

Development of Station Area in Nijmegen city, the Netherlands

Scored by name(s): Emma Avoyan, Radboud University (emma.avoyan@ru.nl) and Eva Franke

Date: 20/11/2024

Cite as: Avoyan, E. & Franke, E. (2024). Development of Station Area in Nijmegen city, the Netherlands (GOGREEN Case Report Series No. 25), Roskilde: Roskilde University. ISBN: 978-87-7349-336-6

Is the project a case of...:

- State-initiated co-creation
- Entrepreneur-driven co-creation
- Grassroots-based co-creation (NGO initiated)

**For an elaboration of the typology, please consult the GOGREEN theoretical framework p. 25.*

Integrated case analysis

Before proceeding to the scoring of the GFs, please provide a *3–5 page case analysis* in which you describe the background, history, and national, regional, and local contexts of the case, the problems and goals addressed by the local collaboration, the participating actors and their relationships, the unfolding of the co-creation process, the most important governance factors (this may include factors other than those in focus in this project), and the generated outputs and outcomes. The conclusion may specify a few lessons learned from the case study.

1) Background, history, and national, regional, and local contexts of the case

The Netherlands frequently serves as a model in discussions concerning addressing of environmental challenges through consensus and cooperation rather than confrontation. Renowned for its 'polder model' of decision-making, the country adopts an approach characterized by 'collaboration despite differences' and 'problem-solving through dialogue,' ensuring that all stakeholders are heard in decision-making processes. Although the polder model is rooted in the past, based on a tradition of cooperation, consensus building, and democratic self-rule, the Dutch have revitalized and embarked on this approach to environmental planning over the past few decades.

Within the Dutch Multi-year Programme for Infrastructure, Spatial Planning, and Transport, the government collaborates with regional authorities, civil society, and market parties on various programs and projects concerning spatial and environmental planning in the Netherlands. This governmental initiative outlines a specific procedure, known as the exploration phase, and a set of 'rules-of-the-game' indicating how the decision-making process for these projects should unfold, including the circumstances under which financial support from the Dutch Government (specifically the Ministry of Infrastructure and Water Management) is provided. The objective is to engage in a 'polder' approach, working closely with all stakeholders to co-create smart, sustainable, and climate-proof solutions. This involves a broad examination of the assignment by project partners, followed by a funnelling process to arrive at a preferred alternative or decision. The entire exploration phase, which may span several years, is governed by Dutch law, specifically the "Tracewet," which mandates government consultation with all relevant parties and stakeholders in the exploration phases of infrastructure and environmental projects. As of 2024, this law

has been repealed with the introduction of the new Environment and Planning Act. This legislation consolidates and streamlines regulations pertaining to all aspects of the living environment in the Netherlands, including participation processes, by providing clearer guidelines and opportunities for engagement from different stakeholders, such as citizens, organizations, and local authorities. Furthermore, within the Dutch municipal context, so called “participation ladder” is often used. This is a concept used to describe a framework or model that outlines different levels or stages of citizen participation in decision-making processes within local government. The ladder typically represents a continuum of engagement opportunities, ranging from low levels of involvement to high levels of influence. It is often depicted as a visual tool with several steps or levels (e.g. informing, consulting, collaborating, empowering), each representing a different degree of citizen participation.

In a context where participation and collaboration among various parties in infrastructure projects are longstanding traditions with well-established regulations, the (re)development project of the station area in Nijmegen city has been initiated by the municipality of Nijmegen in the Netherlands.

2) The aims of the project and the sustainability problems that it seeks to address

The city of Nijmegen is on the brink of a significant transformation in its station area, with plans underway for the development of new homes, workplaces, routes, station squares, and access points. The initiated large infrastructure project consists of 28 different sub-projects, involves a substantial allocation of financial resources and carries ambitious goals, which are:

1. contribute to reducing the housing shortage
2. ensure better accessibility
3. intensification of the use of space
- 4. contribute to the sustainability and circularity objectives**

The process of exploring and addressing the 4th objective of the project, which is the focus of this case-study, is prompting crucial questions to be addressed. How can the station area be reshaped into a future-proof, green, and climate-resilient zone, capable of combating challenges such as heat stress, flooding, drought, and wind nuisance throughout the year? The municipality of Nijmegen is seeking answers to these questions through collaborative efforts involving various stakeholders. They have enlisted the help of RvN@, a platform and bottom-up movement fostering innovation, talent retention and sustainable social and economic growth in the Nijmegen region, to spearhead an exploration phase and establish knowledge tables and living labs as part of the Lifeport Circular Lab initiative. This partnership, which includes governments, companies, citizen organizations, and knowledge institutions, aims to drive innovations in circularity and climate resilience within the Green Metropolitan Region Arnhem-Nijmegen. Stakeholders from government, businesses, education, and local residents have convened in a series of meetings to explore the most feasible and sustainable opportunities for the project area (aligning with SDGs 9 and 11).

Essentially, the insights garnered from the series of workshops called *knowledge tables* were translated into assignments, or living labs (e.g. on climate adaptation), which are now being undertaken by educational institutions such as ROC Nijmegen, Yuverta, Van Hall Larenstein, HAN, and Radboud University. Over 20 assignments related to climate adaptation as well as accessibility, livability, safety and communication) have been formulated for students. For example, within the Green Corridor project, they explore how to reduce the heat stress through greening, shade, water and soil as well as address the

important question of how to involve again the residents and users of the area after the knowledge tables. The students ultimately provide advice to the municipality of Nijmegen. The results are also monitored by lecturers from the five knowledge institutions to see where and how promising follow-up research can be conducted. As mentioned by a representative of RvN@, they recognize the immense potential in engaging university students in these endeavors due to their creativity, fresh expertise, and status as users, potentially even future residents of the area. Presently, only students are collaborating with the municipality within these living labs; however, RvN@ aims to involve SMEs (Small and Medium-sized Enterprises) to foster a triple helix approach. It is important to note that **the focus of this case study lies on one of the elements of the exploration phase of the Development of the Station Area in Nijmegen project: knowledge tables and living labs. This element of the project (hereafter DSAN) seeks to co-create input for and contribute to the sustainability and circularity objectives of the Development of the Station Area in Nijmegen project.**

3) The participants and their interaction and communication in and between meetings

The DSAN project participants are:

a) The participants directly involved in the knowledge tables and living labs component of the project implementation are:

1. The municipality of Nijmegen: the municipality of Nijmegen is the owner of the station redevelopment project, benefiting from insights gained through knowledge tables and Living Labs facilitated by RvN@.
2. RvN@: the entire process that is associated with the Living Labs is under the responsibility of RvN@. Apart from facilitating these labs, they oversee knowledge table meetings and booster teams. RvN@ serves as an intermediaries among stakeholders to ensure all expectations are met.
3. Education institutes: various educational institutions in the Nijmegen area are actively involved in the Living Labs. Currently, students from ROC Nijmegen, HAN, Radboud University, Wageningen University, Van Hall Larenstein, and Yuverta participate in the Living Lab focusing on station area redevelopment.
4. Local entrepreneurs: while local entrepreneurs initially contributed to knowledge tables, their involvement in Living Labs has been limited. RvN@ is actively working to recruit local entrepreneurs interested in collaborating with students and the municipality on various projects.
5. Residents: residents actively and directly participate in the knowledge tables and may further engage with student projects depending on their research focus. Additionally, residents have opportunities to attend information evenings and events organized by the municipality to stay informed about the station area redevelopment project.

b) Other actors involved in DSAN project:

6. ProRail and Dutch Railways: ProRail and Dutch Railways play a key role in the redevelopment of train tracks within the station area, primarily focusing on projects directed by the municipality rather than RvN@'s knowledge tables and Living Labs.
7. The province of Gelderland: the province of Gelderland is involved in funding a portion of the station redevelopment and thus requires inclusion in exploration processes. While they are primarily engaged with the entire project and its management led by the municipality, they are also kept informed about the progress of knowledge tables and Living Labs.

8. The national government: the national government is also involved in funding a portion of the station redevelopment and thus requires inclusion in exploration processes. While they are primarily engaged with the entire project and its management led by the municipality, they are also kept informed about the progress of knowledge tables and Living Labs.

Overall, the number and range of participants in the project depends on the project phase as it is the case with similar large infrastructure projects. Most of the participation, stakeholder interaction, collaboration and co-creation is happening during the initial exploration phase when options for the final decision regarding the project are open. It is expected that during the planning and implementation phases some of the actors (such as residents, RvN@ or education institutions) will become less active.

4) How often do they meet and do they communicate between meetings?

RvN@ has coordinated a series of knowledge table workshops focused on overarching topics such as climate adaptation and circular construction logistics, an approach to building design, construction, and management that prioritizes sustainability, resource efficiency, and waste reduction throughout the entire life cycle of a building. These meetings served as a platform for most of the involved participants to convene. Following these sessions, so called Booster teams (comprising of RvN@, an entrepreneurial organization, the municipality and educational institutions) convened under the organization of RvN@. The purpose of Booster teams meetings was to funnel further the results of knowledge tables by making final prioritization and translation into education assignments as well as matching educational institutions to specific assignments.

Overall, unlike a predetermined meeting schedule, communication between RvN@ and the municipality occurs on an ad hoc basis, ensuring ongoing collaboration and information exchange. Scheduled in advance are only the meetings between RvN@ and the students, held weekly, providing students with the opportunity to seek guidance and stay updated on the project's progress. Additionally, the municipality organizes monthly meetings for residents to stay informed about various projects, including the DSAN project.

5) The role and forms of knowledge sharing, coordination and joint problem-solving

N/A

6) The relation between consensus and conflict and the handling of the latter

RvN@ defines its role as mediating between various stakeholders and addressing conflicts if they arise. Although the project being initiated more than a year ago, no conflicts have arisen thus far. During their conversations with locals however, the municipality has encountered several disagreements. They attribute these to a failure in effectively managing residents' expectations. Expressing regret for the situation, they have pledged to consider the issues in the planning of future events and meetings. For example, despite the support for the final vision, there were concerns over the long period of having construction sites in the area during the actual implementation of DSAN. Notably, the municipality's long-standing participation in the process has equipped it to resolve issues that arise with residents effectively. The municipality informant note that collaboration has improved over the years as both citizens and the government recognize the necessity of collaboration and partnership formation.

7) The role and form of leadership: lead actor, steering group and/or collective leadership

Formally, the municipality of Nijmegen holds the leadership position, as they are the owners of the DSAN project. However, due to RvN@’s responsibility for the knowledge tables and Living Labs, many project actors perceive them as the leaders of these initiatives. Despite this perception, RvN@ is ultimately accountable to the municipality of Nijmegen, as they fund and utilize the final product. While RvN@ has autonomy in developing the Living Labs, they ultimately answer to the municipality. Municipality’s leadership plays a crucial role in aligning numerous public and private actors across different levels, ensuring coherence both in policy and implementation efforts.

8) The temporal unfolding of the co-creation process: major shifts and ups and downs

The entire Development of station area in Nijmegen project has a timespan of 10 years, from 2022 until 2032. It is dropped down into phases, such as exploration, planning and implementation, each lasting a couple of years. The DSAN is in its 3rd year of implementation.

9) The generated outputs and outcomes

As the scoring of the outcome variable demonstrates, collaboration initiated within DSAN project seems to have resulted in mobilizing different experiences and forms of knowledge for new perspectives and best solutions for the station area in Nijmegen, while at the same time the majority of the green goals have been achieved or are expected to be achieved.

10) Points of interest in subsequent studies

The main focus of this case-study is the element of knowledge tables and living labs of exploratory phase of Development of station area in Nijmegen project characterized by an intensive collaborative process. However, other phases, such as the following planning, implementation and maintenance phases, in which partners collaborate for years to come, perhaps with decreased intensity, are not included, nor are the dynamics between collaborating partners tracked over time. Studies investigating the changing dynamics within this or similar projects depending on the phase could be interesting and useful.

Scoring and analysis of governance factors

1. Perceived importance of biosphere conditions

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

When asked about the importance of biosphere conditions in relation to DSAN project, only few of the interviewees cited environmental concerns as the primary driving force behind its initiation. Instead, they emphasized capacity issues at the station as the main catalyst for the project's launch. However, the local

government seized this opportunity to address various environmental challenges linked to the area. These include water retention due to urbanization, heat stress, biodiversity depletion, promotion of green logistics, and the imperative for sustainable construction practices. Consequently, the central themes of the Living Labs revolve around climate adaptation and construction logistics.

When looking further at the project documentation, it becomes clear that one of the project's primary goal is to render the station area more environmentally friendly, sustainable, and future-proof. The municipal government initially highlighted this objective in a newsletter distributed at the start of the project on September 8th, 2022. Subsequent issues of the newsletter have placed increasing emphasis on sustainability, indicating its growing importance in the project's agenda.

Additionally, a key impetus behind organizing the knowledge tables with the assistance of RvN@ was the necessity for collaborative efforts to leverage all available expertise within the area, forming a Living Lab framework. Government bodies, educational institutions, and businesses are actively engaged in numerous projects addressing environmental concerns. This commitment is evident in the discussions documented in the knowledge tables where the primary focus revolves around environmental issues and the sustainable and circular design of logistics.

2. Legislation, programs, and formal goals

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Several informants highlight the significance of the **Environment and Planning Act** and its guidelines for sustainability aspects in living environment projects, such as the DSAN. The Environment and Planning Act (Omgevingswet) was introduced (came into effect on **1 January 2024**) to streamline regulations concerning environmental and spatial planning. This comprehensive legislation amalgamates 26 existing laws related to various aspects of the built environment, including housing, infrastructure, environment, nature, and water. Notably, it incorporates existing legislation such as the Water Act, the Crisis and Recovery Act, and the Spatial Planning Act. The Environment and Planning requires a participation policy for the spatial domain determining which spatial instruments are used, who is involved and how. An important part of the policy should also be the development agenda, which ensures coordination on the implementation of the policy between the most important parties involved and gives substance to the ambitions of the coalition agreement.

The informants from Nijmegen municipality clarify that while the use of co-creation and participation in DSAN is not primarily driven by the new act, it has encouraged their utilization in various forms. They emphasize that long before the implementation of this law, participation was already a fundamental

aspect of all living environment projects undertaken by the municipality of Nijmegen. To determine the appropriate level of participation, the municipality employs a **participation ladder** consisting of six grades. Stakeholders are positioned higher on the ladder based on their level of involvement. This ladder serves as a tool for the municipality to justify its approach to participation in each project.

In addition to the Environment and Planning Act, the Nijmegen municipality's community council has passed several **motions** mandating participation and collaboration in sustainability initiatives. As a result, the municipality is obligated to report to the council on how and to what extent it has incorporated participation into its planning and decision-making processes.

Municipality informants also mention a **parliamentary letter** concerning the regulation of water and soil. This letter was issued to underscore the importance of ensuring sufficient, uncontaminated water, and fertile soil. The Council of Ministers reaffirms the government's dedication to prioritizing these factors in shaping the nation's future. The goal is to comprehensively integrate water and soil considerations into the planning of the Netherlands, taking into account the diverse characteristics of various geographical areas.

There are also references to the **2030 agenda**, a strategic plan encompassing the well-being of individuals, environmental sustainability, and economic growth, while also aiming to foster global peace and freedom. Unanimously approved by UN Member States in 2015, this agenda comprises 17 sustainable development goals. As the Netherlands is a signatory to the 2030 agenda, it is crucial for local governments to contribute to its realization. This also involves fostering collaborative partnerships in projects, a goal already pursued by the municipality of Nijmegen.

3. Relative openness of public governance paradigms

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The local and regional government in the Netherlands with a **democratic apparatus** is open to inputs from non-state actors, including civil society actors, in solving local problems. This approach aligns with the principles of participatory governance and reflects the country's commitment to collaborative decision-making processes. Non-state actors often contribute valuable insights, expertise, and resources to address various local challenges, ranging from environmental sustainability to social welfare issues. Through mechanisms such as consultation processes, public-private partnerships, and advisory committees, the Dutch government actively engages with diverse stakeholders to develop inclusive and effective solutions tailored to local needs and priorities. This general tendency is also relative to the DSAN project as evidenced by documents (e.g. the participation plan) and interviews (including with those not representing

the municipality). After all, the primary purpose of knowledge tables was to gather inputs from nonstate actors.

In the municipality of Nijmegen there is a progressive municipal council. The municipal council oversees the work of the mayor and city council members and decides what has to be done in a municipality. A progressive party is one that supports individual rights, equality, and social reform. Progressive parties embrace policies aimed at tackling social issues, encouraging inclusivity, safeguarding the environment and promoting social justice. They frequently stress the value of equality of opportunity, human rights, and diversity for all citizens. Thus, co-creation is therefore a natural component of how the municipality operates including within DSAN project.

4. Formalized institutional channels for citizen participation and community mobilization

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Within the municipality of Nijmegen, participation is a cornerstone of decision-making processes, including concerning the DSAN project. To ensure active citizen engagement, a diverse range of methods and formal institutional channels are employed. Firstly, the municipality holds numerous meetings with various action groups, where residents come together to voice their concerns about the neighborhood. Examples of such meetings are **Kick-off meetings** of new projects as part of their exploration phases. Anyone can attend these meetings. The municipality tell visitors what the new project is about, how the citizens can engage in and contribute to the project as well as what their points of interest and concerns are about the project area. The kick-off meeting of the general DSAN project was held in 2020. During this first meeting, visitors can register for the other meetings that are organized: expert sessions and environmental council meetings. During the **Expert sessions** (usually at least two sessions are organized), bottlenecks in the project area, possible outputs of exploration phase, and how research can be conducted to come up with those outputs are discussed together with those registered. The participants of expert sessions advise the project management on possible solutions and outputs of exploration phase. The **environmental council** is a broad group of stakeholders. Interested parties can register for this during the kick-off meetings. These are the parties who really have something to do with the project area and therefore have an interest in it. These can be residents' organizations, but not individual residents. The council meets at least once during exploration phase of a project, forms and shares an opinion about the project. Finally, during **general public meetings**, residents are informed about different studies conducted during exploration phases of projects resulting in solution options for a specific project and how they contributed to those options. Having this overview, the participants are then encouraged to indicate the solution they prefer. These preferences are then collected to be considered by the final decision makers (under the management of

project owner: the municipality). For example, a public meeting for general DSAN project to present initial plans for UWV building and surrounding public space was held in October 2022.

Additionally, the municipality is organizing **group strolls** around the neighborhood providing an accessible platform for informal discussions with the public, yielding different responses compared to formal meetings. Furthermore, the municipality hosts **information evenings** where locals can learn about upcoming plans in their neighborhood. At least 4 information evenings for the public were organised in 2023 to present different sections of general DSAN project. To facilitate ongoing communication, a dedicated **newsletter** for the DSAN project is established, allowing anyone to subscribe and receive regular updates. Additionally, individuals can express their concerns and provide **feedback via email** to a specific address, with the municipality making efforts to respond to each message. Finally, when a project has the potential to disturb residents, the municipality distributes **pamphlets** containing relevant information to notify affected individuals. This proactive approach ensures that everyone impacted by the disturbance is informed. All the input gathered through these various channels is carefully considered by the municipality in their decision-making process, underscoring their commitment to inclusive governance and community involvement.

5. Mechanism for ensuring top-down government and bottom-up social accountability

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

There are evidences of top-down accountability during the exploration phase of the DSAN project. Interviews revealed that the results of knowledge tables organized by RvN@ were systematically shared with the municipality of Nijmegen, as the latter had commissioned these sessions. Consequently, a financial report about the use of money and funding were also delivered to municipality. However, providing updates on the progress of Living labs was not strictly required. Nonetheless, many participants voluntarily provided feedback. Living lab project managers also do not have rigid guidelines to follow at all times. Their main requirement is to share the completed projects. RvN@, managing the Living labs commissioned by the municipality of Nijmegen, regularly follows up with the Living lab project executors to monitor their progress and provide assistance as needed.

In terms of bottom-up social accountability, residents of the impacted communities expect to receive reports from the municipality regarding the project's plans and anticipated actions that may affect them. According to the municipality, failure to provide such information would likely result in increased opposition from locals. It was noted in interviews that residents tend to resist less when they are well-informed and actively involved in the decision-making process. Therefore, transparency and community

engagement are essential components for fostering cooperation and minimizing resistance from affected residents.

6. Strategic agenda-setting by means of translation

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Although the national government has committed to the Sustainable Development Goals (SDGs) and adopted the 2030 agenda, which implies an expectation for local governments to integrate these goals into their decision-making processes, informants noted a lack of explicit mention of the SDGs within the project. Despite this, upon questioning, every informant was able to identify SDGs relevant to the project, indicating an awareness of their importance. While sustainability is considered in project planning documents, the SDGs are not specifically referenced. Nevertheless, the national government's endorsement of the 2030 agenda underscores the need to achieve the SDGs by 2030, necessitating their integration into local government practices.

7. Construction of narratives about successful multi-actor collaboration

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

It appears that all key stakeholders involved in the project and interviewed for this case study are in agreement that co-creation is essential for the success of DSAN. The municipality has highlighted their positive experiences with citizen participation in previous projects, which underscores the importance of employing citizen participation once again for the DSAN project. This narrative of prior successful collaboration has been, for example, highlighted in the kick-off meeting of DSAN. At the same time, when considering specifics the co-creation process involving RvN@ Living Labs and student participation, it is evident that this collaborative approach is relatively new and lacks extensive expertise. While the RvN@ project manager has been involved in similar collaborations that were successful, he acknowledges that working on a project of this magnitude using this strategy is unprecedented. The introduction of knowledge tables, booster teams, and living labs represents a novel technique for most participants, emphasizing the need to motivate all parties to engage and become familiar with the collaboration and co-creation method.

8. Building or harnessing institutional platforms and arenas

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The municipality usually provides both a digital platform and physical venues for projects commissioned by them. At the start of an initiative, a participation plan is drawn up and published on mijnwijkplan.nijmegen.nl. Here the (formal) communication about participation processes in the spatial domain takes place. The general DSAN project has also [dedicated page](#) on the website of Nijmegen municipality as well as [Facebook](#) and [Instagram](#) pages mostly with a purpose of sharing the latest news about the project with a broader public. The project does not have a dedicated project office, however the municipality hosts or organizes project meetings if needed.

Informants involved in the knowledge tables and living labs of the DSAN project have not identified a specific platform (other than RvN@) that enhances the collaborative process, although they all recognize the necessity of such a space. Given the interdependence of the Living Lab projects, having an online shared space containing all completed project outcomes and required data would be beneficial. Currently, the project manager manually sends data to each participant, a process that becomes increasingly time-consuming as more projects are completed. Additionally, utilizing a shared platform could provide project participants with access to information not directly distributed by the project manager, further enhancing collaboration and efficiency.

9. Provision of access to blended financing

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The financing of the project comes from various sources, primarily involving public entities such as the municipality of Nijmegen, the national government, ProRail, Dutch Railways, and the province of Gelderland. ProRail stands out as a private party with its own legal status. The municipality secures a significant portion of funding from the Province of Gelderland and the national government for the station area redevelopment, supplemented by contributions from the municipality itself. The Living Labs initiative is integrated into the overall project funding, eliminating specific requirements for RvN@ to access municipal funds. This part of the project operates without a predetermined budget, with additional funding requests handled by Living lab project leaders based on availability. For instance, a European

subsidy has been granted to Lifeport Circular Lab, a participant in DSAN, specifically for circular projects in the Nijmegen station area. It's worth noting that using co-creation is not a prerequisite for qualifying for these subsidies. Consequently, while blended finance is available, it does not directly promote collaborative problem-solving in the project. Unfortunately, our informants did not offer a more detailed breakdown of the project funding and its targets.

10. The capacity to leverage support from authorities to enable local collaboration

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The informants agree that there have been few problems necessitating support from higher-level public authorities in the DSAN project. Notably, the national government, being the highest-level authority, is formally involved in the project and provides funding, making it in their interest to support the project. One of the municipality informants highlighted the tradition of involving diverse stakeholders in large sustainability projects, which has led to gained experience in addressing issues without external help. Additionally, RvN@, in its role managing DSAN's knowledge table and living labs, is tasked with mediating potential conflicts among parties and seeking support from the municipal or higher levels of government if necessary, although this option has not been utilized thus far. Overall, the informants emphasized that the project maintains easy access to and positive communication with higher-level authorities at local, regional and national levels.

11. Inclusion and empowerment of relevant and affected actors

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

While informants acknowledge that including everyone in the process can be challenging, they also note that efforts have been made to incorporate inputs and feedback from potentially marginalized actors in the collaborative process. Moreover, one of the aims of the project's exploration phase is actually to incorporate the inputs, ideas and concerns of all interested parties, including potentially marginalized, in the process of funneling various solutions/projects for the DSAN. For example, the the announcement and invitation to participate in knowledge tables had no specific target group, but referred to everyone interested and affected. Furthermore, the Nijmegen council adopted a motion that the UN Convention on

the Rights of Persons with Disabilities must be complied with in area development projects, such as DSAN. On the flip side, there is another aspect to consider: some individuals may not be willing to participate. The co-creation process primarily involves those who are willing to invest time and effort to engage, resulting in a consistent group of attendees at meetings or events. The project management team endeavors to be inclusive by providing a range of participation options (see GF4). However, they cannot force anyone to take part, as participation is entirely voluntary.

12. Clarification of interdependence vis-à-vis common problem and joint vision

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The municipality emphasizes the importance of setting clear boundaries for stakeholder participation to ensure that participants understand what is expected in terms of their knowledge and strengths, thus avoiding communication gaps and frustration among attendees who may feel unheard. Overall, informants from RvN@ and knowledge institutes revealed number of instances when mutual interdependences of those involved have been discussed. During these discussions, different perceptions that exist regarding the interdependence of involved parties have been identified. While students perceive a gap in interdependency, the municipality's project manager, who values citizen involvement, acknowledges interdependence but questions whether feedback from Knowledge Tables and Living Labs has been fully integrated. Recognizing the potential for unconventional insights from students and citizens, he suggests that the municipality can learn from these groups. Conversely, the RvN@ project manager believes in mutual interdependency but stresses the municipality's responsibility for achieving desired project outcomes. Balancing these perspectives is crucial for successful collaboration and project implementation.

13. Trust-building and conflict mediation

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The municipality and delegated by the municipality RvN@ have a formalized responsibility to mediate between involved parties and intervene if conflicts arise. For example, in their interactions with locals, the municipality has encountered several disagreements, attributing them to inadequate management of resident expectations. They expressed regret for these issues and pledged to consider them in future event

and meeting planning (thus also building trust). Overall, according to municipality informants, the municipality's extensive experience with participation enables it to proactively address and resolve issues that may arise in the co-creative process.

Face-to-face interactions (for example the knowledge tables, the information evening organized on 19 May 2022 or the Day of Station Area organized on 22 September 2022) were crucial, particularly during the early stages of the general DSAN, since many participants were unfamiliar with each other. The project team arranged several trust-building activities for all involved parties, such as information evenings. Some informants highlighted the significance of transparency in sustaining the trust levels established through these initial trust-building activities.

14. Use of experimental tools for innovation

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Because of the type of the project there are no prototypes used in this phase of the DSAN project. However, a design-based approach has been used to collect the input of stakeholders during the knowledge tables.

15. Ongoing critical self-reflection and learning (i.e., process and/or developmental evaluation):

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The informants mention their efforts to evaluate and improve the collaborative problem-solving process for optimization. However, due to the involvement of knowledge institutes, there tends to be a discrepancy between the project management's expectations and the teachers' expectations of the students, for example. RvN@ is exploring methods to increase the municipality's accountability to reduce this disparity. They are requesting a more comprehensive explanation from the municipality regarding their expectations for this specific segment and phase of the project, as well as its anticipated outcomes.

One informant also mentioned that to optimize and assess citizen participation, the municipality sends surveys to all attendees and takes into account the feedback received from these surveys to reflect on

each citizen participation event. Additionally, they conduct debriefing discussions with the staff members who were involved in these events.

Finally, the entire DSAN project was subjected to an intermediate evaluation in 2023, and the resulting report is publicly available. However it is not really clear how this evaluation has been used for DSAN.

16. Exercise of facilitative leadership:

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Because of the institutional design of the entire DSAN, the leadership of the project is perceived differently by the participants. RvN@ is leading the process of knowledge tables and living labs, while the formal leadership of all DSAN's components holds the municipality of Nijmegen. RvN@, having the managing role, is explicitly mandated to drive the collaborative process as well as the co-creation within the triple helix. As verified by the informant from the municipality, they have a more coordinating role in the DSAN's knowledge tables and living labs process, while RvN@ facilitates, manages and drives the collaborative process, enabling productive collaborative interactions between the participants. Observations of the meetings also clearly revealed this dynamic, showing the efforts by RvN@ to successfully advance the collaborative process of DSAN (examples: not only the formal meetings, but also number of conducted individual consultations with different parties, events like LinkedIn Live when involved parties but also the general public could participate and ask questions etc.).

Outcome variable: Successfully co-created green transitions

The outcome variable 'co-created green transitions' will be scored in two parts. First, 'co-creation' will be scored based on an assessment of whether the participants in the initiative, project or process engaged in collaborative problem solving that fostered creative ideas and innovative solutions' (data will consist of survey data combined with interviews and documents). Next, 'green transitions' will be scored based on an assessment of whether the initiative, project or process has fulfilled or is expected to fulfill its green goals, ambitions and aspirations (data will consist of survey data combined with interviews and internal and/or external evaluation reports, including scientific publications).

The scoring of this variable is done in two parts:

- 1. Is the developed solution based on collaborative problem-solving spurring creativity and innovative solutions?*
- 2. Does the developed solution engender a green transition?*

This scoring should be conducted based on both the survey and complementary green outcome evaluations. Please consult Sections 4.4 and 6.10 in the Research Protocol for more details.

1. Is the developed solution co-created?

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Survey
- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this part of the governance factor, including the data sources used for the scoring.

A series of survey questions focus on the presence of collaborative problem-solving (1), the fostering of creative and innovative solutions (2-6), the support for process, outcomes and the level of engagement (7-12), and the attainment of goals that are robust and serve to enhance sustainability (13-15).

n = 8	Strong. dis.	Dis.	Slight. dis.	Neither agr/dis	Slight. agree	Agree	Strong. agree	Don't now	Mean score
1. Problem-solving mobilized different experiences, and/or ideas and/or forms of knowledge to develop new perspectives	-	-	-	-	25%	25%	50%	-	2,25
2. Through the collaborative problem-solving process, different experiences and/or ideas and/or forms of knowledge have been mobilized to search for unconventional solutions	-	-	-	-	-	50%	50%	-	2,5
3. The collaborative problem-solving process mobilized different experiences, and/or ideas and/or forms of knowledge to search for solutions that go beyond standard/text-book solutions	-	-	-	13%	-	50%	38%	-	2,14
4. The co-created solution breaks with established practices	-	-	-	13%	38%	13%	13%	25%	1,37
5. The co-created solution disrupts conventional wisdom	-	-	-	13%	38%	25%	13%	13%	1,46

6. The co-created solution offers new ideas to address the green transition problem	-	-	-	-	25%	38%	25%	13%	2,02
7. I'm supportive of the co-created solution	-	-	-	-	13%	25%	38%	25%	2,36
8. I'm content with the overall collaborative process of the project	-	-	-	-	38%	38%	25%	-	2,25
9. I feel the multi-actor collaboration process was a prerequisite for the success of the project	-	-	-	-	25%	25%	50%	-	1,76
10. I'm satisfied by the results of the co-creation effort in terms of expected impact on the welfare of the community	-	-	-	-	38%	38%	13%	13%	1,17
11. The collaborative interaction in the project has led to an innovative solution	-	-	-	13%	63%	-	13%	13%	1,89
12. The actors involved in the project are engaged in collaborative interaction that stimulated creative problem-solving	-	-	-	-	38%	38%	25%	-	1,89
13. The co-created solution meets the proposed goals of the project	-	-	-	-	25%	50%	13%	13%	1,84
14. The co-created solution will be durable and robust in the long run	-	-	-	13%	13%	13%	25%	38%	2,04
15. The co-created solution is expected to significantly improve sustainability for the whole community	-	-	-	13%	13%	13%	38%	25%	2,25

The table above shows majority of respondents either agreed or strongly agreed with every question posed, indicating a clear consensus on various aspects. The mean score for all survey items reflected a positive sentiment, emphasizing the effectiveness of the project. Participants acknowledged the utilization of diverse ideas, resources, and knowledge, leading to new perspectives and innovative problem-solving

approaches. The collaborative nature of DSAN was evident in the development of creative solutions (for example: the three stage approach of co-creation starting with organizing knowledge tables, forming booster teams and launching living labs where specific assignments/projects/components of projects (e.g. Green Corridor) are being implemented), although there were slight reservations regarding breaking from established practices. However, overall support for the process, outcomes, and engagement levels was strong across the board. The final questions underscored the success of collaborative processes in fostering innovation, achieving goals, and producing robust results, further validating DSAN as a model for collaborative problem-solving.

The interviews also indicate the results of the survey.

2. Does the developed solution engender a green transition¹?

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Survey

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this part of the governance factor, including the data sources used for the scoring.

A series of **survey questions** focus on whether the project has produced or is expected to produce a green transition aiming to avoid a worsening of the status quo, maintain the status quo or improve the status quo.

1. The project:	Yes	No	Don't know
...did not produce any green transition solution	25% (n = 2)	75% (n = 6)	-
...has produced or is expected to produce a green transition solution aiming to avoid a worsening in the status quo	87.5 % (n = 7)	12.5% (n = 1)	-
...has produced or is expected to produce a green transition solution aiming to maintain the status quo	100% (n = 8)	-	-
...has produced or is expected to produce a green transition solution aiming to improve the status quo	100% (n = 8)	-	-

¹ By "green transitions", we mean objectives and aspirations that correspond to at least one of the Green SDGs (SDG 6, 7, 11, 12, 13, 14, 15). The project does not have to refer explicitly to the green SDGs, but the project's green objectives

As seen in the table above, 75% of respondents believe the DSAN has already produced a green transition solution, while all respondents believe that the project has produced or is expected to produce a green transition solution aiming at both maintaining and improving the status quo. In addition to the survey, the interviews and documents also confirm the scoring of this variable.

Please list all the informants you have interviewed for the case study (list project role + interview date):

We interviewed 11 people in connection with the Development of Station Area in Nijmegen city project.

The interviews were conducted in person and in Dutch.

List of interviewees:

2 representatives of the municipality of Nijmegen

Representative of OmgevingsLAB

Representative of the Economic Board

Teacher of HAN university applied sciences

Representative of RvN@ program

Teacher of Van Hall Larenstein university applied sciences

4 students from Van Hall Larenstein university applied sciences

The informants are displayed anonymously, but we have a full list of names.

Please list all the observations you have made (type of meeting/workshop/etc. + observation date):

As part of the observations, the researcher was given the opportunity to participate in a variety of meetings that took place at various stages of the project. During the summer of 2023, the researcher was present at an event when the booster teams were presented. Subsequently, she was present at the meeting where the LivingLAB kicked started their activities. Following these occasions, the researcher was extended invitations to attend a number of meetings in the LivingLAB that were centred around the Green Corridor sub-project of DSAN. During these meetings, the researcher paid close attention to the way in which attendees interacted with one another.

Please list all the documents you have analyzed (document name + source + year):

Raadsinformatiebrief planvorming project Vijfknoop - Krayenhofflaan (16 mei 2023)

Samenvatting participatieplan (december 2022)

Plan van aanpak strategisch omgevingsmanagement stationsgebied Nijmegen (juli 2022)

Brief aan de raad Stand van zake stationsgebied (mei 2022)

Publiekssamenvatting Programma Hoogfrequent Spoorvervoer Nijmegen en westentree (mei 2022)

Raadsinformatiebrief Planvorming Vijfknoop (mei 2022)

Notitie keuzeverantwoording centrumzijde stationsgebied (maart 2022)

Ambitiedocument van UWV-locatie naar Westerkwartier (november 2021)

Planexploitatie Stationsgebied Nijmegen (oktober 2021)

Kader Ruimtelijke Kwaliteit Station Nijmegen en omgeving (juni 2020)

Ontwerptractébesluit (juni 2021)

Milieueffectrapport (juni 2021)

Raadsvoorstel Gemeentelijke bijdrage BO MIRT Centrumzijde Station Nijmegen (juni 2021)

Bestemmingsplan Nijmegen Centrum - Stationsomgeving - 5 (fietsenstalling entree west CS) (maart 2021)

Bidbook 'thuis in de hub' (november 2020)

Programma Hoogfrequent Spoorvervoer | ProRail

Duurzaamheid op het station | ProRail

Presentatie boosterteams (internal document)

Rapportage Kennistafel klimaatadaptatie (internal document)

Start Lifeport Living Lab stationsgebied (internal document)

Please note the response rate for the survey/measurement of outcome variable:

The survey was sent out to 15² project participants of which 8 responded.

The survey was conducted through Qualtrics as well as in person as a paper questionnaire during 1 interview.

² This number might change, as we are now expecting further clarification from our municipality informant who sent out the survey to more people.