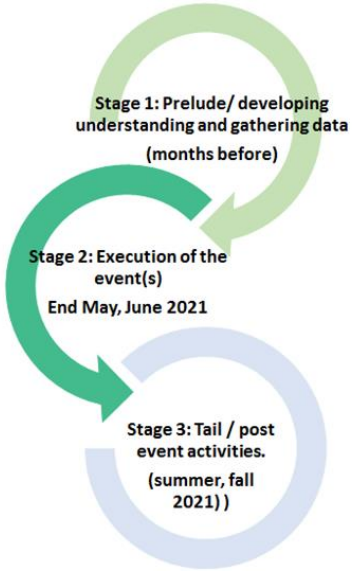

Figure 3: Prelude – implementation – Tail of the hackathons

Stage 1: Prelude: Envisioning Preferences

The primary aim of this stage is to understand the local context: How is the challenge defined by locals, and shaped, in collaboration with our team, into a core objective for the Hackathon. This objective needs to be co-created to allow participants to work on something that is not too abstract and hard to understand and see the results of the work done. We will use outcomes of

relevant social science research in VIVA-PLAN as inputs for the discussion (see also Figure 1). The social science research process itself is also considered.

Stage 2: Exploring Divergences, Recognizing Pluralities and Defining Common Futures

This step involves implementation and is the core activity of the hackathons. It is about interaction and exchange across groups. The hackathon facilitates spaces for people to gather to talk and share ideas, views etc. It is important to facilitate safe and open discussions in order to open up the stage to presenting underrepresented views, and to allow for space for views not usually being articulated, including those of vulnerable youth.

This will be a 2-day event during which the planning challenge is stated, explored or expanded, and perhaps even restated. Day 1 will be a field day, with local residents, including under-represented groups such as local youth (group 1). This will be an on-site, hands-on event, allowing for informal conversations, walking interviews, observations etc.

Day 2 will be a co-creation workshop with planners. Due to Covid-19 regulations, this workshop will be organized digitally. The co-creation workshop will include local actors responsible for urban green planning and maintenance, such as municipalities and housing agencies, as well as bridging organizations that are actively involved in the neighborhoods and have relationships to and knowledge of local youth. The conversations, interviews and observations conducted on the field day on day 1 are important inputs to the meeting, and will be presented and discussed at the workshop.

During day 2 visioning activities will be explored with the help of expressive practices, use of crafts and other creative ways for participants to express themselves about views of how things are today, and preferences for how they would like them to be in the future. Of special interest are under-represented groups such as youth and migrants. Data collected through scientific methods before the Hackathons will be used to stimulate discussion, provide an overview of the diversity of views, and if needed, to include visions from groups not represented in the meeting. In VIVA-PLAN, these methods include PPGIS (Urbanplanen and Ronna), previously assessed ecological values, ethnographic observations, and results from interviews and focus group discussions.

Several specific dialogical methods were considered, taking into account the planning issues, the specific stakeholder groups the hackathons are focused on, and the relevant Covid-19 regulations. These methods included e.g. World Café to open up perspectives, debate and explore differences, tension points and motives behind such differences. Using a World Café approach, different corners of the Hackathon room will be used to discuss the issue from the viewpoint of the relevant groups identified. In each of these corners, data collated using the

methods described in clusters 1-3 (Figure 1) will be shared with participants with different perspectives on the planning topic, allowing for articulation of the pluralities in views (Norton, 2017). In appendix 2, specific formats are developed for each Hackathon.

While recognizing plurality, the final stage of the hackathon aims for developing a way forward, inclusive of the diversity in views, but action oriented towards the development of realistic suggestions for dealing with the planning issue identified in Stage 1. Developing realistic and inclusive suggestions will be the aim for the meeting with planners and other stakeholders on day 2. This day will also allow for time to reflect upon and digest the issues.

Stage 3: Implementation and Evaluation

Stage 3 is about the actual outcomes of the Hackathon, and what will be implemented on the ground. This includes a quick scan of outcomes that are already in place, as well as an interpretation of the feasibility of future implementation of outcomes that are still under discussion at the respective organizations. While time limitations of the project prevent a long-term assessment of outcomes and impacts, we will organize follow-up interviews or informal talks to assess how the outcomes are perceived across relevant groups.

In the evaluation phase, we will take a social learning approach. We will elaborate on that in the next chapter.

4. Evaluation of the Hackathon process

The following are the three core questions for the evaluation. The questions will be answered using an integrated framework drawing from the social learning and environmental justice literatures. The framework is described below.

- How can a multi-method approach, of integrated social science methods and participatory workshops (Hackathons) contribute to inclusive planning?
- Do hackathons contribute to mosaic governance collaborations?
- Do the multi-method approach allow for articulation of views from previously unheard groups?

Social learning is a conceptual construct used to convey assumptions and expectations about learning and collaborative opportunities that can be delivered by participatory processes, e.g. workshops and suitably structured hackathons. Most of the current academic literature understands social learning as a transformative change process in aid of transitioning to more sustainable futures (Rodela, 2014; Suškevičs, Hahn, Rodela, Macura, & Pahl-Wostl, 2017). Current literature operationalizes social learning in different ways depending on the level of aggregation

researchers focus on. In her review of selected literature Rodela (2011) summarized that across three groups: namely micro (individuals/small groups), meso (large groups/organizations) or macro (communities/societies). As discussing interventions at the micro level tends to operationalize social learning as constitutive of four dimensions: moral (including values and norms) (e.g. understanding of other viewpoints), cognitive (e.g. acquisition of knowledge, development of mutual understandings), relational (e.g. development of purposes, making new contacts, building trust in one's peers), and behavioral (e.g. new skills, more trust in those at workshops). Those focusing at the meso level operationalize social learning as a change of practice, i.e. change in how things are done, and this can be influenced by changes in policies, plans and routines. Those focusing at the macro level operationalize social learning as changes in structure, public policies and institutions that lead to a shift of the socio-ecological system towards a more sustainable state. Key social learning processes, especially at the micro and meso levels, include facilitative leadership, use of dialogical and practical methods, use of boundary objects, involvement of bridging organizations and individuals, inclusion of differing perspectives and involvement of groups and organizations with self-organizing capacities (see, for example, the review by (Suškevičs, Hahn, & Rodela, 2019).

Traditional conceptions of environmental justice focused on principles of fair treatment and equity in the distribution of environmental risks and benefits. However, theoretical insights from law and development scholars and critical analysis of environmental movements (Schlosberg, 2004; Schlosberg & Carruthers, 2010; Trubek, 1980; Williams & Mawdsley, 2006) have helped extend early conceptualizations. Current literature indicates at least three primary attributes of environmental justice (Coolsaet, 2020; Langemeyer & Connolly, 2020; Svarstad & Benjaminsen, 2020; Whyte, 2018). Recognitional justice refers to recognition of the diversity of participants, experiences, capabilities and interests (desires, wants, needs, goals, aspirations) in communities that are affected by environmental governance. This attribute provides the basis for and enables the other two components. Procedural justice requires opportunities for meaningful participation in environmental governance and the political and legal processes that create and manage them. Distributive justice, which is at the heart of the framework, seeks equity in the distribution of the risks and benefits that result from environmental governance.

Given the three core questions of the evaluation, our emphasis is on social learning at the micro (individual) and meso (impacts on practices) levels. The evaluation will be framed by four themes that bridge the social learning and environmental justice literatures, namely inclusion/exclusion, voice, power and relationships (Baird, Plummer, Haug, & Huitema, 2014; Benson, Lorenzoni, & Cook, 2016; Enssle & Kabisch, 2020; Low, 2013; Rodela, 2014). The four themes will be used to appraise social learning processes and the normative direction of learning outcomes and associated governance activities (see table 1). With respect to outcomes and governance, the

themes are applicable to immediate VIVA-PLAN outcomes and could also inform appraisals of longer-term results if longitudinal evaluations of governance are undertaken.

Table 1: Questions for each theme of evaluation

Topic	Relevant questions
Relationships	Who knew each other and who did not? Did the hackathon strengthen relationships? Or, contribute to new relationships? Which relationships? Is there a need for new networks and relationships? How connected are actors to local youth? Did they talk about specific efforts to relate to these groups? Any other observations on relationships?
Inclusion / Exclusion	Which age, ethic, religious and gender groups are over- and underrepresented (relative to the socio-cultural composition of the study sites, with a special focus on local youth). Which groups were missing/were difficult to reach? Did anyone raise questions about groups/people not included in the meeting? Any other observations on inclusion/exclusion?

Voice	Whose voices were heard either directly or indirectly? And who's were underrepresented? (with focus on local youth) Was anyone willing/able to voice ideas from underrepresented groups (including local youth)? Which of the participants seem to dominate the discussion? And, which seem to have difficulties in being heard? Any other observations on voice?
Power and agency	Do actors have / feel they have agency to influence planning? Were all discourses about preferences for and use of nature and biodiversity recognized as relevant? Or, did one specific discourse dominate the discussion? Did access to particular resources influence the outcome? Did (lack of) social or cultural capital seem to influence the discussion? Any other observations on power?

The evaluation will use a stepwise approach; evaluating both hackathon activities as well as the "tail" of the process with appropriate and efficient methods and questions (see Table 2). For each step, specific questions are developed, relevant to the step in the process, as well as site-specific context. Detailed questions can be found on the VIVA-PLAN website: www.VIVA-PLAN.eu

Table 2: methods of evaluation

Hackathon-phase and activity	Method
Hackathon day 1: field day	On-site evaluation of Field Day: 1) Informal conversation with youth 2) Observations 3) Photos of the event
Hackathon day 2: workshop	Evaluation of Hackathon workshop 1) Observations from researchers 2) online questionnaire using Webropol software
Tail	A) Evaluation of Hackathon 1) Debrief with project team 2) Evaluation in knowledge alliance meetings (2x) B) Evaluation with local community after 2-4 months: 1) Walk-and-talk (Urbanplanen) 2) Closing event (Ronna)

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