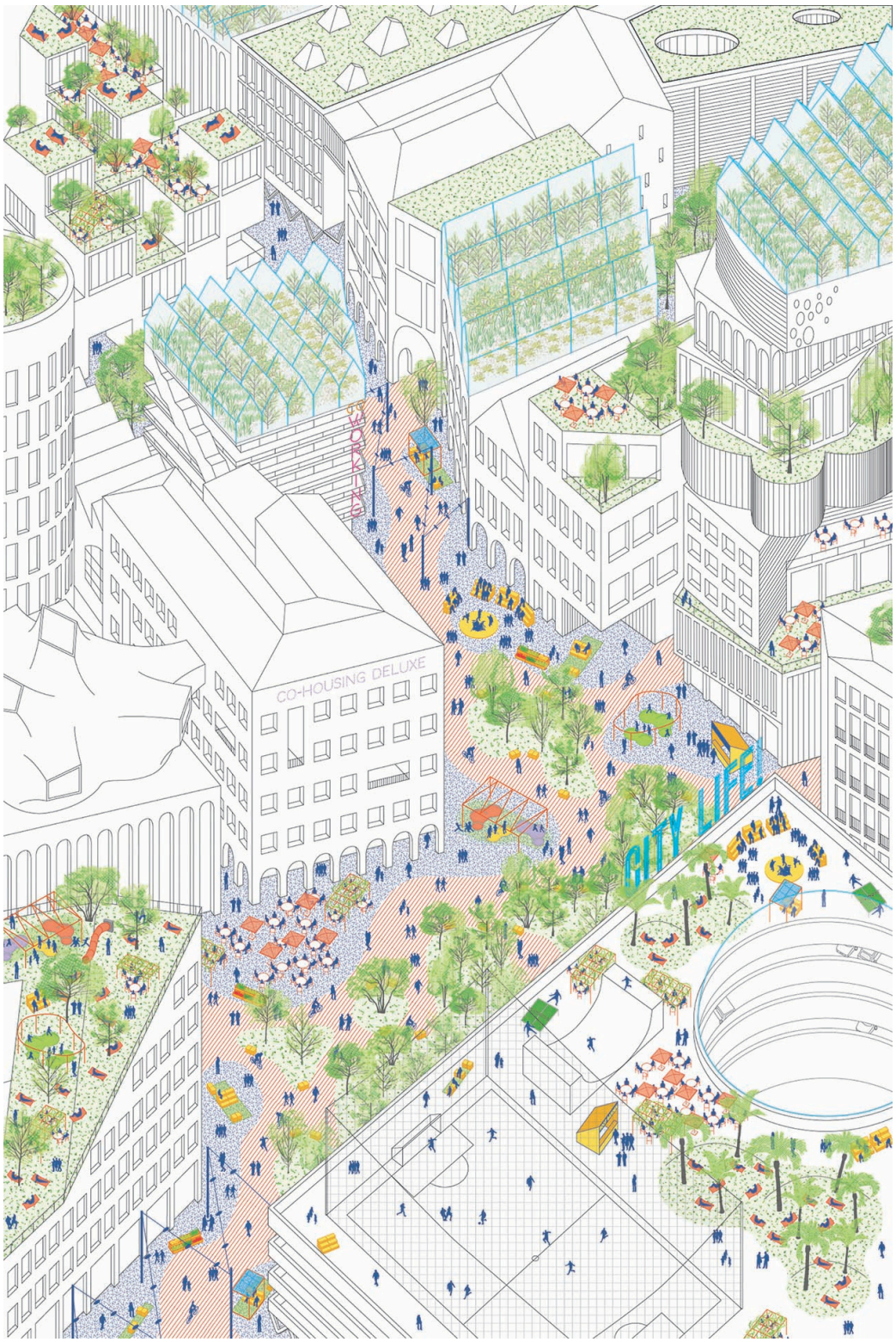
The Role of Institutional Entrepreneurs in Stakeholder Collaborations

Towards Sustainable Urban Transformations



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TU Delft
Haskoning
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20th of February

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Towards Sustainable Urban Transformations

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Abstract

Cities and urban areas are increasingly recognised as key drivers for sustainable urban transformations (SUTs). However, progress remains slow due to complex pressures, conflicting stakeholder interests, and institutional constraints. Collaboration is essential for driving SUTs, with institutional entrepreneurs playing a crucial role in promoting institutional change and sustainable development. However, limited research has explored how institutional entrepreneurs can influence stakeholder collaborations within existing urban contexts towards SUTs. Therefore, this research addresses the question: *'How can institutional entrepreneurs influence collaboration between stakeholders towards sustainable urban transformations?'*

A qualitative research design was adopted, combining a literature review that resulted in a conceptual framework with a single case study of the Energy Hub Amsterdam Southeast, an initiative that qualifies as a SUT collaboration. Interviews with involved stakeholders revealed various barriers and enablers in the SUT collaboration, categorised around the framework's eleven collaborative success variables and supplemented by an additional variable, the institutional context. The empirical research also identified concrete interventions that the institutional entrepreneurs, as well as externally commissioned coordinators and facilitators, can apply to address these barriers and leverage enablers, thereby creating favourable conditions for establishing the SUT.

These insights were synthesised into a set of practical guidelines, refined and validated through an expert meeting. The guidelines are intended to serve as a source of inspiration for institutional entrepreneurs, coordinators and facilitators to refine their practices, reflect on encountered barriers and enablers, assess intuition, and identify blind spots, while continuing to test, refine, and update them as a living document. The findings demonstrate that institutional entrepreneurs can influence stakeholder collaborations towards SUTs by acting as proactive visionary frontrunners, driven by their belief in the need for collective transformation, who inspire participation, align and engage stakeholders, mediate between experts and participants, safeguard the collective ambition, and maintain and strengthen trust and relationships, by use of the various interventions outlined in the guidelines.

Keywords: *Sustainable Urban Transformations, Institutional Entrepreneurs, Stakeholder Collaboration, Barriers and Enablers, Interventions*

Preface

In front of you lies the master's thesis *"The Role of Institutional Entrepreneurs in Stakeholder Collaborations - Towards Sustainable Urban Transformations".* This thesis was written as part of the master's programme Management in the Built Environment at the Technical University of Delft and is positioned within the graduation theme of Urban Area Development. The research was conducted between February 2025 and February 2026.

The motivation for choosing this topic stems from my interest in sustainability, transformations, innovations, and collaborative processes. During the initial literature exploration, this interest gradually evolved into the identification of a clear gap in the academic literature, which ultimately shaped the focus of this thesis. Conducting this research has provided me with valuable insights into the complexity of stakeholder collaborations in urban area developments, and how this complexity increases even further when aiming for structural sustainable urban transformations (SUTs). It has also reinforced my understanding of the urgency and necessity of realising SUTs and, consequently, the significant role that institutional entrepreneurs can play in enabling and accelerating these transformations.

I want to express my gratitude to both Erwin and Hilde, my university mentors, for your valuable and kind support and feedback, both academically and personally. You have shown me that graduating should not only be a learning process on an academic level, but also an enjoyable one, and that maintaining a healthy balance between study and free time is essential.

Moreover, I would like to thank Haskoning, and in particular the SMC team, for the warm welcome by including me within your team. Participating in the monthly hubs offered me a glimpse into the many inspiring professional directions and projects within the organisation. A special thanks goes to Ron de Graaf, my organisation mentor, for providing valuable guidance and feedback based on your practical experiences with SUT projects, which greatly strengthened this thesis.

I also want to thank all participants who contributed to this research through interviews or the expert meeting. Thank you for your time, your insights, and your enthusiasm for this topic. Your contributions provided valuable input that ultimately shaped this thesis's findings.

Finally, I want to express my gratitude to my roommates, friends, parents, brother, and boyfriend for being there for me throughout this entire journey. Your support means more to me than I can express. Thank you for your encouragement and for believing in me when I struggled to believe in myself.

Enjoy reading!

Mirte Hoitink

Delft, 20th of February, 2026

Executive Summary

Introduction
Cities and urban areas are increasingly recognised as key arenas for driving sustainable urban development (SUD) and climate change solutions, especially as national and international actions continue to fall short. Their ability to accelerate change by developing science-based strategies and translating them into concrete local actions underscores their critical role in driving sustainable urban transformations (SUTs).

SUTs refer to structural changes in urban areas that transform at least one driver of radical change, including governance and planning, lifestyle and consumption, and innovation and competitiveness, and at least one sustainable urban structure, including resource management, climate mitigation and adaptation, transport and accessibility, buildings, and the spatial environment and public space. However, achieving such transformations is challenging, as cities and urban areas face complex, multi-level, multi-actor pressures and inherently wicked problems. Moreover, because SUTs are strongly context-dependent, they require a tailored approach, which necessitates institutional change, along with collaboration that integrates diverse knowledge and perspectives.

Research highlights the important role of institutional entrepreneurs in driving institutional change, actors capable of challenging existing institutions and establishing new ones that support the realisation of SUDs. However, little is known about how they can influence stakeholder collaborations within existing urban contexts towards SUTs. This study addresses this gap by examining the following main research question: *'How can institutional entrepreneurs influence collaboration between stakeholders towards sustainable urban transformations?'*

Methodology
This research adopted a qualitative research design, combining a literature review with a single case study of the Energy Hub Amsterdam Southeast, a project that qualifies as a SUT collaboration. Empirical data were collected through semi-structured interviews with key stakeholders, document analysis and an expert meeting to refine and validate the findings. Data analysis involved coding the interview data in Atlas.ti, based on the conceptual framework's variables, along with conducting systematic cross-interview comparison using structured Excel tables. This approach enabled the identification of barriers and enablers in the SUT collaboration, as well as potential interventions that these institutional entrepreneurs and externally commissioned coordinators and facilitators can use to influence the stakeholder collaborations towards the SUT.

Literature Review
The literature review examined the concepts of institutional entrepreneurs, SUTs, and collaboration, resulting in a conceptual framework that guided the empirical research (Figure 15). The framework consists of eleven variables that influence collaboration success, grouped into three

main variables: the collaborative process, starting conditions, and institutional design/professional organisation, with the collaborative process at the centre and the other two directly influencing it. The review revealed that institutional entrepreneurs can be individuals or organisations, driven either by profit with sustainable development as a secondary goal or by sustainable value creation itself. Regardless of their motivation, they challenge existing formal and informal institutions and establish new ones that support the realisation of SUTs. Within stakeholder collaborations, they do so through interventions that directly influence the collaborative process variables, while also indirectly influencing them by having a direct influence on the other two main and related sub-variables, thereby exerting both direct and indirect influence on the success of collaborations towards SUTs. Finally, the literature shows that a project qualifies as a SUT when change occurs in at least one driver of radical change and at least one sustainable urban structure.

Empirical Results

The case study revealed a range of barriers and enablers in the SUT collaboration, categorised according to the eleven variables influencing collaboration success, supplemented by the institutional context. It also identified concrete interventions that the institutional entrepreneurs and externally commissioned coordinators and facilitators can use to leverage these enablers and address barriers, thereby creating more favourable conditions for establishing the SUT. These insights were synthesised into a set of practical guidelines (Appendix O), validated and refined through an expert meeting, which supports these practitioners in refining their practices, reflecting on encountered barriers and enablers, assessing intuition regarding possible interventions, and identifying blind spots.

The empirical findings further clarified the role of the case study's institutional entrepreneurs by highlighting the key functions they fulfil and the characteristics that enable them to do so effectively. They act as proactive visionary frontrunners, who identify emerging opportunities, articulate compelling narratives, and thereby mobilise others to join. Their intrinsic motivation and belief in the need for collective transformation enable them to remain committed despite the complexities and uncertainties inherent to the SUT initiative. They also play a crucial mediating role by bridging diverse interests and expertise, enabled by their equal participation, authority and leadership, along with building and maintaining trust in the collective solution, relational trust, and task-based trust. Although external coordinators and facilitators become increasingly important as the initiative progresses, the institutional entrepreneurs remain essential throughout by safeguarding the collective ambition, attracting new participants, sustaining trust and relationships, and ensuring continued alignment and engagement among participants.

Conclusion

This research demonstrates that institutional entrepreneurs can play a key role in influencing stakeholder collaborations towards SUTs. As proactive visionary frontrunners, driven by a strong belief in the need for collective transformation, they can inspire participation, ensure alignment and engagement, mediate between experts and participants, safeguard the collective ambition, and build and maintain trust and relationships. By applying the interventions captured in the practical guidelines, intended as inspiration rather than a prescription, they can overcome inherent collaboration barriers and leverage enablers, thereby creating more favourable conditions necessary for advancing the realisation of SUTs.

Recommendations

Practical Recommendations

Institutional entrepreneurs and externally commissioned coordinators and facilitators involved in SUT collaborations, such as those in this study's case study, are encouraged to use the developed guidelines as a source of inspiration while continuing to test, refine, and update them with newly identified barriers, enablers, and interventions from practice. Policymakers are advised to explore ways to introduce greater regulatory and institutional flexibility to support the initiation, experimentation, and development of this and other collective SUTs. Finally, actors in the field of urban area development are encouraged to explore how formal institutions and existing assessment systems and certificates can reduce the perceived risk of collective participation and recognise the long-term value of this and other SUT collectives, incentivising participation.

Scientific Recommendations

Future research should examine multiple SUT cases to allow cross-case comparison and identify context-specific and broadly applicable findings regarding barriers, enablers, and interventions, as well as the role of institutional entrepreneurs. Further studies are also encouraged to explore how the broader institutional context (formal and informal) influences SUT collaborations and their outcomes. Finally, further research into the typology, motives and characteristics of institutional entrepreneurs could provide valuable insights, particularly when informed by social and psychological sciences.

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1. Introduction

National governments have struggled to respond to climate change, and it is evident that the required reductions in greenhouse gas emissions, to maintain global warming within safe limits, are neither achieved nor adequately prioritised (IEA, 2011). This is also observed in the field of sustainable development, where ambitions for systematic change have largely remained unfulfilled (Rockström et al., 2009; Baumgartner, 2011). Major international events, including the 2009 Copenhagen Climate Change Conference and the 2012 Rio de Janeiro Earth Summit, have highlighted these shortcomings, revealing limited agreements and actions at both international and national levels regarding climate change and sustainable development (McCormick et al., 2013).

Cities have been recognised as key players in driving sustainable development and climate change solutions (UN-Habitat, 2010; ICLEI, 2011; Beatley and Wheeler, 2004; Roseland, 1997). There is a broad consensus that integrated and effective solutions can only be found and efficiently implemented through cities and urban areas (ibid.). The growing emphasis on cities and urban areas arises from the realisation that national and global actions are happening at too slow a pace, while local municipalities and collaborations can accelerate change more effectively by developing science-based strategies and visions and translating them into concrete local actions (McCormick et al., 2013). Furthermore, with the majority of the population already living in cities and urban areas, and expectations indicating that over 70% of the global population will do so by 2050 (UB-Habitat, 2008), the critical role of cities and urban areas in driving sustainable urban transformations becomes even more apparent.

According to McCormick et al. (2013), sustainable urban transformations (SUTs) refer to structural transformation processes that can effectively steer urban development towards ambitious sustainability objectives. It involves recognising cities and urban areas as key arenas for advancing sustainability, encouraging active collaboration between a wide range of stakeholders, integrating diverse perspectives, sources of knowledge and expertise, and stimulating experimentation with alternative solutions and approaches (ibid.). McCormick et al. (2013) state that SUTs can be defined along two key dimensions. First, the drivers of radical change, which refer to the processes that bring about change in the urban context, including governance and planning, lifestyle and consumption, and innovation and competitiveness. Second, multi-dimensional sustainable structures, which encompass resource management, climate mitigation and adaptation, building and the spatial environment, transport and accessibility, and public space.

Although cities and urban areas are recognised as playing a critical role in these transformations, they experience complex pressures that arise from above, in the form of national and international expectations and policies, as well as from below, through the needs and expectations of local

communities (McCormick et al., 2013). As a result, urban areas must be simultaneously attractive and inclusive, thriving from local, national, and international viewpoints, as well as sustainable and resilient (Kautto, 2012; UN-Habitat, 2008). Because of this complexity, SUTs require not only local action but also an understanding of how such actions integrate across scales and interact with the dynamic and complex existing relationships (García-Sánchez and Prado-Lorenzo, 2009). Moreover, sustainable urban projects can be approached at three main scales: the building scale (Smedby and Neij, 2013), the district scale (Ryan, 2013), and city-wide activities (Corvellec at al., 2013), with the district scale being particularly valuable for catalysing and learning about SUTs (McCormick et al., 2013).

European cities face additional challenges in SUTs, including social tensions, segregation, the continuous growth of solid waste generation and the high, often inefficient, resource consumption, all of which are linked to climate change and global environmental and resource concerns (McCormick et al., 2013). Moreover, cities and urban areas are continuously shaped by dynamic transformation processes, including shifts in population composition, economic structures, lifestyles, and national policies, creating new local needs and opportunities (UN-Habitat, 2010). These challenges are classical wicked problems (Camillius, 2008), where traditional processes make it impossible to define a universal 'top-down' approach to establish sustainable urban developments (SUDs) (Klein Woolthuis et al., 2013). Wickedness in SUD arises not only from the technical complexity and multi-actor, multi-scale character of the problem but also from a lack of consensus among stakeholders on what sustainability entails in the urban context (ibid.). Additionally, SUDs are context-dependent, requiring a tailored approach that considers local factors, including people, infrastructure, ecosystems, and vice versa (ibid.). The challenge, therefore, is not just identifying the 'right' solution but also creating the conditions that enable such solutions to emerge, necessitating institutional change (ibid.).

Research points out that SUTs require collaborations that integrate diverse knowledge and perspectives, stimulating stakeholders in a learning process that fosters new ways of thinking and drives urban innovations (Campbell, 2009; Zilahy and Huisingh, 2009). This becomes especially important when ambitious (sustainability) goals are involved (McCormick et al., 2013).

Moreover, research highlights that institutional entrepreneurs play a significant role in driving institutional change and promoting sustainable development (Klein Woolthuis et al., 2013). These institutional entrepreneurs are influential groups of individuals or organisations (Fligstein, 1997; Garud and Karnøe, 2003) that challenge old institutions and initiate and accelerate new ones (Dacin et al., 2002). Institutions, in this context, are defined as the 'rules of the game' that drive routine behaviour (Jepperson, 1991), which may be taken for granted by stakeholders or reinforced by public opinion or legal authority (Dimaggio and Powell, 1983). These rules ultimately influence why stakeholders within the field of urban development remain with existing solutions rather than adopting innovative ones, to the detriment of actual SUTs. Institutional entrepreneurs can differ in their approach, motivation, and or development scale (Klein Woolthuis et al., 2013). For example, Klein Woolthuis et al. (2013) examine cases involving a former housing association manager who aimed to develop a mixed- and flexible-use building, an individual concerned citizen who initiated a

sustainable urban neighbourhood integrating social and urban quality with nature, and a real estate CEO who initiated a cradle-to-cradle business park.

Recently, there has been growing interest in the role of collaboration in establishing SUDs or SUTs (Liao and Liu, 2023; Wang et al., 2021; Chu et al., 2020; Liu et al., 2021; Silva, 2008; McCormick et al., 2013; Bradley et al., 2022; Common Eye, 2016). Studies have examined practices, challenges and lessons learned from urban development collaborations (Khan, 2013; Hamann and April, 2013; Block and Paredis, 2013), the role of institutional entrepreneurs in driving institutional change (Pacheco et al., 2010) and their role in initiating and establishing SUDs (Klein Woolthuis et al., 2013). However, limited research has explored how institutional entrepreneurs can influence stakeholder collaborations within existing urban contexts towards SUTs.

1.1 Research Questions

This research, therefore, aims to answer the following question:

'How can institutional entrepreneurs influence collaboration between stakeholders towards sustainable urban transformations?'

To answer this question, the following sub-questions have to be addressed:

1. How can the relationship between collaboration, institutional entrepreneurs, and sustainable urban transformations be conceptualised?
2. What barriers and enablers related to collaboration are encountered in an existing case study that influence the realisation of the sustainable urban transformation?
3. What role do or could institutional entrepreneurs play in this case study, and what interventions have they implemented or could they implement to establish more effective collaboration?
4. How can the role of institutional entrepreneurs in influencing collaboration between stakeholders towards sustainable urban transformations be captured in a set of guidelines?

1.2 Relevance

The societal and scientific relevance of this research is outlined below.

1.2.1 Societal Relevance

The urgency of climate change, combined with the fact that the building and construction sector is the largest emitter of greenhouse gases, accounting for 37% (UN Environment Programme, 2023), places significant pressure on cities and urban areas to drive SUTs. With most of the global population already living in urban areas and this expected to reach 70% by 2050 (UB-Habitat, 2008), cities and urban areas have become central in addressing sustainability challenges.

At the same time, cities and urban areas face complex pressures from above (national and local policies) and below (local community needs and expectations), alongside additional climate- and resource-related challenges (McCormick et al., 2013). These factors contribute to SUDs 'wicked' nature (Bossink, 2011), making a universal, 'top-down' approach impossible (Klein Woolthuis et al., 2013). Moreover, conflicting interests, a lack of understanding among stakeholders, and existing formal and informal institutions within the sector hinder the widespread adoption of SUD practices (TNO, 2012).

Collaboration among diverse stakeholders is widely recognised as essential for driving SUTs (Campbell, 2009; Zilahy and Huisingh, 2009), while institutional entrepreneurs play a significant role in initiating and driving

institutional change and SUD (Klein Woolthuis et al., 2013). However, while existing research examines how institutional entrepreneurs initiate and realise SUD projects, little is known about their role in influencing collaborations within existing urban contexts towards SUTs. This research addresses this gap by exploring how institutional entrepreneurs can influence stakeholder collaborations, thereby potentially accelerating the more widespread realisation of SUTs.

1.2.2 Scientific Relevance

Scientifically, this research is relevant because the role of institutional entrepreneurs in influencing stakeholder collaborations towards SUTs remains underexplored. While existing studies examine practices, challenges and lessons learned from urban development collaborations (Khan, 2013; Hamann and April, 2013; Block and Paredis, 2013), as well as the role of institutional entrepreneurs in driving institutional change (Pacheco et al., 2010), and initiating and establishing SUDs, a gap exists in understanding how they can actively influence stakeholder collaborations within urban settings towards the realisation of SUTs.

Therefore, this research contributes to the growing body of knowledge on institutional entrepreneurship, collaboration, and SUTs by identifying barriers and enablers within an existing collaboration, and by examining the role and interventions through which the institutional entrepreneurs have influenced, and could influence, the stakeholder collaborations towards the SUT.

2. Methodology

This chapter presents the research methodology used to answer the main research question: *'How can institutional entrepreneurs influence collaboration between stakeholders towards sustainable urban transformations?'* It covers the type of study, data collection methods and techniques, and analysis methods. Furthermore, it presents a data management plan and discusses ethical considerations, as the research involves human subjects. The research design and a comprehensive research plan (Appendix A) integrate the research methodology components with a plan for conducting the research. Finally, this chapter outlines the expected research outputs.

2.1 Type of Study

This research adopts a qualitative research design, which, according to Creswell (2017), is determined by the interaction of the adopted philosophical worldview, strategies of inquiry, and research methods. Furthermore, the type of study is influenced by the issue being studied, the audience, and the researcher's experience (ibid.). The first three are discussed below.

The social constructivist worldview is a widely adopted approach to qualitative research and assumes that individuals' understanding of the world around them is shaped by historical and cultural norms, as well as by interactions with others (Creswell, 2017). This worldview emphasises exploring a specific context in which people live and work to get insights into their lived experiences (ibid.). In this research, the social constructivist worldview aligns with the aim of understanding the diverse perspectives of stakeholders involved in SUTs, specifically their experiences and perspectives on the collaboration process. By studying these interactions, the research examines the informal and, to a lesser extent, formal institutions and processes that influence collaborative outcomes, providing insights into how institutional entrepreneurs can influence collaboration towards more ambitious, sustainable outcomes.

The strategy of inquiry utilised is a case study approach, as it allows an in-depth exploration of the collaboration processes between the various stakeholders in SUT projects. Case studies allow for an extensive exploration of programs, events, activities, processes, or one or more individuals (Creswell, 2017). This is especially suitable for this research, where the context of existing urban area transformation projects provides an environment to understand the complexity of collaboration processes, including related barriers and enablers.

Lastly, the choice of research methods for data collection, analysis, and interpretation also shapes the research design (Creswell, 2017). This research uses qualitative data collection methods, including document analysis, semi-structured interviews, and an expert meeting. Document analysis provides insights into the collaboration processes of current and past SUT projects, highlighting barriers and enablers, as well as the roles and interventions of institutional entrepreneurs. Semi-structured interviews

capture the individual experiences of stakeholders involved in these processes. The expert meeting provides unique insights for validating and refining the guidelines for institutional entrepreneurs. Since the data collection methods provide non-numeric information, the analysis also follows a qualitative approach. As Creswell (2017) highlights, semi-structured interviews with open-ended questions allow information to emerge from participants. Therefore, interpretations in this research are based on patterns emerging from the data, again confirming the qualitative approach.

In conclusion, the selected philosophical worldview, the strategy of inquiry, and the research methods determine the choice of adopting a qualitative research design.

2.2 Data Collection

This research adopts a qualitative approach and utilises a combination of data-collection techniques: a literature review, semi-structured interviews and content analysis of documents (both conducted within a single case study analysis), and an expert meeting. These data collection techniques are discussed below.

2.2.1 Literature Review

During the development of the problem statement and the early stages of the research, a literature review is conducted. The aim is to gain insight into stakeholder collaborations in urban area transformations, which leads to the identification of a gap in the literature (Chapter 1). Additionally, this initial step helps assess the worthiness of this research, examining whether the topic contributes to the growing body of knowledge and has both societal and scientific relevance (Paragraph 1.2).

After establishing the research questions (Paragraph 1.1), the literature review aims to gather the most relevant existing literature on the three concepts of collaboration, institutional entrepreneurs, and SUTs. The review focuses primarily on the informal aspects of collaboration, while also acknowledging the formal aspects that might influence the process. Ultimately, this review develops a conceptual framework which guides the analysis and interpretation of the collected data throughout the next steps of the research. Therefore, this part of the literature study answers the first sub-question: *'How can the relationship between collaboration, institutional entrepreneurs, and sustainable urban transformations be conceptualised?'*

2.2.1.1 Literature Review Process

To conduct the literature review, relevant academic sources are searched and collected using Google Scholar and Scopus, based on carefully selected search terms, including synonyms and related terms, derived from the three concepts identified in the main research question. Furthermore, the Dutch Platform Stedelijke Transformatie (English: Urban Transformation) is consulted due to its relevance to this research topic. This platform is a collaboration between municipalities, market actors, and the TU Delft, aimed at sharing knowledge and experiences on urban transformations, including the theme of collaboration (Stedelijke Transformatie, n.d.), which is particularly relevant to this study. Through an article on this platform, the Common Eye (2016) publication for the concept of collaboration is identified, which offers practical insights into key intervention domains that support successful collaboration, also within the context of urban area development. Additionally, recommended literature provided by the research supervisors is included in the literature review, including Mens et al. (2021) on social entrepreneurs and Ansell and Gash (2008) on collaborations.

The search terms to find the most relevant literature on each concept include, among others, the following:

- "Stakeholder collaboration" AND ("Sustainable urban transformations" OR "Sustainable urban development" OR "Area development")
- "Institutional entrepreneurs" AND ("Sustainable urban transformations" OR "Sustainable urban development" OR "Area development")
- "Sustainable urban transformations" OR "Sustainable urban development" OR "Urban sustainability transitions"

Sources are selected based on their relevance to the main research question and its related concepts, as well as their publication date. In general, literature published within the last 10 years is prioritised. However, older sources are included when they are identified as key publications, authored by leading experts on a certain academic topic, and have since been widely applied across various studies and contexts. For instance, the publication by Ansell and Gash (2008) is included for this reason as a relevant source for the literature review on collaboration. Moreover, several literature reviews are chosen, as these provide a good overview of the state of knowledge on a specific topic up to the time of their publication. For example, both the publication by Ansell and Gash (2008) on collaboration and the publication by McCormick (2013) on SUTs are included for this reason. Furthermore, references cited within these selected sources are also examined for their relevance and included in the literature review.

The quality of the sources is assessed based on their publication date, the author's expertise (whether they are specialised in the topic or considered a key author), and the number of citations of each source. Finally, a comparative analysis is conducted for the sources per concept to identify overlapping elements and complementary distinctions relevant to this study.

2.2.2 Case Study – Content Analysis of Documents and Semi-structured Interviews

After addressing the first sub-question, the research proceeds to the empirical part, where a single case study is used to enable in-depth exploration of collaboration processes among various stakeholders in a SUT project. The focus lies on identifying stakeholders' perceptions and experiences of the collaboration process, with specific emphasis on the barriers and enablers of effective collaboration, and on the role and interventions of institutional entrepreneurs in addressing or leveraging these barriers and enablers towards establishing the SUT. These objectives align with sub-questions two: *'What barriers and enablers related to collaboration are encountered in an existing case study that influence the realisation of the sustainable urban transformation?'* and sub-question three: *'What role do or could institutional entrepreneurs play in this case study, and what interventions have they implemented or could they implement to establish more effective collaboration?'*

A single case study is chosen over a larger set of cases. A single case study approach allows for an extensive and careful exploration of a subject, person or group, offering detailed insights and the opportunity to question existing theoretical relationships and explore new ones (Gustafsson, 2017). A multiple case study approach, on the other hand, allows for analyses both within and across cases, making it possible to identify similarities and differences (ibid.), and allowing for more valid conclusions than single-case analyses (Heurkens, 2012). However, the appropriate number of cases depends on the purpose of the research, specifically, whether scope or depth is preferred (Gerring, 2004). Depth is chosen

when the objective is to draw specific insights involving a wide range of variables, while scope is more suitable for drawing general conclusions from a larger number of cases with fewer variables (Heurkens, 2012). In this study, as explained in Paragraph 3.4 and illustrated in Figure 15, a wide range of variables is examined to better understand the barriers and enablers of collaboration and the role of institutional entrepreneurs in addressing or bridging these towards SUTs. Therefore, a depth-oriented approach involving a single case is chosen. While this approach limits the external validity and generalisability, as it does not allow for cross-case comparison to determine whether findings are context dependent or independent (Heurkens, 2012), triangulation through multiple data collection methods strengthens the reliability and internal validity of the research (Merriam, 1988).

To answer both questions, a combination of data collection methods is used, including content analysis of documents and semi-structured interviews with open-ended questions. The data for the content analysis is derived from both internal and openly available sources, including project presentations and meeting agendas provided by stakeholders, as well as online documentation such as reports or publications from the municipality, research institutions, and participating stakeholders. The content analysis offers insights into the context of the specific SUT and its involved stakeholders, allowing a thorough understanding of the case. These insights support the development of the case description (Paragraph 4.1 and Appendix M), help identify relevant interviewees, and inform the preparation of the interviews. While this documentation is valuable for understanding the context and organisation of the case study, it does not capture the informal aspects of collaboration that are the focus of this study, which are therefore explored primarily through interviews and an expert meeting.

The semi-structured, open-ended interviews are conducted with stakeholders involved in the collaboration of the chosen case study, qualifying as a SUT collaboration. Interviewees include the identified institutional entrepreneurs, as well as other public and private actors involved in the collaboration, including facilitating representatives from municipal and provincial governments, developers, portfolio managers, advisors and a project leader. The interviewees are selected based on both their representativeness and their degree of involvement. This includes both actively involved stakeholders, such as the institutional entrepreneur, project leader, and advisors, and less actively involved actors, including developers and property managers, to capture a diverse range of perspectives across varying actors.

According to Blaikie and Priest (2019), qualitative interviews have the potential to come close to the social actors' accounts of the social interaction in which they have been involved and their meaning and interpretations. The emphasis is placed on identifying the individual experiences of stakeholders involved in the collaboration process, uncovering barriers and enablers, and getting a deeper understanding of how institutional entrepreneurs can influence the collaboration process. This approach, using semi-structured and open-ended interviews, enables participants to share their views and experiences (Creswell, 2017) while maintaining consistency in the topics addressed across interviews, based on the conceptual framework (Figure 15).

The interviews with each participant last approximately 60 to 90 minutes and are held in a face-to-face manner, following a predefined interview protocol (Appendix B).

With the interviewees' written consent, obtained via the Interview Consent Form (Appendix C), the interviews are recorded. At the start of each interview, participants are again informed about the purpose of the study and how their data is used afterwards. After the interviews, the recordings are then securely stored on a password-protected desktop computer, whereafter the recordings are transcribed, with anonymisation being applied to prevent identification of the participants' responses.

2.2.2.1 Selection Criteria of the Case Study and Sampling Method

Based on the conceptual framework (Paragraph 3.4), selection criteria for the case study are established. These include the following:

- The case must be located in the Netherlands;
- The case involves a SUT, in line with the definition formulated in Paragraph 3.3;
- The case includes a multi-stakeholder collaboration, involving both public and private actors;
- The case includes an institutional entrepreneur/institutional entrepreneurs, in line with the definition and examples formulated in Paragraphs 3.2;
- Project-related documents must be available for content analysis;
- It must be possible to conduct interviews with the stakeholders involved.

To select the most appropriate case, non-probability sampling is employed, as probability sampling is not feasible due to the specific topic and the absence of a population list that meets the selection criteria. Specifically, purposive sampling is chosen, an approach that focuses on cases with specific characteristics relevant to the study (Etikan et al., 2016). In this study, these characteristics correspond with the selection criteria. The selection process is carried out in consultation with the graduation organisation, utilising their knowledge and expertise of ongoing and completed projects. Table 1 illustrates how

Table 1

Case Selection Via Purposive Sampling (Own table)

Selection Criteria	**Justification**
1. Located in the Netherlands	Yes.
2. Involves a SUT, which consists of: A. Multi-dimensional sustainable urban structure(s) B. Driver(s) of radical change	Yes. A: Governance, innovation, and lifestyle and consumption; B: Resource management and transport.
3. Includes a multi-stakeholder collaboration (including both public and private actors)	Yes. Public actors involved: municipality, research and academic institutions; Private actors involved: developers, investment management firm, real estate organisation, and event organisations.
4. Includes an institutional entrepreneur/institutional entrepreneurs	Yes. Persons C and E (Table 3) are identified as institutional entrepreneurs by all interviewed stakeholders.
5. Project-related documents available	Yes. Relevant project documents are available from public sources, as well as provided by some of the interviewees.
6. Possible to interview relevant stakeholders	Yes. Stakeholders are accessible via contact details provided by the graduation organisation and are willing to participate.

the selected case complies with the criteria, while Paragraph 4.1 and Appendix M provide a detailed description of the case, including the stakeholders involved.

2.2.3 Expert Meeting
Following the case study analysis, an expert meeting with practitioners and scholars is organised to support answering sub-question four: *'How can the role of institutional entrepreneurs in influencing collaboration between stakeholders towards sustainable urban transformations be captured in a set of guidelines?'*

Participants of the expert meeting are selected based on their experience with SUT projects, either in practice or academically, to ensure a diverse mix of perspectives during the session. To maintain the integrity of the research, participants should not have been involved in earlier phases of the research, ensuring a neutral and objective view.

First, a preliminary outline of the guidelines is developed based on the findings from the case study analysis. Subsequently, in the expert meeting, the practitioners and scholars are invited to collaboratively refine the guidelines by reflecting on the presented findings, suggesting missing elements and improvements based on their professional experience and knowledge. This co-creative approach enables participants to share valuable insights, significantly improving the design and functionality of the guidelines (Ertz, 2024), while simultaneously assessing their usefulness and practicality, thereby ensuring external validity.

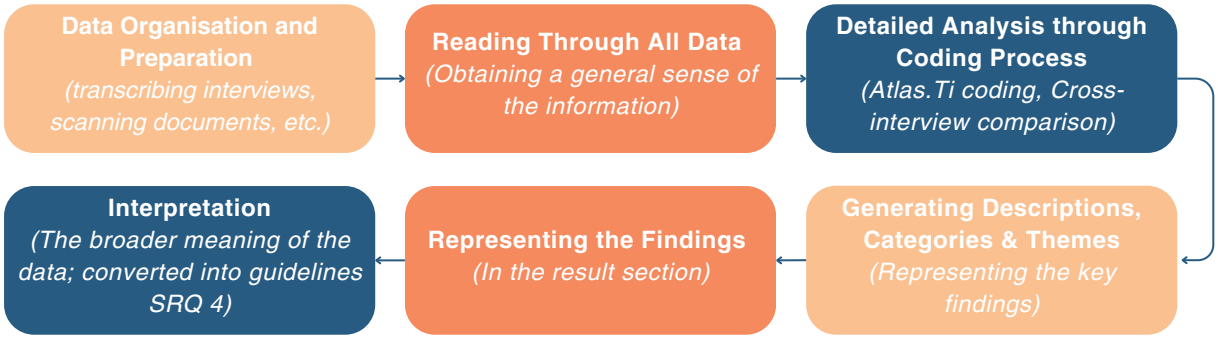
As with the interviews, the expert meeting is conducted face-to-face and recorded with the written consent of each participant obtained before the collaborative session (Appendix D and Appendix E). At the start of the session, participants are again informed about the purpose of the study and how the data is used. The recording is stored on a password-protected desktop computer. Subsequently, the most relevant findings from the session are summarised and translated into the final version of the guidelines.

2.3 Data Analysis
The process of data analysis in research involves several steps, including data preparation, conducting analysis, understanding the data, and interpreting its broader meaning (Creswell, 2017). In qualitative research, data analysis is an iterative process that co-occurs with data collection, interpretation, and writing (ibid.). In this research, the data analysis process follows the chosen strategy of inquiry, as outlined in Paragraph 2.1, in line with Creswell's (2017) recommendation. Within case study research, data analysis typically starts with a detailed description of the setting and individuals involved, followed by an analysis of the data to identify recurring themes or issues (Wolcott, 1994). This approach allows for an in-depth examination of the collaboration process in the SUT project and the role of institutional entrepreneurs in influencing these processes towards ambitious sustainability goals. The specific steps of the data analysis process are outlined below and illustrated in Figure 1.

2.3.1 Data Organisation and Preparation
The first step involves organising and preparing the gathered data for analysis (Creswell, 2017). Regarding the interviews, this involves transcribing the audio recordings and anonymising the responses by coding to prevent participants' identification. Furthermore, this step involves arranging and scanning the material (ibid.).

2.3.2 Obtaining a General Sense of the Information
Once the data is prepared, the next step

Figure 1
Data Analysis Approach (Own figure)



involves reading through the documents and transcribed interviews to obtain a general sense of the information (Creswell, 2017). During this step, general thoughts are written down before starting the detailed analysis (ibid.).

2.3.3 Detailed Analysis
Thirdly, the actual analysis takes place. A combined deductive-inductive coding approach is chosen, as it increases the accuracy of research outcomes and produces more relevant findings than using a single approach (Yuwono and Rachmawati, 2023). In Atlas.ti, a qualitative data analysis software, deductive codes derived from the conceptual framework (Figure 15) are applied, while an inductive open coding approach allows for the identification of emerging ideas and patterns. A complete overview of the deductive codes is presented in Table 2, while Appendix F provides descriptions for each code.

2.3.4 Generating Description, Categories and Themes
In parallel with the coding process, findings from each interview are documented and analysed in Excel, categorised under the relevant code themes within the corresponding barrier, enabler or intervention categories, and supported by illustrative quotes. These individual interview analyses are then cross-compared to identify recurring findings relevant to this study.

2.3.5 Representation of the Findings
Fifthly, the identified findings per barrier, enabler or intervention category and code theme are presented in a coherent storyline in the results section of Chapter 4. For each code theme, a table summarising the findings, including nuanced argumentation per interview and an illustrative quote, is provided in Appendix L. Direct quotations are used to support the conclusions and help bring the reader closer to the reality of the studied situation (Schulz, 2012).

2.3.6 Interpretation
The final step in the analysis stage involves interpreting the broader meaning of the data by reflecting on the lessons learned from the research (Lincoln and Guba, 1985). In this research, these interpretations are first translated into a preliminary outline of the guidelines. Subsequently, through an expert meeting, practitioners and scholars refine and validate them collaboratively. This step directly addresses sub-question four.

2.4 Data Management Plan
A Data Management Plan (DMP) is developed using the DMP-online tool to guide the preparation and execution of the research data management throughout this study. The plan (Appendix G) outlines the types of data collected, methods of collection, processing, storage and management (Strandberg, 2024). It also specifies for whom and how long the data is

Table 2
Overview of Deductive Codes (Own table)

Group	Deductive Code
Institutional Entrepreneur	Pioneer
	Consolidated organisation
	Intermediate agent
Actions and Strategies	Building of social network
	Mobilisation of resources
	Alignment and articulation of visions, goals and interests
	Interactive and collective learning process
Institutional Design/Professional Organisation	Stakeholder access
	Clear ground rules and protocols
	Process transparency
	Clearly defined roles
Starting Conditions	Resource/knowledge/power asymmetries
	Incentives or constraints to participate
Collaborative Process	Face-to-face dialogue
	Trust and relationship building
	Commitment to the process
	Shared understanding and shared ambition
	Intermediate outcomes and evaluations
Sustainable Urban Transformations	Drivers of radical change
	Multi-dimensional sustainable urban structures

made available, and describes how long the data is shared upon completion of the research project (ibid.).

2.5 Ethical Considerations

Because this study involves data from human subjects, the research methodology is designed to protect participants from undue harm or disproportionate risks (Strandberg, 2024). To ensure that the study is conducted ethically and robustly, an application was submitted to and approved by the Human Research Ethics Committee (HREC). This application includes the DMP, informed consent materials, and the HREC checklist (Appendix H), with the letter of approval in Appendix I.

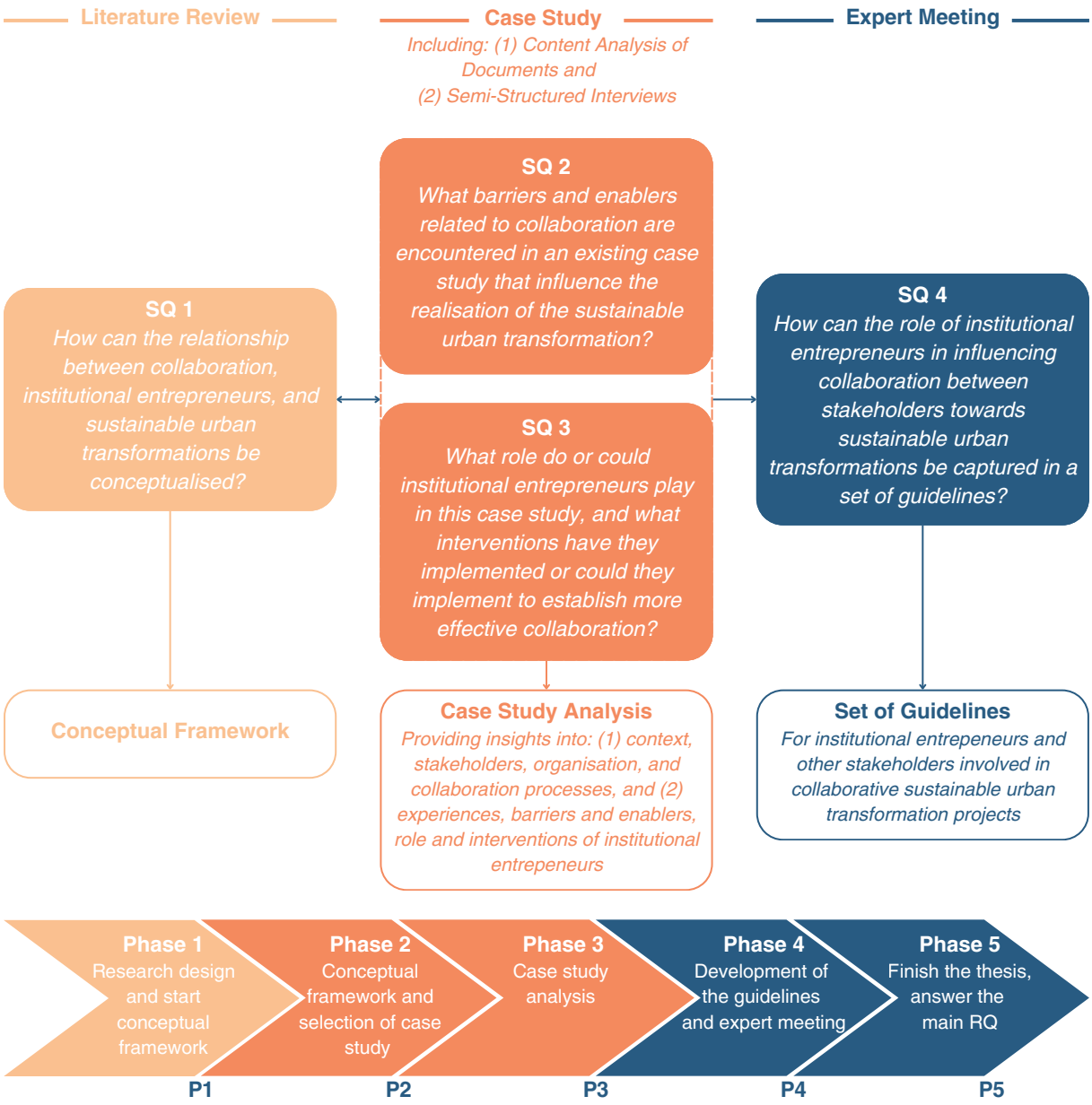
2.6 Research Design

The key elements of the research methodology, along with a plan for conducting the research, are illustrated in Figure 2. The study is structured into five phases, aligned with the five deadlines shown at the bottom of the figure. The figure outlines the sequential use of data collection methods. According to Merriam (1988), this triangulation of data, where data is collected through multiple sources, strengthens the reliability and internal validity of the research. The arrows indicate both the flow of information across phases and the deliverables produced per data collection method, which in turn serve as input for the subsequent phase. For a more detailed explanation of the planning and execution of this research, see Appendix A.

2.7 Research Output

This paragraph outlines the intended research outputs and consists of the goals and objectives, deliverables, and dissemination of audiences.

Figure 2
Research Design (Own figure)



2.7.1 Goals and Objectives

This research explores the role of institutional entrepreneurs in influencing stakeholder collaborations within existing urban contexts to achieve SUTs. This goal is accomplished by addressing the following objectives.

The first objective is conceptualising the relationship between collaboration, institutional entrepreneurs, and SUTs. This involves gathering relevant literature on the three concepts and using them to develop a conceptual framework to guide the empirical part of the research. The second objective is to identify barriers and enablers related to collaboration in an existing case study that influence the realisation of the SUT. Alongside this, the third objective is to determine the role and interventions of the institutional entrepreneurs in addressing or leveraging the identified barriers and enablers. The fourth objective is to combine the insights of the case study into a set of guidelines for institutional entrepreneurs to influence collaborations towards SUTs. As

scholars and practitioners are consulted during the development of the final guidelines, their input informs the guidelines while their usefulness is simultaneously assessed.

2.7.2 Deliverables

To achieve the main goal of understanding how institutional entrepreneurs can influence stakeholder collaborations towards SUTs, the following deliverables, related to the objectives and sub-questions, are produced.

First, an extensive literature review is conducted, outlining the most relevant literature on collaborations, institutional entrepreneurs, and SUTs. The outcome of this review is a conceptual framework that illustrates the interrelations between these three concepts and forms the first deliverable. The second deliverable consists of a case study analysis of an existing SUT project, focusing on identifying the barriers and enablers in the collaboration process, and the role and interventions of the institutional entrepreneurs. Building on the findings from the case study analysis, the third deliverable is a set of guidelines for institutional entrepreneurs to influence collaborations in SUT projects. The fourth deliverable combines, among other things, the findings of the previous deliverables in the thesis. Lastly, presentation slides are developed to summarise the research into a coherent storyline and form the last deliverable.

2.7.3 Dissemination and Audiences

The primary target audience for this research is institutional entrepreneurs operating in the urban environment sector, as the study aims to develop guidelines specifically for them. In addition, this research is valuable to (externally commissioned) coordinators and facilitators involved in SUT projects (e.g. project leaders), not only because they may act as institutional entrepreneurs themselves, but also as a source of inspiration to take on this role and/or utilise the interventions. Additionally, by contributing to the growing body of knowledge on institutional entrepreneurship, collaborations, and SUTs, this research is also relevant to scholars and researchers in the field of urban development.

3. Literature Review

This chapter reviews the most relevant literature on the three concepts of collaboration, institutional entrepreneurs, and SUTs, addressing the first sub-question: *'How can the relationship between collaboration, institutional entrepreneurs, and sustainable urban transformations be conceptualised?'* Paragraphs 1 to 3 explore each concept individually, while Paragraph 4 integrates these findings into a conceptual framework, providing variables that guide the analysis and interpretation of the case study.

3.1 Collaboration

Effective collaboration is essential in urban area transformations, as stakeholders cannot simply do it alone (Hoorn, 2018). These transformations involve complex collaborations that require mutual dependency and recognition that decisions can no longer be made independently (ibid.). Over the past decade, a new mode of governance called "collaborative governance" has emerged (Ansell and Gash, 2008), as a response to increasingly "wicked" societal issues, such as climate change, characterised by limited consensus on both the exact nature of the problem and the appropriate solutions (Voets et al., 2021).

To better understand the concept of collaboration in this context, this research builds on two complementary models, one grounded in academic theory and the other in practice. The first is the Collaborative Governance Model by Ansell and Gash (2008), which was developed through a meta-analysis of existing literature on collaborative governance. This model identifies critical variables that influence the success of collaborations within this governance mode. This source was chosen because Ansell and Gash remain key authors in the academic literature on collaborative governance, and their model has since been widely applied and adapted in various studies and contexts (Dong-Young, 2014; Hrelja et al., 2016; Jiang and Ritchie, 2017; Baldwin et al., 2018; Wallner, 2018; Wijaya, 2019, Grossi and Welinder, 2024). It also serves as a theoretical foundation in Mens et al.'s (2025) paper, which explores social value creation by sustainable entrepreneurs in urban development, a topic highly relevant to this research, as outlined in Paragraph 3.2.

The second model is the Common Eye Model on Collaboration (Common Eye, 2016), developed by a Dutch consultancy firm specialised in improving collaboration in practice. This model identifies key intervention domains that facilitate successful collaborations, including in urban area development. This source was selected for three reasons: first, it is developed specifically in the Dutch context, second, it addresses the application in urban area development, and third, it is rooted in practical experience, which provides a valuable and complementary perspective to the more theoretical model.

These two models are discussed in the following section and ultimately compared to identify their overlapping elements and complementary distinctions relevant to this study.

3.1.1 The Collaborative Governance Model (Ansell and Gash, 2008)

Ansell and Gash (2008) identified five critical variables that influence the success of collaborations in the collaborative governance mode, alongside five factors crucial to the collaborative process itself. The following section defines collaborative governance and presents the Collaborative Governance Model, including its variables contributing to successful collaborations.

3.1.1.1 Definition of Collaborative Governance

According to Ansel and Gash (2008), collaborative governance is defined as: *'A governing arrangement where one or more public agencies directly engage non-state state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement policy or manage public programs or assets'.*

3.1.1.2 The Model and Its Variables

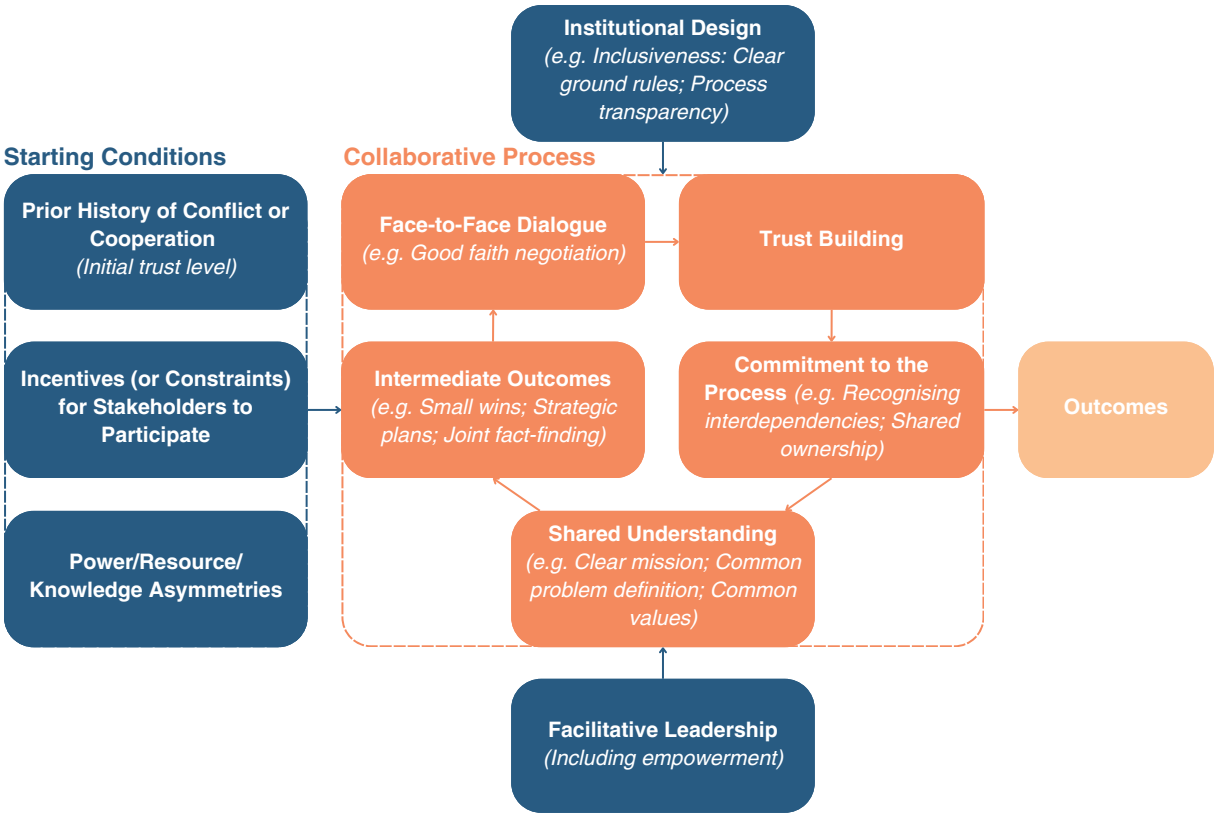
Ansell and Gash's (2008) Model of Collaborative Governance consists of four main variables: starting conditions, institutional design, leadership, and collaborative process. Some of these are further broken down into more specific variables (Figure 3). The variable collaborative process is the core of the model, whereby the other three main variables are critical contributors or context setters (ibid.). These main variables and their related variables, as specified by Ansell and Gash (2008), are outlined in detail.

Starting Conditions

The cooperation between stakeholders, including public agencies and nonstate actors, depends largely on the conditions present at the start of the collaboration. Ansell and Gash (2008) mention that these starting conditions can either discourage or facilitate effective cooperation. Three broad

Figure 3

Model of Collaborative Governance. Recreated from Ansell and Gash (2008)



variables influencing these starting conditions are discussed below.

1. Power/Resource Asymmetries

If stakeholders lack the capacity, status, resources, or organisation to participate equally, the collaborative process will be vulnerable to manipulation by powerful stakeholders, ultimately leading to weak commitment and distrust (Gray, 1999; Warner, 2006). Power imbalances are particularly problematic when important stakeholders lack the organisational capacity to participate effectively in these processes. Furthermore, resource imbalances emerge when some stakeholders do not have the expertise and skill to engage in complex technical discussions (Gunton and Day, 2003; Lasker and Weiss, 2003; Merkhofer et al., 1997; Murdock et al., 2005; Warner, 2006) or when they do not have the energy, time, and liberty to engage in these processes (Yaffee and Wondolleck, 2003).

However, if there are power or resource imbalances, these can, according to several studies (Fawcett et al., 1995; Lasker and Weiss, 2003; Merkhofer et al., 1997; Mitchell, 2005; Schuckman, 2001), be resolved through a commitment to a positive strategy that focuses on the representation and empowerment of disadvantaged and weaker stakeholders.

2. Incentives to Participate

Given that participation in collaborative efforts is largely voluntary, understanding stakeholder incentives and the factors that shape them is crucial (Andranovich, 1995; Chrislip and Larson, 1994; Gray, 1999; Nelson and Weschler, 1998). Incentives to participate are, first of all, shaped by power and resource imbalances (Gunton and Day, 2003; Imperial, 2005). Stakeholders who believe they hold greater power are unlikely to commit to collaborative efforts. Secondly, incentives depend largely on stakeholder expectations, especially regarding the results of the collaborative process, in relation to the required time and energy (Bradford, 1998; Geoghegan and Renard, 2002; Rogers et al., 1993; Schneider et al., 2003; Warner, 2006). Incentives increase when participants see a clear connection between their engagement and tangible and effective outcomes (Brown, 2002). Thirdly, the possibility of alternative venues and the perception of interdependencies influence stakeholders' incentives to participate. These incentives are amplified when collaboration is the exclusive form or when stakeholders understand that achieving their goals depends on working with others (Logsdon, 1991).

3. Prehistory of Cooperation and Antagonism

The historical relationship between stakeholders either facilitates or hinders collaboration (Andranovich, 1995; Gray, 1999; Margerum, 2002). While a history of successful cooperation can build trust and social capital, creating a virtuous cycle of collaboration, a history of antagonism can lead to low commitment, manipulation, and dishonest communication.

However, even in cases with deep-rooted conflict, high levels of interdependence can create a powerful incentive for collaborative governance, as stakeholders often realise their goals can only be achieved through collective efforts, despite opposing interests. Therefore, if there is a history of conflict, collaborative governance is most likely to succeed, either when the degree of stakeholder interdependence is high or when efforts are made to resolve the low levels of trust and social capital.

Facilitative Leadership

Leadership is broadly recognised as a key factor in bringing stakeholders together and guiding them through the challenges

inherent in collaborative processes (Burger et al., 2001; Chrislip and Larson, 1994; Frame et al., 2004; Gilliam et al., 2002; Gunton and Day, 2003; Heikkila and Gerlak, 2005; Huxham and Vangen, 2000; Imperial, 2005; Lasker and Weiss, 2003; Margerum, 2002; Murdock et al., 2005; Reilly, 1998, 2001; Roussos and Fawcett, 2000; Saarikoski, 2000; Smith, 1998; Vangen and Huxham, 2003). It plays a crucial role in building trust, setting ground rules, facilitating a dialogue, exploring mutual gains, synthesising knowledge, and mobilising stakeholders (Vangen and Huxham, 2003). Furthermore, leadership should give a voice to all stakeholders, particularly weaker ones, by empowering them and encouraging them to listen to one another.

Lasker et al. (2001) identify four skills for effective leadership: (1) promoting inclusive and active stakeholder participation, (2) ensuring equitable influence and control, (3) establishing effective group dynamics, and (4) broadening the scope and impact of the collaborative process.

A specific form of leadership that has received attention is facilitative leadership, which focuses on bringing stakeholders together to engage with one another (Chrislip and Larson, 1994; Ozawa, 1993; Pine et al., 1998; Reilly, 2001; Susskind and Cruikshank, 1987). Susskind and Cruikshank (1987) describe facilitation as the least interventionist of three assisted negotiation techniques, where the leader aims to ensure the integrity of the consensus-building. When facilitation proves insufficient, mediation can be applied, where a third party plays a more active role by helping stakeholders explore possible win-win gains. If consensus remains unachievable, non-binding arbitration can be used, whereby the third party proposes a solution without enforcing it.

Lastly, the most suitable type of leadership for collaborative processes depends on situational factors such as conflict levels, trust, power distribution and stakeholder incentives. When power distribution is relatively equal, and stakeholders are motivated to participate, but conflict is high, and trust is low, collaborative governance can continue effectively with the support of a broker, trusted and accepted by all stakeholders. In cases of weak incentives or uneven power distribution, collaborative governance relies on a strong “organic” leader who naturally emerges from the stakeholder community with the respect and trust of all stakeholders.

Institutional Design

Institutional design refers to the ground rules and basic protocols for ensuring the legitimacy of the collaborative process. A key element is stakeholder access, collaboration must be open and broadly inclusive to all stakeholders who care about or are effected by the issue (Andranovich, 1995; Burger et al., 2001; Chrislip and Larson, 1994; Gray, 1999; Gunton and Day, 2003; Lasker and Weiss, 2003; Margerum, 2002; Martin et al., 1999; Murdock et al., 2005; Plummer and Fitzgibbon, 2004; Power et al., 2000; Reilly, 1998, 2001). This broad inclusion must be actively sought, and therefore, proactive strategies to include less-represented and weaker stakeholders are often important (Weech-Maldonado and Merrill, 2000). Furthermore, clear ground rules and process transparency are important, not only for trust building but also to establish procedural legitimacy (Busenberg, 1999; Geoghegan and Renard, 2002; Glasbergen and Driessen, 2005; Gunton and Day, 2003; Imperial, 2005; Murdock et al., 2005; Rogers et al., 1993). Finally, clearly defined roles are an important institutional design feature (Fung and Wright, 2001; Imperial, 2005; Weech-Maldonado and Merrill, 2000) to reduce ambiguity (Alexander et al., 1998).

The Collaborative Process

The collaborative process is cyclical/iterative in nature, moving through communication, trust, commitment, understanding, and outcomes (Huxham, 2003; Imperial, 2005). These five interdependent elements can have positive or negative effects on the further development of a collaboration and are discussed below.

1. Face-to-Face Dialogue

Communication lies at the core of collaboration. Face-to-face dialogue is necessary to identify mutual gain opportunities (Ansell and Gash, 2008) and to break down stereotypes and other barriers (Bentrup, 2001). It also contributes to building a shared understanding, mutual respect, trust and commitment (Gilliam et al., 2002; Lasker and Weiss, 2003; Plummer and Fitzgibbon, 2004; Schneider et al., 2003; Tompkins and Adger, 2004; Warner, 2006). However, such dialogues can also backfire and intensify antagonism, stereotypes, or mutual disrespect.

2. Trust Building

The collaborative process is also about building trust among stakeholders (Alexander et al., 1998; Beierle and Konisky, 2001; Brinkerhoff, 1999; Glasbergen and Driessen, 2005; Imperial, 2005; Murdock et al., 2005; Short and Winter, 1999; Tett et al., 2003; Vangen and Huxham, 2003). The attitude and ability to trust one another are widely recognised as crucial for team members to build relationships and work towards shared goals (Turaga, 2013). Trust-building is particularly crucial but challenging early in the collaboration, especially if stakeholders have a history of antagonism (Murdock et al., 2005). Because of this difficulty, effective collaborative leaders must build trust among such stakeholders before they are willing to take risks, while stakeholders must dedicate sufficient time to this inherently time-consuming trust-building process. Achieving collaborative results, therefore, requires long-term commitment from all stakeholders. Those unable to justify the time and cost should not participate.

Since trust forms the foundation for effective interpersonal relationships, it is essential for leaders to constantly take actions to build, maintain, and sustain trust within stakeholder collaborations (Turaga, 2013). Turaga (2013) outlines several actions leaders can apply across Tuckman's four stages of team development to establish and sustain trust. Figure 4 summarises the key actions leaders should take to build, maintain and sustain trust at each stage, with the following section briefly introducing each stage.

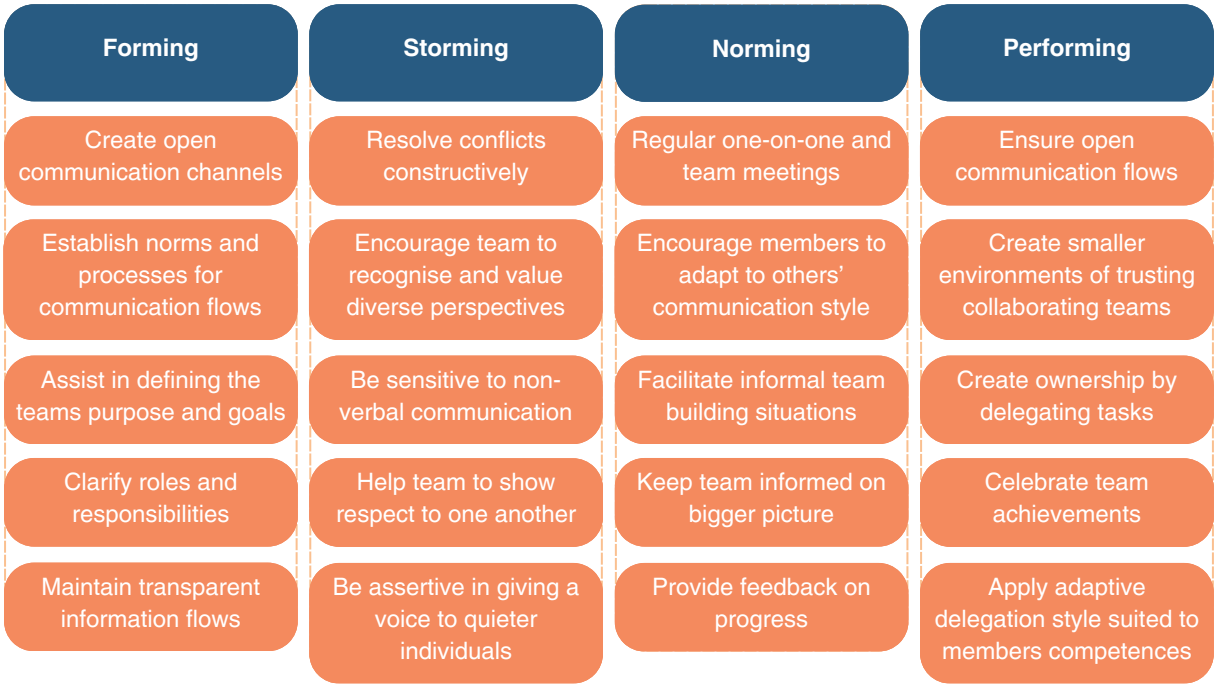
During the forming stage, team members start to get to know each other and build initial trust and confidence, which requires leaders to facilitate the process in a positive and supportive way (Turaga, 2013). In the storming stage, as members get comfortable and start voicing different opinions, conflicts might arise, requiring leaders to flexibly shift between roles as mediator, motivator or counsellor (ibid.). During the norming stage, where team members get comfortable working together to achieve the collective goal and establish synergy, leaders must sustain and transition trust by acknowledging and supporting both individual and team accomplishments (ibid.). Finally, in the performing stage, where team members collaborate easily and accomplish considerable outcomes, leaders must continue to strengthen trust by creating smaller trusting sub-teams (ibid.).

3. Commitment to the Process

Stakeholder commitment is a critical variable for the success or failure of collaboration (Alexander et al., 1998; Gunton and Day, 2003; Margerum, 2001; Tett et al., 2003), and is closely linked to the initial motivation to participate. However, it goes beyond initial

Figure 4

Leadership Actions at Each Stage of Team Development to Build, Maintain, and Sustain Trust (Own figure)



intentions, requiring a psychological shift, especially for those who view their position in absolute terms (Putnam, 2004; Putnam et al., 2003), towards the belief that mutual gain thinking is the most effective approach to achieving desirable outcomes (Burger et al., 2001). Achieving this "buy-in" from all stakeholders is essential.

However, commitment introduces a dilemma, as stakeholders must initially be willing to comply with the collective decisions, even if they do not fully support them. This commitment significantly depends on trust, as well as clear, fair and transparent procedures, which ensure that varying perspectives and interests are respected and that discussions and negotiations are conducted with integrity.

Another dimension of commitment is "ownership of the process", where decision-making is a shared collective (El Ansari, 2003; Geoghegan and Renard, 2002; Weech-Maldonado and Merrill, 2000). This shared ownership involves shared responsibilities, which require trust to ensure that stakeholders do not take advantage of your willingness to act for the collective good.

4. Shared Understanding

In the collaborative process, stakeholders must align their understandings of what can be achieved collectively (Tett et al., 2003). This is also described in various other ways, such as a "common mission" (Alexander et al., 1998; Roussos and Fawcett, 2000), "common purpose" (Tett, et al., 2003), "common ground" (Wondolleck and Yaffee, 2000), "shared vision" (Manring and Pearsall, 2005; Walter and Petr, 2000; Wondolleck and Yaffee, 2000), "common objectives" (Padilla and Daigle, 1998), "clear goals" (Glasbergen and Driessen, 2005; Robertson and Lawes, 2005), "shared ideology" (Waage, 2001), "clear and strategic direction" (Margerum, 2002), or "alignment of core values" (Heikkila and Gerlak, 2005). Developing this shared understanding also involves first agreeing on the problem definition (Bentrup, 2001; North,

2000; Pahl-Wostl and Hare, 2004) and ensuring access to the knowledge necessary to address it.

5. Intermediate Outcomes

Lastly, collaboration is more likely when the potential advantages and purposes are clear and concrete, and when small wins, in terms of critical process outcomes, are possible (Chrislip and Larson, 1994; Roussos and Fawcett, 2000; Warner, 2006; Weech-Maldonado and Merrill, 2000). These small wins are essential for building momentum and creating a cycle of trust-building and commitment (Rogers et al., 1993; Vangen and Huxham, 2003), especially in contexts where prior antagonism is high, and long-term commitment to trust-building is required. Stakeholders should not enter into a collaborative process if they cannot foresee these small wins.

3.1.2 The Common Eye Model on Collaboration (Common Eye, 2016)

Common Eye (2016) identified six key domains of intervention to facilitate successful collaborations (Figure 5), which are discussed below.

3.1.2.1 Shared Ambition

The first and most fundamental domain is a shared ambition. A strong shared ambition ensures that all stakeholders benefit both individually and collectively. However, due to varying individual ambitions and the diversity of stakeholders, miscommunication can arise. To prevent this, the ambition should be clearly defined and broken down so that all stakeholders fully understand each other and the shared ambition. A clear ambition is also essential to avoid pseudo-collaboration, a situation where stakeholders appear to collaborate, but support for collaboration gradually diminishes.

Creating a shared ambition also requires balancing stakeholders' contributions, in terms of time, money and knowledge, with what they aim to gain from collaboration. Therefore, a well-defined shared ambition captures both mutual and individual benefits, helping secure true commitment from all stakeholders.

Finally, a strong shared ambition cannot exist without action from all involved. Thus, in short, Shared Ambition = Promise + Commitment + Action. Without a clear promise, commitment, and action, collaborations will struggle to achieve their mutual goal and ultimately fail (Hoorn, 2018).

3.1.2.2 Interests

To achieve sustainable collaborations, stakeholders need to discuss their interests early on. Discussions often focus solely on collective interests and quickly move to contracts, covenants or joint ventures. However, it is equally important to address both organisational and individual interests of the representatives of each organisation involved in urban area developments. Organisational interests typically reflect an organisation's goals and core values, such as growth and financial targets, while individual interests are shaped by personal convictions, motivations, and drivers.

3.1.2.3 Relationships

Collaboration extends beyond the individual level by incorporating all stakeholders, making strong relationships among participants important. Actively building these relationships ensures stability, improves conflict management, and creates a supportive environment for feedback. Social psychological processes, group dynamics, inclusion and exclusion, power, leadership, conflict management, and trust all play key roles in building and maintaining these relationships.

3.1.2.4 Organisation

To realise the collective ambition, a

Figure 5
The Common-Eye-Model on Collaboration. Recreated and adapted from Common Eye (2016)



professional organisational structure should be established. The structure must align with the shared ambition, avoiding both over- and under-organisation. Over-organisation occurs when too much is spent on the organisation, while under-organisation results from stakeholders relying excessively on their own organisational procedures and routines, instead of focusing on what is needed to achieve the collective ambition. Both can lead to governance ambiguity and increase the risk of pseudo-collaboration.

Therefore, robust collaboration requires balancing between decisiveness, focused on actions, and support, to gain and maintain stakeholders' trust. Ground rules or a contract should outline minimum preconditions, such as decision-making authority and responsibilities. Additionally, periodic evaluations are important to ensure the ongoing development of the collaboration and relationships (Hoorn, 2018).

3.1.2.5 Process
A meaningful process should be developed

early in the collaboration to provide clarity for all involved. This includes decision-making authority, time to deliberate, monitoring of progress and quality and a strategy to achieve the desired outcome, thereby reducing uncertainty and suspicion. Keeping stakeholders informed about upcoming activities and their current phase, along with periodic evaluations to demonstrate the benefits of collaboration, provides motivation to continue collaborating. The phases of collaboration are illustrated in Figure 6.

3.1.2.6 Collaboration Strategy and Collaboration Skills

A well-defined collaboration strategy and strong collaboration skills are essential for effective collaboration. Organisations should therefore proactively consider how cooperation can support their internal goals and explore the opportunities it offers. By integrating collaboration as a strategic alternative, organisations can move beyond solely relying on internal strategies to achieve their objectives.

The development of a collaboration strategy follows four steps, illustrated in Figure 7:

1. Define individual organisational strategy: establish a clear mission, vision, and strategic plan;
2. Analyse trends and developments: assess their potential impact on the organisation;
3. Develop a collaborative strategy: identify which goals are best achieved through collaboration and integrate these into the organisation's strategic plan;
4. Select and engage partners and collectively develop the strategy of the collaboration: collaboratively clarify the collective's purpose, structure, and intended outcomes.

It should be noted that in urban area transformations, the selection of suitable cooperation partners is often not possible, as such transformations are inherently associated with an existing situation and stakeholders.

3.1.3 Comparative Analysis of Collaborative Elements

Although the models of Ansell and Gash (2008) and Common Eye (2016) originate from different contexts, the former rooted in academic theory and the latter in practice, they share several crucial elements relevant to successful collaboration. A comparative analysis reveals both overlapping and complementary elements, which inform a set of variables relevant to this study (Figure 8).

The shared ambition domain in the Common Eye Model closely aligns with the shared understanding variable in the Collaborative Governance Model of Ansell and Gash. Both models emphasise the importance of developing a clear and deepened vision and objective to ensure that all stakeholders understand both the shared goal and each other's interests. Common Eye complements this by highlighting that the shared ambition should include not only shared benefits, but also those of individual stakeholders and their contributions. The emphasis on true commitment relates to the commitment to the process variable in Ansell and Gash's

Figure 6
Five Phases of a Collaboration Process. Recreated from Common Eye (2016)



Figure 7
Strategy and Collaboration. Recreated from Common Eye (2016)



model. In addition, Common Eye stresses that shared ambitions require clear promises and action from all stakeholders to be successfully realised.

The second domain, interest, in the Common Eye Model can be interpreted as an additional starting condition in the model of Ansell and Gash, while also relating to the face-to-face dialogue variable. Common Eye emphasises the importance of discussing not only collective interests, but also organisational and individual interests from an early stage. These relatively fixed interests, rooted in organisations' and individuals' goals and core values, function as contextual factors that can either discourage or facilitate the collaboration, similar to the starting conditions in Ansell and Gash's model.

The relationship domain in the Common Eye Model corresponds closely with the process of trust building in Ansell and Gash's model. Both models emphasise that active and continuous relationship and trust-building are essential for sustained commitment, collective action, and a stable collaboration. Ansell and Gash particularly highlight the importance of trust-building when there is a history of antagonism among stakeholders, illustrating the role of facilitative leadership. Common Eye complements this by recognising that social psychological processes, group dynamics, inclusion and exclusion, power, leadership, and conflict management are other important factors in building strong relationships, all of which correspond to the leadership tasks in Ansell and Gash's model. Turaga (2013) further strengthens this perspective, emphasising that leaders must continuously adapt their actions to build and sustain trust throughout the team development stages, as trust is fundamental to effective interpersonal relationships.

The fourth domain, organisation, in the Common Eye Model aligns with the institutional design variable in Ansell and Gash's model. Both emphasise the importance of clear ground rules and protocols, often formalised through contracts, transparent processes, and clarity in roles, to support trust building and legitimacy within the collaboration. Common

Eye adds that organisational structures should align with the collective ambition and that processes should be periodically evaluated to support the ongoing development of both relationships and the collaborative process.

The process domain in the Common Eye Model corresponds to the main variable collaborative process in the Model of Ansell and Gash. While Common Eye does not explicitly describe the cyclical nature of collaboration or the guiding role of leadership, it does recognise the importance of creating clarity for all stakeholders, keeping them informed, and periodically evaluating progress to demonstrate the benefits of collaboration. These aspects closely relate to the role of facilitative leadership in Ansell and Gash's model.

Finally, the sixth domain, collaboration strategy and collaboration skills, can also be considered part of the starting conditions in Ansell and Gash's model. Common Eye stresses that participating organisations need to have a well-defined collaborative strategy that considers how collaboration can support their internal goals, as well as strong collaboration skills. These factors, brought into the process by individual stakeholders and organisations, can similarly discourage or facilitate effective collaboration, just like other starting conditions in Ansell and Gash's model.

3.1.3.1 Adapted Model with Variables Relevant to this Study

Figure 8 presents an adapted version of Ansell and Gash's (2008) Collaborative Governance Model, integrating insights from the comparative analysis of Ansell and Gash (2008) and Common Eye (2016). The adapted model highlights variables relevant to this research. As shown in the figure, the three main variables, starting conditions, facilitative leadership, and institutional design/organisation, serve as critical contributors or context setters, directly influencing the fourth main variable, the collaborative process.

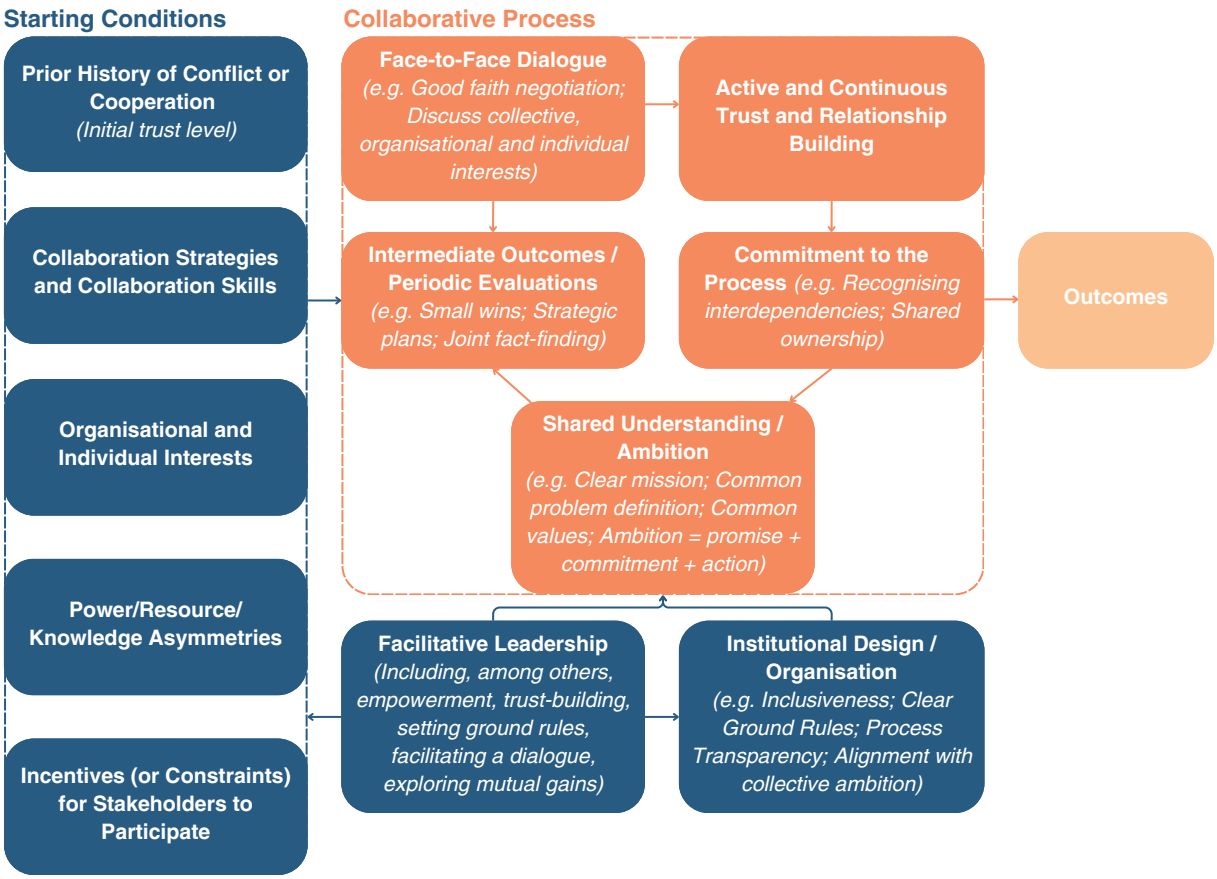
Two new variables, collaboration strategies and skills and organisational and individual interests, have been added to the starting conditions. This model further extends the original by showing that facilitative leadership influences not only the collaborative process but also specific starting conditions, including power/resource/knowledge asymmetries, and incentives to participate. Leadership can influence these asymmetries by committing to a strategy that emphasises the representation and empowerment of weaker and disadvantaged stakeholders, strengthening incentives by showing a direct relation between participation and concrete outcomes, and highlighting stakeholder interdependencies. Therefore, facilitative leadership also indirectly influences the collaborative process.

Additionally, this model extends the original by showing that facilitative leadership can also influence the institutional design/professional organisation, by facilitating the establishment of ground rules, actively including less-represented stakeholders, and periodically evaluating the collaborative process to sustain relationship- and trust-building. Through these influences, facilitative leadership again indirectly extends its influence on the collaborative process.

Finally, while Ansell and Gash explained the direct influence of facilitative leadership and the other two main variables on the collaborative process, insights from the Common Eye Model have refined the five specific variables within the collaborative process (Figure 8).

Figure 8

Collaboration Variables Relevant to this Study. Adapted Version of the Collaborative Governance Model of Ansell and Gash (2008)



3.2 Institutional Entrepreneurs

SUTs are highly context-dependent and associated with wicked problems (Camillius, 2008), making a universal 'top-down' approach impossible (Klein Woolthuis et al., 2013). A tailored approach is therefore required, considering local factors such as people, ecosystems, and infrastructure (ibid.). The challenge, thus, is not only to identify the 'right solution' but also to create the institutional conditions that enable such solutions to emerge (ibid.).

Institutional entrepreneurs play a crucial role in driving this institutional change and promoting SUD (Klein Woolthuis et al., 2013). Due to the lack of consensus on urban sustainability, it is considered here as a strategy for action (Hooimeijer, 2011), an entrepreneurial vision to implement in concrete urban development projects (Klein Woolthuis et al., 2013). Building on Pacheco et al. (2010), Klein Woolthuis et al. (2013) identify six tactics institutional entrepreneurs use to influence formal and informal institutions, creating a more favourable context for SUDs. Mens et al. (2021) provide a complementary perspective by examining social entrepreneurs in bottom-up urban developments. While primarily aiming to create social rather than sustainable value, these actors similarly challenge existing institutions (ibid.), offering valuable insights for this study.

The following section introduces the concept of institutional change and compares the two studies to identify overlapping elements and complementary distinctions relevant to this study.

3.2.1 Institutional Change

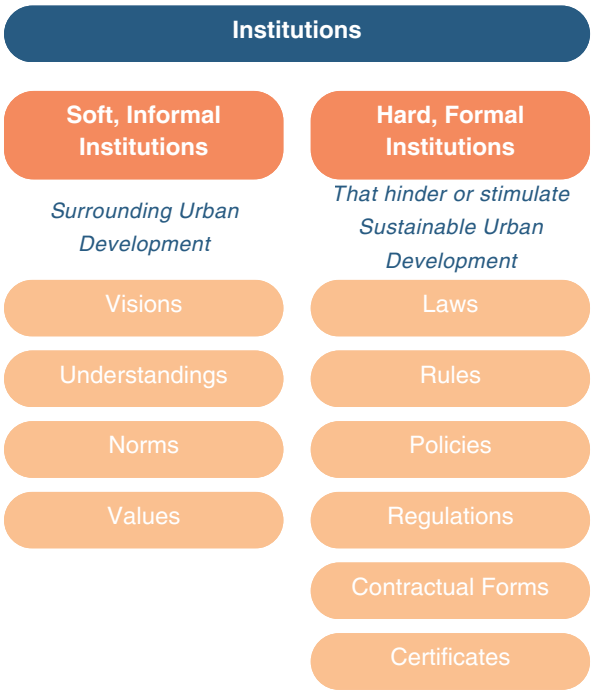
Institutional change refers to the process of deinstitutionalisation of existing institutions and the theorisation and institutionalisation of new ones (Greenwood et al., 2002) that support SUD (Klein Woolthuis et al., 2013). Institutions are defined here as the 'rules of the game' that guide routine behaviour (Jepperson, 1991). These rules may be taken for granted among stakeholders within a sector or reinforced by public opinion or legal authority (DiMaggio and Powell, 1983). A distinction is made between soft, informal and hard, formal institutions, as illustrated in Figure 9. The primary focus of this study lies on the informal aspects of stakeholder collaborations, while also acknowledging the formal ones that might influence the collaborative process towards SUTs.

3.2.2 Six Tactics of Institutional Entrepreneurs (Klein Woolthuis et al., 2013)

Through a case study methodology, Klein Woolthuis et al. (2013), building on Pacheco et al. (2010), identified six tactics that institutional entrepreneurs use to influence both formal and informal institutions, to create a favourable institutional context for SUD. First, the role and examples of institutional entrepreneurs are described, followed by the six tactics.

Figure 9

Distinction Between Informal and Formal Institutions (own figure)



3.2.2.1 Role of Institutional Entrepreneurs

Institutional entrepreneurs are influential groups of individuals or organisations (Fligstein, 1997; Garud and Karnøe, 2003) that challenge existing institutions and initiate and accelerate new ones (Dacin et al., 2002). DiMaggio (1988) describes them as individuals possessing sufficient resources (e.g. money, knowledge or influence) to pursue interests that are valuable to them. In addition, other scholars highlight that they can also engage in political strategies, including establishing advocacy coalitions or lobbying to modify institutional constraints to their advantage (Bansal and Roth, 2000; Garud and Karnøe, 2003; Hillman and Hitt, 1999; Oliver and Holzinger, 2008).

Although institutional entrepreneurs play a key role in initiating and accelerating institutional change, they should be seen as promoters and, therefore, an initial step in this process (Greenwood et al., 2002; Pacheco et al., 2010). After all, achieving real institutional change is not a straightforward but complex process, and it's unclear whether it can be orchestrated or enforced (Klein Woolthuis et al., 2013). Moreover, in the urban context, institutional change cannot singularly be established by institutional entrepreneurs, as it involves a wide variety of actors (ibid.), and a dynamic interaction between institutional entrepreneurs and their institutional context (Bansal and Roth, 2000; Vermeulen et al., 2007). Due to this dynamic interaction, this study investigates how institutional entrepreneurs can influence stakeholder collaborations toward SUTs.

3.2.2.2 Examples of Institutional Entrepreneurs

Klein Woolthuis et al. (2013) examined three cases where institutional entrepreneurs successfully realised SUDs, serving as inspirations for SUTs. The cases differ in approach, motivation, and scale (ibid.). The first involves a building scale project, where the institutional entrepreneur, a former housing association manager, aimed to develop a mixed- and flexible-use building through the Solids concept (ibid.). The second is a small-scale, self-organised SUD (EVA Lanxmeer), integrating social and urban quality with nature, initiated by the institutional entrepreneur who is a concerned citizen (ibid.). The third concerns a Cradle to Cradle business park, closing material, waste, energy, and water loops, initiated by a CEO of a real estate development firm (McDonough and Braungart, 2002; Klein Woolthuis et al., 2013).

These cases demonstrate the diversity of institutional entrepreneurs, from individuals to organisations, and the varying scales at which they establish SUDs, utilising several tactics.

3.2.2.3 Six Tactics for Institutional Entrepreneurs to Influence Formal and Informal Institutions

Figure 10 illustrates the six tactics identified by Klein Woolthuis et al. (2013) that institutional entrepreneurs can use to influence formal and informal institutions to create a favourable institutional context for SUD, and are discussed in the following section.

Framing

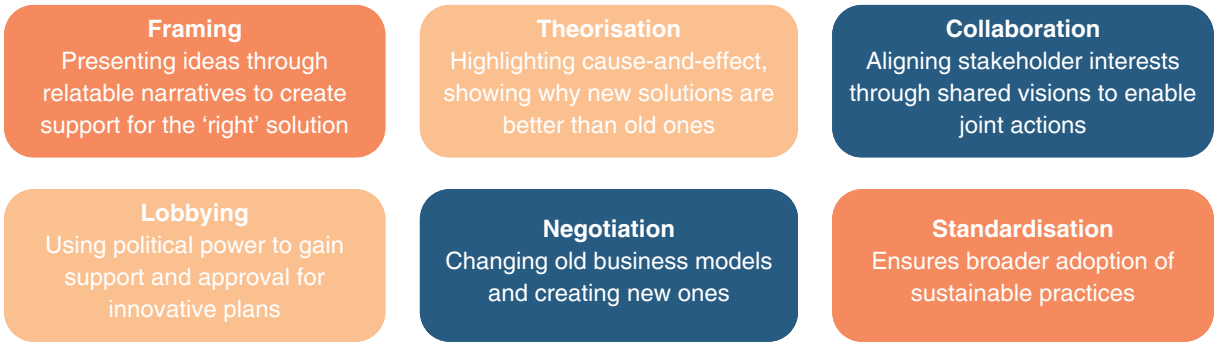
Framing allows institutional entrepreneurs to present their preferred institutional arrangements in a way that appeals to a broad audience (Pacheco et al., 2010). Since SUDs are wicked problems, they frame their own vision (Klein Woolthuis et al., 2013). By linking innovative ideas and technical solutions to widely accepted narratives (Lawrence and Philips, 2004), they create legitimacy and support for their proposed 'right' solution, often referring to positive arguments such as their profitability and resilience (Klein Woolthuis et al., 2013).

Theorisation

Theorisation validates an institutional entrepreneur's 'right' solution, by highlighting cause-and-effect relationships (Pacheco et al., 2010), such as showing why current methods are wrong and why their solution is greater through pragmatic arguments (e.g. better business proposition with sustainable as a side effect) and moral arguments (e.g. improved quality of life and environmental values) (Greenwood et al., 2002; Klein Woolthuis et al., 2013). Additionally, demonstrating realised projects can further

Figure 10

Tactics Utilised by Institutional Entrepreneurs to Influence Formal and Informal Institutions (Own figure)



showcase the superiority and feasibility of the new 'right' solution, ultimately modifying existing formal and informal institutions (ibid.).

Collaboration

As SUDs are wicked problems requiring the involvement of multiple stakeholders, collaboration through collective action is another key tactic for institutional entrepreneurs (Klein Woolthuis et al., 2013). Such collaborations aim to align diverse interests by creating shared meanings, identities (Fligstein, 1997), or development visions (Klein Woolthuis et al., 2013). They should involve, among others, local authorities to influence macro-level institutions, creating favourable conditions for SUD (Zucker, 1988), as well as previously unengaged stakeholders such as universities, users, NGOs, authorities, innovative companies, and an interdisciplinary group of experts to incorporate resources and skills across domains (Scholz and Stiftel, 2005; Klein Woolthuis et al., 2013). However, careful consideration of the skills and interests each stakeholder brings is necessary, as aligning them can be complex (ibid.). Moreover, institutional change often involves the adoption of new practices (ibid.). Therefore, stakeholders must recognise and prioritise long-term learning, quality, and joint responsibility for development (ibid.). Ultimately, such collaborative processes enable opportunity creation, knowledge accumulation, and the emergence of new development paths (ibid.).

Lobbying

Lobbying uses political power and tactics to advocate collective or individual visions and interests (Pacheco et al., 2010; Levy and Scully, 2007) and to gain governmental support and approval for new plans (Klein Woolthuis et al., 2013). This is particularly important in the tightly regulated built environment (Loikkanan and Hyvonen, 2011), where deviation from existing rules may lead to legal issues (Klein Woolthuis et al., 2013). The effectiveness of lobbying depends on the institutional entrepreneur's resources, social or network position (Dimaggio, 1988), and ability to mobilise actors and resources (Dimaggio, 1988; Leblebici et al., 1991).

Negotiation

Negotiation revises existing business models and ownership arrangements to overcome barriers to change, rooted in longstanding interests and structures (Klein Woolthuis et al., 2013). By revising property arrangements and contractual agreements, negotiation can increase project feasibility by adjusting incentive structures for stakeholders and aligning interests (Klein Woolthuis et al., 2005).

Standardisation

Standardisation facilitates the adoption of new practices (Boiral, 2007). By setting technological standards, such as industrial norms, institutional entrepreneurs can establish a competitive advantage (ibid.). More importantly, standardisation can force others to follow, making it an effective mechanism for achieving successful and widespread SUDs (Klein Woolthuis et al., 2013).

3.2.3 Social Entrepreneurs (Mens et al., 2021)

Mens et al. (2021) analysed 'new' non-conventional actors in bottom-up urban initiatives using multiple case studies. First, this non-conventional actor, the social entrepreneur, is described, followed by a typology of three social entrepreneurs.

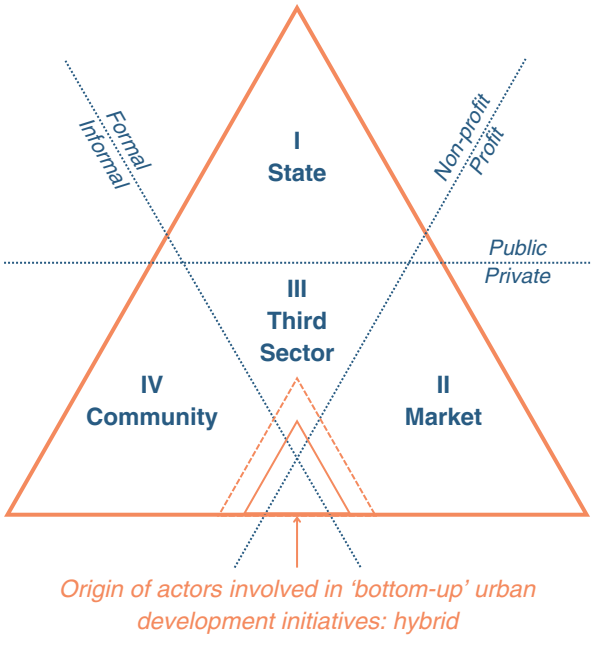
3.2.3.1 Characteristics and Role of Social Entrepreneurs

Social entrepreneurs aim to create a broad social impact in urban developments by

addressing societal needs unmet by conventional actors (Mens et al., 2021). They collaborate deliberatively with multiple (conventional) actors (ibid.), recognising opportunities and proactively acting upon them to generate social value (Austin et al., 2012; Certo & Miller, 2008). These actors are 'hybrid' in nature, mixing characteristics of market and civil society, as illustrated in Figure 11 (Brandsen et al., 2005; Pestoff, 1992).

Unlike commercial entrepreneurs, social entrepreneurs aim to create social rather than financial value (Mens et al., 2021). Due to limited resources, such as talent, finance, and funding, they must build large and solid social networks and effectively communicate the venture's impact, values and outcomes to mobilise external resources (Austin et al., 2012). To overcome such barriers, they utilise several actions and strategies (Figure 12), whereby the first and second align with the process of niche formation in social-technical innovations, as social entrepreneurs create supportive environments within urban development, by building social networks, and mobilising resources and support (Pesch et al., 2017; Smith et al., 2016). The third strategy involves developing, adjusting, aligning and articulating a vision and expectations to steer the initiative towards its goals (Mens et al., 2021). Finally, the fourth strategy involves establishing a continuous, interactive and collective learning process across various dimensions (Pesch et al., 2017), such as organisational structures, business models, and regulations (Schot and Geels, 2013; Pesch et al., 2017), to navigate the barriers faced by social entrepreneurs.

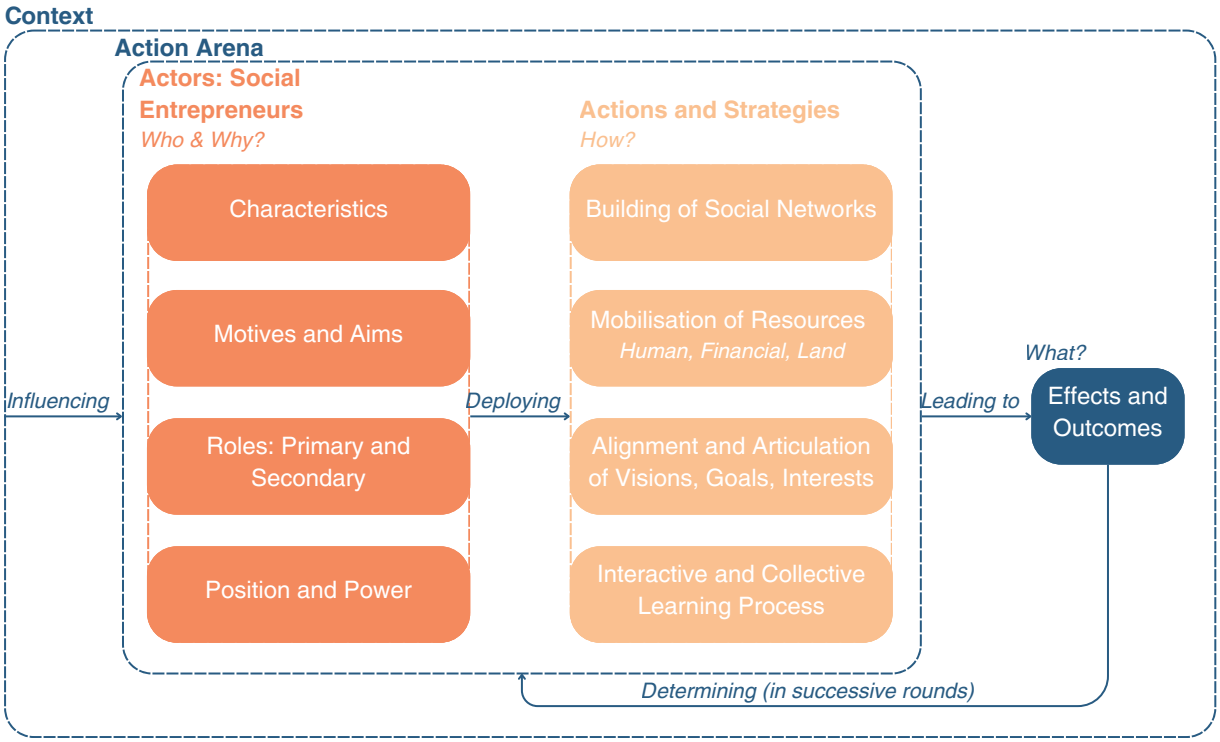
Figure 11
Adapted Version of the Welfare Mix Triangle (Brandsen et al., 2005; Pestoff, 1992). Recreated from Mens et al. (2021)



3.2.3.2 A Typology of Social Entrepreneurs
Mens et al. (2021) identified a typology of social entrepreneurs in urban development, differentiating three types based on their characteristics, motives, aims, primary and secondary roles, and position and power. These types are discussed below and presented in an overview in Appendix J. Since the actions and strategies aim to create a supportive environment in terms of social networks, support and resources to reach their goals, and largely determine their secondary roles, these elements are also incorporated in the framework that Mens et al. (2021) used for analysis (Figure 12).

Type A: Pioneers
The first type, the pioneers, are informally collaborating individuals with a hybrid nature combining characteristics of market and civil society, and primarily operate within the creative industry (Mens et al., 2021). An example includes an architect/urban designer developing a creative breeding ground (ibid.). The social motives and aims, or Social-Value Preposition (SVP) (Austin et al., 2012), are recognised, but emerge after pragmatic, individual motivations, such as the desire to create their own working space (Mens et al., 2021).

Figure 12
Framework for the Analysis of Social Entrepreneurs. Recreated from Mens et al. (2021)



In terms of roles, pioneers primarily act as developers, constructing or transforming real estate, and as end-users (Mens et al., 2021), due to their desire for their own working space. Their secondary roles include boundary spanners, by establishing cross-sectoral collaborations, bridging interests, negotiating, and building trust (Williams, 2002), and niche-entrepreneurs (Pesch et al., 2017), by deploying all four strategies (Figure 12) to overcome barriers such as limited resources, networks, and power (Mens et al., 2021).

Type B: Consolidated Organisations
The second type, consolidated organisations, emerges over time from the pioneers' efforts, evolving into formalised, third sector organisations (Figure 11) (Mens et al., 2021). Through the pioneers' strategic actions, they acquired the necessary resources and gained realising power (ibid.), reflecting a transition from Type A to Type B, in terms of power and position, as well as aggregation, from informally collaborating individuals to a formal organisation (ibid.). These organisations typically consist of the original pioneers, end-users, community volunteers, and occasionally specialised experts (ibid.). Examples include members who are simultaneously end-users within the cooperation, foundation or association, such as initial initiators and specialised partners (ibid.).

In terms of roles, like the pioneers, they primarily act as developers and end-users, and to a lesser extent as builders (Mens et al., 2021). The secondary roles, similar to those of the pioneers, include boundary spanners and niche entrepreneurs, often carried out by the same actors (ibid.).

However, the consolidated organisations' greater power and position reduce the efforts required for some activities (ibid.). Moreover, formalisation, along with building external social networks, also necessitates internal

network development, assigning human resources such as labour and competencies to the venture (ibid.), while maintaining strategic relationships with the external social network, essential to mobilise critical resources, including finances and land (Austin et al., 2012).

Type C: Intermediate Agents
The third type is the intermediate agent, operating at an area-wide scale and collaborating both formally and informally with various stakeholders (Mens et al., 2021). They function as intermediates by, among others, facilitating network meetings, initiating interactive platforms, and aligning goals and interests (ibid.). Typically highly educated with various professional backgrounds, these actors can be categorised as third sector or hybrid actors (Figure 11). An example includes two female freelancers with experience in area developments who facilitated the area-wide network and communication for the Werkspoorkathedraal transformation and established collaboration between the municipality and the formal joint business association in the area (ibid.).

In terms of roles, intermediate agents primarily act as facilitators of urban developments, promoting, expressing and executing specific social policy goals (Mens et al., 2021). Their secondary roles include boundary spanners, establishing cross-sectoral collaborations, building trust, and bridging diverse interests (Williams, 2002), and policy entrepreneurs, carrying out tasks aimed at achieving specific social policy goals (Kingdon, 2011). Moreover, their actions and strategies are limited to building social networks and aligning and articulating visions, goals and interests, with their position and power determined by the networks they build and maintain, as well as their reputation within them (Mens et al., 2021).

3.2.4 Comparative Analysis of Institutional and Social Entrepreneurs
Although Klein Woolthuis et al. (2013) and Mens et al. (2021) focus on different types of entrepreneurs, they share several crucial similarities. A comparative analysis reveals overlapping elements and complementary distinctions, which together inform a set of variables relevant to this study (Figure 13).

Both social and institutional entrepreneurs aim to impact urban development positively. Social entrepreneurs focus on addressing societal needs insufficiently met by conventional actors (Mens et al., 2021), while institutional entrepreneurs focus on addressing sustainable needs constrained by existing formal and informal institutions (Klein Woolthuis et al., 2013). Mens et al. (2021) emphasise that social entrepreneurs' primary goal is social value, whereas conventional actors seek financial value. Institutional entrepreneurs share similarities with both types; some are profit-driven with sustainable development as a secondary goal, while others are primarily motivated by sustainable value creation.

Both studies recognise that these entrepreneurs can be individuals or organisations. In Mens et al. (2021), organisational social entrepreneurs (Types B and C) emerge from individual social entrepreneurs (Type A) as matured forms, through Type A's strategic actions to overcome barriers, such as limited resources, weak position, and low power, thereby gaining stronger positions and power, and improved access to resources, to achieve their social goals. Similarly, Klein Woolthuis et al. (2013) show variation among institutional entrepreneurs regarding their maturity levels, from concerned citizens to professional organisations (e.g. housing association, real estate developer), reflecting their hybrid nature, similar to the social entrepreneurs in Mens et al. (2021).

Both papers also acknowledge that these entrepreneurs can participate in political strategies. Institutional entrepreneurs can use lobbying to establish supportive coalitions and gain governmental support and approval for their plans that may conflict with existing regulations, with effectiveness largely depending on the entrepreneur's access to resources, social or network position, and ability to mobilise resources and actors (Klein Woolthuis et al., 2013). Similarly, Type C social entrepreneurs (intermediate agents) focus on achieving specific social policy goals, with their position and power likewise shaped by the social network they manage to build and sustain, as well as their reputation within the network.

Comparing the tactics of Klein Woolthuis et al. (2013) with the actions and strategies of Mens et al. (2021) reveals several similarities. The first two actions of social entrepreneurs, building a social network and mobilising resources, are closely linked, as a large and solid social network is often essential to mobilise external resources. This requires social entrepreneurs to communicate the venture's impact, values and outcomes effectively. These actions correspond to four tactics in Klein Woolthuis et al. (2013): framing, theorisation, collaboration, and lobbying, aimed at advocating a vision, validating solutions, aligning interests, and combining knowledge and tools to gain legitimacy and support. The fifth tactic, negotiation, also relates to mobilising resources, as revising existing business models and agreements can increase project feasibility by adjusting incentive structures, aligning stakeholder interests, and resolving issues, thereby facilitating external resource mobilisation.

The third action in Mens et al. (2021), alignment and articulation of visions, goals, and interests, aligns with Klein Woolthuis et al.'s (2013) third tactic, collaboration, which aims to align diverse stakeholder interests by providing shared meanings, identities or visions. Klein Woolthuis et al. (2013) emphasise that aligning stakeholders and interests can be complex and must therefore be carefully considered. They further emphasise that institutional change often requires adopting new practices, making long-term learning, quality, and joint responsibility among stakeholders essential, closely aligning with Mens et al.'s (2021) fourth action of an interactive and collective learning process.

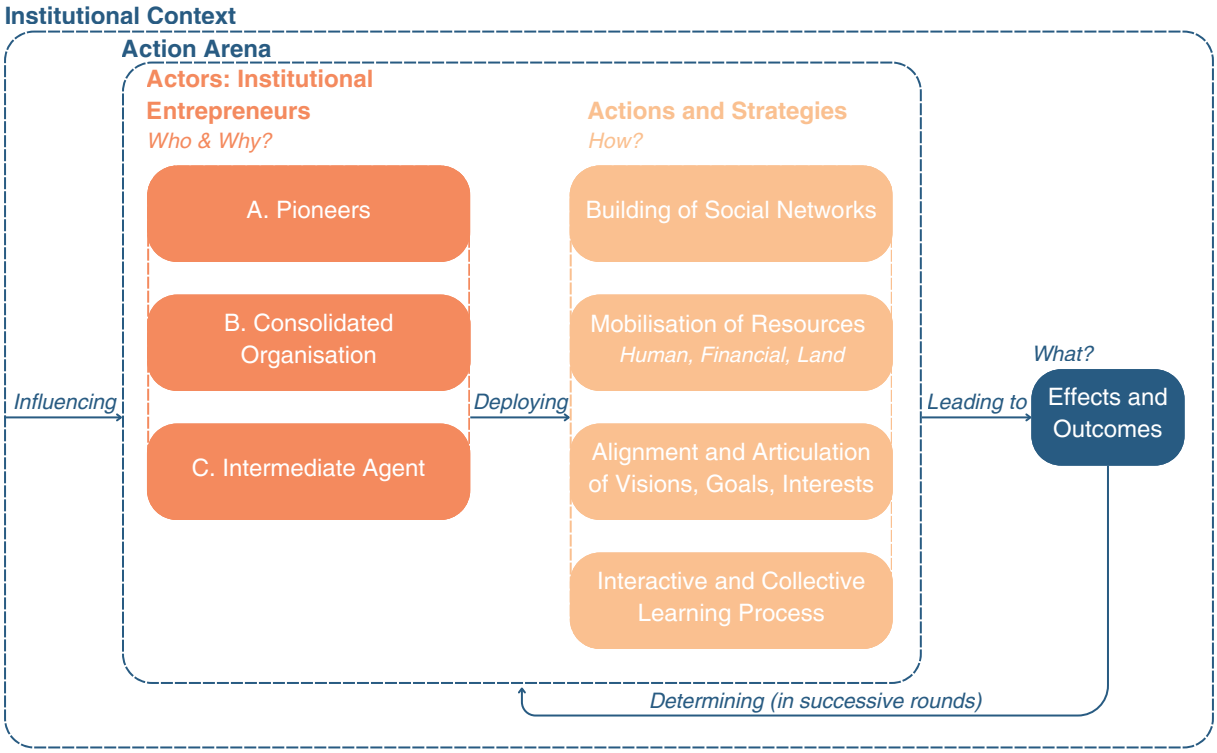
3.2.4.1 Adapted Model with Variables Relevant to this Study

An adapted version of Mens et al.'s (2021) framework, incorporating variables relevant to this study, is presented in Figure 13.

The comparative analysis revealed significant similarities between institutional and social entrepreneurs. Although this research focuses on the role of institutional entrepreneurs in influencing collaborative processes rather than identifying their types, Mens et al.'s (2021) typology provides a great starting point for examining institutional entrepreneurs. This is because the interventions (actions and strategies) undertaken by institutional entrepreneurs both reflect and partly determine the type they represent.

Moreover, overlap exists between the actions and strategies described by Mens et al. (2021) and the six tactics of Klein Woolthuis et al. (2013). Since institutional entrepreneurs use similar actions and strategies within stakeholder collaborations to influence them towards SUTs, Mens et al.'s (2021) actions and strategies serve as a basis for analysing their specific interventions. Klein Woolthuis et al.'s (2013) tactics are not included in the framework, as they focus primarily on influencing formal and informal institutions outside the action

Figure 13
Institutional Entrepreneur Variables Relevant to this Study. Adapted Version of the Framework by Mens et al. (2021)



arena (i.e. specific collaboration), which falls beyond this study's scope.

3.3 Sustainable Urban Transformations

Despite increased awareness of climate change, greenhouse gas emission reductions remain inadequately prioritised and achieved (IEA, 2011). At the same time, cities, particularly urban areas, are recognised as key arenas for achieving SUD and climate change solutions (UN-Habitat, 2010; ICLEI, 2011; Beatley and Wheeler, 2010; Roseland, 1997). However, this awareness has not yet translated into powerful initiatives that drive structural change towards sustainable, resilient and low-carbon urban developments (McCormick et al., 2013). Research therefore emphasises the importance of SUTs at the district scale for moving urban development towards ambitious sustainability goals, and enabling learning from these initiatives (ibid.).

To conceptualise SUTs, this research builds on a review study by McCormick (2013), which comprises 20 articles examining 35 cases of city initiatives towards SUTs. This source is particularly relevant as it integrates theoretical insights with empirical case studies, aligning with the methodological approach of this research. The following section first distinguishes SUTs from SUDs and then discusses the key dimensions of SUTs as identified by McCormick (2013). These dimensions form the variables relevant to this study.

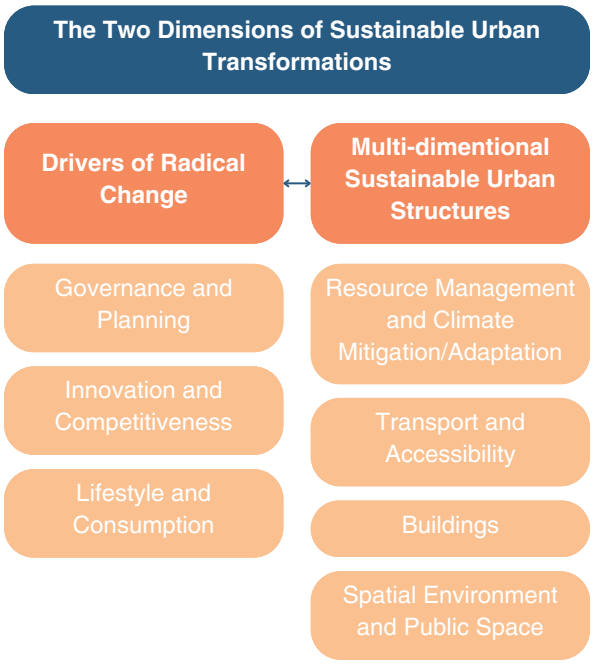
3.3.1 Distinction Between Sustainable Urban Developments and Transformations

To clarify the concept of SUTs, it is useful to distinguish them from SUDs (McCormick et al., 2013). SUDs focus on improving urban areas (McCormick et al., 2013) by integrating and balancing economic, social, environmental, and physical dimensions, while respecting ecological systems and

safeguarding the well-being of current and future generations (Camagni, 1998; Raworth, 2012). This concept consists of incremental improvement rather than fundamental structural change (McCormick et al., 2013).

In contrast, SUTs involve structural changes in urban areas (McCormick et al., 2013). They encompass multi-dimensional and radical change processes that transform both drivers of radical change, including governance and planning, lifestyle and consumption, and innovation and competitiveness, and sustainable urban structures, including resource management and climate mitigation and adaptation, transport and accessibility, buildings, and the spatial environment and public space (ibid.) (Figure 14). Importantly, the interaction between these dimensions and their underlying elements is crucial, as changes in physical structures are closely linked with economic, social, and environmental transformations (ibid.). The following section further elaborates on these dimensions.

Figure 14
Two Dimensions of Sustainable Urban Transformations (Own figure), based on (McCormick et al., 2013)



3.3.2 The Dimensions of Sustainable Urban Transformations

3.3.2.1 Drivers of Radical Change

The drivers of radical change are processes that bring about change in urban contexts, including governance and planning, innovation and competitiveness, and lifestyle and consumption (McCormick et al., 2013).

Governance and Planning

To achieve ambitious sustainability goals in cities and urban areas, governance and planning must critically analyse and adapt existing approaches (McCormick et al., 2013). This involves effective strategic planning, integrating policy instruments, and active engagement of key stakeholders (ibid.). Key challenges include balancing ambitions with political and economic feasibility, eliminating contradictory policies, and maintaining flexibility in response to rapidly changing urban conditions (Bugliarello, 2010).

Innovation and Competitiveness

Innovation and competitiveness are essential for achieving sustainable development while maintaining urban competitiveness within the global economy (McCormick et al., 2013). This is especially important as cities face a constant tension between economic growth and environmental protection (Beatley and Wheeler, 2010). A key element is collaboration between industries, governments, and universities to explore possibilities for economic SUTs (Bhagavatula et al., 2013; Prado-Lorenzo et al., 2012), including the sustainable management of ecological, financial, and human resources and the optimisation of urban density and systems to achieve eco-efficiency (ibid.). While this study focuses on a specific SUT collaboration (i.e. within an action arena) rather than its broader context, further details on how innovations develop and accumulate into SUTs are provided in Appendix K.

Lifestyle and Consumption
Lifestyle and consumption patterns must also evolve to support the planning and implementation of sustainable urban governance strategies (McCormick et al., 2013). As the negative effects of overconsumption are particularly noticeable in cities (Rode, 2009), defining improved quality-of-life standards and visions for sustainable lifestyles are essential for sustainable practices to succeed (McCormick et al., 2013).

3.3.2.2 Multi-dimentional Sustainable Urban Structures
The multi-dimensional sustainable urban structures represent the domains shaped by SUTs. These include physical structures, such as transport and accessibility, buildings, and the spatial environment and public space, as well as non-physical domains, such as resource management and climate mitigation and adaptation, which nonetheless have a considerable impact on the physical environment.

Resource Management, and Climate Mitigation/Adaptation
Resource management, climate mitigation and adaptation are critical yet crucial challenges to address in the transition towards sustainability (McCormick, 2013). Key areas include transitioning to renewable energy systems, improving energy and material use efficiency, rethinking waste management through circular approaches, and ensuring sufficient water supply (Hawkey et al., 2013).

Transport and Accessibility
Transport and accessibility are other key physical aspects that can be shaped through SUTs, as urban transport systems have significant social and environmental impacts (McCormick et al., 2013). Sustainable transport demands an integrated approach to managing energy security, environmental impacts, social impacts, accessibility, urban conditions, and equitable economic development (Sukhdev, 2009; Mejía-Dugand et al., 2013).

Buildings
Buildings are a third physical aspect that can be shaped through SUTs, with the challenge of them being simultaneously attractive, affordable, efficient, comfortable and sustainable (Rode et al., 2011). Achieving this requires adopting renewable energy sources, minimising material use, applying circularity principles, and adapting to changing environmental conditions (ibid.).

Spatial Environment and Public Space
Finally, the spatial environment and public space can be reshaped through SUTs by revitalising urban areas and public spaces, and improving connectivity of disconnected urban areas (UN-Habitat, 2008; Roseland, 1997). Key aspects include preserving and innovatively integrating “blue” and “green” structures to stimulate social interaction and support healthy urban environments (McCormick et al., 2013).

3.4 Conceptual Framework
After exploring the concepts of collaboration, institutional entrepreneurs, and SUTs, and identifying key variables for each, this paragraph integrates the insights into a conceptual framework, addressing the first sub-question: *‘How can the relationship between collaboration, institutional entrepreneurs, and sustainable urban transformations be conceptualised?’* This framework serves as the theoretical foundation for the empirical research. It is illustrated in Figure 15 and discussed below.

The framework uses colour-coding to distinguish the three concepts. Variables related to institutional entrepreneurs are blue, collaboration orange, and SUTs light orange. Arrows show the relationships and

influences between concepts and variables. Dark blue arrows represent the direct influence of institutional entrepreneurs on the collaborative process towards SUTs, light orange arrows indicate indirect influences, and grey arrows represent relationships/influences important to the overall functioning of the framework but fall beyond the scope of this study.

Analysis of the concept of institutional entrepreneurs revealed significant similarities with social entrepreneurs. While this study does not aim to classify institutional entrepreneur types, Mens et al.'s (2021) typology on social entrepreneurs provides a useful starting point, as the interventions that institutional entrepreneurs undertake partly reflect the type they represent.

Social entrepreneurs use actions and strategies to create a supportive environment of resources and social networks to achieve their social goals (Mens et al., 2021). Similarly, institutional entrepreneurs apply actions and strategies within a specific collaboration (i.e. the action arena, blue inner dotted outline) to influence stakeholders towards SUTs. These actions and strategies thus serve as broad categories for examining the specific interventions (blue and light orange arrows) that institutional entrepreneurs deploy to influence stakeholder collaborations towards SUTs.

Analysis of the concept of collaboration shows that facilitative leadership, interpreted here as the role of institutional entrepreneurs, along with starting conditions and institutional design/professional organisation, act as critical contributors or context setters, directly influencing the collaborative process (arrows from each main variable to the collaborative process). Furthermore, the comparative analysis of the models by Ansell and Gash (2008) and Common Eye (2016) helped refine the variables related to starting conditions, institutional design/professional organisation, and collaborative process.

Additionally, the analysis revealed that facilitative leadership, interpreted as the role of the institutional entrepreneur, also indirectly influences the collaborative process, by having a direct influence on the institutional design/professional organisation and starting condition variables (light orange arrows from actions and strategies to the two starting conditions and the four institutional design/professional organisation variables, which in turn influence the collaborative process).

Moreover, the type of facilitative leadership required for effective collaboration depends on situational factors, including conflict levels, trust, power distribution and stakeholder incentives. These factors are related to the starting conditions and the collaborative process. The framework, therefore, includes feedback arrows from the starting conditions and collaborative process to the institutional entrepreneur (grey arrows). While important for mapping the positioning of the institutional entrepreneur within the collaboration, these feedback loops fall outside this study's scope.

Analysis of the concept of SUTs reveals that they involve multi-dimensional, radical change processes affecting both the drivers of radical change and the multi-dimentional sustainable urban structures. To qualify as a SUT, change must occur in at least one element of each dimension. This conceptualisation helps in assessing whether a SUT has taken place within the action arena through collective stakeholder efforts (dark blue arrow from collaborative process to SUT), and in identifying the shared goal for institutional entrepreneurs

and other actors in the collaborative process (grey/dark blue arrows from SUT back to institutional entrepreneurs and collaborative process).

Finally, the framework is situated within the action arena (dark blue inner dotted outline), representing a specific stakeholder collaboration, including institutional entrepreneur(s), aimed at achieving a SUT. The action arena is situated within the broader institutional context (grey outer dotted outline), which influences the arena and collaborative process, while the arena, in turn, influences the institutional context (grey arrow between both). The broader institutional context is considered external, while the variables within the action arena are internal, both consisting of formal and informal institutions. This study primarily focuses on informal institutions within the action arena but also acknowledges the formal ones that may influence the collaborative process towards SUTs. Institutions outside the arena fall beyond the scope of this research, but are included in the framework to illustrate the broader context and external influences.

3.4.1 Operationalisation of the Conceptual Framework for the Empirical Research

This sub-paragraph outlines how the conceptual framework is operationalised to answer sub-questions two and three, providing the theoretical foundation for the empirical research.

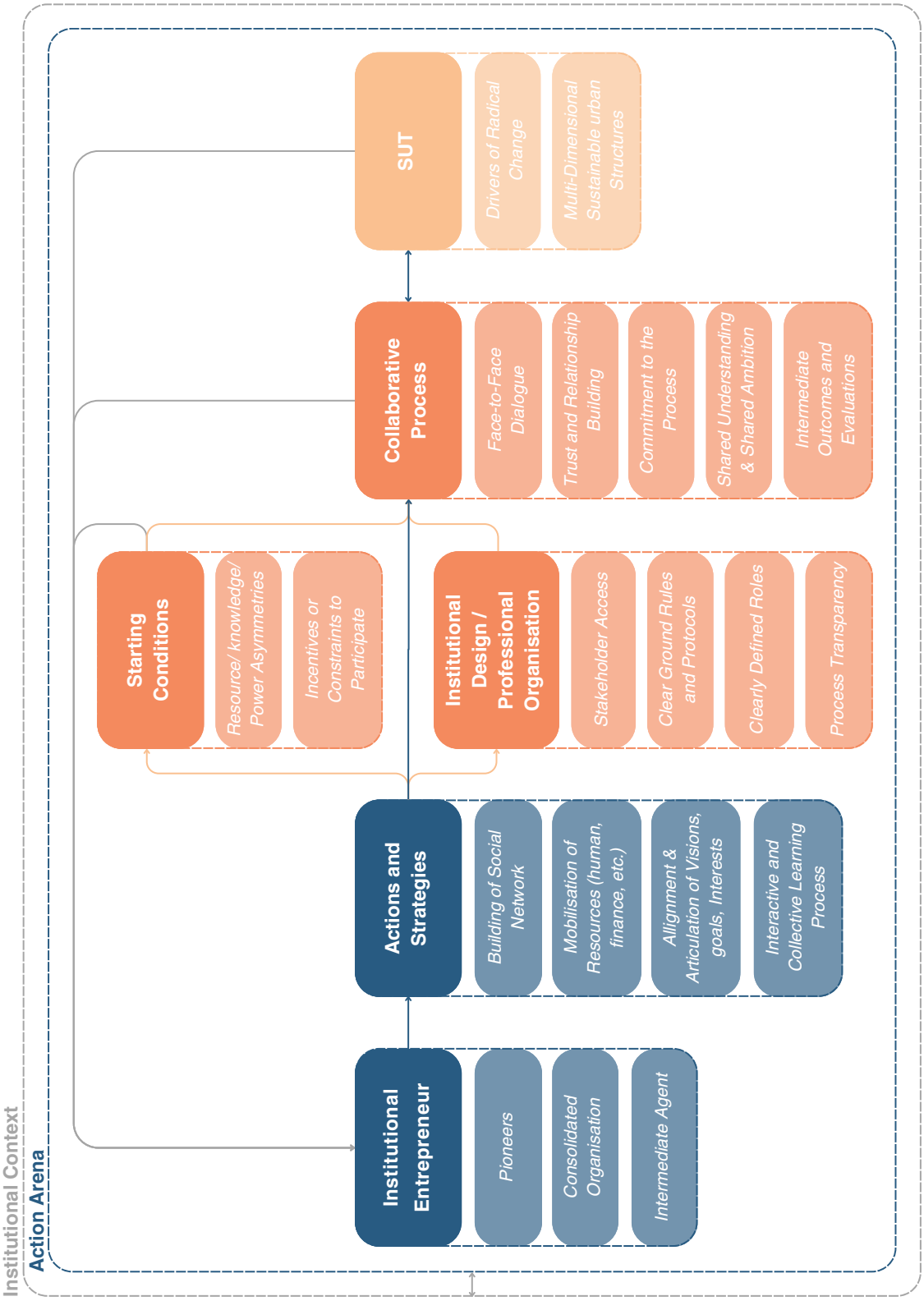
The primary focus lies on identifying how institutional entrepreneurs directly influence the collaborative process variables, and their indirect influence via the institutional design/professional organisation and starting condition variables, through specific interventions (dark blue arrows), part of the broader actions and strategies. Deductive coding of the actions and strategies is combined with the documentation and analysis in Excel (described in Paragraph 2.3) to capture the specific interventions.

The framework also enables identification of collaboration-related enablers and barriers, as the interventions deployed by institutional entrepreneurs could be responses to these barriers and enablers. Barriers and enablers can stem from the collaborative process, institutional design/professional organisation, or starting condition variables. They are categorised under their respective code themes (variables under each main variable), while simultaneously assessing whether, and how, institutional entrepreneurs respond, or could respond, to them through their intervention. A similar analysis approach is applied, combining deductive coding in Atlas.ti with documentation and analysis in Excel.

Furthermore, the framework supports assessing the type of SUT in the case study, which is mainly conducted during case selection to identify the most appropriate case (Paragraph 2.2).

Additionally, although the broader institutional context influences the action arena and, therefore, indirectly the collaborative process, it is not extensively examined in the case study. The focus remains on the direct and indirect influence of institutional entrepreneurs on the collaborative process within the action arena.

Figure 15
Conceptual Framework (Own figure)



4. Results

This chapter presents the empirical findings addressing sub-question two: *'What barriers and enablers related to collaboration are encountered in an existing case study that influence the realisation of the sustainable urban transformation?'*, sub-question three: *'What role do or could institutional entrepreneurs play in this case study, and what interventions have they implemented or could they implement to establish more effective collaboration?'*, and sub-question four: *'How can the role of institutional entrepreneurs in influencing collaboration between stakeholders towards sustainable urban transformations be captured in a set of guidelines?'*

The chapter starts with a brief introduction of the selected case and an overview of the interviewed participants. It then presents the identified barriers, enablers, and interventions, structured according to the core concepts (code themes) of the theoretical framework (Figure 15). Appendix L provides a detailed overview of all findings, indicating which interviews support each finding, the underlying nuances, and illustrative quotes, which form the basis for this chapter. Only findings supported by at least two interviews are included. As many findings relate to multiple code themes, as well as their classification across the barriers, enablers, or intervention categories, each is assigned to the most prominent code theme and category to avoid duplication. Consequently, not all code themes are represented within each barrier, enabler or intervention category.

The final paragraph provides a conclusive answer regarding the role of the institutional entrepreneurs in this case study's stakeholder collaborations towards the SUT, as part of sub-questions three and four. It subsequently synthesises the empirical findings into a set of practical guidelines, providing institutional entrepreneurs and externally commissioned coordinators and facilitators with practical guidance in overcoming barriers and leveraging enablers in SUT stakeholder collaborations through targeted interventions. These guidelines offer a conclusive overview of sub-questions two and three and provide an answer to sub-question four.

4.1 Case Description

This research examines an energy hub initiative in Amsterdam Southeast, an area facing severe electricity grid congestion that constrains sustainable development, electrification, expansion, and the implementation of sustainability measures (R. Ruijtenbeek, personal communication, September 8, 2025).

In response, a collaborative research initiative involving knowledge institutions, businesses, and governments explored innovative ways to optimise the increasingly congested electricity grid (AMS-Institute, 2025). This study demonstrated that collective use of shared resources can significantly reduce peak loads (AMS-Institute, 2025), revealing the potential for an energy hub in the area (R. Ruijtenbeek, personal communication, September 8, 2025). This potential is powerful due to the

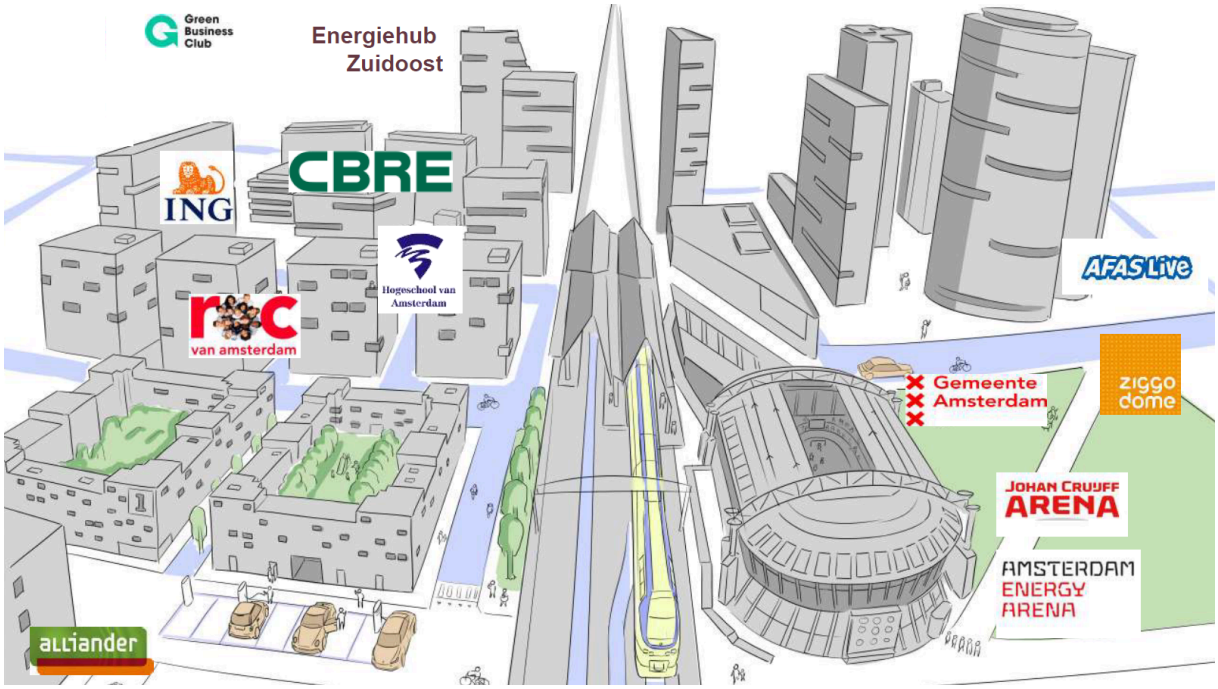
areas' atypical functional profile, consisting of entertainment venues, offices, educational organisations, and residential areas (ibid.), which together could achieve up to 50% more efficient energy distribution (ibid.).

Building on this, the Green Business Club Amsterdam Southeast (GBC ZO) continues efforts to establish the energy hub, acting as the initial coordinator (Interviewee F, personal communication, September 26, 2025, see Table 3). Within the initiative, GBC ZO, and in particular Interviewees C and E (Table 3), identified as institutional entrepreneurs, play a central role in motivating participation and driving collective action (Interviewee H, personal communication, September 30, 2025). As a result, representatives from the organisations participating in the collective are part of a legal working group preparing a Letter of Intent (LoI), a preliminary step towards establishing an energy cooperative, while two other working groups address technical and organisational aspects (R. Ruijtenbeek, personal communication, September 8, 2025). Moreover, the collaboration is structured around a core group of institutional entrepreneurs, experts, and facilitators, responsible for operational progress, and a broader participant group for joint decision-making and information sharing (Interviewee B, personal communication, September 17, 2025; Interviewee E, personal communication, September 26, 2025). Figure 16 provides an overview of the project area and several of the participating organisations, while Figure 17 shows the current project phase.

The collective's long-term goal is to maximise sustainability and growth, while addressing grid congestion, with short-term efforts focused on establishing a legal entity, Group Transport Agreement (GTO), and a roadmap for future initiatives, including a charging plaza/mobility hub (R. Ruijtenbeek, personal communication, September 8, 2025). By addressing both the drivers of radical change and multi-dimensional

Figure 16

Case Project Area and Key Participating Organisations (R. Ruijtenbeek, personal communication, September 8, 2025)



sustainable urban structures, the initiative qualifies as a SUT, with Figure 18 illustrating the specific variables in which changes take place.

To select interviewees, non-probability sampling is applied to identify core participants, including assumed institutional entrepreneurs, facilitating governmental representatives, the project lead and experts, while additional, less active actors

Figure 17
Current Status of the Case (Own figure), Recreated from Netbeheer Nederland (2024)

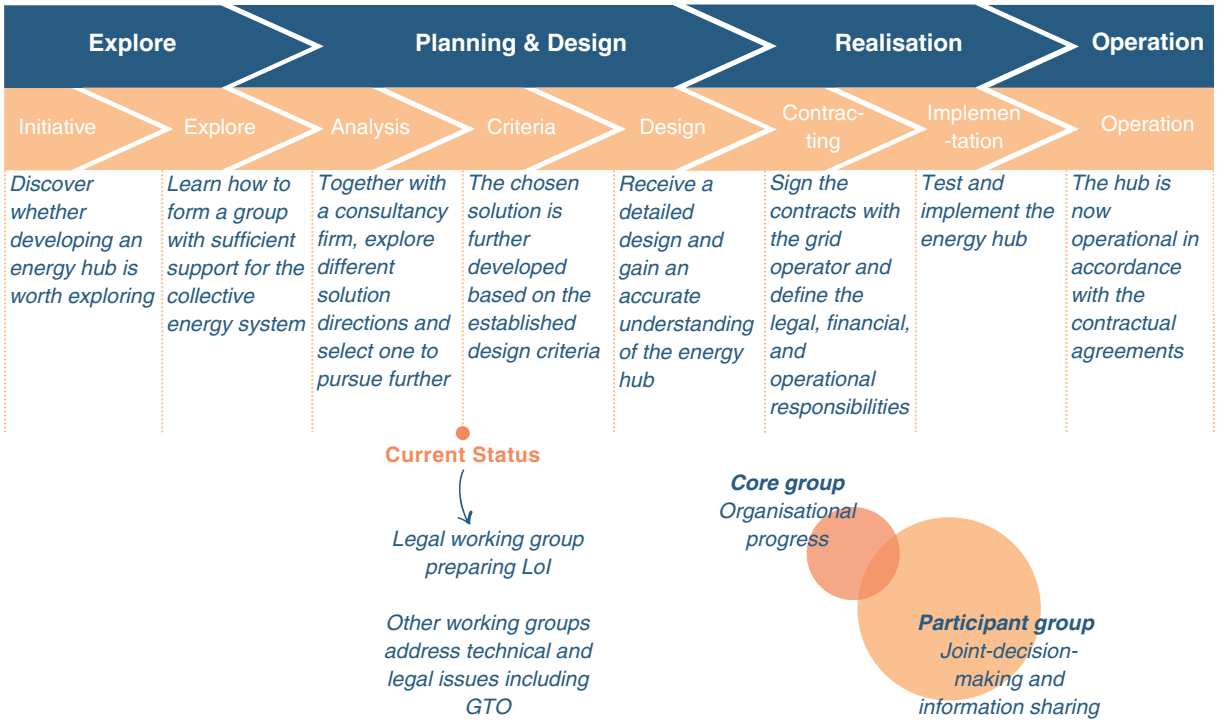


Figure 18
Changes in the Two Dimensions of Sustainable Urban Transformations in the Case (Own Figure)

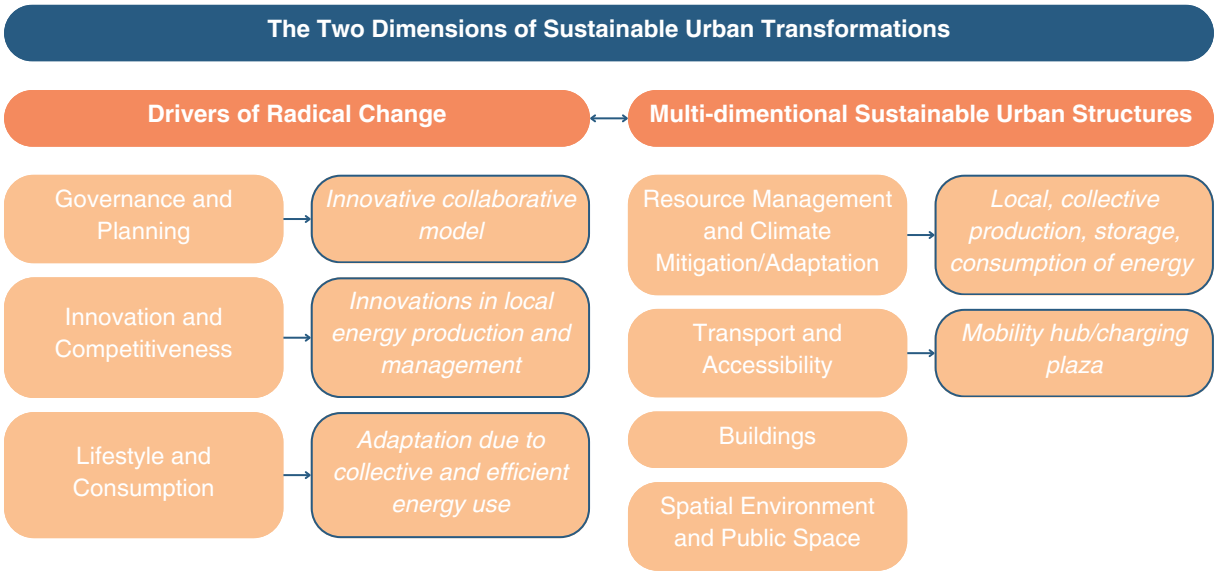


Table 3
Overview of Interviewees (Own table)

Interviewee	Function	Date of Interview
Interviewee A	Program developer at a research institute focused on urban energy	12-09-2025
Interviewee B	Process coordinator for energy hubs, appointed by the provincial government	17-09-2025
Interviewee C	Program manager at a commercial bank, focused on the sustainability of the organisation's assets	22-09-2025
Interviewee D	Appointed project leader	24-09-2025
Interviewee E	Technical developer at an investment management firm	26-09-2025
Interviewee F	Founder of regional business sustainability organisation (temporary legal entity of the collective)	26-09-2025
Interviewee G	Portfolio manager of an academic institution	29-09-2025
Interviewee H	Energy and circularity advisor, hired by the municipal government	30-09-2025
Interviewee I	Legal advisor, specialised in grid-congestion	02-10-2025
Interviewee J	Property manager of a real estate organisation	06-10-2025

are selected via snowball sampling. Table 3 provides an overview of the interviewed participants, and Appendix M contains a detailed case description, including its broader context.

4.2 Barriers

This paragraph presents the barriers to effective collaboration identified in the case study, structured according to the core concepts of the theoretical framework. A detailed overview of the findings is presented in Tables L1-L9 in Appendix L.

4.2.1 Resource/Knowledge/Power Asymmetries

The findings reveal multiple sources of asymmetry among participants, including differences in in-house expertise, knowledge, and availability (see Table L1 in Appendix L). In this case, these differences largely stem from the voluntary and non-core nature of participation, since most organisations participate alongside their core activities. These asymmetries result in unequal contribution capacities, unequal workloads for better-resourced participants, difficulties for representatives to secure internal approval, and delays in decision-making and project progress.

Additional asymmetries arise from fundamental uncertainties surrounding the SUT initiative, including uncertainties about the effectiveness of the collective solution, interdependencies, and economic and contractual consequences. These uncertainties discourage participation, complicate collective decision-making and can delay or stop the initiative. Illustrative is the following quote by Interviewee E:

["You can tell people are taking a wait-and-see attitude, saying things like, 'What if the establishment of the Energy Hub doesn't turn out to be the solution to grid congestion, and we end up having to do things differently again?'"]

Furthermore, unequal financial capabilities, stemming from differences in participants' nature and scale, result in varying budget sizes, budget cycles, and approval procedures, complicating collective decision-making and potentially delaying or halting the initiative.

Finally, asymmetries related to limited data availability and hesitation to share sensitive information hinder the identification of collective opportunities and slow the collective process. When data are unavailable or inaccessible, additional time and effort are required to generate or negotiate access, underscoring the time-intensive nature of relational trust building, as a prerequisite to (data) transparency (Paragraph 4.2.6).

4.2.2 Constraints to Participate

The findings illustrate that constraints on participation mainly stem from participants' preference for autonomy and the requirement for a viable collective business case (see Table L2 in Appendix L). When individual alternatives exist, particularly those offering a more favourable business case, stakeholders are less willing to join the SUT collective. Moreover, participation creates tension between participants' desire for autonomy and the initiative's inherent interdependencies due to long-term commitments and shared decision-making, which may be perceived as restrictive and discourage participation. This becomes clear from the following quote of Interviewee E:

["In essence, the key point is that the asset must be something that can be bought and sold, a tradable product. Creating a hub, however, ties this asset to multiple others, making it harder to separate and therefore potentially less attractive to buyers. As a result, we are fundamentally interested in assets that are as standalone as possible, independent of other entities, and that hold specific rights."]

4.2.3 Stakeholder Access

The findings reveal two main barriers to stakeholder access (see Table L3 in Appendix L). First, limited engagement, lack of transparency, and inflexibility of powerful external actors (i.e. governments and grid operators) create uncertainty about the feasibility of the SUT project, potentially delaying progress, forcing suboptimal outcomes, or even blocking the initiative. Illustrative is the following quote by Interviewee A:

["Understanding what the appropriate solution for the issue in Area A would be depends on what Organisation P allows on the infrastructure at specific times. … Ultimately, this key stakeholder has not yet joined, which poses a challenge faced by all Energy Hubs in the Netherlands, a well-recognised issue."]

Second, once the SUT collective is underway, changing its composition, replacing representatives or adding new stakeholders is difficult and time-consuming. Building new relationships and trust requires significant effort (Paragraph 4.2.6), and integrating newcomers' interests at later stages is challenging. Illustrative is the following quote by Interviewee D:

["Involving new participants at this stage is complicated, as they need to be brought up to speed. In this phase, adding new participants isn't very practical because developing a shared understanding of the business objectives and boundary conditions takes time. I actually expect that some parties may drop out, so we'll likely reach the first results with a smaller group. After that, we can reassess and determine, based on what has been achieved, the next steps and which parties would logically fit to continue building on this foundation."]

4.2.4 Clear Ground Rules and Protocols

Regarding clear ground rules and protocols, the findings show that without a legal entity, a well-considered legal framework and a jointly developed, formally documented viable business case supported by at least some private parties with explicit cost and benefit agreements, the collective initiative tends to stall (see Table L4 in Appendix L). Without a legal entity, the collective struggles to attract external funding, formally commission expert support, and enter binding agreements with key external actors. Furthermore, without a feasible business case for all parties and a well-considered legal framework, stakeholders are less willing to participate, leaving the initiative stuck in the consultation phase rather than progressing to implementation. The necessity of this feasible business case, supported by private parties, is illustrated by the following quotes:

Interviewee D: ["About 10 to 12 years ago, in one of my previous roles, we wrote a report on innovation and collaborative partnerships. It showed that when no industrial parties or business participants take a central role in the collaboration and jointly develop an exclusive business case, explicitly discussing costs and benefits, these collaborations tend to remain stuck at a consultative level, involving only small-scale investments of time and money, because there's no ability to move things forward."]

Interviewee E: ["You can have all the ambition you want, but nowadays we're all constrained by limited resources and, above all, time. You're not going to do things just as a hobby, you do them because you believe they're good for the business."]

4.2.5 Clearly Defined Roles

The findings reveal that unclear or absent mandates among the representatives hinder collective progress, as decisions cannot be made directly (see Table L5 in Appendix L). This barrier is amplified by the involvement of larger organisations, where internal approval from mandate holders is required, a time-consuming process that can delay or constrain the collective's progress. The presumed knowledge asymmetries, arising from non-core, voluntary participation (Paragraph 4.2.1), further complicate selling the collective internally and obtaining formal approval. Illustrative is the following quote by Interviewee F:

["You have people representing the organisation in the project, but you also need to sell it internally … to management … or procurement departments. So there's an internal selling process, which can take a long time."]

4.2.6 Trust and Relationship Building

The findings show that building trust within the collective SUT project is closely tied to relationship building and functions as a prerequisite. As discussed in Paragraph 4.3.7, trust is two-dimensional, involving both confidence in competencies and relational trust. The latter develops slowly and is fragile early in the collaboration, causing hesitation to share sensitive information, such as company profiles, needed to explore the initiative's joint possibilities. Therefore, early investment in relationship and relational trust-building is crucial, while avoiding rushing the process, as this may backfire and hinder collective progress (see Table L6 in Appendix L). Illustrative of these findings are the following two quotes:

Interviewee D: ["A large part of trust is based on confidence in competence, whether the right people are working on the right things, and whether we see progress being made. Relational trust is a bit different; it takes time to build."]

Interviewee H: ["People needed to trust each other before sharing data. In the early sessions, we took time to guide everyone through the process, build trust, and calculate scenarios to show what it would mean for them. At the start, when trust is low, sharing data is the most difficult."]

4.2.7 Shared Understanding and Shared Ambition

The findings illustrate that differences in the participants' interests, urgency and ambition hinder the development of a shared understanding of the assignment and goal, as well as joint decision-making (see Table L7 in Appendix L). These differences lead to varying levels of commitment, potentially causing stagnation or participant dropouts, especially when formal agreements or long-term commitments are required. The findings further indicate that establishing a collective that is meaningful to all involved, along with a leading actor to safeguard collective interests and guide the process, is important for enabling engagement and progress in this case (Paragraphs 4.3.8 and 4.4.7).

4.2.8 Intermediate Outcomes and Evaluations

The findings reveal two main barriers related to intermediate outcomes and evaluations in the collective SUT initiative (see Table L8 in Appendix L). First, substantial up-front time is required to address uncertain technical, legal, financial, and organisational issues, making progress less visible. This lack of visible progress and uncertainty makes it harder to maintain and attract stakeholder participation and (financial) commitment, while increasing costs due to the need for external experts to carry out the work. Illustrative is the following quote by Interviewee C:

["If we have to come back with a second funding request, there will eventually be financial constraints. People will start asking questions like, 'What have you done with the money over the past six months, and are we actually getting something in return?' We're investing now, but it could turn out that the project doesn't go through. … So this could definitely become a limiting factor in the end."]

Second, the collective SUT initiative tends to remain in the exploratory, consultative phase, with insufficient concrete actions, limiting progress or preventing the initiative from taking off. This is likely due to the inherent uncertainty and innovative character of the SUT collective.

4.2.9 Institutional Context

The findings reveal several barriers related to the institutional context (see Table L9 in Appendix L). First, the innovative SUT initiative is constrained by the misalignment between existing regulations, contracts, and infrastructure, and the specific needs of this initiative. These rigid frameworks, along with limited organisational capacity, a lack of specialist roles, and an inappropriate collaborative culture within key institutions (i.e. governmental bodies, grid operators), hinder the flexibility required to enable experimentation or further development of this SUT initiative, slow progress, and may cause sub-optimal outcomes or project failure. Illustrative are the following two quotes:

Interviewee C: ["We're running into a problem with connection sizes. The participants are very diverse: some have small connections, others have large ones. Now you see that Organisation E is putting up a barrier, saying we're not allowed to combine the large and small connections. … If we have to collaborate with them separately, some participants will drop out, because the shared interest becomes too small. The solution simply won't be worthwhile enough."]

Interviewee A: ["If you ask Organisation P whether they want to work alongside us as equals to design a solution, they say they don't have time, so the answer is automatically no. So you have to start sub-optimally… It's not about urgency, but in my view, about a lack of culture that allows external parties to contribute ideas about solutions for their own infrastructure. … Over time, a culture has developed among network operators where they don't engage in equal co-creation."]

The initiative's public-private collaboration adds another layer of complexity. The public actors are bound by formal frameworks (e.g.

procurement rules), accountability obligations, and extensive internal documentation requirements, which limit their ability to make financial commitments or formalise participation. This slows down decision-making and overall momentum, reduces the perceived added value of collaboration, and may therefore lead to declining trust and commitment levels among the participants. The following quote by Interviewee B underscores this finding:

["In this case, we agreed they would join later, and for now, Persons E and J are simply hired by the companies. Then the municipality's lawyers have to go back to the municipality to check whether that's acceptable ... and that's when you get those bureaucratic processes. When such processes are lengthy, complex, and demanding, it does put some strain on mutual trust. ... You want them to participate, but you want to benefit from their involvement, not be burdened by it."]

Finally, as financial incentives strongly influence stakeholder participation, a not-yet-well-quantified business case, underdeveloped financial settlement models, and a lack of recognition in existing assessment systems (e.g. BREEAM) undermine the initiative's attractiveness, creating a significant barrier to participation and development.

4.3 Enablers

This paragraph presents enablers to effective collaboration identified in the case study, structured according to the theoretical framework's core concepts. For a detailed overview, including which interviews support each finding, underlying nuances, and illustrative quotes, see Tables L10-L18 in Appendix L.

4.3.1 Incentives to Participate

The findings indicate that participation among the stakeholders in this initiative is primarily driven by their internal motivation, rooted in individual interests and operational constraints, supplemented by three external incentives (Table L10 in Appendix L).

Internal motivation to participate arises when stakeholders perceive a sense of urgency from challenges constraining their operations and interests (e.g. operational limitations, financial pressures, societal impact), while recognising that others face similar challenges and that this collective initiative offers a solution. This shared urgency and recognition form the foundation for the shared understanding and ambition, stimulating active participation and commitment. The significance of this enabler becomes clear from the following quote of Interviewee B:

["What is also important is that there is a sense of urgency; without it, it's better not to start at all. In this case, parties are facing a problem because grid congestion in Area A is very high. They need to collaborate to continue developing. Working together is essential, so urgency is a key factor. … They came together out of necessity, recognised that they all faced the same problem, and understood that they could solve it collectively."]

External incentives in this initiative include the early engagement of local stakeholders to introduce and clarify the shared problem and the initiative's potential, contributing to a shared understanding and increasing willingness to participate. Second, media attention and statements by key external actors (i.e. grid operator) that emphasise the urgency of the underlying challenge and the collective's potential increase awareness among current and potential participants, creating additional motivation to participate and commit. Moreover, the involvement of large and reputable actors signals legitimacy and value, encouraging smaller actors to follow. The significance of the third finding becomes clear from the following quote:

Interviewee D: ["They are also the kind of parties where, if those two participate, others will join

more easily. This has to do with the company's reputation, the organisation's influence, and also the personal profiles of Persons C and D"].

4.3.2 Stakeholder Access

The empirical findings reveal two main enabler categories related to stakeholder access (See Table L11 in Appendix L). The first concerns the types of organisations and actors involved in the collective, and the second relates to attracting external parties for their specialised knowledge, resources, and process guidance.

For the first category, the collaboration in this initiative tends to proceed more smoothly when stakeholders enter with pre-existing relationships and mutual trust, reducing the effort needed to establish both. After all, relational trust is essential, yet time-consuming to build within the collective initiative (Paragraph 4.3.7). Moreover, the presence of professional parties (i.e. hired experts and coordinators) and participating organisations further facilitates effective collaboration, as their expertise and prior experience in collaborative projects enable a focused, results-driven approach and commitment of necessary time and resources. The significance of pre-existing trust and relationships is illustrated by the following quote from Interviewee B:

["SP1: Could you clarify why that trust already exists? Is it rooted in prior relationships? SP2: Exactly. I also work on other projects, for example, Project I … where there was already a network of people who had worked together intensively and performed well … because they knew each other, trusted each other, and understood their mutual dependencies. In contrast, when people do not know each other, they have to build relationships and trust from scratch, which takes considerably more time."]

For the second category, the initiative's collaboration effectiveness depends strongly on the involvement of external parties who contribute knowledge, expertise, resources, and process guidance. First, research institutions support knowledge generation and sharing, clarifying the collective's relevance and potential, contributing to the shared understanding and stimulating participation.

Second and third, structural support from provinces and municipalities, together with experts familiar with the legal, financial, and technical aspects of the envisioned SUT, strengthens collaboration and the initiative's establishment. By exploring collective solution pathways, technical scenarios, and business cases, these experts demonstrate the value and potential of the collective initiative and, when collaborating, increase the likelihood of integrated solutions. Meanwhile, governmental support, through process support, subsidies, and network access, further strengthens the initiative's development. Illustrative are the following quotes from Interviewee A:

["If the goal is to stimulate sustainability and spatial efficiency, create capacity in waiting queues, and relieve grid congestion for social developments, … this requires additional support measures, rather than expecting a small group of companies to handle it alone. … Therefore, the province or the municipality must continue to support such collaboration structurally."]

["Organisation Y is essentially the party that can … develop a strategy across different energy systems that aligns with the preferences of a stakeholder or a group of stakeholders. … And because Organisations Z and Y are now working together, Organisation X has even more possibilities to offer an integrated solution for the Energy Hub."]

4.3.3 Clear Ground Rules and Protocols

Regarding clear ground rules and protocols, the findings show that an important enabler in this initiative is the early appointment of a temporary organisation to assume formal responsibility, or preferably the

establishment of a collective entity from the outset (Table L12 in Appendix L). This provides a formal structure that facilitates communication and coordination, and strengthens the initiative's ability to attract and formally commission external expertise and resources.

4.3.4 Process Transparency

The findings indicate that process transparency, achieved through open communication channels, regular updates, information sharing from the core to the broader participant group, and responsiveness, is an important enabler for building trust, integrity, and stakeholder engagement and commitment in the collective (see Table L13 in Appendix L).

4.3.5 Clearly Defined Roles

The findings illustrate that, in this initiative, clearly defining and assigning roles through open dialogue with participants, based on their expertise and interests, clarifies contributions and tasks, strengthens ownership, enables effective use of their expertise, and stimulates active commitment and participation. Regular check-ins further strengthen this commitment (see Table L14 in Appendix L). The importance of this enabler is illustrated by the following quote from Interviewee I:

["SP1: How is commitment created and maintained? SP2: I deliberately place ownership of actions with the participants… to sustain their engagement. Ultimately, I am not the contracting party or the one signing the agreement; they are. Therefore, the content needs to be developed and supported by them. I take a facilitating and guiding role … SP1: So commitment is created by giving ownership throughout the process? SP2: Yes, absolutely."]

4.3.6 Face-to-face Dialogue

The findings highlight that, in this initiative, face-to-face dialogue plays an important role, with a distinction between collective meetings involving all participants, and smaller core group meetings. In addition, working groups (Paragraph 4.4.4) address complex, topic-specific issues, providing targeted input to both (see Table L15 in Appendix L).

Core group meetings, held weekly with a small, representative set of stakeholders, including the institutional entrepreneurs, experts, and coordinators, promote coordination, safeguard progress, and serve as a point of contact for the broader group and external actors. These meetings align working-group outputs with the collective's goals, delegate follow-up actions, and prepare recommendations for the broader participant group. Essential to the core group is task-based trust from the broader collective (Paragraph 4.3.7), strengthened by the selection of experienced experts and facilitators. The following quote from Interviewee B illustrates the importance of this small core group:

["There is a weekly meeting on Tuesdays with the core group. … In the end, you need a core group that has the trust of the others, but it must not be too large, because then it becomes unmanageable."]

Within this initiative, regular participant meetings play an important role in maintaining transparency about the collective's progress and sustaining stakeholder commitment. Attended by representatives of the participating organisations responsible for sustainability or holding decision-making authority, these meetings also function as moments of joint decision-making, creating a sense of ownership and thereby strengthening commitment. By providing space to discuss uncertainties, expectations, dilemmas, and interests, they further support relationship- and trust-building.

4.3.7 Trust and Relationship Building

The findings highlight three complementary forms of trust that, in this initiative, support effective collaboration: trust in the collective solution, task-based trust, and relational trust (see Table L16 in Appendix L).

First, this innovative SUT collective relies heavily on relational trust and trust in the collective solution, necessitating continuous efforts. At the same time, a degree of formalisation is needed to safeguard continuity and protect the collective interest.

Second, alongside trust in the collective, task-based trust and relational trust play an important role. Task-based trust arises in the initiative when responsibilities are assigned to actors with the appropriate expertise and mandate, including commissioning the right experts, thoughtfully assigning roles and responsibilities (Paragraph 4.3.5), and establishing a professional operating organisation, ensuring progress and strengthening confidence in the collective's success. Relational trust develops through informal interactions, shared understanding, transparent communication, and consistent behaviour and commitment. The following quote by Interviewee D illustrates this finding:

["There are two types of trust … Task-based trust is about trusting that someone will carry out the responsibilities assigned within the collaboration. … involves planning, showing progress, providing justification, and ensuring the right person is responsible for the right actions. ... Relational trust, by contrast, is about trusting someone as a person, handling shared information responsibly, considering others' interests. It develops over the long-term. ... Weekly meetings help build this, as do sitting together, keeping each other informed, informal contact, and discussing how the collaboration is progressing."]

4.3.8 Shared Understanding and Shared Ambition

The findings highlight two complementary enablers that, in this initiative, contribute to developing a shared understanding and ambition (see Table L17 in Appendix L). One relates to making the collective ambition more tangible, while the other centres on creating an open and transparent dialogue.

First, showing comparable realised projects or physical components (e.g., battery installations, existing shared ownership and infrastructure arrangements) makes the abstract ambition more tangible. This clarifies the shared understanding and pathway towards the collective goal, building trust in the collective initiative's effectiveness. Illustrative of this finding is the following quote by Interviewee E:

["Over time, we've reached several arrangements that we consider acceptable. Most real estate, especially inner-city properties, is organised within VVE structures. ... which in the Netherlands is seen as a normal limitation of real estate. What also helps is that more and more area developments now include WKO systems … that are not used exclusively by a single party but shared with others. This creates a kind of connection that can be seen as a precursor to an Energy Hub."]

Second, from an early stage, open dialogues among the participants about what they aim to gain from and what they can contribute to the collective, in terms of time, money, knowledge, and resources, help develop a shared ambition that resonates with all the participants, creating broad support and stimulating active participation.

4.3.9 Institutional Entrepreneurs

The empirical findings, directly related to the institutional entrepreneurs involved in this case, highlight the core functions they adopt, serving as enabling factors in this initiative's collaborative process, and the characteristics that allow them to fulfil this institutional entrepreneurial role effectively (see Table L18 in Appendix L).

4.3.9.1 Core Functions

The institutional entrepreneurs in this case play a key role in identifying emerging opportunities for the collective SUT and translating them into a concrete initiative and actions. As proactive frontrunners, they initiate and shape the initiative and inspire and mobilise others through their local networks, building collective commitment even before concrete problems or solutions are fully defined. Illustrative of this initiating and driving role is the following quote from Interviewee I:

["We're trying to take the lead and push things forward. Person C and I have positioned ourselves as a kind of front group. … The world is full of people who prefer to stay on the sidelines and be carried along, but for me it's more of a personal drive. I believe that real change requires people who are willing to take the lead and move things forward. … In the end, we were the ones who started it all."]

Secondly, they play a key role in articulating a compelling narrative that outlines the shared vision and the steps to achieve it. By continuously involving participants and referring back to this vision and pathway, they help sustain a shared understanding, engagement and commitment, while reducing confusion and uncertainty, strengthening alignment, and supporting buy-in and trust in the initiative.

Thirdly, the institutional entrepreneurs play a crucial mediating role by identifying and bridging diverse interests and perspectives. By guiding dialogues among the participants, they create the conditions for establishing a widely supported shared ambition, strengthening mutual understanding of the assignment and collective goal, and enhancing trust and commitment. Illustrative is the following quote from Interviewee J:

["SP1: How do you see the institutional entrepreneurs playing an important role in creating and maintaining trust, relationships, and commitment? SP2: Because they are participants themselves, they can mediate effectively, better than the project manager or the lawyer, for instance. SP1: Mediate mainly between the other participants? SP2: Yes, exactly."]

Fourthly, because trust is critical in this SUT collective, the institutional entrepreneurs, alongside the project leader, play a key role in continuously building and maintaining it within the collective and with key external actors. Gaining trust from these key external actors (i.e. governmental bodies and grid operators) is particularly important, as regulatory mismatches or lack of support from them can significantly constrain the initiative's success (Paragraph 4.2.9). Within the collective, relational trust requires continuous effort to develop, while task-based trust depends on the confidence of participating representatives in the competencies and reliability of the institutional entrepreneurs and other responsible actors (Paragraph 4.3.7).

Fifthly, these institutional entrepreneurs play a crucial bridging role between the core group of experts and coordinators and the broader participant group. By regularly translating expert knowledge into accessible insights, they help the participants understand the initiative and its progress, keeping them engaged while enabling them to present and sell the collective within their organisation, thereby strengthening broader support and momentum. Simultaneously, they channel stakeholder concerns and interests back to the core group, ensuring integration. The unique position of these institutional entrepreneurs in adopting this bridging role becomes clear from the following quote from Interviewee I:

["During a recent participant meeting, someone in the working group without legal expertise asked how something worked. I explained it from a legal perspective, after which Person D added a

practical explanation that she completely understood, because they are both real estate entrepreneurs. So he can translate it into a rationale that similar organisations understand, turning it into an additional motivation for why something should be done. … Additionally, because they (the institutional entrepreneurs) are both in the core team, they are also well informed about everything that's going on."]

Lastly, while coordinators and experts become increasingly important as the initiative progresses for providing essential expertise and coordinating operational progress, the institutional entrepreneurs remain crucial throughout. As the driving force behind the initiative, they safeguard the collective ambition, maintain trust and relationships, attract new participants, and support ongoing stakeholder engagement and alignment. Illustrative is the following quote from Interviewee I:

["SP1: Could you indicate whether there are specific actions or interventions associated with the role the institutional entrepreneurs have taken to influence collaboration? SP2: Mainly taking initiative, actively approaching parties, presenting a strong case, and convincingly explaining why a hub is needed. … SP1: Is this primarily during the initial phase?. ... SP2: Now they delegate that to others, the third parties they've engaged for this hub. ... But when, for example, there is potential for new participants, or when a party hasn't yet paid the entry fee, they (the institutional entrepreneurs) do take the initiative."]

4.3.9.2 Characteristics

Regarding their characteristics, the findings reveal that the institutional entrepreneurs in this case act as visionary drivers, characterised by their strong intrinsic motivation and belief in the need for transformation through collective action. They take ownership and act proactively by initiating the initiative, shaping a compelling vision, sustaining belief in the collective even when others do not yet recognise it and facing complex and uncertain challenges, and inspiring others to engage and contribute. The findings indicate that, in this case, the collective SUT is unlikely to succeed without the involvement of such committed and visionary individuals. Illustrative is the following quote by Interviewee E:

["My personal drive plays a big role. I could have taken a back seat, waiting to see how things unfold, but I see the bigger picture: developments like these are essential for our future. … My motivation comes from the belief that if we want to save the planet, … we cannot keep building everything for maximum peak demand. … We should create collaborative systems that flatten that peak. I genuinely believe in this solution and that it's the direction we need to move towards. … Honestly, my own problem could probably be solved without the hub, so I could just sit back and watch. But no, I keep moving forward. That's just who I am: if we want something, we start now, take action, push forward, and figure out what's needed to make it happen."]

Moreover, because these institutional entrepreneurs, as well as the other participating organisations, are directly affected by the local SUT-related problem (net-congestion) and/or experience/anticipate similar challenges across multiple locations, they are motivated to assume an active role as institutional entrepreneurs, or at least to participate. Their direct experience enables them to recognise the urgency and necessity of collective action, motivating sustained commitment even when personal incentives might suggest stepping back. For those facing these challenges in multiple locations, participating in this collective SUT initiative is also perceived as a learning environment in which transferable knowledge and experience can be developed for use across their organisation and other contexts. As locally embedded and directly affected actors, unlike external actors without a direct stake in the outcome, these institutional entrepreneurs are viewed as credible and committed, which strengthens trust within the

collective. Illustrative of this advantage is the following quote by Interviewee J:

["I trust that the process is moving in the right direction. Yes, we have the project manager and the legal advisor, but they are still external parties; they're not in the working group with their own company on the line. For us, it's about trusting that they are steering things in the right direction, that progress is on track, and that what they are setting up is unfolding as planned."]

Fourthly, the institutional entrepreneurs can take on their role more effectively because they possess established local networks and demonstrate authority and leadership. Their existing relationships accelerate relational trust-building, enable the identification and mobilisation of relevant stakeholders, and encourage transparent data sharing. Their authority and leadership support efficient discussion-making and conflict resolution, including aligning diverse interests into the collective ambition, thereby safeguarding momentum and alignment within the collaboration. This finding becomes clear from the following quote from Interviewee B:

["SP1: Have any specific interventions been taken to strengthen and maintain trust, relationships, and commitment? SP2: Primarily Person D. I see him as the driving force behind the initiative; he brought in most of the parties, and already has strong relationships with all of them through his investment portfolio. Because all buildings are located in the same area, he can also establish trust with larger new entrants. … It is crucial to have one person gradually grow into a leadership role. While having everyone at the same level has its advantages, disagreements can stall progress. Having one person with clear authority and leadership significantly helps the hub's progress."]

Finally, because these institutional entrepreneurs originate from the private sector, they can act with greater financial and organisational flexibility, enabling swift and decisive choices, particularly when significant investments are required. Their private-sector position also signals the need for active (financial) contribution from the other participating organisations, preventing the perception that costs fall solely to governmental actors when they take on this driving role. At the same time, the proactive and result-oriented approach of these private sector institutional entrepreneurs requires careful coordination with the more cautious pace and institutional boundaries of the public stakeholders participating in the collective (Paragraph 4.4.7) to ensure alignment and collaboration. Illustrative of this finding is the following quote from Interviewee D:

["SP1: Do you think it is an advantage when companies take the lead, compared to when the government assumes that role? SP2: I do think Area A has an advantage: once we move into the implementation phase, which requires substantial investments such as shared infrastructure or battery systems, progress will likely be easier. In Municipalities E and F, when the municipality is seen as the driving force, represented by the right civil servant or process manager, things become more complicated once larger investments are needed, because the municipality itself must invest, which leads to various complications."]

4.4 Interventions

This paragraph presents the interventions identified in the case that institutional entrepreneurs, coordinators and facilitators can implement within the collective SUT to establish more effective collaboration. They are structured around the theoretical framework's core concepts. For a detailed overview, see Tables L19-L26 in Appendix L.

4.4.1 Resource/Knowledge/Power Asymmetries

The findings reveal several interventions to address the asymmetries (Table L19 in Appendix L). Power asymmetries, especially among hesitant key stakeholders (e.g. grid operators), can be mitigated by leveraging the networks of influential or public actors

involved in the collaboration. This includes drawing attention to the impact of their actions and inviting them to co-develop. Although these public or influential actors do not naturally assume this facilitating role, their involvement can be encouraged by their interests in the area's development and the effective use of allocated subsidies. Illustrative is the following quote by Interviewee G:

["The municipality participates with its real estate mainly to set a good example. Their involvement is valuable, because they can escalate issues internally. … They can reach aldermen and people in powerful positions higher up the ladder, who in turn can knock on the doors of the people in powerful positions at Organisation E, saying, 'Hey, what are you doing!?'"]

Resource asymmetries arise because many stakeholders participate alongside their primary responsibilities, limiting available time and capacity (Paragraph 4.2.1). Efficient, purposeful stakeholder meetings, held only to demonstrate progress, maintain commitment, or gather input for collective decision-making, help address this barrier.

Knowledge asymmetries result from both the innovative and complex nature of the SUT initiative and the fact that participants engage alongside their primary responsibilities, leading to varying levels of familiarity with the initiative's technical, legal, or financial aspects. To address the first, early involvement of specialised experts supports the exploration of solution directions, the technical, legal, and financial analyses, and the development of a business case aligned with participants' interests. This clarifies the collective potential, motivates participation ('what's in it for me'), and strengthens negotiations with key external actors who are obstructing the initiative's progress (Paragraph 4.2.9). The following quote from Interviewee B illustrates the necessity of this intervention:

["With energy hubs, there's always a certain sequence: first measuring, then addressing legal and technical issues, and then creating a business case that benefits all parties. In the end, everyone wants to know: I invest this amount, and I'll benefit from it, or it'll help my company grow. So the business case is crucial. When it comes to trust, we can have great conversations and really like each other, but if the business case doesn't add up, it's over."]

To address knowledge asymmetries across similar SUT initiatives and to encourage shared learning among actors working on comparable projects, the findings note the added value of establishing or joining a national or regional knowledge team. Such a team promotes transparency, builds a collective body of knowledge, reduces duplication, and accelerates future implementation. This becomes clear from Interviewee B:

["Within our regional team, we discuss all existing hubs and reflect as peers: How are things going, what problems keep arising, and how are they being solved? … Person F also participates in a national provincial meeting, bringing in and taking back knowledge. ... Collectively, we are building knowledge. At the moment, initiatives take much longer because many parties start with limited knowledge and try to reinvent the wheel, but I expect this will be less of an issue in two or three years."]

To address knowledge asymmetries among stakeholders in the initiative (Paragraph 4.2.1), explaining the core team's activities in an accessible manner during stakeholder meetings helps reduce these asymmetries. The institutional entrepreneur plays a key role in translating specialist content into accessible language, enabling representatives to secure approval from their mandate holders and thereby broader support for the collective, crucial for maintaining momentum (Paragraph 4.2.5). The necessity of this intervention becomes clear from the following quote by Interviewee G:

["We'll definitely encounter that knowledge, the question is when. ... From what I learned in Project G, the chairperson shared a valuable story and experience from a project already a few years ahead of ours. He emphasised the importance of continuously involving people to keep them engaged."]

4.4.2 Incentives to Participate

The findings indicate that financial considerations play an important role in stakeholders' willingness to participate in the collective SUT. Two key interventions are identified to incentivise participation (Table L20 in Appendix L).

First, supporting and encouraging participants to apply for subsidies is especially important in early phases of the initiative, when the collective solution's success is still uncertain or when financial resources are critical to stakeholders' willingness to participate.

Second, framing the collective SUT and joint investments as financially attractive by emphasising individual cost savings from shared solutions can increase stakeholders' willingness to participate and co-invest. Early involvement of specialised experts can strengthen this by developing viable business cases aligned with stakeholders' interests (Paragraph 4.3.2). The following quote of Interviewee E illustrates the first part of this intervention:

["SP1: Isn't the idea eventually to invest together in batteries? SP2: Yes, that's financially attractive as well. That's how I try to pitch it internally: showing that investing together is both economically beneficial and better overall."]

4.4.3 Stakeholder Access

The empirical findings identify two categories of interventions (see Table L21 in Appendix L). The first concerns selecting the right stakeholders and shaping an effective composition, while the second concerns rules and conditions for participation.

Regarding stakeholder composition, the findings highlight the value of starting the SUT initiative with a relatively small, directly motivated group of stakeholders (max. 7–10), driven by a shared sense of urgency. This "coalition of the willing" facilitates effective decision-making, reduces legal complexity, and accelerates progress. Once initial results are achieved, additional stakeholders can be gradually included. Illustrative of this finding is the following quote by Interviewee D:

["From my experience setting up partnerships over the past 30 years around various innovative themes like hydrogen infrastructure, if you want to build a large ecosystem or broad collaboration, you need to start with a relatively small core group, a 'coalition of the willing,' involving a few parties with a direct stake in the outcome. In this consortium in Project A, it includes companies facing grid congestion and that have both the space and the willingness to act together. So, a relatively small core consortium: large enough for critical mass, but not bigger. The idea is to achieve an initial result, after which other parties can join."]

Moreover, effective group composition within the initiative requires attention to stakeholder diversity, locational relevance, and strategic engagement. Deliberately including stakeholders with complementary knowledge, resources, and profiles strengthens collaboration, while atypical functional mixes can create synergies for shared solutions. Involving key actors who can contribute essential expertise or resources (e.g. battery) further strengthens the initiative's collaboration and can reduce collective costs by avoiding unnecessary shared investments. The relevance of this atypical mix becomes clear from the following quote:

Interviewee H: ["This area is one of the few in the Netherlands performing well economically. It has major event centres, while also having banks that mainly operate during the week, creating an

atypical mix of housing, offices, and events. That's why I find it so interesting for an energy hub: the different functions can complement each other and share resources."]

Regarding rules and conditions for participation, the findings show the importance of clear and transparent entry and exit criteria. These criteria help clarify suitability and expected benefits for new participants, while safeguarding existing members from disadvantage. Furthermore, introducing a financial contribution upon entry can strengthen active commitment, discourage free riding, and provide resources for essential expenditures (e.g. project coordination, expert support). Together, these interventions strengthen transparency, active engagement, and motivate participation. The following quote illustrates the significance of this financial contribution:

Interviewee C: ["At some point, we said: if you want to participate, you need to contribute financially. That was a real eye-opener. Some parties that had previously been willing to join, essentially just riding along, dropped out when asked to pay a €5,000 entry fee. It made clear who was genuinely committed. … That financial contribution marked the real start, and since then, no one has dropped out."]

4.4.4 Clear Ground Rules and Protocols

The findings reveal two categories of interventions (see Table L22 in Appendix L). The first set of three focuses on early formalisation of the collective, while the fourth intervention addresses the organisation of collaboration.

First, the findings show that early establishment of a legal entity is valuable, as it enables the initiative to access subsidies and external capital, facilitates formal expert consultation, allows binding agreements, and supports effective communication and coordination within and beyond the collective. When this is not yet possible, an existing organisation can temporarily assume formal responsibility (Paragraph 4.3.3).

Moreover, early procedural clarity and formalisation strengthen transparency, continuity, and commitment, while reducing free riding. This includes clearly defining responsibilities, decision-making procedures, communication structures, and entry and exit arrangements. During the exploratory phases of the initiative, keeping agreements low-threshold and non-binding preserves openness and flexibility, while gradual formalisation supports operational stability as the initiative matures. Instruments such as an LoI help clarify early commitment to the shared ambition and/or encourage information sharing. Because mandate holders typically sign these documents, they contribute to broad organisational acknowledgement and support, strengthening trust and commitment across the participating organisations. Illustrative are the following quotes:

Interviewee G: ["Legally, we all agree that we don't really know where this is going, whether it will be useful, and that we can exit if we want. SP1: So it's important to keep the option to exit for as long as possible? SP2: Yes, but that's inherently complicated, because once you're in, exiting has consequences for all remaining parties."]

Interviewee E: ["We're currently drafting the LoI, stating that we will work together on the collaboration agreement. It formalises things without being legally binding … By drafting it, you at least put something on paper ... The intent matters, as having it signed by management ensures that statements at the table are officially backed by their organisation."]

Finally, effective organisation of the collaboration benefits from establishing specialised working groups. These groups, including independent experts (legal,

technical, financial) and representatives from each participating organisation, address complex, topic-specific issues in dedicated settings, and provide targeted input to both the core team and broader participant group. Establishing these groups, in consultation with the participants, clarifies roles, strengthens shared ownership, and thus a sense of responsibility and commitment.

4.4.5 Face-to-face Dialogue

The findings on interventions related to face-to-face dialogue emphasise the importance of regularly organising both individual stakeholder conversations and collective sessions from the start of the project (see Table L23 in Appendix L).

Individual conversations help build trust, address concerns, and uncover individual interests, while the initiative's collective sessions provide transparency on project progress, continuously highlight the urgency and relevance of participation, and create space to share and discuss uncertainties, expectations, dilemmas, and interests. Together, these interventions strengthen transparency, shared understanding, trust, and commitment. Illustrative is the following quote from Interviewee A:

["We held several stakeholder meetings, bringing together all interested parties, so they could discuss their uncertainties, expectations, and dilemmas. … Simply talking about shared problems helped everyone realise that others face similar challenges … We took many important steps to build that shared understanding; recognising and discussing each other's issues without making false promises. … As the plans become more concrete it's essential to continue having open and honest conversations. … Transparency about interests and positions is absolutely crucial."]

In addition, organising informal and personal interactions plays an important role, including opportunities for participants to introduce themselves, their organisational profiles, and their interests. Organising meetings on-site at participating organisations can support this. These interactions provide clarity and transparency, which helps establish a shared understanding and ambition, while contributing to low-threshold relationship-building. The importance of this intervention is emphasised by Interviewee I:

["SP1: How have trust and relationships between stakeholders been built and maintained? SP2: I find it crucial that relationships and the overall atmosphere are good. That's why I strongly prefer on-site meetings, so people can get to know each other, including having lunch together, to discuss more than just the hub. … This helps you understand each other's organisations and personalities. … I'm convinced this is often underestimated or skipped. ... When personal connection works, everything becomes much easier, beyond the content itself."]

4.4.6 Commitment to the Process

Regarding commitment to the process, the findings indicate that regularly emphasising the collective goal, direction, and urgency of the SUT initiative helps maintain alignment, involvement and commitment among the participants. Sustaining this emphasis throughout the process is important, as later collective decisions might not benefit all participants equally (see Table L24 in Appendix L).

4.4.7 Intermediate Outcomes and Evaluations

The findings on intermediate outcomes and evaluations reveal two intervention categories. The first set of four interventions focuses on safeguarding the collective's progress, while the fifth focuses on stakeholder engagement (see Table L25 in Appendix L).

Safeguarding the initiative's progress requires strategic coordination and phased implementation. Strategic coordination involves appointing a result-oriented project

manager with experience in similar SUT projects, as this helps prevent stagnation in the initiating phase, where endless discussion can delay concrete action. Developing a detailed plan with clear milestones and consistently referring to it in stakeholder meetings helps make the path towards the collective goal visible and strengthens engagement and commitment. The relevance of both becomes clear by the following quote by Interviewee D:

["I've been involved in various collaboration initiatives related to the energy transition for several years. … Previously, the group met bi-monthly; in April, the companies deliberately chose a results-oriented, project-based approach. Instead of meeting every two months to discuss the idea of an energy hub, we're now focusing on making it happen. My main task as a project manager is therefore to ensure that the first implementation of the energy hub is delivered as a concrete outcome. … One important intervention I made was developing a clear and concrete timeline: this is where we are now. And these are the steps we'll take over the next eight months. … By clarifying what needs to be done, we made the process much more tangible."]

Strategic coordination also includes conscious choices about the group's composition, particularly in the initial phase (Paragraph 4.4.3). When certain actors structurally hinder progress, for instance, due to legal, financial, or organisational constraints linked to their public role, it can be strategic to postpone or limit their formal involvement in the collective or legal entity, while still allowing participation in ways that respect their institutional boundaries, preventing stagnation and keeping future participation possible. Illustrative is the following quote by Interviewee D:

["There's one party that is causing delays in the first phase of the hub. I see it as my responsibility to assess whether it might be better for that party to step back. … We're already anticipating that once a legal entity needs to be established, it will likely be founded by private parties, or a subset of them. We want to ensure that public partners can collaborate with this entity without necessarily becoming participants or co-founders. … It's about managing expectations and preventing public partners from ending up in a process where they feel obliged to take on a role they're uncomfortable with or legally can't fulfil. We address these concerns explicitly by stating that we're working towards a legal structure, such as a collective in which companies jointly establish a limited company or cooperative, and that we understand their concerns and incorporate them into the design process."]

Regarding phased implementation, the findings indicate that a step-by-step approach can be effective when the initiative faces operational limitations, dominant external stakeholders (i.e. grid operators), and/or challenges inherent to system transformation. By initially focusing on low-hanging or sub-optimal solutions, made necessary, for instance, by misalignment with existing regulations, momentum can be maintained while allowing gradual expansion. To anticipate these potential obstacles and sustain progress, early involvement of specialised experts (Paragraph 4.3.2) in developing multiple solution scenarios helps navigate uncertainty, demonstrates the initiative's added value, and strengthens its position in negotiations with key external actors (i.e. grid operators). Moreover, this approach also highlights the importance of a clearly defined scope, enabling gradual stakeholder engagement, trust-building in the collective solution, and effective use of participants' limited time and capacity. The reasoning behind this approach is illustrated by the following quote from Interviewee A:

Interviewee A: ["My reasoning is this: if using gas for 500 hours a year enables infrastructure that will remain sustainable for the next 40 years, then it makes sense to do so for a limited period. We

don't have the workforce to wait ten years and make everything sustainable at once. Operationally, it's impossible to transform the system in time if we don't take this step. That's why a phased approach is needed. In this process, Organisation P holds a position of power: they can either block the entire project or prevent it from reaching its optimal outcome."]

Finally, regarding stakeholder engagement, the findings show that sustained commitment among the participants benefits from a dual approach: consistently emphasising the urgency and benefits of collective action in group settings ('what's in it for me') and holding individual conversations to monitor and maintain commitment. This combined approach increases transparency, strengthens the perceived value of collaboration, and motivates active participation and commitment, even when interests differ.

4.4.8 Institutional Context

Regarding the institutional context, the findings indicate that mismatches between existing regulations and institutional frameworks and the needs of the SUT initiative constitute a major barrier to its successful implementation (Paragraph 4.2.9). To address this, initiating a dialogue with relevant authorities (i.e. grid operators, governmental bodies), facilitated by provincial or municipal actors involved in the initiative, can be helpful. Such dialogue can aim to negotiate launching the initiative as a pilot or obtain temporary conditional agreements, increasing the likelihood of proceeding without delays or halts. Additionally, a pilot can generate experiential knowledge to support broader implementation of similar SUTs (see Table L26 in Appendix L). Illustrative of this finding is the following quote by Interviewee D:

["We are trying to work around the fact that the grid operator says, formally, this can only happen at the end of next year, while we want to start now. This requires negotiating with the grid operator about whether the hub could function as a pilot ... or operate under conditioned contracts. For this, we also need lobbying support from major actors such as Organisations D and C, as well as the province and municipality, given their influence over the grid operator. … The main goal is to show that initiating a preliminary GTO for this hub is valuable."]

4.5 Synthesis of the Findings into a Set of Guidelines

This paragraph synthesises the case findings on barriers, enablers, and interventions presented in the previous three paragraphs, and translates them into a practical set of guidelines for sub-question four. It shows how the identified interventions can overcome the barriers and leverage the enablers, thereby providing a conclusive overview of the answers to sub-questions two and three, while directly addressing sub-question four: *'How can the role of institutional entrepreneurs in influencing collaboration between stakeholders towards sustainable urban transformations be captured in a set of guidelines?'* First, a conclusive answer is provided regarding the role of the institutional entrepreneurs, as part of sub-questions three and four, followed by the presentation of the guidelines and steps leading to this final product.

4.5.1 Role of Institutional Entrepreneurs

As becomes clear in Paragraph 4.3.9, the empirical findings show that the institutional entrepreneurs in this case act as the driving force of proactive, visionary frontrunners within the stakeholder collaboration of the SUT project. They fulfil several key functions, supported by characteristics that enable them to perform this institutional entrepreneurial role effectively.

4.5.1.1 Identifying Opportunities and Inspiring and Mobilising Collective Action

First, the institutional entrepreneurs play a key role in identifying emerging opportunities

for the collective SUT initiative and taking a proactive, leading, and inspiring role by turning ideas into actions. This includes articulating a compelling narrative that expresses the collective vision and pathway, and inspiring and mobilising others to join and actively commit. Their intrinsic motivation and strong belief in collective transformation enable them to remain undeterred, committed, and proactive even when urgency and potential are not yet widely recognised, or when facing the complex and uncertain challenges inherent to this SUT project. The findings suggest that without such committed and visionary individuals, the collective SUT initiative would be unlikely to succeed.

4.5.1.2 Local Embeddedness as a Stimulus and Enabler

Their ability to inspire and attract participants is strengthened by their local embeddedness, including existing networks and relationships that reduce the need to build them from scratch. Moreover, being directly affected by the SUT-related problem (i.e. net-congestion) and/or experiencing or anticipating similar challenges elsewhere enables these institutional entrepreneurs to recognise both the necessity and potential of collective action. This constitutes the prerequisite for their belief in collective action and their willingness to assume the institutional entrepreneurial role. It allows them to perceive the collective SUT initiative both as a response to local challenges and as a learning environment in which transferable knowledge and experience can be developed and applied across contexts.

4.5.1.3 Mediating and Bridging Interests and Expertise

Second, these institutional entrepreneurs also fulfil a crucial mediating role by identifying and bridging diverse interests and perspectives, helping to establish a widely supported shared ambition, mutual understanding, trust and commitment. They also play a crucial mediating role between the core group of experts and the broader participant group by translating expert knowledge into accessible insights and channelling stakeholder concerns and interests back to the core group to ensure their acknowledgement and integration. This mediating function is enabled by their position as equal participants rather than external facilitators or coordinators, allowing a deeper understanding of participants' perspectives. Moreover, as members of both the participant and core group, they remain well-informed from both sides. Furthermore, their authority and leadership support efficient guidance of discussions and conflict resolution, preventing delays and safeguarding momentum and alignment.

4.5.1.4 Building and Maintaining Trust

Third, given the centrality of trust in the collective SUT initiative, the institutional entrepreneurs, together with the coordinators and facilitators involved (i.e. the provincial process coordinator and the project leader), play a key role in continuously building and maintaining trust within the collective and with key external actors. This includes trust in the collective solution, which is a prerequisite for participation, as well as relational trust among participants, and task-based trust in the competencies of responsible actors, including the institutional entrepreneurs. Their ability to build and maintain trust is enabled by their capacity to communicate a compelling narrative, their local embeddedness with existing relationships and trust levels, and their direct stake in the outcome. These characteristics make them credible and committed actors in the eyes of other participants, strengthening confidence in the collective and task-based trust.

4.5.1.5 Private-Sector Advantages in the Institutional Entrepreneurial Role

Moreover, because these institutional entrepreneurs originate from the private sector, they can perform this role more effectively than those from the public sector. Their greater financial and organisational flexibility enables them to act swiftly and make decisive choices, particularly when significant investments are required. Their private-sector position also signals the need for active (financial) commitment from other participants, strengthening collective responsibility and engagement.

4.5.1.6 Continuing Role Throughout the Process

Finally, although external coordinators, facilitators and experts become increasingly important as the initiative progresses, by providing essential expertise and coordination, the institutional entrepreneurs remain crucial throughout. Their continuing role involves safeguarding the collective ambition, maintaining and strengthening trust and relationships, attracting new participants, and ensuring continued alignment and engagement among participants.

4.5.2 Practical Set of Guidelines

After analysing the findings for sub-questions two and three (Paragraphs 4.2 to 4.4), the next step was to develop practical guidelines. A preliminary outline was drafted based on the case study analysis, refined and validated during an expert meeting, and subsequently incorporated into the final guidelines. The following section provides a brief overview of this process.

4.5.2.1 Preliminary Outline

First, a preliminary outline of the guidelines was drafted based on the case study findings, focusing on identifying which interventions could be utilised to overcome the identified barriers and/or leverage the enablers. Subsequently, the relevance of each intervention across different phases was determined by drawing on the step-by-step roadmap for energy hubs (Figure 17), the empirical findings from this case, and disciplinary expertise. Furthermore, an assessment was conducted to identify which interventions are specifically relevant to the institutional entrepreneurs, externally commissioned coordinators and facilitators, or to both. Appendix N provides the preliminary outline of the guidelines.

4.5.2.2 Expert Meeting

After the development of the preliminary outline, an expert meeting was held with two practitioners and one scholar. Participants were selected through non-probability sampling in consultation with the academic

Table 4

Overview of Participants Expert Meeting (Own table)

Participant	Function	Date of Expert Meeting
Participant A (practitioner)	Transformation leader in energy and mobility transitions; Connector and coordinator of collective SUDs and investments	27-11-2025
Participant B (practitioner)	Leading professional in new partnerships and governance for transition challenges and complex societal issues	27-11-2025
Participant C (scholar)	PhD researcher on bottom-up urban initiatives led by social entrepreneurs	27-11-2025

and graduating organisation mentors. Table 4 provides an overview of the participants, showing that the practitioners have experience with stakeholder collaborations in SUT projects, while the PhD researcher studies bottom-up urban initiatives led by social entrepreneurs, who share various similarities with institutional entrepreneurs (Paragraph 3.2), thereby offering a complementary perspective.

During the expert meeting, the preliminary guidelines were discussed with a focus on three topics: the recognisability of the barriers, enablers and interventions in SUT projects; the positioning and allocation of the interventions in terms of phasing and actor linkage; and the usability and user-friendliness of the guidelines. Further details on the expert meeting setup are provided in Appendix D.

The expert meeting revealed consensus that interventions generally emerge organically and intuitively, following non-predefined paths. Because their timing, necessity and actor constellation vary across projects and contexts, the participants concluded that no universal linkage between interventions, phases and actors can be claimed, nor that a predefined set of interventions guarantees effective collaboration. Instead, practice shows that interventions evolve organically and intuitively, making it unwise to design an instrumental set of interventions rigidly tied to phases and actors.

To preserve the intuitive and organic nature of intervention use, the participants proposed developing practical guidelines that start with the barriers and enablers, with interventions linked as potential solutions. This provides practitioners, including institutional entrepreneurs, as well as externally commissioned experts and coordinators involved in SUT initiatives, with practical guidance to refine their practices, reflect on encountered barriers, draw inspiration, assess intuition in relation to possible interventions, and identify blind spots that help avoid repetitive patterns. The participants also emphasised the value of designing the guidelines as a living document, continuously updated with new barriers, enablers, and proven interventions from ongoing SUT projects, ensuring that the guidelines remain enriched over time, enabling others to learn from their lessons.

4.5.2.3 Final Set of Guidelines

Building on insights from the expert meeting, the final version of the practical guidelines was developed (Appendix O). The guidelines are structured around the eleven variables that influence collaborative success, in accordance with the conceptual framework (Paragraph 3.4) and findings (Paragraphs 4.2 to 4.4), complemented by an additional variable, the institutional context, which also influences the collaborative process. For each variable, the related barriers and enablers are outlined, with interventions linked as potential solutions. In this way, the guidelines provide practical guidance for institutional entrepreneurs and externally commissioned facilitators and coordinators to influence stakeholder collaborations towards SUTs. This set of guidelines thereby addresses the fourth sub-question and offers a conclusive overview of sub-questions two and three. Table 5 presents an overview of the core components of the guidelines, whereas Figure 19 offers a visual impression of them.

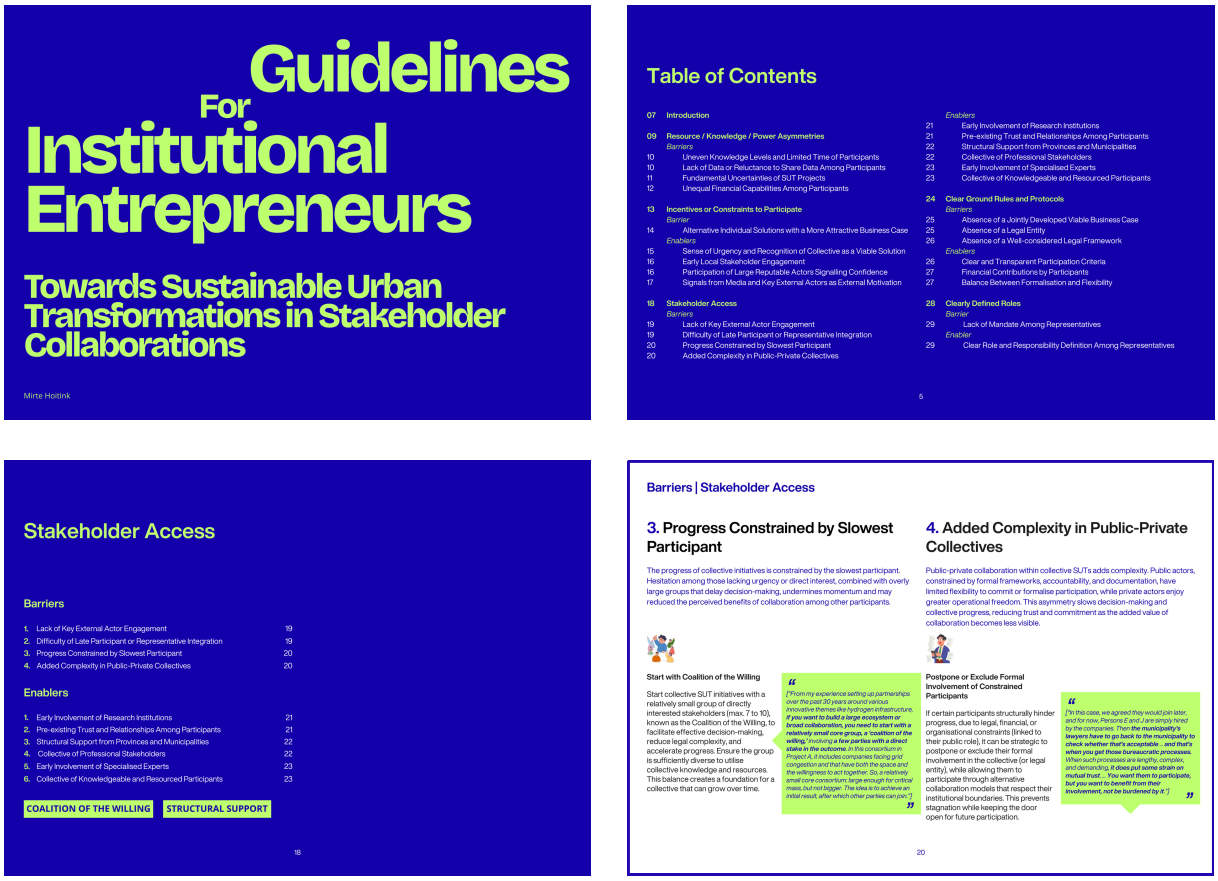
Table 5

Core Components of the Guidelines (Own table)

Core Component	Brief Description
Users	Practical guidelines for institutional entrepreneurs and externally commissioned coordinators and facilitators in collective SUT projects.
Purpose and Function	Reflective instrument, rather than a prescriptive one, to sharpen practices, evaluate situations, test intuition, gain inspiration, and uncover blind spots that help avoid moving in circles.
Structure	Built around 11 collaboration influencing variables, and one additional variable, the institutional context, which also exerts influence on collaborations. Each variable includes common barriers and enablers, with targeted interventions linked to them to overcome barriers or leverage enablers.
Usage	Users can navigate directly via the table of contents to the relevant variable chapter or to a specific barrier or enabler of interest, where an explanation is provided together with suggested interventions.
Living Document	Guidelines are intended to be tested, refined, and regularly updated with additional insights from ongoing SUT projects, including barriers, enablers and proven interventions.

Figure 19

Visual Impression of the Guidelines (Own figure)



5. Discussion

This discussion chapter interprets the findings by comparing insights from the literature review with the empirical results. It further addresses the limitations of this research, examines the implications of the findings, and concludes with recommendations for both practice and academia.

5.1 Interpretation of the Findings

This paragraph examines how the case study results (Chapter 4) confirm, contradict, or complement the existing literature (Chapter 3). This interpretation is structured around the variables of the conceptual framework (Figure 15) and results in an adapted version of the framework (Figure 20), in which variables not included in the empirical research were excluded.

5.1.1 Resource/Knowledge/Power Asymmetries

The empirical findings confirm existing literature showing that resource, knowledge, and power asymmetries stem from differences in capacity, status, organisation, or resources between participants (Gray, 1999; Warner, 2006). In this case, these asymmetries are further reinforced by the voluntary, non-core nature of participation, as most organisations participate alongside their core activities. Moreover, limited data availability and hesitation to share sensitive information introduce an additional key asymmetry, hindering the identification of collective opportunities. Finally, the case also indicates that this SUT initiative is characterised by fundamental uncertainties regarding the effectiveness of the collective solution, interdependencies between actors, and economic and contractual consequences. Together, these asymmetries discourage participation and complicate collective decision-making, potentially delaying or halting the initiative's progress.

5.1.2 Incentives or Constraints to Participate

Regarding incentives and constraints to participation, the empirical findings largely confirm existing literature that incentives strongly depend on stakeholders' expectations of collaborative outcomes (Bradford, 1998; Geoghegan and Renard, 2002; Rogers et al., 1993; Schneider et al., 2003; Warner, 2006), while the availability of alternative venues, where stakeholders can pursue their objectives independently, can discourage participation (Ansell and Gash, 2008). In this case, incentives increase when stakeholders experience a sense of urgency and recognise shared challenges, with the collaboration offering a collective solution, aligning with the theoretical notion that incentives increase when stakeholders perceive that achieving their goals depends on cooperation (Logsdon, 1991). The case further specifies that alternative venues offering a more favourable business case and/or an individual solution, such as building-level measures to restore sufficient grid connection capacity, are particularly influential in discouraging participation. This adds nuance to existing literature by highlighting the role of financial considerations and autonomy preferences, in contrast to the interdependencies inherent in this SUT case. Moreover, external incentives, such as the involvement of

reputable actors and media attention, further stimulate participation in this case by signalling legitimacy, urgency and collective potential.

5.1.3 Stakeholder Access

Concerning stakeholder access, the literature emphasises that collaborations should be open and inclusive, involving all affected or interested stakeholders (Andranovich, 1995; Burger et al., 2001; Chrislip and Larson, 1994; Gray, 1999; Gunton and Day, 2003; Lasker and Weiss, 2003; Margerum, 2002; Martin et al., 1999; Murdock et al., 2005; Plummer and Fitzgibbon, 2004; Power et al., 2000; Reilly, 1998, 2001), as well as local authorities (Zucker, 1988) and previously unengaged actors such as universities, innovative companies, and interdisciplinary experts, to ensure complementary resources and institutional influence (Scholz and Stiftel, 2005; Klein Woolthuis et al., 2013). The empirical findings confirm this by showing the importance of early involvement of research institutions, experts familiar with the specific SUT, and structural support from governments. The findings further add that the SUT collective initially benefits from starting with a relatively small, directly motivated group, driven by a shared sense of urgency. This extends existing literature by indicating that, in this case, this "coalition of the willing" facilitates effective decision-making, reduces complexity, and accelerates progress, which is particularly desirable given the fundamental uncertainties in the SUT project. Pre-existing relationships and mutual trust further support smooth collaboration and momentum in this case.

5.1.4 Clear Ground Rules and Protocols

The literature highlights the importance of clear ground rules and protocols for trust-building and procedural legitimacy (Busenberg, 1999; Geoghegan and Renard, 2002; Glasbergen and Driessen, 2005; Gunton and Day, 2003; Imperial, 2005; Murdock et al., 2005; Rogers et al., 1993). The empirical findings confirm this and further indicate that, in this case, early procedural clarity and formalisation strengthen transparency, continuity, and commitment, while reducing free-riding. The findings further indicate that during the exploratory phase of this initiative, agreements benefit from remaining low-threshold and non-binding to preserve flexibility, while gradual formalisation becomes necessary as the initiative matures to support operational stability. Finally, the findings show that the initiative struggles to get off the ground without a well-considered legal framework and a jointly developed, viable business case.

5.1.5 Clearly Defined Roles

While the literature stresses the importance of clearly defined roles to reduce ambiguity (Alexander et al., 1998), the empirical findings add that in this case, collaboratively assigning roles based on expertise and interests strengthens ownership, and thus active participation and commitment. The findings further indicate that unclear or absent mandates among representatives can delay this collective's progress, particularly due to the involvement of larger participating organisations with internal layered decision-making.

5.1.6 Process Transparency

Regarding process transparency, the literature emphasises its importance for trust building and procedural legitimacy (Busenberg, 1999; Geoghegan and Renard, 2002; Glasbergen and Driessen, 2005; Gunton and Day, 2003; Imperial, 2005; Murdock et al., 2005; Rogers et al., 1993). The empirical findings confirm this and add that in this case, transparency is a key enabler of both demonstrating process integrity and stimulating stakeholder engagement and commitment, supported by

open communication channels, regular updates and information sharing, and responsiveness to participants' questions and concerns.

5.1.7 Face-to-Face Dialogue
The literature emphasises face-to-face dialogue as crucial for identifying mutual gains (Ansell and Gash, 2008), building a shared understanding, and strengthening trust, respect and commitment (Gilliam et al., 2002; Lasker and Weiss, 2003; Plummer and Fitzgibbon, 2004; Schneider et al., 2003; Tompkins and Adger, 2004; Warner, 2006). The empirical findings complement this by showing that, within this initiative, different forms of face-to-face interactions serve distinct but complementary functions. Regular participants' meetings maintain transparency, enable joint decision-making (strengthening ownership and thus commitment), and provide space to discuss uncertainties and interests (supporting relationship- and trust-building, as well as mutual gain identification). Smaller core group meetings safeguard operational progress, while working groups provide targeted input on topic-specific issues. Individual stakeholder conversations further support trust building, address concerns, uncover individual interests, and monitor commitment.

5.1.8 Trust and Relationship Building
The literature identifies trust as the foundation for effective interpersonal relationships, crucial for working towards shared goals (Turaga, 2013). Building and maintaining trust requires constant effort from leaders, especially early on, and long-term commitment from all involved (Ansell and Gash, 2008). The case findings recognise this interpersonal foundation as relational trust, which, in this initiative, functions as a prerequisite for relationship building, is particularly fragile early on, and develops gradually through facilitated informal interactions and introductions. This form of trust aligns with Kersenhout et al.'s (2026, forthcoming) notion of micro-level, interpersonal trust.

In addition, the findings highlight two other forms of trust that prove significant in this case: trust in the collective solution, which is a prerequisite for participants' engagement, and task-based trust, which relies on confidence in competencies and is strengthened through careful role and responsibility assignment, the involvement of appropriate experts, and the establishment of a professional operating organisation with open communication channels and regular, honest updates on progress. These forms correspond to Kersenhout et al.'s (2026, forthcoming) meso-level, organisational trust. The significance of regular and honest updating aligns with Mens et al.'s (2025) notion of small wins, referring to concrete intermediate achievements that gradually build legitimacy, feasibility, and stability, thereby reducing uncertainty and increasing trust.

Kersenhout et al. (2026, forthcoming) further identify a third level, macro-level, institutional or systematic trust. As discussed in Paragraph 5.1.13, institutional context factors significantly influence collaboration and establishment of the SUT in this case, and therefore, this third level of trust appears largely absent.

5.1.9 Commitment to the Process
The literature identifies commitment as critical for collaborative success (Alexander et al., 1998; Gunton and Day, 2003; Margerum, 2001; Tett et al., 2003), closely linked to initial motivation (Ansell and Gash, 2008), while requiring a psychological shift towards mutual gain thinking (Putnam, 2004; Putnam et al., 2003; Burger et al., 2001). It also identifies "ownership of the process" as an additional dimension of commitment

through shared decision-making (El Ansari, 2003; Geoghegan and Renard, 2002; Weech-Maldonado and Merrill, 2000). The empirical findings confirm these insights, showing that, in this initiative, commitment increases when participants experience a sense of urgency, recognise the shared challenge, and perceive this collaboration as a viable solution. The case further indicates that regularly emphasising this urgency and collective goal supports sustained commitment. Finally, the case findings reinforce the literature's emphasis on the importance of joint decision-making, while also highlighting the importance of clearly defined roles and responsibilities among representatives in the initiative.

5.1.10 Shared Understanding and Shared Ambition

The literature emphasises the importance of collectively agreeing on the problem definition (Bentrup, 2001; North, 2000; Pahl-Wostl and Hare, 2004) and developing a shared understanding of the collective purpose and vision (Tett et al., 2003), by discussing not only collective but also individual and organisational interests and contributions (Common Eye, 2016). The empirical findings complement this, showing that, in this case, early individual participant conversations build trust, address concerns, uncover individual interests and contributions, and monitor commitment. Informal and mediating interactions further support the development of a mutual understanding by bridging interests and shaping a shared ambition, while building trust and relationships. The findings further add that, in this initiative, showcasing comparable SUT projects or components helps concretise the shared ambition and builds trust in the collective goal, while leading actors safeguard the collective interest.

5.1.11 Intermediate Outcomes and Evaluations

Regarding intermediate outcomes and evaluations, literature emphasises that collaborative success benefits from achieving small wins (Chrislip and Larson, 1994; Roussos and Fawcett, 2000; Warner, 2006; Weech-Maldonado and Merrill, 2000), while keeping stakeholders informed and conducting periodic evaluations sustains motivation to participate (Common Eye, 2016). The empirical findings support these insights but further highlight related barriers in this SUT initiative, including the substantial upfront time required to address uncertain technical, legal, financial, and organisational issues, which reduces visible progress and may discourage participation, as well as the tendency of such an SUT initiative to remain in the consultative phase with insufficient concrete actions. To address these barriers, the case suggests several interventions, including appointing an experienced, result-oriented project manager; developing a concrete plan; enabling cross-project learning; adopting phased implementation; and holding regular collective and individual meetings to emphasise urgency and benefits, as well as to monitor commitment.

5.1.12 Institutional Entrepreneurs

The literature on institutional entrepreneurs highlights that these actors address sustainable needs constrained by existing formal and informal institutions (Klein Woolthuis et al., 2013). Some are profit-driven with sustainable development as a secondary goal, while others prioritise sustainable value creation. They can operate as individuals (pioneers) or as mature organisations (consolidated organisations or intermediate agents), using actions and strategies to influence stakeholder collaborations towards SUTs (Mens et al., 2021) (Figure 15).

Although this study did not aim to identify types of institutional entrepreneurs, limited by the single case study approach, the observed institutional entrepreneurs (Interviewees C and E, Table 3) can be classified as pioneers, with the area-oriented impact organisation (GBC ZO) as a consolidated organisation, both profit-driven with sustainability as a secondary goal. While the actions and strategies provided a starting point for identifying the interventions, these were categorised under the variables influencing collaboration success, consistent with the categorisation of barriers and enablers, and are therefore not included in the adapted framework (Figure 20).

Nonetheless, these empirically observed functions and interventions of the institutional entrepreneurs correspond closely to the actions and strategies of Mens et al. (2021), including articulating a compelling narrative to inspire and mobilise participants (building of social network and mobilisation of resources), bridging interests to establish a shared ambition (alignment and articulation of visions, goals, and interests), and building and maintaining trust within the collective and with key external actors (building of social network and mobilisation of resources).

5.1.13 Institutional Context

The institutional context was deliberately placed outside the scope of this study. However, the empirical findings reveal that interviewees consistently raised institutional context factors that significantly influence the collaboration and establishment of the SUT, highlighting their relevance. The findings indicate that this specific SUT collaboration is constrained by misalignment with existing regulations, contracts, and infrastructure, as well as limited organisational capacity, lack of specialist roles, and an inappropriate collaborative culture within key institutions. These constraints limit the flexibility needed to establish the SUT, potentially forcing sub-optimal outcomes or even project failure. Moreover, since financial incentives strongly influence stakeholders' willingness to participate in the initiative, underdeveloped business cases and financial settlement models, along with a lack of recognition in existing assessment systems, further undermine the attractiveness to participate. To address these barriers, the case findings suggest interventions such as initiating a dialogue with relevant authorities to launch the initiative as a pilot or grant temporary conditional agreements, implementing a phased approach starting with low-hanging solutions, and establishing a national or regional knowledge team to facilitate cross-project learning on similar SUTs.

5.2 Limitations

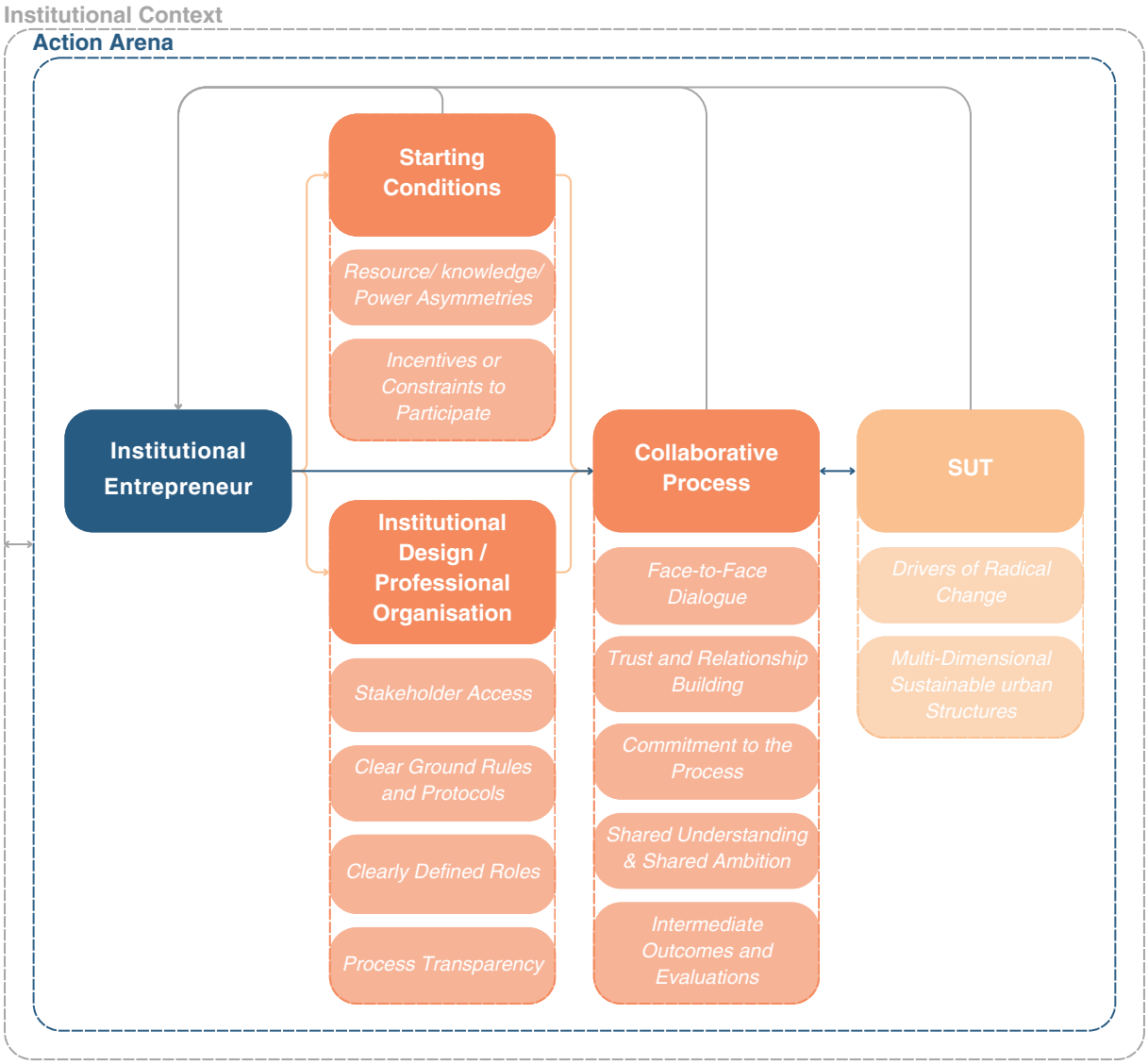
5.2.1 Interpretative Nature of Qualitative Research

The interpretative nature of qualitative research introduces potential researcher bias, as different researchers might have conducted, analysed or interpreted the data differently, potentially resulting in varying outcomes and thus limiting the objectivity and replicability of the research. To mitigate this, a structured and transparent interview analysis process was applied (Paragraph 2.3): Atlas.ti was used to code the data, Excel tables enabled systematic cross-interview comparison, and only findings supported by at least two interviewees were included in the findings chapter (Chapter 4). The expert meeting further validated and refined the findings, reducing potential research bias and strengthening the results.

5.2.2 Literature selection in Constructing the Conceptual Framework

The literature selection underpinning the conceptual framework may have influenced the study’s outcomes. Adopting a specific framework (Figure 15) inherently influenced the interview topics and subsequent analysis

Figure 20
Adapted Conceptual Framework (Own figure)



and interpretation, while alternative or additional literature might have produced a different conceptual framework, variables, and insights. To mitigate this, deliberate and transparent choices were made regarding literature selection (Paragraph 2.2.1), based on their relevance to the research questions and topics, publication date, author expertise, and citation frequency.

5.2.3 Single Case Study Approach

The single-case study approach limits the generalisability and transferability of the findings to other SUT collaborations. The identified barriers, enablers, interventions, and the role of the institutional entrepreneurs are based solely on this case, while other SUT collaborations may reveal additional or different insights. Future research would therefore benefit from a multiple case study approach (Paragraph 5.4.2). Nevertheless, the findings remain valuable for answering the main research question, as the study examined a wide range of variables (Figure 15), included participants with diverse roles (Tables 3 and 4), incorporated only findings supported by at least two interviewees, and were further validated through an expert meeting, strengthening the reliability and offering a broad and nuanced perspective.

5.2.4 Restricted Access to Project-related Documentation

Restricted access to project-related documentation forms another limitation, largely stemming from the intangible nature of the studied variables, such as trust, commitment, and informal interactions, which are rarely formally recorded. Consequently, this research primarily relies on participants' experiences and perceptions. Future research could complement interviews and the expert meeting with observations to gain direct insight into the collaborative process and the role of institutional entrepreneurs.

5.3 Implications

5.3.1 Practical Implications

The practical guidelines, developed as the output of sub-question four, provide institutional entrepreneurs and externally commissioned coordinators and facilitators (e.g. project leaders), such as those in this study's case study, with guidance to influence stakeholder collaborations towards SUTs. As interventions in practice evolve organically and intuitively, the guidelines should be used as a source of inspiration rather than being applied rigidly, helping practitioners refine practices, identify blind spots, and evaluate intuition regarding the effectiveness of interventions. Since interventions vary across SUT projects and contexts, and the guidelines are based on a single case study, they should be further tested and refined, and regularly updated with newly identified barriers, enablers, and proven interventions. Doing so will enrich the guidelines and clarify which findings are context-specific and which are more broadly applicable, enabling others to learn from accumulated practical experiences.

5.3.2 Scientific Implications

This research contributes to the growing body of knowledge on institutional entrepreneurship, collaboration and SUTs, particularly by identifying barriers and enablers in a SUT collaboration, clarifying the role and characteristics of the involved institutional entrepreneurs, and describing interventions through which they can influence the stakeholder collaborations to create a supportive environment for the realisation of a SUT.

5.4 Recommendations

5.4.1 Practical Recommendations

5.4.1.1 Guidelines for Institutional entrepreneurs, coordinators, and facilitators

As the guidelines are developed specifically for institutional entrepreneurs and externally commissioned facilitators and coordinators involved in SUT collaborations, such as those in this study's case study, these actors are recommended to use them as practical guidance throughout such projects. As the guidelines are based on a single case study, and barriers, enablers, and interventions vary across SUT projects and contexts, they should be tested, refined, and regularly updated, maintaining them as a living document. In addition, these actors are encouraged to continuously assess their situation, adapt interventions intuitively, and evaluate their effectiveness, to avoid operating on autopilot and remain responsive and effective to evolving collaboration processes.

5.4.1.2 Exploring Greater Regulatory and Institutional Flexibility by Policy Makers

The empirical findings highlight significant mismatches between existing regulations and institutional frameworks and the needs of the studied SUT initiative, representing a major barrier to its successful implementation (Paragraph 4.2.9). In this case, these rigid frameworks, combined with limited organisational capacity, a lack of specialist roles, and an inappropriate collaborative culture within key institutions (i.e. governmental bodies and grid operators), restrict the flexibility required for

experimentation, learning, and further development. Given the significance of this case-specific barrier, a recommendation directed at policymakers is to explore ways to introduce greater regulatory and institutional flexibility, for example, by creating room for experimentation, pilot programmes, or temporary conditional agreements. Such flexibility could stimulate (or at least not obstruct) the initiation, experimentation, and development of this and other SUT projects.

5.4.1.3 Reducing Perceived Risks and Strengthening Incentives via Formal Institutions

The empirical findings indicate that constraints to participation in this SUT collective largely stem from stakeholders' strong preference for autonomy. When individual alternatives exist, particularly those offering a more favourable business case, stakeholders are less willing to join the SUT initiative. Participation in this collective also introduces long-term interdependencies and shared decision-making. Because several interviewees view such collectives more as a risk than an opportunity, the potential benefits of collective action tend to remain underappreciated (except for the institutional entrepreneurs who believe in the necessity of collective transformation). As a result, the collective is only engaged by those who view collective action as the only viable option.

Given this, a key recommendation for the field of urban area development is to explore how formal institutions, such as contract forms, can reduce risks associated with collective participation. In addition, it should explore how existing assessment systems and certificates, such as the sustainability certificate BREEAM, can recognise and reward the long-term value of this and other SUT collectives, providing (financial) incentives for stakeholders to participate. After all, as highlighted in Paragraph 4.2.9, the current lack of recognition or reward in this specific SUT case makes the initiative appear riskier and less attractive, constraining participation.

5.4.2 Scientific Recommendations

5.4.2.1 Strengthening Generalisability through Multiple Case Study Approach

As this study relied on a single case study, future research should incorporate multiple SUT cases to examine common and inherent barriers and enablers, as well as other or additional proven interventions and functions of institutional entrepreneurs. This would allow cross-case comparisons, identify context-specific and more broadly applicable findings, and support more generalisable conclusions than the current single-case study approach (Paragraph 5.2.3).

5.4.2.2 Examining the Role of Institutional Contexts in SUT Collaborations and Their Outcomes

Although this study primarily focused on informal institutions within a specific collaboration (i.e. action arena), the findings nonetheless highlighted the significant influence of the broader institutional context on the action arena and, consequently, on the successful realisation of this specific SUT (Paragraph 5.1.13). Future studies could therefore examine the role of formal and informal institutional contexts in influencing this and other SUT collaborations and their outcomes. Relevant aspects may include regulations, policies, contractual frameworks, and certificates underlying these initiatives.

5.4.2.3 Exploring the Typology, Characteristics, and Motives of Institutional Entrepreneurs

Although this study did not aim to identify different types of institutional entrepreneurs, and a single case study approach would not allow such categorisation, future research

could explore their typology. The literature review, which compared institutional and social entrepreneurs, suggested several similarities; therefore, the typology of social entrepreneurs was included in the conceptual framework as a starting point for examining the institutional entrepreneurs (Paragraphs 3.2 and 3.4). As a consequence, it would be valuable to investigate whether this typology is reflected in practice, which would necessitate a multiple-case study approach. Moreover, future studies could examine more thoroughly why certain actors assume the institutional entrepreneurial role and which characteristics enable them to do so effectively. Regarding the latter, insights from social and psychological sciences could be particularly valuable in understanding their motivations, characteristics, and behaviours.

6. Conclusion

This research aimed to answer the following main research question: *'How can institutional entrepreneurs influence collaboration between stakeholders towards sustainable urban transformations?'* To address this question, a qualitative research approach was adopted, combining a literature review with empirical research through a single case study of the Energy Hub Amsterdam Southeast, which qualifies as a SUT collaboration. This case enabled an in-depth exploration of its collaboration processes, with a particular emphasis on stakeholders' perceptions and experiences of barriers and enablers, and on the role and interventions of the institutional entrepreneurs in addressing or leveraging these barriers and enablers towards the SUT, potentially offering relevance for institutional entrepreneurs in other SUT collaborations.

6.1 Theoretical Conceptualisation for Sub-question One

Based on the theoretical findings on collaboration, institutional entrepreneurs, and SUTs, a conceptual framework was developed, identifying eleven variables that influence collaboration success and over which institutional entrepreneurs can exert influence. This conceptualisation is described in Paragraph 3.4 and conceptualised in Figure 15, providing a conclusive answer to the first sub-question: *'How can the relationship between collaboration, institutional entrepreneurs, and sustainable urban transformations be conceptualised?'* These variables are grouped into three main variables: collaborative process, starting conditions, and institutional design/professional organisation, with the collaborative process at the centre and the other two directly influencing it.

In addition, the theoretical analysis further shows that institutional entrepreneurs, whether individuals or organisations, play a significant role in driving institutional change by challenging existing formal and informal institutions and accelerating new ones that support the realisation of SUTs. Within stakeholder collaborations, they do so by utilising various interventions. Through these interventions, institutional entrepreneurs can directly influence the collaborative process variables, while also indirectly influencing them by having a direct influence on the other two main and related sub-variables. Thus, they exert both direct and indirect influence on the success of collaborations towards SUTs. Moreover, for a project to qualify as a SUT, change must occur in at least one element of both the drivers of radical change and the sustainable urban structures.

6.2 Synthesis of Empirical Findings into Guidelines for Sub-questions Two, Three, and Four

Based on the conceptual framework and its variables, the case study revealed various barriers and enablers in the SUT collaboration, categorised according to the framework's variables. These findings directly address sub-question two: *'What barriers and enablers related to collaboration are encountered in an existing case study*

that influence the realisation of the sustainable urban transformation?' The case study also identified interventions that the institutional entrepreneurs and externally commissioned coordinators and facilitators can apply to address these barriers and leverage enablers, ultimately creating favourable conditions for establishing the SUT. These insights address the second part of sub-question three: *'What role do or could institutional entrepreneurs play in this case study, and what interventions have they implemented or could they implement to establish more effective collaboration?'*

These barriers, enablers, and related interventions were synthesised and captured into a practical set of guidelines, refined and validated in consultation with experts and a scholar through an expert meeting. These guidelines serve as a source of inspiration for institutional entrepreneurs as well as facilitators and coordinators, helping them refine their practices, reflect on encountered barriers and enablers, assess intuition regarding possible interventions, and identify blind spots to prevent repetitive patterns. This set of guidelines thereby directly addresses the fourth sub-question: *'How can the role of institutional entrepreneurs in influencing collaboration between stakeholders towards sustainable urban transformations be captured in a set of guidelines?'* and provides a conclusive overview of sub-questions two and three, as presented in Paragraph 4.5 and Appendix O.

6.2.1 Role of Institutional Entrepreneurs

Moreover, the empirical findings revealed the role of institutional entrepreneurs within the case study's SUT collaboration, highlighting the key functions they adopt and the characteristics that enable them to fulfil this role effectively. These insights provide the conclusive answer to the role of institutional entrepreneurs in this SUT collaboration, while potentially offering relevance for institutional entrepreneurs in other SUT collaborations, as part of sub-questions three and four (Paragraph 4.5). In this case, the institutional entrepreneurs act as the driving force of proactive, visionary frontrunners by identifying emerging opportunities and taking a proactive, leading, and inspiring role. By articulating a compelling narrative, they mobilise others to join, strengthened by their local embeddedness with existing relationships and trust levels. Their intrinsic motivation and belief in the necessity of collective transformation, reinforced by their direct experience with the SUT-related problem, enable them to remain committed and proactive even when confronted with the complex and uncertain challenges inherent to the SUT initiative.

Additionally, these institutional entrepreneurs play a crucial mediating role, bridging diverse participant interests to establish a widely supported shared ambition and translating between the core and participant groups, a function enabled by their equal participation, authority and leadership. Recognising that trust is critical to the SUT collective and to interpersonal relationships, they build and maintain trust in the collective solution, relational trust, and task-based trust. Finally, while external coordinators, facilitators, and experts become increasingly important as the initiative progresses, the institutional entrepreneurs remain crucial throughout, safeguarding the collective ambition, maintaining and strengthening trust and relationships, attracting new participants, and ensuring continued alignment and engagement among participants.

6.3 Conclusive answer to the Main Research Question

To conclude, the research shows that institutional entrepreneurs can influence stakeholder collaborations towards SUTs by acting as proactive visionary frontrunners,

driven by their belief in the need for collective transformation. By fulfilling key functions, including inspiring others to join, ensuring alignment and engagement among participants, mediating between experts and participants, safeguarding the collective ambition, and maintaining and strengthening trust and relationships, by use of the various interventions described in the practical guidelines (Appendix O), they can overcome inherent collaboration barriers and leverage enablers towards the realisation of SUTs.

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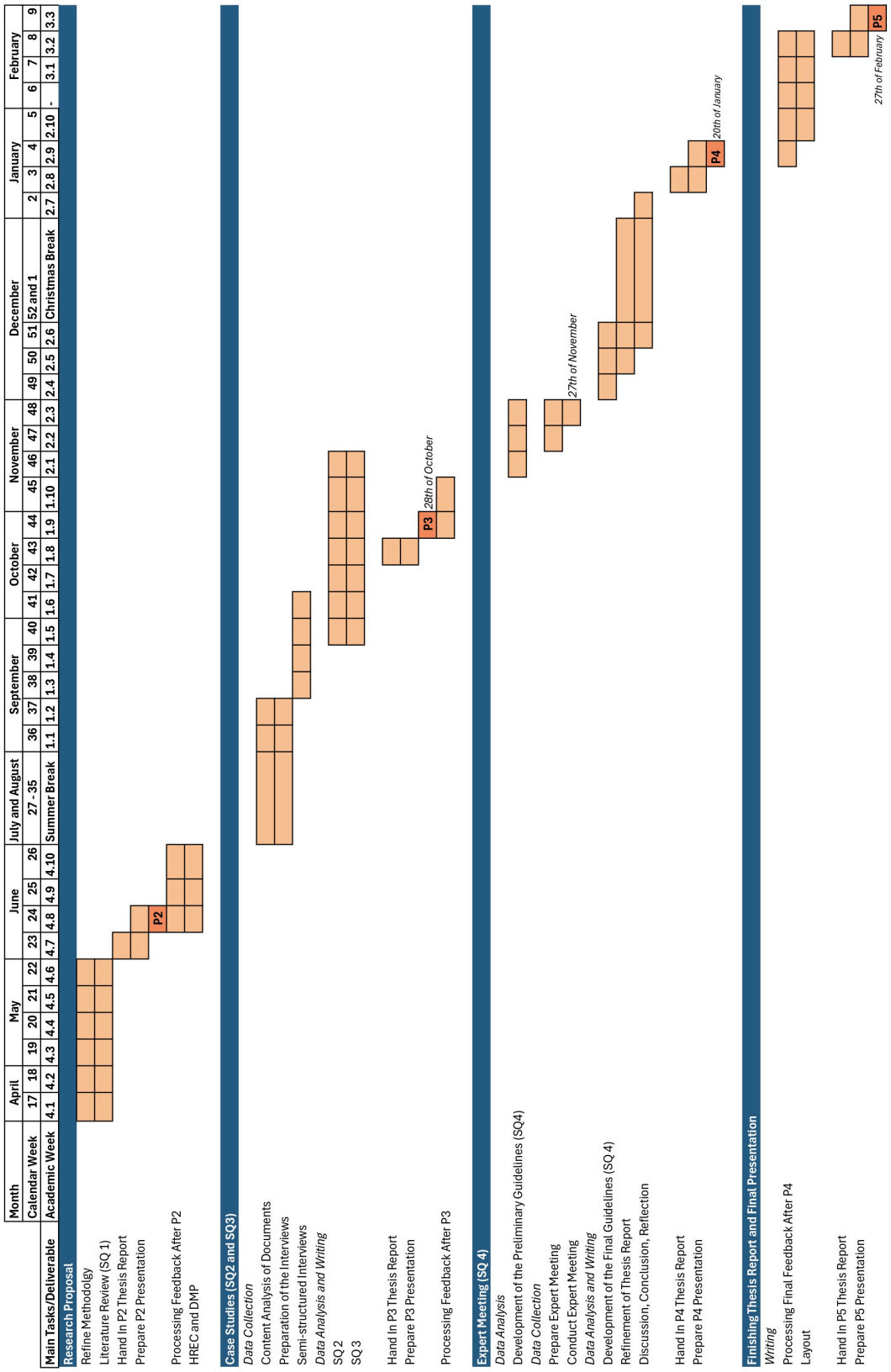
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Appendices

Appendix A - Research Plan

Figure A

Research Plan (own figure)



Appendix B - Interview Protocol

Algemeen

1. Kunt u kort uw rol en betrokkenheid in de samenwerking beschrijven?

Samenwerkingsproces

Face-to-face dialoog

2. Hoe werden en worden directe gesprekken en overlegmomenten georganiseerd gedurende het samenwerkingsproces, en wat was het doel van die gesprekken?
    - Prompt organisatie: wekelijkse meetings, werksessies, workshops, informele sessies, teambuilding, etc.
    - Prompt doel: identificeren van individuele en gezamenlijke belangen, opstellen gezamenlijke ambitie/opgave, bouwen van vertrouwen, begrip, respect en toewijding, etc.
    - Veranderde dit? Waarom? Effect van die meetings op de samenwerking?
3. Welke factoren bevorderen of bemoeilijken het organiseren en voeren van deze gesprekken?
4. Zijn er acties of interventies door één of meerdere partijen ondernomen om deze gesprekken te faciliteren en effectiever te maken?
    - Prompt JA: Kunt u voorbeelden benoemen?; Wie deed/deden dit (instituitional entrepreneurs (IE's))?; Welke interventies?; HOE?; Effect op de samenwerking? Zijn er los van de uitgevoerde interventies nog andere acties of interventies die zouden helpen (eventueel vooruitkijkend naar de fases waar jullie nog in gaan komen)?
    - Prompt NEE: Welke interventies zouden helpen?; Wie uitvoeren?
    - Wat voor rol spelen volgens u institutional entrepreneurs in het faciliteren en effectiever maken van gesprekken en overlegmomenten?

Gezamenlijk begrip en gedeelde ambitie

5. Hoe is een gedeeld begrip ontwikkeld over de opgaven, en hoe is een gezamenlijke ambitie ontstaan?
6. Welke factoren bevorderen of bemoeilijken het proces tot het komen van gezamenlijk begrip en een gedeelde ambitie?
    - Prompt bemoeilijkt: conflicterende belangen (individueel vs. gezamenlijk), verschillen in middelen/kennis/macht, etc.;
    - Prompt bevordert: perceptie van wederzijds gewin, gedeelde afhankelijkheid, etc.
7. Hoe zijn naast de gezamenlijke belangen, organisatorische en individuele belangen van stakeholders besproken en meegenomen in dit proces?
8. Zijn er acties of interventies door één of meerdere partijen ondernomen om dit proces te faciliteren of sturen?
    - Prompt JA: Kunt u voorbeelden benoemen?; Wie deed/deden dit (IE's)?; Welke interventies?; HOE?; Effect op de samenwerking? Zijn er los van de uitgevoerde interventies nog andere acties of interventies die zouden helpen (eventueel vooruitkijkend naar de fases waar jullie nog in gaan komen)?
    - Prompt NEE: Welke interventies zouden helpen?; Wie uitvoeren?
    - Wat voor rol spelen volgens u institutional entrepreneurs in het creëren van gezamenlijk begrip en een gedeelde ambitie?

Vertrouwen, relaties en toewijding

9. Hoe is en wordt gewerkt aan het opbouwen en onderhouden van vertrouwen en relaties tussen de verschillende stakeholders?
    - Kunt u aangeven of en hoe dit verschilt tussen de verschillende fases?
    - Belangrijke facetten (vb. juridisch)?
10. Hoe wordt toewijding vanuit de verschillende stakeholders gecreëerd en behouden?
11. Welke factoren bevorderen of bemoeilijken het opbouwen en behouden van vertrouwen, relaties en toewijding?
    - Prompt vertrouwen: Conflicterende belangen, machtsverhoudingen, verschil in toewijding, slechte ervaringen met bepaalde stakeholders in het verleden;
    - Prompt relaties: Sociaalpsychologische processen, groepsdynamiek, inclusie en uitsluiting, macht, leiderschap, conflictbeheersing en vertrouwen;
    - Prompt toewijding: Denken in wederzijds voordeel (mutual gain thinking), bouwen aan vertrouwen, eerlijke en transparante procedures, eigenaarschap van het proces.
12. Zijn er acties of interventies door één of meerdere partijen ondernomen om vertrouwen, relaties en toewijding te versterken en onderhouden?
    - Prompt JA: Kunt u voorbeelden benoemen?; Wie deed/deden dit (IE's)?; Welke interventies?; HOE?; Effect op de samenwerking? Zijn er los van de uitgevoerde interventies nog andere acties of interventies die zouden helpen (eventueel vooruitkijkend naar de fases waar jullie nog in gaan komen)?
    - Prompt NEE: Welke interventies zouden helpen?; Wie uitvoeren?
    - Wat voor rol spelen volgens u institutional entrepreneurs in het creëren en onderhouden van vertrouwen, relaties en toewijding?

<u>Start condities & Institutioneel ontwerp/professionele organisatie</u>

Transparant proces met duidelijke spelregels, rolverdelingen en tussentijdse uitkomsten en evaluaties

13. Kunt u beschrijven hoe het samenwerkingsproces rondom procedures, rolverdelingen, besluitvorming en evaluaties tot stand is gekomen en wordt toegepast?
    - Prompt: Wie neemt beslissingen, wanneer wordt er overlegd, wie voert welke taken uit, Hoe is de rolverdeling bepaald?, etc.; Wie waren hierbij aanwezig? Wat werd besproken?; Stil staan bij kleine overwinningen, HOE, wanneer, effect?
14. Welke factoren bevorderden of bemoeilijkten dit proces?
15. Zijn er acties of interventies door één of meerdere partijen ondernomen om het proces vorm te geven en transparant te maken?
    - Prompt JA: Kunt u voorbeelden benoemen?; Wie deed/deden dit (IE's)?; Welke interventies?; HOE?; Effect op de samenwerking? Zijn er los van de uitgevoerde interventies nog andere acties of interventies die zouden helpen (eventueel vooruitkijkend naar de fases waar jullie nog in gaan komen)?
    - Prompt NEE: Welke interventies zouden helpen?; Wie uitvoeren?
    - Wat voor rol spelen volgens u institutional entrepreneurs in het vormgeven en transparant maken van het proces?

Motieven of obstakels om deel te nemen & Verschillen in middelen, kennis of macht

16. Welke verschillen tussen stakeholders bevorderen of bemoeilijken volgens u het proces van een gelijkwaardige deelname?
    - Prompt: Organisatiecapaciteit, status, expertise, vaardigheden, tijd, etc.; Mogelijk gevolg: Manipulatie door sterkere partijen.
17. Hoe werd/wordt bepaald welke partijen mochten/mogen deelnemen, en in hoeverre is dat breed en inclusief?
    - Prompt: Betrekken van minder invloedrijke stakeholders, minder voor de hand liggende partijen (gebruikers, NGO's, universiteiten); ondernemers met vergelijkbare problematiek, net-technisch logische participanten.
18. Zijn of worden er acties of interventies door één of meerdere partijen ondernomen om deelname aantrekkelijker, gelijkwaardiger, opener en inclusiever te maken?
    - Prompt JA: Kunt u voorbeelden benoemen?; WIE deed/deden dit (IE's)?; WELKE interventies? A. Gelijkwaardige deelname van stakeholders bewerkstelligen (machtsverhoudingen verminderen); B. Bijstellen van verwachtingen over input vs. resultaten; C. Benadrukken van afhankelijkheden om doel(en) te behalen?; Proactief inzetten op representatie en versterking van minder invloedrijke stakeholders; HOE?; EFFECT op samenwerking? Zijn er los van de uitgevoerde interventies nog andere acties of interventies die zouden helpen (eventueel vooruitkijkend naar de fases waar jullie nog in gaan komen)?
    - Prompt NEE: Welke interventies zouden helpen?; WIE uitvoeren?
    - Wat voor rol spelen volgens u institutional entrepreneurs in het betrekken van partijen en het realiseren van een gelijkwaardigere deelname?

Afronding

19. O.b.v. de definitie die ik schetste over IE's en mede misschien o.b.v. de inzichten uit dit interview: wat voor kerneigenschappen of kwaliteiten zijn volgens u van belang voor een IE?
20. En wat zijn volgens u de belangrijkste interventies m.b.t. de samenwerking die een IE zou moeten ondernemen in dit soort duurzame stedelijke transformatieprojecten?
21. Zijn er aspecten van de samenwerking die we nog niet hebben besproken, maar die volgens u wel relevant zijn voor mijn onderzoek?
22. Kunt u andere belangrijke stakeholders binnen de samenwerking aanwijzen die interessant zijn om te interviewen? Zou ik hun contactgegevens mogen ontvangen?
23. Heeft u aanvullende documentatie m.b.t. de samenwerking die voor mijn onderzoek van belang kan zijn die ik zou mogen ontvangen?
    - Prompt: Agendas/presentaties/notulen van bijeenkomsten en juridische stukken.
24. Indien ik later aanvullende vragen heb, kan ik u dan benaderen?

Definities vanuit de literatuur

[1] Met institutional entrepreneur (IE) bedoel ik een actor of aantal actoren die binnen de samenwerking een belangrijke rol speelt/spelen in het beïnvloeden en faciliteren van samenwerking richting duurzame stedelijke transformaties. Denk aan aspecten als het verbinden van partijen, het bouwen van relaties en vertrouwen, het realiseren van een open en transparant proces, etc. Deze actor kan zowel een organisatie als een individu zijn, en diegene kan zowel een aangewezen rol hebben als de initiatiefnemer van het project zijn.

[2] *Met duurzame stedelijke transformaties bedoel ik veranderingen die plaatsvinden op twee niveaus: A. Fysiek: aanpassingen in de stedelijke structuur, zoals op het gebied van grondstoffenbeheer en klimaatadaptatie en mitigatie, transport en bereikbaarheid, gebouwen, en de ruimtelijke omgeving en openbare ruimte; B. Achterliggende systemen: zoals op het gebied van bestuurs- en samenwerkingsstructuren, leefstijl en consumptiegedrag, en innovatie. Pas als op beide niveaus een verandering plaats vindt kan er worden gesproken van een duurzame stedelijke transformatie.*

Appendix C - Interview Consent Form

1. Participant Information/Opening Statement

You are being invited to participate in a master's thesis research study titled '*The Role of Institutional Entrepreneurs in Stakeholder Collaborations - Towards Sustainable Urban Transformations*'. This study is being conducted by Mirte Hoitink, a master's student at the TU Delft, in collaboration with Haskoning as part of a graduation internship.

The purpose of this research study is to explore how institutional entrepreneurs can influence stakeholder collaborations within existing urban contexts towards sustainable urban transformations. The interview will take approximately 60 to 90 minutes to complete. It will be audio recorded, whereafter the data will be anonymised and included in the body and appendix of the MSc thesis. I will be asking you to answer questions related to your views and experiences regarding the collaborative process, including its barriers and enablers, the role of institutional entrepreneurs, and the achievement of a sustainable urban transformation.

As with any online activity, the risk of a breach is always possible. To the best of our ability, your answers in this study will remain confidential. I will minimise any risks by limiting the collection of personal identifiable information. Personal data, including your name and contact details, will only be used for communication, informed consent, and administrative purposes. This information will be stored securely in TU Delft OneDrive and destroyed no later than one month after the project ends. The audio recording will be temporarily stored on an external device and deleted after transfer to OneDrive. The recording will be destroyed once the anonymised transcript has been created. The anonymised data will be included in the MSc thesis, which will be made available in the TU Delft Repository.

Your participation in this study is entirely voluntary, **and you can withdraw at any time**. You are free to omit any questions. If you wish to retract any of your answers, you can do so within 10 workdays after the interview.

For any other questions or comments, please use the following contact information.

Mirte Hoitink
m.s.hoitink@student.tudelft.nl

2. Explicit Consent Points

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
A: GENERAL AGREEMENT – RESEARCH GOALS, PARTICIPANT TASKS AND VOLUNTARY PARTICIPATION		
1. I have read and understood the study information dated [DD/MM/YYYY], or it has been read to me. I have been able to ask questions about the study, and my questions have been answered to my satisfaction.		
2. I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions; I can withdraw from the study at any time, without having to give a reason.		

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
3. I understand that taking part in the study involves an audio-recorded interview and written notes. The audio recording will be temporarily stored on an external device and deleted after transfer to OneDrive. The recordings will be destroyed once the anonymised transcript has been created.		
4. I understand that the study will end upon completion of the MSc thesis project, expected in January 2026.		
B: POTENTIAL RISKS OF PARTICIPATING (INCLUDING DATA PROTECTION)		
5. I understand that taking part in the study involves the following risk: mental discomfort in the case of sensitive subjects. I understand that these will be mitigated by having the ability to stop the interviews at any point.		
6. I understand that taking part in the study also involves collecting specific personally identifiable information (PII), specifically my name, e-mail address and phone number, with the potential risk of my identity being revealed. These details will only be collected for communication, informed consent, and administrative purposes and securely stored on TU Delft OneDrive. They will not be included in the thesis or shared beyond the study team.		
7. I understand that the following steps will be taken to minimise the threat of a data breach and protect my identity in the event of such a breach: anonymisation of the transcript; destroying the audio recording after the transcript; secure storage on TU Delft OneDrive, with access limited to the study team.		
8. I understand that personal information collected about me that can identify me, such as my name, e-mail address and phone number, will not be shared beyond the study team.		
9. I understand that the (identifiable) personal data I provide will be destroyed no later than one month after the project ends.		
C: RESEARCH PUBLICATION, DISSEMINATION AND APPLICATION		
10. I understand that after the research study, the de-identified information I provide will be used in the body and appendix of the MSc thesis, which will be made available in the TU Delft Repository.		
11. I agree that my responses, views, or other input can be quoted anonymously in research outputs.		

3. Signatures

_____ _____ _____

Name of participant [printed] Signature Date

'I, as a researcher, have accurately read the information sheet to the participant and, to the best of my ability, ensured that the participant understands what they are freely consenting.'

Mirte Hoitink

_____ _____ _____

Researcher name [printed] Signature Date

Study contact details for further information: Mirte Hoitink, m.s.hoitink@student.tudelft.nl

Appendix D - Expert Meeting Protocol

Meeting Details
Datum: 27-11-2025
Locatie: Microsoft Teams
Duur: +/- 1,5 h
Doel: Valideren en aanscherpen van de opgestelde preliminaire guidelines (Appendix N)
Participanten: Zie Tabel 4 (Paragraaf 4.5)

Agenda

1. Introductie
    - Welkom en toelichting op doel en opzet van de expert meeting;
    - Korte voorstelronde van alle aanwezigen (naam + expertise/rol);
    - Toestemming vragen voor het opnemen van de sessie (aanvullend op de reeds ingeleverde consentformulieren, zie Appendix E).

2. Presentatie huidige stand van zaken van het onderzoek

** PowerPoint voorbereid*

    - Toelichting op de probleemstelling;
    - Benoemen van de daaruit voortkomende onderzoeksvragen en gebruikte methoden;
    - Resultaten deelvraag 1: theoretische bevindingen uit de literatuurstudie en het daaruit resulterende conceptueel framework;
    - Resultaten deelvragen 2 en 3: Introductie van de casestudy en het bespreken van een aantal empirische bevindingen (met nadruk op de samenhang tussen ondervonden bariers/enablers en interventies om hierop in te spelen).

3. Bespreken van de guidelines

** De guidelines zijn voorafgaand aan de meeting gedeeld, inclusief toelichting op de opzet, zodat de participanten zich vooraf konden oriënteren.*

    - Toelichting van de punten waarop de guidelines met de participanten worden besproken en bediscussieert (1. Herkenbaarheid van de interventies; 2. Positionering en allocatie; 3. Bruikbaarheid en gebruiksvriendelijkheid);
    - Uitleg van de opzet van de guidelines en de totstandkoming ervan;
    - Bespreken punt 1. Herkenbaarheid van de interventies: In hoeverre zijn de empirisch gevonden interventies voor jullie herkenbaar binnen duurzame stedelijke transformatieprojecten?;
    - Bespreken punt 2. Positionering en allocatie: Kloppen de fasen waarin de interventies zijn gepositioneerd?; Zijn de juiste actoren gekoppeld aan de interventies? (Voorafgaand geselecteerde interventies worden besproken met toelichting vanuit de empirische bevindingen);
    - Bespreken punt 3 Bruikbaarheid en gebruiksvriendelijkheid: Wat is een logisch vertrekpunt bij het gebruik van de guidelines?; Hoeveel detail is wenselijk?; In welk format zijn de guidelines het meest bruikbaar?

4. Afsluiting
    - Herhalen van de belangrijkste inzichten en vervolgstappen;
    - Dankwoord.

Appendix E - Expert Meeting Consent Form

1. Participant Information/Opening Statement

You are being invited to participate in a master's thesis research study titled *'The Role of Institutional Entrepreneurs in Stakeholder Collaborations - Towards Sustainable Urban Transformations'.* This study is being conducted by Mirte Hoitink, a master's student at the TU Delft, in collaboration with Haskoning as part of a graduation internship.

The purpose of this research study is to explore how institutional entrepreneurs can influence stakeholder collaborations within existing urban contexts towards sustainable urban transformations. As part of this study, you are invited to join an expert meeting where findings from case study analyses and a preliminary outline of guidelines for institutional entrepreneurs will be presented. Through an interactive discussion, you and other practitioners and scholars will be asked to refine the guidelines by reflecting on the presented findings, adding missing elements, and suggesting improvements based on your professional experience and knowledge. The expert meeting will take approximately 90 minutes. It will be audio recorded, whereafter the data will be anonymised and included in the body and appendix of the MSc thesis.

As with any online activity, the risk of a breach is always possible. To the best of our ability, your input in this study will remain confidential. I will minimise any risks by limiting the collection of personal identifiable information. Personal data, including your name and contact details, will only be used for communication, informed consent, and administrative purposes. This information will be securely stored in the TU Delft OneDrive and destroyed no later than one month after the project ends. The audio recording will be temporarily stored on an external device and deleted after transfer to OneDrive. The recording will be destroyed once the anonymised transcript has been created. The anonymised data will be included in the MSc thesis, which will be made available in the TU Delft Repository.

Your participation in this study is entirely voluntary, **and you can withdraw at any time**. You are free to omit any questions. If you wish to retract any of your answers, you can do so within 10 workdays after the meeting.

For any other questions or comments, please use the following contact information.

Mirte Hoitink
m.s.hoitink@student.tudelft.nl

2. Explicit Consent Points

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
A: GENERAL AGREEMENT – RESEARCH GOALS, PARTICIPANT TASKS AND VOLUNTARY PARTICIPATION		
1. I have read and understood the study information dated [DD/MM/YYYY], or it has been read to me. I have been able to ask questions about the study, and my questions have been answered to my satisfaction.		

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
2. I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions; I can withdraw from the study at any time, without having to give a reason.		
3. I understand that taking part in the study involves an audio-recorded interview and written notes. The audio recording will be temporarily stored on an external device and deleted after transfer to OneDrive. The recordings will be destroyed once the anonymised transcript has been created.		
4. I understand that the study will end upon completion of the MSc thesis project, expected in January 2026.		
B: POTENTIAL RISKS OF PARTICIPATING (INCLUDING DATA PROTECTION)		
5. I understand that taking part in the study involves the following risk: mental discomfort in the case of sensitive subjects. I understand that these will be mitigated by having the ability to stop the interviews at any point.		
6. I understand that taking part in the study also involves collecting specific personally identifiable information (PII), specifically my name, e-mail address and phone number, with the potential risk of my identity being revealed. These details will only be collected for communication, informed consent, and administrative purposes and securely stored on TU Delft OneDrive. They will not be included in the thesis or shared beyond the study team.		
7. I understand that the following steps will be taken to minimise the threat of a data breach and protect my identity in the event of such a breach: anonymisation of the transcript; destroying the audio recording after the transcript; secure storage on TU Delft OneDrive, with access limited to the study team.		
8. I understand that personal information collected about me that can identify me, such as my name, e-mail address and phone number, will not be shared beyond the study team.		
9. I understand that the (identifiable) personal data I provide will be destroyed no later than one month after the project ends.		
C: RESEARCH PUBLICATION, DISSEMINATION AND APPLICATION		
10. I understand that after the research study, the de-identified information I provide will be used in the body and appendix of the MSc thesis, which will be made available in the TU Delft Repository.		
11. I agree that my responses, views, or other input can be quoted anonymously in research outputs.		

3. Signatures

_____ _____ _____

Name of participant [printed] Signature Date

'I, as a researcher, have accurately read the information sheet to the participant and, to the best of my ability, ensured that the participant understands what they are freely consenting.'

Mirte Hoitink

_____ _____ _____

Researcher name [printed] Signature Date

Study contact details for further information: Mirte Hoitink, m.s.hoitink@student.tudelft.nl

Appendix F - Overview of Deductive Codes

Table F

Overview Deductive Codes (Own table)

Group	Deductive Code	Description of Code
Institutional Entrepreneur	Pioneer	Characterised by informally collaborating individuals with a hybrid nature that combines characteristics of both the market and civil society, primarily operating within the creative industry (Mens et al., 2021). Primarily act as developers, and as end-users, while secondary roles include boundary spanner and niche-entrepreneur (ibid.).
	Consolidated organisation	Emerges over time from the efforts of the pioneers, evolving into formalised, third-sector organisations (Mens et al., 2021). Acquired the necessary resources and evolved into a position of realising power (ibid.). Primarily act as developers, end-users, and to a lesser extent as builders (ibid.). Secondary roles include boundary spanner and niche-entrepreneur (ibid.).
	Intermediate agent	Operates at a higher, area-wide scale level and collaborates both formally and informally with various stakeholders, functioning as an intermediate (Mens et al., 2021). Typically highly educated, with different professional backgrounds and experiences, categorised as third sector or hybrid actors (ibid.). Primarily act as facilitators of urban developments, secondarily as boundary spanners and policy entrepreneurs (ibid.).
Actions and Strategies	Building of social network	A process in which the social (or institutional) entrepreneur establishes social networks with important stakeholders that are supportive of the network and bring in the necessary resources to achieve their goals (Pesch et al., 2017; Smith et al., 2016). This, among others, strongly relies on aspects such as reputation and trust (Austin et al., 2012).
	Mobilisation of resources	A process in which the social (or institutional) entrepreneur mobilises the necessary resources, both in terms of human and financial resources, to achieve their goals (Mens et al., 2021; Pesch et al., 2017; Smith et al., 2016).
	Alignment and articulation of visions, goals and interests	A process in which the social (or institutional) entrepreneur communicates and aligns the initiative's vision, goals and interests with the social network, guiding the initiative in the intended direction to achieve a specific goal (Mens et al., 2021).
	Interactive and collective learning process	A process in which the social (or institutional) entrepreneur, together with their social network, collaboratively learn and transfer knowledge across various dimensions, including, among others, business models, organisational issues, and regulations and governmental policies (Schot and Geels, 2013; Pesch et al., 2017).

Table F (Continued)

Group	Deductive Code	Description of Code
Institutional Design/Professional Organisation	Stakeholder access	Collaboration must be open and broadly inclusive (Andranovich, 1995; Burger et al., 2001; Chrislip and Larson, 1994; Gray, 1999; Gunton and Day, 2003; Lasker and Weiss, 2003; Margerum, 2002; Martin et al., 1999; Murdock et al., 2005; Plummer and Fitzgibbon, 2004; Power et al., 2000; Reilly, 1998, 2001). This broad inclusion must be actively sought, and therefore, proactive strategies to include less-represented and weaker stakeholders are often important (Weech-Maldonado and Merrill, 2000). Collaboration should take place with the following actors: local authorities, universities, users, NGO's, innovative companies, and an interdisciplinary group of experts (Zucker, 1988; Scholz and Stiftel, 2005; Klein Woolthuis et al., 2013).
	Clear ground rules and protocols	For trust building but also to establish procedural legitimacy (Busenberg, 1999; Geoghegan and Renard, 2002; Glasbergen and Driessen, 2005; Gunton and Day, 2003; Imperial, 2005; Murdock et al., 2005; Rogers et al., 1993); Helps stakeholders to perceive the process as open, equitable and fair (Murdock et al., 2005).
	Process transparency	Also for trust building and procedural legitimacy (Busenberg, 1999; Geoghegan and Renard, 2002; Glasbergen and Driessen, 2005; Gunton and Day, 2003; Imperial, 2005; Murdock et al., 2005; Rogers et al., 1993); Allows stakeholders to be confident that public negotiations are meaningful and not just a cover for decisions made privately (Ansell and Gash, 2008).
	Clearly defined roles	To reduce ambiguity (Alexander et al., 1998).
Starting Conditions	Resource/knowledge/ power asymmetries	If stakeholders lack the capacity, status, organisation, expertise, skills, energy, time, or liberty to participate on an equal footing, the collaborative governance process will be vulnerable to manipulation by stronger stakeholders (Ansell and Gash, 2008; Gunton and Day, 2003; Lasker and Weiss, 2003; Merkhofer et al., 1997; Murdock et al., 2005; Warner, 2006; Yaffee and Wondolleck, 2003). These asymmetries can be addressed by adopting a positive strategy that is committed to the representation and empowerment of disadvantaged and less powerful stakeholders (Fawcett et al., 1995; Lasker and Weiss, 2003; Merkhofer et al., 1997; Mitchell, 2005; Schuckman, 2001).
	Incentives or constraints to participate	Incentives to participate are shaped by power and resource imbalances (Gunton and Day, 2003; Imperial, 2005), and stakeholder expectations, especially regarding the results of the collaborative process, in relation to the required time and energy (Bradford, 1998; Geoghegan and Renard, 2002; Rogers et al., 1993; Schneider et al., 2003; Warner, 2006). Furthermore, they are shaped by the perceived interdependencies and the availability of alternative venues (Ansell and Gash, 2008).

Table F (Continued)

Group	Deductive Code	Description of Code
Collaborative Process	Face-to-face dialogue	To identify mutual gain opportunities (Ansell and Gash, 2008), to break down stereotypes and other barriers to identifying mutual gains (Bentrup, 2001), as well as to build a shared understanding, trust, mutual respect, and a commitment to the process (Gilliam et al., 2002; Lasker and Weiss, 2003; Plummer and Fitzgibbon, 2004; Schneider et al., 2003; Tompkins and Adger, 2004; Warner, 2006). Furthermore, to discuss not only the collaborative interests from an early stage, but also the organisational and individual interests of the stakeholders involved (Common Eye, 2016).
	Trust and relationship building	Collaborative leaders must build trust, particularly among former opponent stakeholders, before they are willing to take risks; This trust-building process requires a long-term commitment from all involved stakeholders (Ansell and Gash, 2008). Important aspects in building a good relationship between all parties include: Social psychological processes, group dynamics, inclusion and exclusion, power, leadership, conflict management, and trust (Common Eye, 2016).
	Commitment to the process	Closely linked to the original motivation to participate; However, commitment to the process goes beyond initial intentions and requires a psychological shift, towards the belief that mutual gain thinking is the best approach to achieving desirable outcomes (Ansell and Gash, 2008). This buy-in is required from all stakeholders involved (ibid.). Commitment depends on factors such as trust, clear, fair and transparent procedures, and ownership of the process (ibid., El Ansari, 2003; Geoghegan and Renard, 2002; Weech-Maldonado and Merrill, 2000).
	Shared understanding and shared ambition	Stakeholders have to develop a shared understanding of what they can collectively achieve (Tett et al., 2003), a process that can be seen as part of a larger “collaborative learning process” (Ansell and Gash, 2008). Furthermore, they need to have an initial collective agreement on the problem definition (Bentrup, 2001; North, 2000; Pahl-Wostl and Hare, 2004) and secure the required knowledge to address it (Ansell and Gash, 2008). Regarding the latter, a balance needs to exist in the input provided by parties and what they aim to gain from it (Common Eye, 2016). Therefore, it is important to not only discuss the collective interests, but also the organisational and individual interests in this process from an early stage (ibid.).
	Intermediate outcomes and evaluations	Collaboration is more likely to succeed when the potential benefits and goals of the collaborative process are clear and tangible, and when small wins, in terms of critical process outcomes, are possible (Chrislip and Larson, 1994; Roussos and Fawcett, 2000; Warner, 2006; Weech-Maldonado and Merrill, 2000). Furthermore, a meaningful process should be developed from the initial start of collaboration, including issues such as who makes the decisions, when to deliberate, how to monitor progress and quality, and how to achieve a good result (Common Eye, 2016). Moreover, maintaining motivation to participate requires keeping stakeholders informed and providing periodic evaluations to demonstrate the benefits of collaboration (ibid.).

Table F (Continued)

Group	Deductive Code	Description of Code
Sustainable Urban Transformations	Drivers of radical change	Processes that bring about change in urban contexts (McCormick et al., 2013). These include governance and planning, innovation and competitiveness, and lifestyle and consumption (ibid.).
	Multi-dimensional sustainable urban structures	The domains shaped by sustainable urban transformations (McCormick et al., 2013). These include resource management and climate mitigation and adaptation, transport and accessibility, buildings, and the spatial environment and public space (ibid.).

Appendix G - Data Management Plan

Plan Overview

A Data Management Plan created using DMPonline

Title: MSc Graduation Project - The Role of Institutional Entrepreneurs in Stakeholder Collaborations - Towards Sustainable Urban Transformations

Creator: Mirte Hoitink

Affiliation: Delft University of Technology

Funder: Delft University of Technology

Template: TU Delft Data Management Plan template (2025)

Project abstract:

Despite the growing recognition of cities and urban areas as key drivers of sustainable urban transformations, progress remains slow due to complex pressures, conflicting stakeholder interests, and institutional constraints. Collaboration is essential for driving sustainable urban transformations, with institutional entrepreneurs playing a crucial role in promoting institutional change and sustainable development. However, limited research has explored how institutional entrepreneurs can stimulate stakeholder collaborations within existing urban contexts towards sustainable urban transformations. Therefore, this research aims to answer the question: '*How can institutional entrepreneurs stimulate collaboration between stakeholders towards sustainable urban transformations?'.*

A qualitative research design is adopted, starting with a literature review to develop a conceptual framework that guides the empirical research. This framework is applied in one or two case studies conducted in Dutch sustainable urban transformation projects, using document analysis and semi-structured interviews with open-ended questions. Participants include practitioners in these projects, including institutional entrepreneurs and other private and public actors who were intensively involved within the collaborative process. Data that will be collected includes project-related documentation, such as minutes of meetings, project-related reports, formal contracts, etc., as well as audio-recorded interviews, which will be transcribed for analysis.

Data analysis follows an iterative deductive-inductive coding process to identify key themes, supported by the use of Atlas.Ti data analysis software. The findings of the case study analyses are combined into preliminary guidelines for institutional entrepreneurs, which are then refined and validated through an expert meeting with scholars and practitioners to develop the final guidelines. The research findings will be documented in this thesis report and presented to provide a conclusive answer to the main research question, ultimately contributing to the widespread adoption of sustainable urban transformations.

ID: 180356

Start date: 18-08-2025

End date: 31-01-2026

Last modified: 03-07-2025

MSc Graduation Project - The Role of Institutional Entrepreneurs in Stakeholder Collaborations - Towards Sustainable Urban Transformations

0. Adminstrative questions

1. Provide the name of the data management support staff consulted during the preparation of this plan and the date of consultation. Please also mention if you consulted any other support staff.

The DMP has been shared with my thesis supervisor Erwin Heurkens via DMPonline, and reviewed by them on the first of July 2025.

2. Is TU Delft the lead institution for this project?

- Yes, leading the collaboration – please provide details of the type of collaboration and the involved parties below

For this project TU Delft is the lead institution. The research is conducted in collaboration with Royal HaskoningDHV through an internship. The organisation provides access to project related documents for the document analyses and facilitates interviews with relevant stakeholders.

I. Data/code description and collection or re-use

3. Provide a general description of the types of data/code you will be working with, including any re-used data/code.

Type of data/code	**File format(s)**	**How will data/code be collected/generated?** *For re-used data/code: what are the sources and terms of use?*	**Purpose of processing**	**Storage location**	**Who will have access to the data/code?**
Personally Identifiable Information (PII): participants' name, email, work address, company name, mobile number	.pdf, .xlsx	Contact information for participants taking part in the interviews and expert meeting. Informed consent forms are signed digitally and contain participants' name + email.	For administrative purposes: obtaining informed consent and communicating with participants.	TU Delft OneDrive	Myself and the following supervisors: Erwin Heurkens and Hilde Remoy
Audio-recordings of the interviews	.mp3	Audio recordings are made on an external device, before being moved to OneDrive Recordings are deleted after transcription.	Capturing the experiences and perceptions of stakeholders regarding the collaborative process and the role of institutional entrepreneurs (interviews) and capturing the opinions of scholars and experts on the preliminary guidelines.	External recording device (temporary storage) +TU Delft OneDrive (primary storage)	Same as above

Audio-recordings of the expert meeting	.mp3	Audio recordings are made on an external device, before being moved to OneDrive Recordings are deleted after transcription.	Capturing the opinions of scholars and experts on the preliminary guidelines.	External recording device (temporary storage) +TU Delft OneDrive (primary storage)	Same as above
Anonymous transcriptions of the interviews	.txt	Anonymous transcriptions created manually based on audio-recordings. Participants are asked to review the transcriptions of their interview before the transcript is finalised.	To preserve the privacy of the interviewees/prevent identification.	TU Delft OneDrive	Same as above
Anonymous transcriptions of the expert meeting	.txt	Anonymous transcriptions created manually based on audio-recordings. Participants are asked to review the transcriptions of their interview before the transcript is finalised.	To preserve the privacy of the interviewees/prevent identification.	TU Delft OneDrive	Same as above
Anonymised data on the experiences and perceptions of stakeholders regarding the collaborative process and the role of institutional entrepreneurs + occupation	.csv	Data obtained from coding anonymised transcriptions using Atlast.Ti Software.	Privacy-preserving data on the experiences and perceptions of stakeholders regarding the collaborative process and the role of institutional entrepreneurs.	TU Delft OneDrive	Same as above
Anonymised data on the opinions of scholars and experts on the preliminary guidelines + occupation	.csv	Data obtained from coding anonymised transcriptions using Atlast.Ti Software.	Privacy-preserving data on the opinions of scholars and experts on the preliminary guidelines.	TU Delft OneDrive	Same as above
Report/thesis	.pdf	Serves as record of the process as well as documentation.	Long-term documentation.	TU Delft OneDrive	Same as above

II. Storage and backup during the research process

4. How much data/code storage will you require during the project lifetime?

- 250 GB – 5 TB

5. Where will the data/code be stored and backed-up during the project lifetime? (Select all that apply.)

- Another storage system – please explain below, including provided security measures
- TU Delft OneDrive

TU Delft OneDrive is the primary research data storage. An external recording device will be used as a temporary storage location for recorded on-site interviews and the expert meeting. These recordings will be deleted as soon as they are moved to OneDrive.

III. Data/code documentation

6. What documentation will accompany data/code? (Select all that apply.)

- Data – Methodology of data collection

The dataset will not be shared in a data repository, but the methodology of data collection will be explained in the MSc thesis, which is made publicly available in the TU Delft Repository.

IV. Legal and ethical requirements, code of conducts

7. Does your research involve human subjects or third-party datasets collected from human participants?

If you are working with a human subject(s), you will need to obtain the HREC approval for your research project.

- Yes – please provide details in the additional information box below

I intend to apply for ethical approval from the Human Research Ethics Committee, but have not yet done so.

8. Will you work with personal data? (This is information about an identified or identifiable natural person, either for research or project administration purposes.)

- Yes

The research data collected in the project will be anonymised, but processing of personal data is required for conducting the research project. Specifically, personal data is processed for administrative reasons, to obtain informed consent and comminicate with the participants in the interviews and expert meeting.

9. Will you work with any other types of confidential or classified data or code as listed below? (Select all that apply and provide additional details below.)

If you are not sure which option to select, ask your Faculty Data Steward for advice.

- No, I will not work with any other types of confidential or classified data/code

10. How will ownership of the data and intellectual property rights to the data be managed?

For projects involving commercially-sensitive research or research involving third parties, seek advice of your Faculty Contract Manager when answering this question.

I am conducting the research independently under the supervision of my two supervisors, Erwin Heurkens and Hilde Remoy, during an internship at Royal HaskoningDHV. I am the owner of the interview and expert meeting data. The

anonymised interview and expert meeting data will be included in the body and appendix of the MSc thesis, which will be uploaded with public access to the TU Delft Repository.

11. Which personal data or data from human participants do you work with? (Select all that apply.)

- Proof of consent (such as signed consent materials which contain name and signature)
- Audio recordings
- Telephone number, email addresses and/or other addresses as contact details for administrative purposes
- Names as contact details for administrative purposes

12. Please list the categories of data subjects and their geographical location.

The interview participants are professionals involved in collaborative sustainable urban transformation projects, all based in the Netherlands. The expert meeting participants are practitioners and scholars working in the field of sustainable urban transformations, also all located in the Netherlands.

13. Will you be receiving personal data from or transferring personal data to third parties (groups of individuals or organisations)?

- Yes – please provide details about the data and third party(ies) below

Yes I will recieve personal data (names and email addresses) of the internship organisation, Royal HaskoningDHV.

14. Which countries will you be receiving personal data from or transferring personal data to? (Select all that apply.)

- Netherlands

15. What advice did the Privacy team give regarding data transfer? Record below their advice, the data transfer mechanism used, and any agreed security measures.

-

16. What are the legal grounds for personal data processing?

- Informed consent

17. Please describe the informed consent procedure you will follow below.

For both the interviews and expert meeting: The researcher will inform the potential participants about the goals and procedures of the research project. The researcher will also inform them about the personal data that are being processed and for what purpose. A digital copy of the information will be emailed to participants before the interview, and all participants will be asked for their consent for taking part in the study and for data processing by signing a digital informed consent form before the start of the interview.

18. Where will you store the physical/digital signed consent forms or other types of proof of consent (such as recording of verbal consent)?

Digital informed consent forms and contact information are stored in the TU Delft OneDrive.

19. Does the processing of the personal data result in a high risk to the data subjects? (Select all that apply.)

If the processing of the personal data results in a high risk to the data subjects, it is required to perform a Data Protection Impact Assessment (DPIA). In order to determine if there is a high risk for the data subjects, please check if any of the options below that are applicable to the processing of the personal data in your research project.

If any category applies, please provide additional information in the box below. Likewise, if you collect other type of potentially sensitive data, or if you have any additional comments, include these in the box below.

If one or more options listed below apply, your project might need a DPIA. Please get in touch with the Privacy team (privacy-tud@tudelft.nl) to get advice as to whether DPIA is necessary.

- None of the above apply

23. What will happen with the personal data used in the research after the end of the research project?

- Anonymised or aggregated data will be shared with others

The anonymised research data consists of anonymised interview and expert meeting transcripts, and anonymised coded datasets. These data will be used in the body of the thesis and included the appendix, but will not be shared in a data repository.

24. For how long will personal research data (including pseudonymised data) be stored?

- Personal data will be deleted at the end of the research project

Audio-recordings of interviews are destroyed after completion of anonymised interview transcriptions. All other personal research data will be destroyed at the latest 1 month after the end of the project.

25. How will your study participants be asked for their consent for data sharing?

- In the informed consent form: participants are informed that their personal data will be anonymised and that the anonymised dataset is shared publicly

All participants will be asked for their consent for data to be shared anonymously in the body of the MSc thesis, which is made publicly accessible in the TU Delft Repository. Participants who do not consent to their data being included publicly in the thesis will not be included in the research project.

V. Data sharing and long term preservation

27. Apart from personal data mentioned in question 23, will any other data be publicly shared?

Please provide a list of data/code you are going to share under 'Additional Information'.

- I do not work with any data other than personal data

29. How will you share research data/code, including those mentioned in question 23?
Select all that apply and provide additional details below.

- I am a Bachelor's/Master's student at TU Delft and I will share the data/code in the body and/or appendices of my thesis/report in the TU Delft Repository

Anonymised data collected during the project will be included in the body and appendix of the MSc thesis, made available in the TU Delft Repository. The dataset is not shared in a data repository.

30. How much of your data/code will be shared in a research data repository?

- Not applicable - No data/code will be shared in a repository

31. When will the data/code be shared?

- As soon as corresponding results (papers, theses, reports) are published

Anonymised data collected during the project will be included in the body and appendix of the MSc thesis, made available in the TU Delft Repository. The dataset is not shared in a data repository.

32. Under what licence(s) will the data/code be released?

- Other – please explain below

The thesis is made publicly available in the TU Delft Repository under copyright. The data are not shared in a data repository with a data licence.

VI. Data management responsibilities and resources

33. If you leave TU Delft (or are unavailable), who is going to be responsible for the data/code resulting from this project?

My thesis supervisor, Erwin Heurkens, of the department Management in the Built Environment, with email address e.w.t.m.heurkens@tudelft.nl

34. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

Research data are only shared within the MSc thesis: no additional resources are required.

35. Which faculty do you belong to?

- Faculty of Architecture and the Built Environment (ABE)

Appendix H - HREC-Checklist

Delft University of Technology
HUMAN RESEARCH ETHICS
CHECKLIST FOR HUMAN RESEARCH
(Version January 2022)

IMPORTANT NOTES ON PREPARING THIS CHECKLIST

1. An HREC application should be submitted for every research study that involves human participants (as Research Subjects) carried out by TU Delft researchers
2. Your HREC application should be submitted and approved **before** potential participants are approached to take part in your study
3. All submissions from Master's Students for their research thesis need approval from the relevant Responsible Researcher
4. The Responsible Researcher must indicate their approval of the completeness and quality of the submission by signing and dating this form, OR by providing approval to the corresponding researcher via email (included as a PDF with the full HREC submission)
5. There are various aspects of human research compliance which fall outside of the remit of the HREC, but which must be in place to obtain HREC approval. These often require input from internal or external experts such as Faculty Data Stewards, Faculty HSE advisors, the TU Delft Privacy Team or external Medical research partners.
6. You can find detailed guidance on completing your HREC application here
7. Please note that incomplete submissions (whether in terms of documentation or the information provided therein) will be returned for completion **prior to any assessment**
8. If you have any feedback on any aspect of the HREC approval tools and/or process you can leave your comments here

I. Applicant Information

PROJECT TITLE:	**The Role of Institutional Entrepreneurs in Stakeholder Collaborations – Towards Sustainable Urban Transformations**
Research period: *Over what period of time will this specific part of the research take place*	**18-08-2025 till 31-01-2026**
Faculty:	**Faculty of Architecture and the Built Environment (ABE)**
Department:	**Management in the Built Environment**
Type of the research project: *(Bachelor's, Master's, DreamTeam, PhD, PostDoc, Senior Researcher, Organisational etc.)*	**Master thesis**
Funder of research: *(EU, NWO, TUD, other – in which case please elaborate)*	**Delft University of Technology**
Name of Corresponding Researcher: *(If different from the Responsible Researcher)*	**Mirte Hoitink**
E-mail Corresponding Researcher: *(If different from the Responsible Researcher)*	**m.s.hoitink@student.tudelft.nl**
Position of Corresponding Researcher: *(Masters, DreamTeam, PhD, PostDoc, Assistant/ Associate/ Full Professor)*	**Master's student**
Name of Responsible Researcher: ***Note:*** *all student work must have a named Responsible Researcher to approve, sign and submit this application*	**Dr.ir. E.W.T.M. (Erwin) Heurkens**
E-mail of Responsible Researcher: *Please ensure that an institutional email address (**no Gmail, Yahoo, etc.**) is used for all project documentation/ communications including Informed Consent materials*	**e.w.t.m.heurkens@tudelft.nl**
Position of Responsible Researcher : *(PhD, PostDoc, Associate/ Assistant/ Full Professor)*	**Assistant professor of Urban Development Management (UDM)**

II. Research Overview

NOTE: *You can find more guidance on completing this checklist here*

a) Please summarise your research very briefly (100-200 words)

What are you looking into, who is involved, how many participants there will be, how they will be recruited, and what are they expected to do?

Add your text here – (please avoid jargon and abbrevations)
This research explores how institutional entrepreneurs can stimulate stakeholder collaborations within existing urban contexts towards sustainable urban transformations. A qualitative research design is adopted, starting with a literature review to develop a conceptual framework that guides the empirical research. Regarding the empirical part of this study, one or two case studies will be conducted in Dutch sustainable urban transformation projects, using document analysis and semi-structured interviews with open-ended questions. Participants for the interviews include practitioners in these projects, including institutional entrepreneurs and other private and public actors who were intensively involved in the collaborative process. The findings of the case study analyses are combined into preliminary guidelines for institutional entrepreneurs, which are then refined and validated through an expert meeting

to develop the final guidelines. Participants of the expert meeting are selected based on their experience with urban area transformation projects, either in practice or academically, to ensure a diverse mix of perspectives during the co-creative session. Furthermore, to maintain the integrity of the research, participants should not have been involved earlier in the research to ensure a neutral and objective view.

b) **If your application is an additional project** related to an existing approved HREC submission, please provide a brief explanation including the existing relevant HREC submission number/s.

Add your text here – (please avoid jargon and abbrevations)
N/A

c) **If your application is a simple extension of, or amendment to,** an existing approved HREC submission, you can simply submit an HREC Amendment Form as a submission through LabServant.

III. Risk Assessment and Mitigation Plan

NOTE: You can find more guidance on completing this checklist here

Please complete the following table in full for all points to which your answer is "yes". Bear in mind that the vast majority of projects involving human participants as Research Subjects also involve the collection of **Personally Identifiable Information (PII)** and/or **Personally Identifiable Research Data (PIRD)** which may pose potential risks to participants as detailed in Section G: Data Processing and Privacy below.

To ensure alignment between your risk assessment, data management and what you agree with your Research Subjects, you can use the last two columns in the table below to refer to specific points in your Data Management Plan (DMP) and Informed Consent Form (ICF) – **but this is not compulsory**.

It's worth noting that **you're much more likely to need to resubmit your application if you neglect to identify potential risks**, than if you identify a potential risk and demonstrate how you will mitigate it. If necessary, the HREC will always work with you and colleagues in the Privacy Team and Data Management Services to see how, if at all possible, your research can be conducted.

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
A: Partners and collaboration						
1. Will the research be carried out in collaboration with additional organisational partners such as: • One or more collaborating research and/or commercial organisations • Either a research, or a work experience internship provider[1] [1] *If yes, please include the graduation agreement in this application*	**yes**		**The research is conducted in collaboration with Royal HaskoningDHV through an internship. The organisation provides access to project related documents for the document analyses and facilitates interviews with relevant stakeholders.** **There is a risk of conflicting interests between academic and organisational goals. Furthermore, there may be limitations on the data that can be shared or published.**	**The TU Delft internship agreement is signed by both my thesis supervisor and my organisational supervisor from Royal HaskoningDHV, in which expectations, roles and responsibilities are explained (see the document, internship agreement).**	**2**	
2. Is this research dependent on a Data Transfer or Processing Agreement with a collaborating partner or third party supplier? *If yes please provide a copy of the signed DTA/DPA*		**No**				
3. Has this research been approved by another (external) research ethics committee (e.g.: HREC and/or MREC/METC)?		**No**				

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
If yes, please provide a copy of the approval (if possible) and summarise any key points in your Risk Management section below						
B: Location						
4. Will the research take place in a country or countries, other than the Netherlands, within the EU?		**No**				
5. Will the research take place in a country or countries outside the EU?		**No**				
6. Will the research take place in a place/region or of higher risk – including known dangerous locations (in any country) or locations with non-democratic regimes?		**No**				
C: Participants						
7. Will the study involve participants who **may** be vulnerable and possibly (legally) unable to give informed consent? (e.g., children below the legal age for giving consent, people with learning difficulties, people living in care or nursing homes,).		**No**				
8. Will the study involve participants who **may** be vulnerable under specific circumstances and in specific contexts, such as victims and witnesses of violence, including domestic violence; sex workers; members of minority groups, refugees, irregular migrants or dissidents?		**No**				
9. Are the participants, outside the context of the research, in a dependent or subordinate position to the investigator (such as own children, own students or employees of either TU Delft and/or a collaborating partner organisation)? *It is essential that you safeguard against possible adverse consequences of this situation (such as allowing a student's failure to participate to your satisfaction to affect your evaluation of their coursework).*		**No**				
10. Is there a high possibility of re-identification for your participants? (e.g., do they have a very specialist job of which there are only a small number in a given country, are they members of a small community, or employees from a partner company collaborating in the research? Or are they one of only a handful of (expert) participants in the study?		**No**				
D: Recruiting Participants						
11. Will your participants be recruited through your own, professional, channels such as conference attendance lists, or through specific network/s such as self-help groups		**No**				

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
12. Will the participants be recruited or accessed in the longer term by a (legal or customary) gatekeeper? (e.g., an adult professional working with children; a community leader or family member who has this customary role – within or outside the EU; the data producer of a long-term cohort study)		**No**				
13. Will you be recruiting your participants through a crowd-sourcing service and/or involve a third party data-gathering service, such as a survey platform?		**No**				
14. Will you be offering any financial, or other, remuneration to participants, and might this induce or bias participation?		**No**				
E: Subject Matter *Research related to medical questions/health may require special attention. See also the website of the CCMO before contacting the HREC.*						
15. Will your research involve any of the following: • Medical research and/or clinical trials • Invasive sampling and/or medical imaging • Medical and *In Vitro Diagnostic Medical* Devices Research		**No**				
16. Will drugs, placebos, or other substances (e.g., drinks, foods, food or drink constituents, dietary supplements) be administered to the study participants? *If yes see here to determine whether medical ethical approval is required*		**No**				
17. Will blood or tissue samples be obtained from participants? *If yes see here to determine whether medical ethical approval is required*		**No**				
18. Does the study risk causing psychological stress or anxiety beyond that normally encountered by the participants in their life outside research?		**No**				
19. Will the study involve discussion of personal sensitive data which could put participants at increased legal, financial, reputational, security or other risk? (e.g., financial data, location data, data relating to children or other vulnerable groups) *Definitions of sensitive personal data, and special cases are provided on the TUD Privacy Team website.*		**No**				
20. Will the study involve disclosing commercially or professionally sensitive, or confidential information? (e.g., relating to decision-making processes or business strategies which might, for example, be of interest to competitors)		**No**				
21. Has your study been identified by the TU Delft Privacy Team as requiring a Data Processing Impact Assessment (DPIA)? *If yes please attach the advice/ approval from the Privacy Team to this application*		**No**				

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
22. Does your research investigate causes or areas of conflict? *If yes please confirm that your fieldwork has been discussed with the appropriate safety/security advisors and approved by your Department/Faculty.*		**No**				
23. Does your research involve observing illegal activities or data processed or provided by authorities responsible for preventing, investigating, detecting or prosecuting criminal offences *If so please confirm that your work has been discussed with the appropriate legal advisors and approved by your Department/Faculty.*		**No**				
F: Research Methods						
24. Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g., covert observation of people in non-public places).		**No**				
25. Will the study involve actively deceiving the participants? (For example, will participants be deliberately falsely informed, will information be withheld from them or will they be misled in such a way that they are likely to object or show unease when debriefed about the study).		**No**				
26. Is pain or more than mild discomfort likely to result from the study? And/or could your research activity cause an accident involving (non-) participants?		**No**				
27. Will the experiment involve the use of devices that are not 'CE' certified? *Only, if 'yes': continue with the following questions:*		**No**				
• Was the device built in-house?						
• Was it inspected by a safety expert at TU Delft? *If yes, please provide a signed device report*						
• If it was not built in-house and not CE-certified, was it inspected by some other, qualified authority in safety and approved? *If yes, please provide records of the inspection*						
28. Will your research involve face-to-face encounters with your participants and if so how will you assess and address Covid considerations?	**Yes**		**Since COVID is no longer a significant health threat, the risk of virus transmission will be very low during the face-to-face encounters (the interviews and expert meeting) and therefore not seen as a true risk.**	-	-	-
29. Will your research involve **either:**		**No**				

			If YES please complete the Risk Assessment and Mitigation Plan columns below.		*Please provide the relevant reference #*	
ISSUE	**Yes**	**No**	**RISK ASSESSMENT – what risks could arise?** *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	**MITIGATION PLAN – what mitigating steps will you take?** *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	**DMP**	**ICF**
a) "big data", combined datasets, new data-gathering or new data-merging techniques which might lead to re-identification of your participants **and/or** b) artificial intelligence or algorithm training where, for example biased datasets could lead to biased outcomes?						
G: Data Processing and Privacy						
30. Will the research involve collecting, processing and/or storing any directly identifiable PII (Personally Identifiable Information) including name or email address that will be used for administrative purposes only? (eg: obtaining Informed Consent or disbursing remuneration)	**Yes**		**Processing of personal data (name, email and phone number) is required for conducting the research project. Specifically, personal data (PII) is processed for administrative reasons, to obtain informed consent, and to communicate with the participants in the interviews and the expert meeting. All participants will be asked for their consent to take part in the study and for data processing by signing a digital informed consent form before the start of the interview. Therefore, there is a risk of data breach.**	**Digital informed consent forms and contact information are stored in the TU Delft OneDrive, which can be seen as a secure storage space. Furthermore, personal data will be deleted at the latest 1 month after the end of the research project.**	**16, 17, 18, 24**	**7, 10, 11**
31. Will the research involve collecting, processing and/or storing any directly or indirectly identifiable PIRD (Personally Identifiable Research Data) including videos, pictures, IP address, gender, age etc and **what other Personal Research Data** (including personal or professional views) will you be collecting?		**No**				
32. Will this research involve collecting data from the internet, social media and/or publicly available datasets which have been originally contributed by human participants		**No**				
33. Will your research findings be published in one or more forms in the public domain, as e.g., Master's thesis, journal publication, conference presentation or wider public dissemination?	**Yes**		**I am a Master's student at TU Delft, and I will share the data in the body and/or appendices of my Thesis in the TU Delft Repository.**	**Anonymised data collected during the project will be included in the body and appendix of the MSc thesis, made available in the TU Delft Repository. The dataset is not shared in a data repository.**	**29**	**12, 13**
34. Will your research data be archived for re-use and/or teaching in an open, private or semi-open archive?		**No**				

H: More on Informed Consent and Data Management

NOTE: You can find guidance and templates for preparing your Informed Consent materials) here

Your research involves human participants as Research Subjects if you are recruiting them or actively involving or influencing, manipulating or directing them in any way in your research activities. This means you must seek informed consent and agree/ implement appropriate safeguards regardless of whether you are collecting any PIRD.

Where you are also collecting PIRD, and using Informed Consent as the legal basis for your research, you need to also make sure that your IC materials are clear on any related risks and the mitigating measures you will take – including through responsible data management.

Got a comment on this checklist or the HREC process? You can leave your comments here

IV. Signature/s

Please note that by signing this checklist list as the sole, or Responsible, researcher you are providing approval of the completeness and quality of the submission, as well as confirming alignment between GDPR, Data Management and Informed Consent requirements.

Name of Corresponding Researcher (if different from the Responsible Researcher) (print)
Mirte Hoitink

Signature of Corresponding Researcher:

Date: 20-06-2025

Name of Responsible Researcher (print)
Erwin Heurkens

Signature (or upload consent by mail) Responsible Researcher:

Date: 01-07-2025

V. Completing your HREC application

Please use the following list to check that you have provided all relevant documentation

Required:

- **Always:** This completed HREC checklist
- **Always:** A data management plan (reviewed, where necessary, by a data-steward)
- **Usually:** A complete Informed Consent form (including Participant Information) and/or Opening Statement (for online consent)

Please also attach any of the following, if relevant to your research:

Document or approval	Contact/s
Full Research Ethics Application	After the assessment of your initial application **HREC will let you know if and when you need to submit additional information**
Signed, valid Device Report	Your Faculty HSE advisor
Ethics approval from an external Medical Committee	TU Delft Policy Advisor, Medical (Devices) Research
Ethics approval from an external Research Ethics Committee	Please append, if possible, with your submission
Approved Data Transfer or Data Processing Agreement	Your Faculty Data Steward and/or TU Delft Privacy Team
Approved Graduation Agreement	Your Master's thesis supervisor
Data Processing Impact Assessment (DPIA)	TU Delft Privacy Team
Other specific requirement	Please reference/explain in your checklist and append with your submission

Appendix I - Letter of Approval HREC Committee

Date 29-Aug-2025
Correspondence hrec@tudelft.nl

Human Research Ethics
Committee TU Delft
(http://hrec.tudelft.nl)

Visiting address
Jaffalaan 5 (building 31)
2628 BX Delft

Postal address
P.O. Box 5015 2600 GA Delft
The Netherlands

Ethics Approval Application: The Role of Institutional Entrepreneurs in Stakeholder Collaborations - Towards Sustainable Urban Transformations
Applicant: Hoitink, Mirte

Dear Mirte Hoitink,

It is a pleasure to inform you that your application mentioned above has been approved.

Thanks very much for your submission to the HREC which has been approved.

In addition to any specific conditions or notes, the HREC provides the following standard advice to all applicants:
• In light of recent tax changes, we advise that you confirm any proposed remuneration of research subjects with your faculty contract manager before going ahead.
• Please make sure when you carry out your research that you confirm contemporary covid protocols with your faculty HSE advisor, and that ongoing covid risks and precautions are flagged in the informed consent - with particular attention to this where there are physically vulnerable (eg: elderly or with underlying conditions) participants involved.
• Our default advice is not to publish transcripts or transcript summaries, but to retain these privately for specific purposes/checking; and if they are to be made public then only if fully anonymised and the transcript/summary itself approved by participants for specific purpose.
• Where there are collaborating (including funding) partners, appropriate formal agreements including clarity on responsibilities, including data ownership, responsibilities and access, should be in place and that relevant aspects of such agreements (such as access to raw or other data) are clear in the Informed Consent.

Good luck with your research!

Sincerely,

Dr. C. Shelley-Egan
Chair HREC
Faculty of Technology, Policy and Management

Appendix J – Detailed Overview of the Three Types of Social Entrepreneurs

Table J

Overview of the Three Types of Social Entrepreneurs (Own figure), based on Mens et al. (2021)

Type	A. Pioneer	B. Consolidated Organisation	C. Intermediate Agent
Characteristics	Informally collaborating individuals; Hybrid nature, combining characteristics of both market and civil society; Primarily operating within the creative industry	Emerges over time from the efforts of the pioneers, evolving into formalised, third-sector organisations; Often consist of the pioneers themselves, other end-users, volunteers from the community, and sometimes specialists and experts	Operates at a higher, area-wide scale level and collaborates both formally and informally with various stakeholders; Highly educated individuals with various professional backgrounds; Third sector or hybrid actors
Motives and Aims	Social motives and aims are recognised, but are secondary to pragmatic individual motives	-	Realising specific social policy goals
Roles	Primary roles: Developer, end-user; Secondary roles: Boundary spanners, Niche-entrepreneurs	Primary roles: Developer, end-user, and to a lesser extent, builder; Secondary roles: Boundary spanners, Niche-entrepreneurs	Primary role: facilitator; Secondary roles: Boundary spanners, Policy Entrepreneurs
Position and Power	Limited resources, nor a large, relevant network, and therefore having little to no power	Through the pioneers' strategic actions, these social entrepreneurs acquired the necessary resources and evolved into a position of realising power; Furthermore, their position is based on trust and reputation	Determined by the social network they manage to build and sustain, based on trust and their reputation within the network
Actions and Strategies	Building of social networks; Mobilisation of resources; Alignment and articulation of visions, goals and interests; Interactive and collective learning process	Building of social networks (internal network, and external social networks); Mobilisation of resources; Alignment and articulation of visions, goals and interests; Interactive and collective learning process. ** Their greater power and position result in less effort for the activities over time compared to pioneers*	Building of social networks; Alignment and articulation of visions, goals and interests
Examples	Architect/ urban designer; Independent photographer with previous experience in project management; Several young architects at the start of their careers	Members who are at the same time end-users within the cooperation, foundation or association, such as initial initiators and specialised partners	A duo of two female friends working as independent freelancers with a professional background in area development; Foundation Stadslab BSH

Appendix K – Theoretical Context on Sustainable Urban Transformations

While this research focuses on SUT collaborations (i.e. within an action arena), rather than on broader societal transitions, it is valuable to understand how innovations emerge and accumulate into wider transformations, including SUTs. This appendix, therefore, provides additional theoretical background, positioning SUTs as a subset of urban sustainability transitions (Ernst et al., 2016), utilising the Multi-Level Perspective by Geels (2002).

Transitions can occur across various societal systems, such as energy, transport, and ecological systems (De Haan and Rotmans, 2011), to fulfil societal functions like transportation and housing (Geels, 2005). Such functions are carried out by socio-technical regimes, which can be understood as semi-coherent sets of rules and routines sustained by different social groups (Ernst et al., 2016). Regimes provide guidance and coordination for actors' activities and create a dynamic stability of socio-technical configurations (ibid.). Due to this stability, innovations can occur within regimes, but are typically incremental (Geels, 2002). Socio-technical regimes consist of multiple dimensions, including technology, user practices, infrastructure, symbolic meanings, industry structure, techno-scientific knowledge and policy (ibid.).

Socio-technical regimes are embedded within a broader socio-technical landscape, which refers to a diverse set of structural trends and external factors (Ernst et al., 2016), such as oil prices, economic growth, wars, global politics, cultural values, and environmental problems (Geels, 2002). Compared to regimes, landscapes are more difficult to change, and shifts happen more slowly (ibid.).

In contrast, radical innovations, those with the potential to transform existing regimes and ultimately socio-technical landscapes, are typically developed in niches (Geels, 2002). Within these niches, actors operate in relatively unstable networks to develop a variety of radical innovations (ibid.). While many of these innovations fail to scale up, some gradually accumulate through application in subsequent market niches and eventually break through the niche level, potentially leading to transformations at the regime level (ibid.).

The interrelation between niches, regimes, and landscapes, referred to as the Multi-Level Perspective (Geels, 2002; Ernst et al., 2016), is conceptualised in Figure K. The figure illustrates how the emergence and success of radical innovations within niches are strongly shaped by both existing regimes and broader landscapes (Geels, 2002) (see the bidirectional dotted arrows between the levels). When tensions arise within a social-technical regime or when shifts occur at the landscape level, pressure is exerted on the regime, creating a window of opportunity for niche innovations to challenge existing regimes, and potentially leading to true transformations (ibid.).

For a transformation to occur, including SUTs, a regime must undergo a radical change in its culture, structure, and practices (Loorbach, 2007). Culture refers to the ethics, norms, and values that determine the behaviour and actions of actors (Ernst et al., 2016), which correspond to informal institutions as discussed in Paragraph 3.2. Structures consist of standardised rules, laws, and routines (ibid.), and can be understood as formal institutions. Practices encompass the ways actors carry out their work, often supported by physical entities, resources, and artefacts (ibid.).

Furthermore, for SUTs to occur, the three levels, niches, regimes, and landscapes, must interact with one another (Ernst et al., 2016). The types of interactions that can occur, referred to as transition patterns, are illustrated in Table K and can be understood as the bidirectional dotted arrows in Figure K. It is important to note that institutional entrepreneurs, as discussed in Paragraph 3.2, can potentially play a role in carrying out these transition patterns, operating both from bottom-up and from top-down, to contribute to radical changes in a regime's culture, structure, and practices, for SUTs to take place.

However, as this research focuses on the role of institutional entrepreneurs in influencing stakeholder collaborations (within an action arena), these kinds of institutional entrepreneurs are beyond the scope of this study. Nevertheless, it remains relevant to acknowledge these broader roles, as institutional entrepreneurs active in stakeholder collaborations may simultaneously take on such roles.

Figure K
Multi-Level Perspective on Innovations. Recreated from Geels (2002)

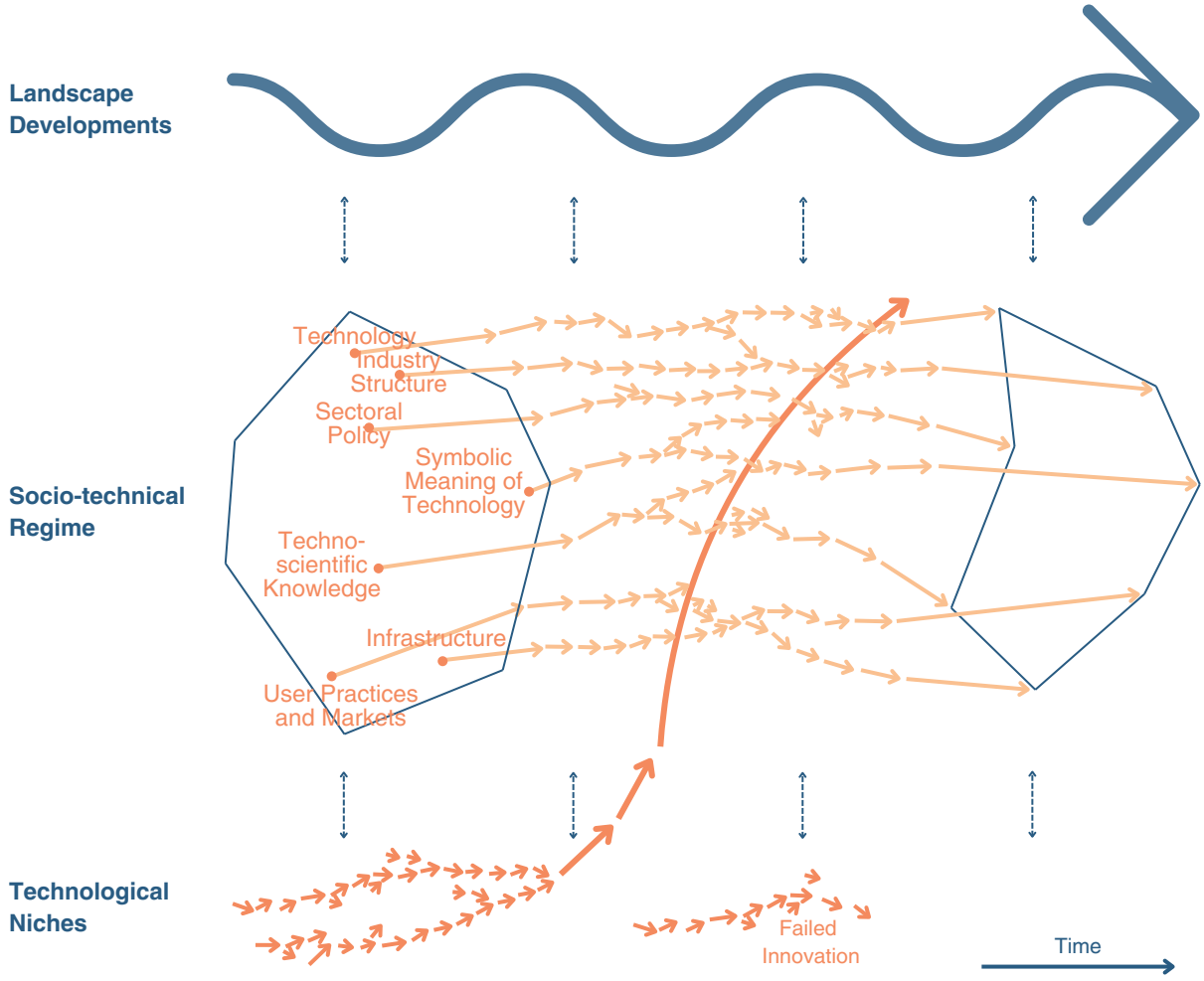


Table K

Transition patterns. Adapted from De Haan and Rotmans (2011), recreated from Ernst et al. (2016)

Empowerment: Niches gain power (bottom-up)	**Reconstellation: New regime is installed (top-down)**	**In squeezed (top-down and bottom-up)**
Reconfiguration: Niches scaling up and becoming empowered by the regime	Radical reform: Regime is reformed according to the cultures and structures outside of the constellation	Teleological: Regime adapting by allowing outside influences to reconstellate and simultaneously incorporating novel functioning in these processes
Substitution: Niches scaling up and becoming empowered despite the regime	Revolution: A constellation outside the regime invades the societal system and replaces the current regime	Emergent: niche functioning and influences from outside the societal system team up without the active influence of the incumbent regime
Backlash: Niches initially gain power or popularity but fail to become the new mainstream	Collapse: The reconstellation does not lead to a new stable societal system	Lock-in: An innovation gains influence in the societal system but fails to completely replace the regime, co-existing with it in a locked-in state

Appendix L – Detailed Overview of the Case Study Findings

Table L1

Empirical Findings Regarding Barriers: Resource/Knowledge/Power Asymmetries (Sub-paragraph 4.2.1) (Own table)

Barriers: Resource/Knowledge/Power Asymmetries	Interview	Insight per Interview
(1) The complexity of the SUT and organisations' voluntary, non-core participation results in uneven knowledge levels and limited availability, hindering progress, decision-making, and representatives' ability to secure support from their mandate holders.	Interview B	Organisations focus on their core business rather than the SUT, so many begin with limited expertise, delaying the collective process.
	Interview C	Voluntary participation alongside regular jobs leads to uneven expertise and availability, undermining equal contribution.
	Interview E	Non-technical representatives struggle to explain the collective to mandate holders to secure support, while synchronising many busy agendas creates a scheduling barrier.
	Interview G	Representatives' technical knowledge needs to be strengthened, and they must be constantly brought along as complexity increases.
	Interview I	Limited participant availability forces short meetings, leaving insufficient time to cover all relevant topics.
(2) A lack of available data about participants, as well as an unwillingness to share it within the collective, hinders collaboration and the identification of collective opportunities. Mutual trust is essential to stimulate transparency.	Interview A	Lack of data on individual participants and their interdependencies forces the project to generate the data itself, delaying analysis of collective opportunities.
	Interview F	Participants' hesitation to share individual data, such as usage profiles, requires lengthy negotiation and trust-building, slowing collective progress.
(3) Unequal access to in-house legal, financial, or technical expertise among participants risks unfair workload distribution, frustration and delays in collective progress.	Interview E	Uneven availability of in-house legal expertise requires some organisations to do the work, creating asymmetric workloads and frustration.
	Interview G	Some organisations cannot assign an in-house legal expert to the legal working group, resulting in many rounds of late feedback and revision, delaying progress.
	Interview J	Lack of in-house legal expertise leads organisations to request an external review of draft agreements, causing additional revisions and delays.
(4) Fundamental uncertainties surrounding the SUT initiative, such as uncertainties about the effectiveness of the collective solution, interdependencies, and economic and contractual consequences, can discourage participation, complicate collective decision-making and delay or stop the initiative.	Interview A	Uncertainties about external dependencies, collective solutions and consequences lead organisations to seek overseeable options and hesitate to join the collective.
	Interview E	Uncertainty about contract terms and consequences, the effectiveness of the collective solution, and dependencies within the collective make actors hesitant to (actively) participate.
	Interview G	Uncertainty about economic consequences hinders decision-making and willingness to invest.
	Interview H	Uncertainty about contractual consequences and the feasibility of future individual (sustainability) developments reduces willingness to commit.
(5) Unequal financial capabilities among participants complicate collective investment decision-making and can slow or halt progress. These inequalities stem from differences in budget size, budget cycles, and internal approval rules between public and private participants, as well as among private organisations of different types and scales.	Interview E	Differences in budget size, budget cycles and internal approval rules, especially between public and private actors, create unequal financial capabilities.
	Interview F	Financial depth varies significantly not only between public and private actors, but also among private organisations of different types and scales.

Illustrative Quote per Finding

(1) Interviewee E: *["Some people aren't very technically skilled or don't fully understand how to see it in the bigger picture. I mean, it also depends on who happens to represent a company. In this case, there was someone who said, 'Yes, you're telling me I should participate, but how am I supposed to explain that to my management?'"]*

(2) Interviewee F: *["When engaging in collaborative energy initiatives, participants need to be willing to share information, such as energy consumption at their specific sites. This proved challenging, as organisations are often reluctant to disclose such data, partly because it can reveal the rates they pay, sensitive information, even if only indirectly estimable. It took considerable effort to ensure that this information was ultimately made available to the collective."]*

(3) Interviewee G: *["A contribution from all participants is essential. This is important because if organisations do not assign a legal expert to the working group, a draft agreement may later generate extensive feedback and revisions, causing considerable delays before all details are finalised."]*

(4) Interviewee E: *["You can tell people are taking a wait-and-see attitude, saying things like, 'What if the establishment of the Energy Hub doesn't turn out to be the solution to grid congestion, and we end up having to do things differently again?'"]*

(5) Interviewee E: *[Take Organisation M, for example… or Organisation N, those are organisations where everything is budgeted a year in advance. So, if something doesn't fit into an existing category, they simply can't free up any money for it. It's quite frustrating. For us, it works a bit differently; we're a very corporate company, and if I want something to happen, I just make it happen and arrange my own budget. And when you're working on a project worth 200 million euros, a few thousand euros are, of course, just peanuts."]*

Table L2

Empirical Findings Regarding Constraints to Participate (Sub-paragraph 4.2.2) (Own table)

Constraints to participate	Interview	Insight per Interview
(1) When a participant, particularly a commercial one, has alternative solutions, especially independent options with a more favourable business case, they are unlikely to join the collective unless the collective can offer a clear, quantifiable, favourable business case.	Interview A	Commercial actors who already have resources to bring into the collective will probably only participate and share when there is sufficient financial compensation, while a clear revenue model is still absent.
	Interview H	Although participants are willing to participate, they continue to assess whether they can solve the issue independently and only commit when the collective option appears more effective than their individual alternatives.
(2) Participating in this collective creates tension between participants' need for autonomy and collective interdependency. As a result, the inherent long-term commitments and shared control lead to resistance and can discourage participation.	Interview E	Commercial property owners are hesitant to join the collective initiative because they prefer stand-alone assets; joining the collective reduces asset tradability and increases sales risk.
	Interview G	Stakeholders view legal dependency as a barrier to contributing to the collective.
	Interview J	Organisations that operate without external dependencies, such as external financing, prefer to remain independent, which makes them hesitant to participate in the collective.

Illustrative Quote per Finding

(1) Interviewee A: *["For example, if Organisation F has no events, the batteries could be used there very effectively. However, if they would only receive, for instance, 10% of the revenue they normally earn for office hours from Organisation P, and Organisation P requests the same contribution from Organisation F, then Organisation F may respond by saying 'Yes, but we're already doing good things. We're earning even more anyway.'"]*

(2) Interviewee E: *["In essence, the key point is that the asset must be something that can be bought and sold, a tradable product. Creating a hub, however, ties this asset to multiple others, making it harder to separate and*

therefore potentially less attractive to buyers. As a result, we are fundamentally interested in assets that are as standalone as possible, independent of other entities, and that hold specific rights."]

Table L3

Empirical Findings Regarding Barriers: Stakeholder Access (Sub-paragraph 4.2.3) (Own table)

Barriers: Stakeholder Access	Interview	Insight per Interview
(1) A lack of active engagement, participation, transparency, and flexibility from powerful external actors (e.g. governments and grid operators) creates uncertainty about the initiative's collective opportunities and can halt the project or force suboptimal outcomes.	Interview A	The absence and lack of collaborative engagement from powerful external actors (e.g. governments and central urban system players like the grid operator) complicates identification of collective solutions and can even block the entire initiative.
	Interview B	While local actors attempt to resolve network congestion collectively, the grid operator remains absent and is perceived as the primary blockade to the initiative's development.
	Interview D	A lack of clarity from powerful external actors about the concrete possibilities of the collective hinders progress.
	Interview G	Limited transparency from powerful external actors about their decision-making criteria for allowing energy hub's (i.e. SUTs) to proceed (e.g. as pilots), combined with delayed decision-making, generates uncertainty and delays overall collective progress.
	Interview H	The power held by governments and central urban system players, like the grid operator, determines whether the initiative can be established. When these actors do not take part in the collective, think along, or show flexibility, the project will be put on hold or result in sub-optimal solutions.
(2) Once the collective becomes more advanced in defining shared goals, working methods, and conditions, it becomes increasingly difficult to involve new participants or replace existing representatives. Integrating them into the established collaborative structure takes time: their individual interests are harder to integrate, and it requires renewed relationship- and trust-building.	Interview D	Building mutual understanding and alignment on goals and conditions takes time, making it harder to involve new actors later. Starting with a small group is seen as more effective, with expansion possible after initial results.
	Interview G	Frequent changes in stakeholder representatives hinder continuity, as new representatives must be brought up to speed on prior challenges and agreements, delaying progress.
	Interview I	Changes in group composition cause delays because meetings require time for introductions, explanation of collective goals, progress, and current agreements.

Illustrative Quote per Finding

(1) Interviewee A: *["Understanding what the appropriate solution for the issue in Area A would be depends on what Organisation P allows on the infrastructure at specific times. … Ultimately, this key stakeholder has not yet joined, which poses a challenge faced by all Energy Hubs in the Netherlands, a well-recognised issue."]*

(2) Interviewee D: *["Involving new participants at this stage is complicated, as they need to be brought up to speed. In this phase, adding new participants isn't very practical because developing a shared understanding of the business objectives and boundary conditions takes time. I actually expect that some parties may drop out, so we'll likely reach the first results with a smaller group. After that, we can reassess and determine, based on what has been achieved, the next steps and which parties would logically fit to continue building on this foundation."]*

Table L4

Empirical Findings Regarding Barriers: Clear Ground Rules and Protocols (Sub-paragraph 4.2.4) (Own table)

Barriers: Clear Ground Rules and Protocols	Interview	Insight per Interview
(1) If industrial or commercial actors do not take a central role in this and other innovative collective initiatives (collective SUTs), and jointly develop an exclusive business case with clear cost and benefit agreements, the collaboration remains at a consultative level.	Interview D	Without a jointly developed business case with clear costs and benefits, initiatives like this one fail to progress beyond consultation and small-scale investments and do not develop into actual SUTs.
(2) Without a legal entity, the collective initiative faces barriers in applying for subsidies, attracting external funding, formally commissioning expertise, or making collective binding agreements with external key actors, such as grid operators.	Interview B	If a legal entity, including statutes and a house rule document, is not established in time, the collective risk subsidy opportunities, faces administrative complexity, and cannot sign collective binding agreements with key external actors, such as the grid operator.
	Interview I	Without a legal entity, expert commissioning must occur through one of the participating organisations, which is legally fragile and appears unprofessional to external partners, potentially discouraging them from engaging.
(3) As long as the business case of the collective innovative initiative is not viable over time, and there is no robust, well-considered legal framework, the initiative fails to get off the ground.	Interview E	Even when stakeholders believe in the collective solution, they only participate if it pays off over time. Given today's constrained resources and limited time, organisations act on business value rather than ambition alone.
	Interview G	A strong legal framework is critical for the initiative's success; it is the core issue determining whether the initiative stops or proceeds.
	Interview J	Participation decisions depend on the formal agreement and the terms it contains. This is the phase in which parties assess their individual risks of joining the collective, making a robust legal framework essential.

Illustrative Quote per Finding

(1) Interviewee D: *["About 10 to 12 years ago, in one of my previous roles, we wrote a report on innovation and collaborative partnerships. It showed that when no industrial parties or business participants take a central role in the collaboration and jointly develop an exclusive business case, explicitly discussing costs and benefits, these collaborations tend to remain stuck at a consultative level, involving only small-scale investments of time and money, because there's no ability to move things forward."]*

(2) Interviewee B: *["You have to register with the Chamber of Commerce, and they haven't done that. So now, for example, when applying for provincial subsidies, they need to submit a new LOI every time, and then, for instance, Organisation B has to act as the lead applicant. It's all very complicated. You could avoid that by establishing a cooperative that manages the funds and the bank account, allowing the provincial subsidy to be transferred directly. But now things have already become more complicated, and as a result, they can't apply for European subsidies."]*

(3) Interviewee E: *["You can have all the ambition you want, but nowadays we're all constrained by limited resources and, above all, time. You're not going to do things just as a hobby, you do them because you believe it's good for the business."]*

Table L5

Empirical Findings Regarding Barriers: Clearly Defined Roles (Sub-paragraph 4.2.5) (Own table)

Barriers: Clearly Defined Roles	Interview	Insight per Interview
(1) A lack of mandate among representatives from the participating organisations forms a barrier to collective progress. In larger organisations, this is amplified by hierarchical structures and layered decision-making procedures. Therefore, approval and progress depend on the representatives' ability to sell the collective initiative to their mandate holders.	Interview B	The absence of, or uncertainty about, representatives' mandate makes participation ineffective because they cannot make the decisions needed for collective progress.
	Interview D	Unclear mandates of participants within the working group and participant group, the latter intended to make decisions, lead to provisional decisions that slow down actual decision-making and collective progress.
	Interview F	Representatives must internally sell the project to obtain approval and buy-in from their mandate holders. In large organisations, these processes can take much longer, delaying collective progress.
	Interview G	Obtaining internal approval by representatives from mandate holders is an ongoing process that cannot be completed overnight.

Illustrative Quote per Finding

(1) Interviewee F: *["You have people representing the organisation in the project, but you also need to sell it internally … to management … or procurement departments. So there's an internal selling process, which can take a long time."]*

Table L6

Empirical Findings Regarding Barriers: Trust and Relationship Building (Sub-paragraph 4.2.6) (Own table)

Barriers: Trust and Relationship Building	Interview	Insight per Interview
(1) Building relational trust within this innovative collective initiative requires time and continuous effort. Applying too much pressure or attempting to speed up the process can undermine collaboration and hinder collective progress.	Interview D	Trust is two-dimensional: it involves confidence in the competencies of those involved, and relational trust. The latter requires time to build and is therefore long-term in nature.
	Interview F	Building trust and developing relationships within the collective takes time. Attempting to push the process, especially due to the innovative and unfamiliar form of collaboration, may backfire.
(2) Underdeveloped relationships and the resulting limited trust between stakeholders, especially in the early stages of collaboration where interests and agreements have not been clarified, can lead to hesitation in sharing sensitive information, such as company profiles. This lack of transparency complicates the exploration of joint possibilities and slows down overall progress.	Interview F	Participants' hesitation to share individual data, such as usage profiles, requires lengthy negotiation and trust-building, slowing collective progress.
	Interview H	In the early stages of collaboration, trust was the most critical element to develop. Stakeholders were hesitant to share sensitive data, requiring significant time and effort through joint sessions to build mutual understanding and confidence in the collective.

Illustrative Quote per Finding

(1) Interviewee D: *["A large part of trust is based on confidence in competence, whether the right people are working on the right things, and whether we see progress being made. Relational trust is a bit different; it takes time to build."]*

(2) Interviewee H: *["People needed to trust each other before sharing data. In the early sessions, we took time to guide everyone through the process, build trust, and calculate scenarios to show what it would mean for them. At the start, when trust is low, sharing data is the most difficult."]*

Table L7

Empirical Findings Regarding Barriers: Shared Understanding and Shared Ambition (Sub-paragraph 4.2.7) (Own table)

Barriers: Shared Understanding and Shared Ambition	Interview	Insight per Interview
(1) Differences in individual interests, ambition, and sense of urgency hinder the development of a shared understanding and joint decision-making, potentially leading to varying levels of commitment, stagnation of the collective, or participant dropouts.	Interview A	The innovative collective initiative fails when stakeholders continue to act from individual interests and positions, without a leading actor to safeguard the collective ambition/goal.
	Interview C	Stakeholders differ in motivations, interests, and urgencies, making the development of a shared understanding difficult. Therefore, a collective must be established that is meaningful to all parties involved.
	Interview G	Within the collective, some face direct SUT-related problems, while others join to learn or orient themselves. This difference in urgency affects commitment, especially when formal legal or financial agreements are required. Low urgency actors are more likely to drop out.
	Interview I	When stakeholders do not perceive the urgency of forming a collective to address the underlying problem, they tend to prioritise their own interests.
	Interview J	The differing individual interests and ambitions become most visible when formal agreements need to be established.

Illustrative Quote per Finding

(1) Interviewee E: *["In the same area, we also worked on two district heating networks that were never realised. I think what was missing was an independent institutional entrepreneur. Everyone kept reasoning and acting from their own existing interests and positions. That's a problem we see recurring quite often."]*

Table L8

Empirical Findings Regarding Barriers: Intermediate Outcomes and Evaluations (Sub-paragraph 4.2.8) (Own table)

Barriers: Intermediate Outcomes and Evaluations	Interview	Insight per Interview
(1) The collective innovative initiative (collective SUT) requires significantly more time than conventional projects because more time is needed to sort out technical, legal, financial, and organisational aspects that standard frameworks do not cover. This extended timeline raises costs, reduces visibility of progress, and therefore makes it harder to sustain stakeholders' (financial) commitment or even leads them to withdraw from the collective.	Interview A	Collective initiatives are more time-consuming up-front and can be cheaper later on; however, maintaining pace is crucial to keep stakeholders engaged, especially frontrunners, otherwise they will choose individual solutions.
	Interview B	The collective requires more time to sort out liabilities and cost allocations due to its interdependent nature. This reduces legal uncertainty and the risks associated with participation.
	Interview C	An extended timeline caused by extensive preparatory work and low visibility of the collective's progress creates financial barriers. It makes it harder to convince stakeholders to reinvest due to uncertainty about the collective's success, or even remain involved, which in turn complicates financing the required investments.
	Interview G	Collective solutions require far more time and attention to contractually address all possible scenarios and responsibilities. This time-intensive and complex nature makes individual solutions more attractive.
	Interview H	The collective involves substantial legal and financial uncertainties that must be investigated. This uncertainty alone is already a reason for some stakeholders to withdraw.

Table L8 (continued)

Barriers: Intermediate Outcomes and Evaluations	Interview	Insight per Interview
(2) The collective innovative initiative (collective SUTs) risks getting stuck in the exploratory, consultative phase, whereby extensive discussions without sufficient concrete action limit progress and prevent the initiative from moving forward.	Interview C	Stakeholders wanted to move beyond the exploratory phase and start implementing, but concrete action remained absent for a while.
	Interview D	There were extensive discussions about establishing a collective hub, but it took a long time before concrete steps were taken.

Illustrative Quote per Finding

(1) Interviewee C: *["If we have to come back with a second funding request, there will eventually be financial constraints. People will start asking questions like, 'What have you done with the money over the past six months, and are we actually getting something in return?' We're investing now, but it could turn out that the project doesn't go through. … So this could definitely become a limiting factor in the end."]*

(2) Interviewee C: *["You actually want to move beyond the exploratory phase, and start making things happen, to actually establish the hub. Not just keep talking, but at some point, really start doing."]*

Table L9

Empirical Findings Regarding Barriers: Institutional Context (Sub-paragraph 4.2.9) (Own table)

Barriers: Institutional Context	Interview	Insight per Interview
(1) The necessary developments for the innovative collective initiative (collective SUT) are hindered by a mismatch with existing regulations, contracts, and infrastructure, which were developed for stability and control but lack the flexibility needed for this innovative collective initiative. This can lead to sub-optimal outcomes or even stop the initiative.	Interview A	The developments needed for this local innovative collective require changes to regulations and infrastructure. However, dialogue with key actors remains absent and focused on large industrial users, leaving smaller local initiatives unsupported, hindering their progress.
	Interview B	Institutional interest, long-term contracts, and international agreements that have developed over decades cannot be changed quickly, blocking the necessary changes and flexibility needed to realise this and similar initiatives.
	Interview C	Existing regulatory rules restrict how participant types can be combined into the collective, based on their usage profile. This prevents beneficial resource-sharing and, therefore, undermines the value of the initiative, risking forced withdrawal or halting progress.
	Interview D	Uncertainty about potentially changing regulations and contracts, combined with the long time it takes to gain clarity, clashes with the urgency the initiative faces to pilot, implement, and scale.
	Interview E	Overly strict adherence to existing legal frameworks, restrictive for developing the innovative collective initiative, hinders its potential success.
	Interview F	Internal interests within governmental organisations create resistance to changing regulations, contracts, or infrastructures, hindering transformation.
	Interview G	Same as Interview C. Additionally, the limited organisational capacity of governmental bodies or central urban system players, like the grid operator, to serve multiple pilots creates a barrier to getting this and similar initiatives off the ground within existing regulatory boundaries.
	Interview H	Same as interview C. Additionally, the absence of new contracts tailored to this and similar SUT collectives hinders their realisation.
	Interview I	Same as Interview D.

Table L9 (continued)

Barriers: Institutional Context	Interview	Insight per Interview
(2) A lack of time, organisational capacity, specialist expertise, and an inappropriate collaborative culture among key external actors, such as governments and grid operators, limit their willingness and ability to actively participate in or facilitate the development of the innovative collective initiative.	Interview A	Due to a lack of time and an absent culture of joint problem-solving and co-creation among key actors, such as the grip operator, equal collaboration to develop a collective solution is not possible, forcing the initiative to start in a suboptimal manner.
	Interview E	Rigid and suboptimal organisational structures at key actors, combined with overly strict adherence to existing legal frameworks (restrictive for developing innovative collective initiatives), hinder the initiative's potential success.
	Interview G	Same as Interview E.
	Interview H	There is a structural shortage of people with the necessary specialist expertise within governmental bodies, such as energy planners, to facilitate this and other innovative collective initiatives (collective SUTs). These new initiatives, therefore, require new job profiles.
(3) Public-private collaboration within this innovative collective initiative introduces an additional layer of legal, procedural and financial complexity. Public actors, bound by formal frameworks such as procurement rules, accountability obligations, and extensive internal documentation requirements, face limited flexibility in making financial commitments or formalising participation. In contrast, private actors operate with greater operational freedom. This asymmetry can slow decision-making and collective progress, potentially decreasing mutual trust and commitment, as the added value of collaboration becomes less visible.	Interview B	Public actors such as municipalities and academic institutions face formal procurement regulations and internal legal procedures when joining the collective initiative. These processes can delay decision-making and momentum, and if prolonged, strain trust within the collective, and may lead to participant withdrawal.
	Interview D	Public actors, funded by public resources, are bound by formal obligations and accountability requirements, which limit their role, (financial) commitments, and decision-making capacity. These constraints complicate their ability to participate in a legal entity.
	Interview E	Same as Interview B.
	Interview G	Same as Interviews B and D.
	Interview H	Same as interviews B and D. Additionally, these (semi-) public actors face legal uncertainties related to state-aid (state funding), existing long-term contracts, and internal authorisation procedures, contributing to delays.
	Interview I	Same as interviews B and D. Additionally, cultural and procedural differences, such as risk aversion and slower internal processes, create friction and delay.
	Interview J	Same as interviews B and D.
(4) The business case, as well as financial settlement models, for the innovative collective initiative are not yet well quantifiable or fully developed, even though financial incentives strongly influence participation decisions. Furthermore, existing assessment systems (e.g. BREEAM) do not yet recognise or reward these types of initiatives, making them appear riskier and less attractive to stakeholders.	Interview A	The business case for this local collective initiative is not yet clearly quantified, making participation less attractive, especially for actors who already generate significant money with their potential collective resources.
	Interview B	Financial settlement models for this kind of collective are still underdeveloped, necessitating each initiative to sort it out for itself. This lack of standardisation creates uncertainty and slows progress.
	Interview E	The long-term value of these initiatives is still considered theoretical and is not yet recognised within formal assessment systems, such as BREEAM, even though such recognition could be a (financial) incentive for participation.

Illustrative Quote per Finding

(1) Interviewee C: *["We're running into a problem with connection sizes. The participants are very diverse: some have small connections, others have large ones. Now you see that Organisation E is putting up a barrier, saying we're not allowed to combine the large and small connections. … If we have to collaborate with them separately, some participants will drop out, because the shared interest becomes too small. The solution simply won't be worthwhile enough."]*

(2) Interviewee A: ["If you ask Organisation P whether they want to work alongside us as equals to design a solution, they say they don't have time, so the answer is automatically no. So you have to start sub-optimally… It's not about urgency, but in my view, about a lack of culture that allows external parties to contribute ideas about

solutions for their own infrastructure. … Over time, a culture has developed among network operators where they don't engage in equal co-creation."]

(3) Interviewee B: *["In this case, we agreed they would join later, and for now, Persons E and J are simply hired by the companies. Then the municipality's lawyers have to go back to the municipality to check whether that's acceptable ... and that's when you get those bureaucratic processes. When such processes are lengthy, complex, and demanding, it does put some strain on mutual trust. ... You want them to participate, but you want to benefit from their involvement, not be burdened by it."]*

(4) Interviewee B: *["That's one of the things that needs to be done in the next phase, developing a settlement model. … And you can see that right now everyone is struggling to figure out what kind of settlement model would work best for their specific situation. So everyone is doing it differently. In five years, it will probably be standardised … But for now, everyone's just figuring things out on their own."]*

Table L10

Empirical Findings Regarding Incentives to Participate (Sub-paragraph 4.3.1) (Own table)

Incentives to Participate	Interview	Insight per Interview
(1) Participating in the innovative collective initiative becomes attractive when stakeholders experience a sense of urgency stemming from their individual interests or business operations, such as operational constraints, financial incentives, or societal impact, combined with the recognition that the collective offers a solution to a shared challenge or urgency. This recognition forms the foundation for a shared understanding, stimulates commitment to active participation, and increases the willingness to invest in the collective.	Interview A	Participation in the collective is attractive to stakeholders who face operational constraints, recognise the collective's potential to address shared challenges, see added value in strengthening the area's long-term attractiveness, and or notice reputational or strategic opportunities for future developments.
	Interview B	Participation is driven by operational constraints, mainly related to limited access to energy due to grid congestion and cost inefficiencies, such as paying for overdimensioned capacity that is rarely used. Additionally, recognising that their shared problem can be solved collectively, supported by expert-developed scenarios, strengthens motivation to participate.
	Interview C	Same as interviews A and B. Additionally, some stakeholders who do not yet experience a sense of urgency still participate to learn from the process and anticipate future challenges. Furthermore, the potential reputational benefits of collaboration encourage participation.
	Interview D	Same as Interviews A and B. Additionally, starting with a coalition of the willing, a small core group of actors with a direct stake in the outcome, helps build shared understanding, (financial) commitment and momentum.
	Interview E	Same as Interviews A and B. Additionally, entrepreneurs tend to act quickly and search for solutions when their operations are at risk.
	Interview F	Same as Interviews A, B and C. Additionally, public actors are motivated by their societal responsibility, desire to lead by setting an example, and the opportunity for academic institutions to align their research with real-world practice.
	Interview G	Same as Interviews A and B. Additionally, when urgency is high and individual solutions are limited, collective action becomes a necessary response.
	Interview H	Same as Interviews A, B, and G. Additionally, changing regulations and market mechanisms, such as upcoming restrictions on solar energy offsetting, can motivate participation.
	Interview I	Same as Interviews A, B, and D.
	Interview J	Same as Interviews A, B, and D.

Table L10 (continued)

Incentives to Participate	Interview	Insight per Interview
(2) Early engagement of local stakeholders through seminars, presentations, and workshops helps to introduce and clarify to them the shared problem and potential collective solution. This fosters a shared understanding and increases the willingness and interest in participating.	Interview A	Early engagement of potential participants through a research project, led by research institutions, before the development of the collective initiative, focused on exploring the potential and possibilities of starting the collective, helped incentivise participation.
	Interview F	Early engagement through seminars, workshops and presentations helped to develop a shared understanding and ambition among (potential) stakeholders, generating buy-in and motivation to participate.
(3) When large actors commit to the innovative collective initiative (collective SUT) or even take on the role of institutional entrepreneur, their reputation, expertise, and experience signal legitimacy and value, encouraging smaller actors to follow.	Interview D	The participation of prominent organisations plays a catalytic role in motivating others to follow and, therefore, building support. Their strong reputation, organisational capacity, and the personal credibility of their representatives signal confidence in the initiative.
	Interview F	Same as interview D.
(4) When the urgency of the underlying problem of the sustainable urban transformation, or the potential of the collective initiative, is emphasised by the media or key external actors within the urban system, such as grid operators, it raises awareness among involved and potential participants and provides external motivation to participate and actively commit to the collective.	Interview D	External signals from key urban actors, such as the grid operator, emphasising upcoming constraints, such as in this case, grid congestion, raise awareness and urgency among stakeholders. When these actors present the collective as a viable solution, it creates external motivation to participate.
	Interview E	Motivation and urgency to participate increase when stakeholders are told by key urban actors, such as the grid operator, that no additional capacity will be provided, directly obstructing development possibilities.
	Interview F	When the media emphasises a specific problem that underpins the collective SUT and directly affects stakeholders' daily operations, it increases their sense of urgency and motivates them to act.

Illustrative Quote per Finding

(1) Interviewee B: *["What is also important is that there is a sense of urgency; without it, it's better not to start at all. In this case, parties are facing a problem because grid congestion in Area A is very high. They need to collaborate to continue developing. Working together is essential, so urgency is a key factor. … They came together out of necessity, recognised that they all faced the same problem, and understood that they could solve it collectively."]*

(2) Interviewee F: *["SP1: How, during the early phase, was a shared understanding of the task developed, and how did this lead to a joint ambition for the project? In Project B, we organised a large seminar where I gave a presentation on the Energy Hub to about 100 people. Afterwards, we also held a workshop where people could see what it actually means in practice. So basically, by giving a presentation showing where we are aiming to go, including Organisation E's step-by-step plan, we were able to create buy-in."]*

(3) Interviewee D: *["They are also the kind of parties where, if those two participate, others will join more easily. This has to do with the company's reputation, the organisation's influence, and also the personal profiles of Persons C and D"].*

(4) Interviewee D: *["So they clearly noticed that a bottleneck was approaching, and it was coming so close that they had to solve it. The fact that they could solve it together emerged from Organisation B, from Project B, but also from the sessions that Municipality A organised on Energy Hubs as a possible solution to grid congestion."]*

Table L11

Empirical Findings Regarding Enablers: Stakeholder Access (Sub-paragraph 4.3.2) (Own table)

Enablers: Stakeholder Access	Interview	Insight per Interview
(1) Involving research institutions in the innovative collective initiative (SUT) contributes to knowledge generation and sharing, especially when actively involving (potential) participants in the research process. This not only clarifies the relevance and potential of the project and collaboration, and therefore the shared understanding and ambition, but also promotes participation.	Interview A	A research project before launching the innovative collective initiative (SUT) clarified its relevance, urgency and potential. By involving and informing potential participants, the resulting insights motivated them to participate or even take on the institutional entrepreneurial role.
	Interview C	Same as Interview A. Furthermore, such a research project served as the foundation for developing a shared understanding and collective ambition.
	Interview D	Same as Interview C.
	Interview E	Same as Interviews A and C.
	Interview F	Same as Interview A.
	Interview H	Same as Interview C.
(2) Collaboration is strengthened when stakeholders already know and trust each other before the initiative begins. These existing relationships reduce the time needed to build relational trust. After all, as highlighted in the trust and relationship-building enablers, relational trust is essential for the success of the initiative, and building it takes time.	Interview B	When participants already know each other and understand their mutual dependency in addressing shared challenges, the process speeds up, as less time is required to build trust from scratch.
	Interview C	Same as Interview B.
(3) Structural support from provinces and municipalities, as well as experts familiar with the legal, technical, and financial aspects of the sustainable urban transformation, strengthens the collaboration and development of the SUT by contributing knowledge, offering process support, providing subsidies, and granting access to their networks. This support is especially valuable given the limited capacity and expertise of many participants.	Interview A	Structural support from public authorities, such as the province or municipality, is essential. Relying solely on a small group of companies is insufficient due to the initiative's complexity and broader societal relevance.
	Interview B	A process facilitator appointed by the province, experienced/engaged in similar SUT initiatives, helps guide the process, enables cross-project knowledge sharing, and provides access to provincial subsidies. An experienced project leader with a result-driven approach ensures operational progress. In addition, technical and legal experts support the development of feasible collective solutions.
	Interview C	Same as B. Additionally, involvement of municipal and provincial actors provides access to their valuable networks that can be mobilised when needed. Furthermore, hiring experts and facilitators helps address the limited time and knowledge capacity of stakeholders.
	Interview D	Same as Interviews B and C.
	Interview E	Same as Interviews B and C.
	Interview G	Same as Interview C.
	Interview H	Same as Interviews A and C.
	Interview I	Same as Interviews B and C.
(4) A collective of professional parties, both hired experts and coordinators, as well as the collaborating organisations, supports efficient collaboration, as their experience and expertise enable a focused, results-driven approach while allowing them to dedicate time and resources to the initiative.	Interview B	Collaboration is strengthened by a professional attitude among participants; a business-like and to-the-point approach helps maintain momentum and progress.
	Interview H	A collective of professional actors, rather than, for example, residents, enables participants to dedicate time and resources to the collective.

Table L11 (continued)

Enablers: Stakeholder Access	Interview	Insight per Interview
(5) Early involvement and collaboration with specialised experts who can explore and clarify collective solution pathways, technical scenarios, and business cases helps demonstrate the value of collaboration, support joint decision-making, and increase the likelihood of integrated solutions.	Interview A	Involving experts who can provide analysis and strategies on collective solution pathways, including economic feasibility, offers insights into the value of collaboration and the different options. Furthermore, facilitating collaboration between these specialised experts helps develop more integrated and advanced solutions.
	Interview B	Same as Interview A. Additionally, these expert insights can serve as an argument and motivation for participation.

Illustrative Quote per Finding

(1) Interviewee A: *["Over the past four years, we have worked closely together in Project B, to ensure that local stakeholders were genuinely interested in the project's outcomes. This included both small consumers who wanted to establish an energy community, as well as large consumers whom we engaged outside the research and innovation project. These large consumers continued their efforts within Organisation B to launch an Energy Hub, making use of all the insights and analyses derived from the project's scientific results. … Within the project, we were able to provide supporting information that helped create shared understanding among people, showing them that they truly had something to work on together."]*

(2) Interviewee B: *["SP1: Could you clarify why that trust already exists? Is it rooted in prior relationships? SP2: Exactly. I also work on other projects, for example, Project I … where there was already a network of people who had worked together intensively and performed well … because they knew each other, trusted each other, and understood their mutual dependencies. In contrast, when people do not know each other, they have to build relationships and trust from scratch, which takes considerably more time."]*

(3) Interviewee A: *["If the goal is to stimulate sustainability and spatial efficiency, create capacity in waiting queues, and relieve grid congestion for social developments, … this requires additional support measures, rather than expecting a small group of companies to handle it alone. … Therefore, the province or the municipality must continue to support such collaboration structurally."]*

(4) Interviewee H: *["Look, you need someone who understands Energy Hubs as a project manager, and there aren't many of those in the Netherlands. You need someone who understands those group contracts from a legal perspective, and there aren't many of those either. And then you need someone who is already working on one or two Energy Hubs in the Netherlands within Organisation Y. So I think that by having professional partners, which fit this group, everything is well prepared, carried out properly, and signed off. … Yes, there are simply people here who really know what they are doing."]*

(5) Interviewee A: *["Organisation Y is essentially the party that can … develop a strategy across different energy systems that aligns with the preferences of a stakeholder or a group of stakeholders. … And because Organisations Z and Y are now working together, Organisation X has even more possibilities to offer an integrated solution for the Energy Hub."]*

Table L12

Empirical Findings Regarding Enablers: Clear Ground Rules and Protocols (Sub-paragraph 4.3.3) (Own table)

Enablers: Clear Ground Rules and Protocols	Interview	Insight per Interview
(1) Appointing an organisation to temporarily assume formal responsibilities or establishing a collective entity, even from the early exploratory phase, facilitates communication and coordination and strengthens the ability to attract external resources and expertise. When a cooperative entity is established, formal responsibility shifts to that entity.	Interview A	Appointing an existing legal entity as the collective organisation in the early stages of collaboration provides an essential communicative infrastructure, formal responsibility, and access to external resources such as subsidies.
	Interview C	Same as interview A. Additionally, it states that an existing legal entity can temporarily take on formal responsibilities in the early stages, but the collective must eventually develop its own legal entity.
	Interview E	Same as Interviews A and C. Additionally, this temporary legal entity enables formal actions, such as signing contracts and processing financial transactions.
	Interview F	Same as previous findings.
	Interview G	Same as previous findings.
	Interview I	Certain formal agreements, such as a group transport contract, require a legal entity consisting solely of the collective's participants, reinforcing the need to establish one.

Illustrative Quote per Finding

(1) Interviewee A: *["Look, if you want to do something together, it's helpful to have a basic infrastructure, that you have an email address and a postal address. And it's nice if someone is available for that … A non-natural legal person or a corporate legal entity. … Yes, so an entity or a legal entity that exists, has an address, can be contacted, and carries responsibility. As a collective organisation."]*

Table L13

Empirical Findings Regarding Enablers: Process Transparency (Sub-paragraph 4.3.4) (Own table)

Enablers: Process Transparency	Interview	Insight per Interview
(1) Open and transparent communication channels, with regular and honest updates and information sharing, along with responsiveness, both during stakeholder meetings and beyond, contribute to transparency, trust building, commitment, and confidence in the integrity of the collective.	Interview C	Open communication and willingness to collaborate build trust and commitment in the collective.
	Interview D	Open communication lines and responsiveness are essential for building and strengthening relationships, trust and commitment. If responsiveness is lacking, trust between stakeholders may weaken, and stakeholder engagement may decline.
	Interview F	Regular information sharing and frequent meetings, where relevant issues can be openly discussed, strengthen process transparency and help build trust among participants.
	Interview H	Open and transparent communication, through regular and honest updates, even when the message is not positive, is essential for building trust and maintaining commitment.
	Interview J	Clear and open communication, including regular information sharing, contributes to building trust in the integrity of the collective and strengthens the belief that it is well-organised to achieve the collective goal.

Illustrative Quote per Finding

(1) Interviewee F: *["SP1: And what do you think is important to incorporate into the collaboration to safeguard transparency and thus build trust? SP2: I think it has to do with ensuring regular email communication and consistent information sharing, including information that isn't directly about the project but, for example, shows how things are done in other projects in the Netherlands. Another thing is meeting regularly, even when there's*

nothing specific to discuss. Just meeting regularly, because you notice that there are always things that naturally come up."]

Table L14

Empirical Findings Regarding Enablers: Clearly Defined Roles (Sub-paragraph 4.3.5) (Own table)

Enablers: Clearly Defined Roles	Interview	Insight per Interview
(1) Clearly defining roles and responsibilities through dialogue with stakeholders, based on expertise and interests, supports clarity and commitment. Assigning suitable roles within working groups and distributing tasks improves ownership and, therefore, encourages active participation in the collective. Regular check-ins to review progress further strengthen and maintain this commitment.	Interview C	Assigning roles based on the individual expertise and interest of participating stakeholders, through an open dialogue, creates ownership and active participation, while ensuring that individuals' expertise is used effectively. Regular check-ins to review progress further strengthen commitment.
	Interview I	Assigning responsibility and ownership to participating stakeholders builds and strengthens commitment and active participation in the collective.

Illustrative Quote per Finding

(1) Interviewee I: *["SP1: How is commitment created and maintained? SP2: I deliberately place ownership of actions with the participants… to sustain their engagement. Ultimately, I am not the contracting party or the one signing the agreement; they are. Therefore, the content needs to be developed and supported by them. I take a facilitating and guiding role … SP1: So commitment is created by giving ownership throughout the process? SP2: Yes, absolutely."]*

Table L15

Empirical Findings Regarding Enablers: Face-to-face Dialogue (Sub-paragraph 4.3.6) (Own table)

Enablers: Face-to-face Dialogue	Interview	Insight per Interview
(1) Structurally organising weekly core group meeting with a manageable, representative group of stakeholders, including institutional entrepreneurs, experts, and project/process coordinators, promotes coordination, safeguards progress and momentum, and serves as a point of contact for participants and external parties. During these meetings, operational progress is reviewed and assessed against the collective goal, based on outputs from working groups, ensuring alignment across all relevant themes. Follow-up actions are delegated. The core group also prepare recommendations for the broader participation group, where decision-making takes place, ensuring ownership and shared responsibility. Hereby, task-based trust in the core group, strengthened by the selection of experienced experts, is essential from the wider collective.	Interview B	A weekly meeting with a compact, representative core group, including institutional entrepreneurs, experts, and facilitating project and process coordinators, promotes progress and efficiency, as a larger group would be unworkable and too time-consuming. Trust in the core group from the broader participant collective is essential.
	Interview C	Same as Interview A. Additionally, the core group safeguards progress across all themes (technical, financial, and legal) through the involvement of experts representing the working groups. This ensures alignment across themes and with the collective aim. Decisions without direct consequences are made within this group to accelerate action and save time. The group also prepares recommendations for the broader participant group, who co-decide, supporting ownership and shared responsibility.
	Interview D	Same as Interviews B and C.
	Interview E	Same as Interviews B and C. Additionally, assigning a project manager who has experience with similar collective innovative initiatives (SUTs) strengthens coordination and progress.
	Interview G	Same as Interview B. Additionally, selecting experts who also participate in the core group, through collective decision-making with participating stakeholders, strengthens task-based trust in the core group from the wider collective (as described in enablers: trust and relationship building).
	Interview H	Same as Interviews B and E. Additionally, assembling a professional core group of specialised and experienced experts, project and process coordinators, strengthens task-based trust and the overall functioning of the group.
	Interview I	Same as Interviews B and C.
	Interview J	Same as Interview C.
(2) Regular participant meetings ensure transparency about the collective's progress and keep stakeholders committed. These meetings bring together representatives of the participating stakeholders who are either responsible for sustainability within their organisation or hold decision-making authority. By creating space to discuss uncertainties, expectations, dilemmas, and interests, these meetings strengthen relationships and trust building. They also serve as moments of joint decision-making, ensuring active involvement in key decisions, which supports ownership and, therefore, commitment.	Interview B	Regular participant meetings that provide transparency on progress across themes and offer space for dialogue help keep stakeholders informed and engaged.
	Interview C	Same as Interview B. Additionally, participant meetings serve as moments of collective decision-making, based on recommendations prepared by the core group. This supports ownership and commitment. They also provide space for feedback, which ensures ownership, alignment and engagement between stakeholders and the core group.
	Interview D	Same as Interviews B and C. Additionally, representatives take on this role alongside their regular job and therefore prefer to be informed, rather than involved in the collective's day-to-day operations.
	Interview E	Same as Interviews B and C.
	Interview G	Same as Interviews B and C. Additionally, informing stakeholders helps them create buy-in from within their internal organisation, benefiting collective progress.
	Interview H	Physical participant meetings help build relationships and trust among stakeholders.
	Interview I	Same as Interview D.
	Interview J	Same as Interviews B and C.

Illustrative Quote per Finding

(1) Interviewee B: *["There is a weekly meeting on Tuesdays with the core group, which consists of: the investors from Organisation D, …; Person C from Organisation C, …; Person E, … who is the project leader of the group. And then, … one of the suppliers is part of it as well, namely Person I from Organisation Y, who will build the*

system. And there is a woman from Organisation DD who brings in legal expertise. Within this group, we determine every week where we stand, what everyone is working on, and what needs to be done. … It's a core group. … Because if you start meeting with too many people in such a core group, you need much more time, since everyone will have an opinion about everything. … In the end, you need to ensure that there is a core group that has the trust of the others, but at the same time is not too large, because then it becomes unmanageable."]

(2) Interviewee G: *["Well, the purpose of the participant meetings is to inform us sufficiently so that we can bring along our own organisations and maintain momentum. It's where we address most of the doubts that we might not be able to answer ourselves, so that if our internal organisation has questions or concerns, we can respond to them. SP1: So mainly to keep everyone up to date and to provide substantive information."]*

Table L16

Empirical Findings Regarding Enablers: Trust and Relationship Building (Sub-paragraph 4.3.7) (Own table)

Enablers: Trust and Relationship Building	Interview	Insight per Interview
(1) The innovative collective initiative (collective SUT) relies heavily on relational trust and trust in the collective solution. Therefore, continuously building and maintaining trust is crucial to its success. However, as the initiative evolves, formalisation becomes necessary to safeguard the collective when trust alone is no longer sufficient.	Interview B	The initiative began based on mutual trust and informal collaboration; as it progresses, formalisation becomes necessary.
	Interview E	The success and establishment of the innovative collective initiative rely on trust in the collective solution, especially from the mandate holders of each representative.
	Interview F	While trust and shared intentions are foundational, the evolving initiative requires legal and formal structures to ensure continuity and protect the collective interest.
(2) Building trust within the collaboration relies on two complementary forms of trust. *Task-based trust* emerges when responsibilities are assigned to actors with the appropriate expertise and mandate, supported by a professional organisation, ensuring progress and strengthening confidence in the collective. *Relational trust* develops through informal interactions, shared understanding, and mutual and consistent commitment to the joint goal. It therefore requires consistent behaviour, transparent communication, and keeping promises, and therefore demands continuous investment.	Interview D	Building trust within the collaboration relies on task-based and relational trust. In the early stages, trust mainly relies on the former, while the latter takes time and effort to be developed.
	Interview E	Relational trust is built through consistent behaviour, being consistent in words and actions.
	Interview H	Trust is strengthened through a professional organisation, with a competent project leader (task-based trust), combined with transparency and active engagement of stakeholders.
	Interview J	Same as Interviews D and E. Additionally, long-term reliability, consistent commitment and loyalty to the collective build trust (relational trust).

Illustrative Quote per Finding

(1) Interviewee B: *["Everything now runs on mutual trust and simply working together. And I've said that's actually very nice, because once you start creating procedures, you spend a lot of time on them, and if things are going well, they don't add anything anyway. But you know, it's like getting married, you also have to arrange your divorce. … Formally, very little has been arranged. And that's remarkable, because things are going so well nonetheless."]*

(2) Interviewee D: *["Yes, the most important thing there is contact. … there are two types of trust. One is relational trust, trusting you as a person, that if I share information with you, you handle it responsibly and take my interests into account. The other is task-based trust, trusting that you will perform a task assigned to you within our team or collaboration. … This relates to planning, showing progress, providing justification, ensuring the right person is handling the right actions, and that it aligns with the portfolio. Relational trust is a much more long-term phenomenon and resides primarily within the core team. Yes. We put ourselves out there as Person D, Person C, and Person B, because we share a common interest, but also because we personally believe that we can manage this together, independent of contractual agreements and portfolios; we trust each other. … So that's a*

different type of trust, more within the core team. The weekly meetings support this, as does sitting together, keeping each other informed, having informal contact in between, and discussing how the collaboration is going, what we think about it."]

Table L17

Empirical Findings Regarding Enablers: Shared Understanding and Shared Ambition (Sub-paragraph 4.3.8) (Own table)

Enablers: Shared Understanding and Shared Ambition	Interview	Insight per Interview
(1) Showing comparable realised projects or physical components of the collective sustainable urban transformation helps make the abstract collective ambition more concrete and tangible. This supports participant engagement, clarifies the pathway towards the collective goal, and builds trust in the effectiveness of the collective initiative.	Interview D	Having a visible example of an innovative collective initiative, or components, such as battery installations, makes the collective ambition more tangible and illustrates its potential, thereby strengthening stakeholder commitment and trust.
	Interview E	Referring to existing shared ownership and infrastructure arrangements, such as VvE's or collective WKO's, makes the idea of an innovative collective initiative (collective SUT) more familiar and acceptable. This supports shared understanding and perceived feasibility, thereby gaining stakeholder buy-in.
(2) Openly discussing, from an early stage, what participants aim to gain from the collaboration, as well as what they are willing to contribute, supports the development of a shared understanding and a shared ambition that resonates with all involved.	Interview D	Structurally discussing with the participants in the collective what they aim to gain from it, and what they are willing to contribute, helps develop a shared understanding and ambition.
	Interview J	Sharing individual interests is key to establishing a shared understanding and ambition.

Illustrative Quote per Finding

(1) Interviewee E: *["Over time, we've reached several arrangements that we consider acceptable. Most real estate, especially inner-city properties, is organised within VVE structures. ... which in the Netherlands is seen as a normal limitation of real estate. What also helps is that more and more area developments now include WKO systems … that are not used exclusively by a single party but shared with others. This creates a kind of connection that can be seen as a precursor to an Energy Hub."]*

(2) Interviewee J: *["SP1: Yes, and could you now say what kind of interventions you think could help achieve a shared understanding and shared ambition? SP2: I think it's by sharing interests to make them clear. But of course, each party has its own interests, and for some, the interest is greater than for others. That is naturally also a factor."]*

Table L18

Empirical Findings Regarding Enablers: Institutional Entrepreneurs (Sub-paragraph 4.3.9) (Own table)

Enablers: Institutional Entrepreneurs	Interview	Insight per Interview
(1) The institutional entrepreneurs, driven by a strong personal drive, play a key role in the initiative by identifying opportunities and translating them into concrete actions. Through their networks, they inspire and mobilise others to participate and maintain alignment and commitment towards the collective goal.	Interview B	The institutional entrepreneurs play a crucial role in initiating the initiative and inspiring others to participate.
	Interview C	The institutional entrepreneurs recognise emerging opportunities and take the initiative to mobilise others, using their networks to engage stakeholders early and initiate collective action.
	Interview E	Same as Interviews B and C. Additionally, unlike others, the institutional entrepreneurs, driven by a strong personal motivation, actually take action, rather than waiting for others to move first.
	Interview F	Same as Interview C.
	Interview I	Same as Interviews B and C. Additionally, they play a crucial role in keeping actors aligned by continually reminding participants of the rationale behind collaboration, thereby contributing to building and maintaining trust, relationships, and commitment.
(2) The institutional entrepreneurs, as well as the project leader, play a key role in shaping a shared vision and translating it into a clear long-term goal. By actively involving and informing stakeholders about both the collective direction and the path forward, they foster shared understanding and collective ambition, increase buy-in, maintain alignment, strengthen commitment, and build trust in the initiative.	Interview D	The institutional entrepreneurs must provide a clear vision and be willing to invest personal time and energy.
	Interview E	Same as the first part of Interview D. Additionally, the institutional entrepreneurs need to provide stakeholders with a clear and concrete picture of the desired end state, along with the steps required to reach it, to bring them along and sustain their engagement.
	Interview F	Same as Interview E. This increases buy-in from participating organisations.
	Interview H	Same as Interview E. Additionally, involving stakeholders in the steps required to achieve the shared goal contributes to a shared understanding and collective ambition.
	Interview I	Same as Interviews D, E and F. Additionally, an essential quality is the ability to articulate a compelling narrative that convinces others and secures their buy-in.
	Interview J	Same as Interview E. Additionally, continuously involving stakeholders in clarifying how the process will take shape by sharing knowledge and outlining the concrete steps required reduces confusion and helps maintain alignment and commitment.
(3) In this collective innovative initiative (collective SUT), a small number of visionary drivers or ambassadors play a crucial role. Their strong belief in the need for transformation through collective action motivates them to take ownership, inspire others to participate and safeguard momentum. Hereby, they prevent the collective effort from losing traction over time, remaining undeterred by complex or uncertain challenges when others hesitate.	Interview E	The initiative largely depends on a small number of visionary drivers or ambassadors who truly believe in the shared goal and need for transformation through collective action. These individuals play a crucial role in inspiring and engaging others, enabling the initiative to take off. They remain the driving force, even when personal incentives might suggest stepping back. Without such committed individuals, the collective is unlikely to succeed.
	Interview H	Such initiatives require a dedicated and professional party that takes ownership of organising the collective and maintaining momentum. Without an actor taking on this role, collective efforts tend to lose traction over time.
	Interview I	Same as Interviews E and H. Additionally, key qualities to this role include being determined, taking a decisive stance, and providing clear direction when others hesitate.

Table L18 (continued)

Enablers: Institutional Entrepreneurs	Interview	Insight per Interview
(4) The institutional entrepreneurs play a crucial mediating role in identifying and bridging diverse stakeholder interests and perspectives. By acting as trusted intermediaries who facilitate dialogue and formulate a shared ambition, they create mutual understanding, make individual benefits visible, and align stakeholders towards collective goals. This strengthens both commitment and trust in the initiative.	Interview F	An institutional entrepreneur needs to act as a trusted intermediary who connects diverse stakeholders and facilitates a dialogue, creating the conditions for reaching a shared understanding and collective goal.
	Interview I	The institutional entrepreneurs play a key role in aligning the participants towards a shared understanding and collective ambition.
	Interview J	The institutional entrepreneurs, through their central and active participation, play a crucial mediating role between stakeholders.
(5) The institutional entrepreneurs, as well as the project leader, must actively build, maintain, and strengthen trust among both internal stakeholders and influential external actors. This trust is not only relational but also task-based, relying on confidence in the competencies of responsible actors, including the institutional entrepreneurs themselves. Establishing and sustaining such trust is critical to the success and realisation of the initiative.	Interview F	Both the institutional entrepreneurs and the project leader play a key role in building and maintaining trust, both internally among participants and externally with influential stakeholders. Trust is not only based on relationships between participants, but also on confidence in the competencies of responsible actors (see 4.3.7 on task-based trust). Establishing trust is considered a critical factor for the success of the initiative.
	Interview J	A key quality of institutional entrepreneurs is their ability to gain task-based trust from participants and to build broader trust among all stakeholders involved.
(6) The institutional entrepreneurs play a key role in the early phases of the process. As the initiative progresses, facilitators such as project and process managers, government supporters, and experts become essential for realising and guiding the initiative. Nevertheless, the institutional entrepreneurs remain crucial throughout, acting as the driving force by keeping stakeholders engaged, attracting new participants, safeguarding the collective ambition and progress, and maintaining trust and relationships within the group.	Interview G	Professionalising, scaling up and attracting the right expertise are essential to guide and realise the collective innovative initiative.
	Interview I	As the initiative progresses, the institutional entrepreneurs gradually hand over operational responsibilities to facilitators such as the project leader, government representatives, and external experts, who contribute their expertise. Nevertheless, they remain for attracting new participants, securing financial commitments, and ensuring continued stakeholder engagement and alignment.
	Interview J	Same as Interview I. Additionally, the institutional entrepreneurs continue to play a key role in maintaining trust and relationships, and in bridging diverse stakeholder perspectives to work towards the collective goal.
(7) The institutional entrepreneurs play a crucial bridging role within the collective SUT, connecting the core group of experts with the participant group. They translate technical and legal knowledge into accessible insights, enabling stakeholders to understand and sell the collective initiative to their mandate holders, thereby strengthening broader support and momentum. At the same time, they translate stakeholder concerns and interests back to the core group, ensuring these are acknowledged and integrated.	Interview G	The institutional entrepreneurs play a key role in keeping stakeholders informed and ensuring that participants' concerns are addressed within the core group. By regularly informing participants in an accessible way, they enable participants to sell the collective to their own organisations, obtaining broader understanding and support, which builds momentum for the initiative.
	Interview I	Same as Interview G. Additionally, this bridging role suits the institutional entrepreneurs as they participate in both the core and participant group, and understand the participants well; they recognise that not all information is equally understandable and can therefore translate expert input into accessible insights.
	Interview J	Same as the first part of Interview G.

Table L18 (continued)

Enablers: Institutional Entrepreneurs	Interview	Insight per Interview
(8) The institutional entrepreneurs can take on their role more effectively due to their established local network and by demonstrating authority and leadership. This enables them to build trust more quickly, identify and personally engage relevant stakeholders, stimulate data sharing, and guide discussions and conflicts efficiently, preventing delays and safeguarding the advantage of collaborating.	Interview B	The institutional entrepreneurs can inspire and engage others more effectively when they possess strong local networks, built on existing relationships and trust. Moreover, by demonstrating authority and leadership, they can effectively guide discussions and resolve conflicts, thereby preventing delays and maintaining momentum.
	Interview C	The institutional entrepreneurs can inspire and engage others to participate more effectively because they already possess a strong local network that they can personally reach out to.
	Interview D	Through their local networks, the institutional entrepreneurs can early identify (potential) interested stakeholders.
	Interview F	Established local networks and familiarity within the area facilitate the institutional entrepreneurs in identifying and approaching relevant stakeholders, while also stimulating data sharing since trust does not need to be built from scratch.
(9) Actors directly affected by the local SUT-related issue are more likely to take on the active role of institutional entrepreneur, driven by their direct stake in achieving a collective solution. Their involvement not only accelerates progress but also strengthens trust among participants. Unlike external actors, without a direct interest in the area, locally engaged actors are perceived as credible and committed, strengthening trust and commitment within the group.	Interview D	Actors directly affected by the local challenges are more motivated to take on the role of institutional entrepreneur and invest time and energy due to their direct stake in the outcome, which strengthens trust and collective commitment.
	Interview E	Actors directly affected by the local shared problem related to the SUT are more likely to take an active role as institutional entrepreneurs.
	Interview F	Same as Interview D.
	Interview J	The central role of the institutional entrepreneurs within the collective, unlike externally consulted actors, strengthens trust because they are seen as more credible and committed. Their presence reassures participants that the collective is on the right track and aligned with shared goals.
(10) Actors experiencing the underlying challenge of the SUT in multiple locations, or anticipate its emergence elsewhere, are more motivated to actively participate in the collective innovative initiative (SUT), or even take on an institutional entrepreneurial role. They view this initiative not only as a necessary response to an urgent issue but also as a learning environment where transferable knowledge and experience can be developed for use across their organisation. However, when urgency is low at the specific location, such participants are more likely to drop out than those facing higher urgency.	Interview E	Actors who directly experience SUT-related problems in multiple locations and strongly believe collaboration is the solution are more motivated to assume an institutional entrepreneurial role. They see the initiative not only as a necessary response but also as a learning environment where knowledge and experience can be built and applied elsewhere.
	Interview G	Some actors join the collective initiative not out of immediate necessity at the specific location, but because they face similar problems elsewhere. By participating, they aim to gain knowledge which could be used in other locations.
	Interview H	Same as Interview G. However, when urgency is low for these participants at the specific location, participants are more likely to drop out than those facing higher urgency.

Table L18 (continued)

Enablers: Institutional Entrepreneurs	Interview	Insight per Interview
(11) Since companies take on the role of institutional entrepreneur, they benefit from greater financial and organisational flexibility, allowing them to act swiftly and make decisions more easily, particularly when significant investments are required. Their company-driven nature also signals the need for active (financial) contribution from other participants. However, this proactive approach requires careful coordination with the more cautious pace of public stakeholders to ensure alignment.	Interview D	When private actors take on the institutional entrepreneurial role, instead of governmental bodies, projects tend to progress more smoothly, particularly when significant investments are required. This prevents the perception that only the government should bear the costs and signals to other parties the need for active (financial) contribution.
	Interview I	When mainly private actors participate and/or take on the institutional entrepreneurial role, progress accelerates due to their results-oriented, and decisive approach. However, this proactive mindset requires alignment with the more cautious pace of public participants.

Illustrative Quote per Finding

(1) Interviewee I: *["We're trying to take the lead and push things forward. Person C and I have positioned ourselves as a kind of front group. … The world is full of people who prefer to stay on the sidelines and be carried along, but for me, it's more of a personal drive. I believe that real change requires people who are willing to take the lead and move things forward. … In the end, we were the ones who started it all."]*

(2) Interviewee J: *["I think that for them, as the ones taking the lead, it's important to provide us with as much information as possible, both what is already known and what will become known, so that we stay informed about what is happening and how things will take shape. … Once the LOI is shared, it becomes crucial to gain clarity about the trajectory: how will it take shape? … How will we organise the process moving forward? What needs to be done? Because for me, that is still a big question mark. SP1: And you think that the institutional entrepreneurs play an important role in this? SP2: Yes, definitely. That knowledge sharing, about what the process will look like once you step in, how it will take shape, what needs to be done, that's essential."]*

(3) Interviewee E: *["My personal drive plays a big role. If I had wanted to, I could have taken more of a back seat, just waiting to see how things unfold and hopping on the bus when it passes. But I see the bigger picture: developments like these are essential for our future. … My intrinsic motivation is rooted in the belief that if we want to save this planet, … but the way we keep building everything for the maximum peak demand simply won't work in the next twelve years. We've been trying that for ages, and even if it succeeds, the question is how quickly we'll run into the next problem. I believe we shouldn't build for the maximum; instead, we should create collaborative systems that flatten that peak. I genuinely believe in this solution, and I believe it's the direction we all need to move toward. … To be honest, my own problem would probably be solved without the hub, so I could just sit back and enjoy the ride. But no, I keep moving ahead. It's just who I am: if we want something, then we should start now, take action, push forward, and figure out what we need to make it happen."]*

(4) Interviewee J: *["SP1: How do you see the institutional entrepreneurs playing an important role in creating and maintaining trust, relationships, and commitment? SP2: Because they are participants themselves, they can mediate effectively, better than the project manager or the lawyer, for instance. SP1: Mediate mainly between the other participants? SP2: Yes, exactly."]*

(5) Interviewee J: *["SP1: I have a few final questions. The first one is: based on the definition of institutional entrepreneurs that I outlined, and perhaps also based on the insights from this interview, what core characteristics or qualities do you think are important for an institutional entrepreneur? SP2: Trust and clear communication. … SP1: And when you say clear communication, what exactly do you mean by that? SP2: Good coordination and sharing a lot of information. Communication is key, I would say. SP1: And with trust, do you mean gaining the trust of all the other parties? SP2: Yes, gaining the trust of all the parties involved so far, but also keeping us informed."]*

(6) Interviewee I: *["SP1: Could you already indicate whether there are specific actions or interventions associated with the role they have taken on to influence collaboration? SP2: Yes, I think mainly taking initiative, really*

approaching parties, presenting a strong case, and also convincingly explaining why a hub is truly needed. … SP1: And that is mainly during the initial phase. How would you see it throughout the process? SP2: Well, now you see that they somewhat delegate it to others, including me, the general project leader Person E … basically to the third parties they've engaged for this hub. Also, of course, because we all have our own areas of expertise. But when, for example, there is potential for new participants, or when a party hasn't yet paid the entry fee, they do take the initiative."]

(7) Interviewee I: *["During a recent participant meeting, someone in the working group without legal expertise asked how something worked. I explained it from a legal perspective, after which Person D added a practical explanation that she completely understood, because they are both real estate entrepreneurs. So he can translate it into a rationale that similar organisations understand, turning it into an additional motivation for why something should be done. … Additionally, because they (the institutional entrepreneurs) are both in the core team, they are also well informed about everything that's going on."]*

(8) Interviewee B: *["SP1: Have any specific interventions been taken to strengthen and maintain trust, relationships, and commitment? SP2: Primarily Person D. I see him as the driving force behind the initiative; he brought in most of the parties, and already has strong relationships with all of them through his investment portfolio. Because all buildings are located in the same area, he can also establish trust with larger new entrants. … It is crucial to have one person gradually grow into a leadership role. While having everyone at the same level has its advantages, disagreements can stall progress. Having one person with clear authority and leadership significantly helps the hub's progress."]*

(9) Interviewee J: *["I trust that the process is moving in the right direction. Yes, we have the project manager and the legal advisor, but they are still external parties; they're not in the working group with their own company on the line. For us, it's about trusting that they are steering things in the right direction, that progress is on track, and that what they are setting up is unfolding as planned."]*

(10) Interviewee E: *["And that means that, as a major investor, we simply need to be at the front of the bus, ideally even driving it, because we have a societal responsibility to take the lead. And by doing so, we also gain valuable knowledge that we can apply elsewhere in the country. So, in a way, by initiating this hub, I immediately become the person within the organisation who understands it best."]*

(11) Interviewee D: *["SP1: Do you think it is an advantage when companies take the lead, compared to when the government assumes that role? SP2: I do think Area A has an advantage: once we move into the implementation phase, which requires substantial investments such as shared infrastructure or battery systems, progress will likely be easier. In Municipalities E and F, when the municipality is seen as the driving force, represented by the right civil servant or process manager, things become more complicated once larger investments are needed, because the municipality itself must invest, which leads to various complications."]*

Table L19

Empirical Findings Regarding Interventions: Resource/Knowledge/Power Asymmetries (Sub-paragraph 4.4.1) (Own table)

Interventions: Resource/Knowledge/Power Asymmetries	**Interview**	**Insight per Interview**
(1) The communication channels and networks of influential or public actors can be strategically mobilised to engage hesitant key stakeholders, such as the grid operator, by raising awareness of the impact of their actions, encouraging their participation, and inviting them to co-develop solutions that support the progress of the collective innovative initiative (SUT). These efforts are driven by public actors' own interests in the area's development and the effective use of allocated subsidies.	Interview A	Public communication and networks (e.g., by municipalities or governments), as well as public pressure, can be used to raise awareness and influence key stakeholders (such as grid operators) about the societal impact of their actions, encouraging participation.
	Interview B	Communication channels from the province (for instance, through the appointed province process coordinator) can be used to encourage powerful public actors to participate or co-develop.
	Interview C	Same as interviews A and B. Additionally, governmental actors are motivated to use their networks and communication channels to engage key stakeholders, driven by their interest in the area's development and the effective use of allocated subsidies.
	Interview D	Same as Interviews A and B. Additionally, the coordinated lobbying of influential actors involved in the area, along with personal relationships, can help encourage key stakeholders to participate and act more flexibly, for instance, by enabling pilot initiatives.
	Interview E	Same as Interview A.
	Interview G	Same as Interview A.
	Interview H	Same as Interview A.
(2) Engage experts early to explore solution directions, conduct technical, legal and financial analyses, and develop a feasible business case aligned with individual stakeholder interests. This clarifies the collective potential, increases willingness to participate, especially among private actors ("what's in it for me"), and strengthens the negotiation position towards powerful parties such as the grid operator and governments.	Interview B	A thorough technical and financial analysis by experts is crucial early in the process, as a solid business case is essential for participation. These analyses and scenarios also strengthen the negotiation position towards powerful actors such as the grid operator.
	Interview C	Early expert analysis helps clarify future needs and explore strategic scenarios. It can demonstrate the added value of the collective initiative and help convince hesitant stakeholders.
	Interview D	Same as Interview B.
	Interview F	Same as Interviews B and C.
	Interview G	Same as Interview B.
	Interview H	Same as Interview C.
	Interview I	Same as Interview C.
(3) Facilitate a national or regional knowledge team that enables exchange and learning across collective initiatives focused on similar sustainable urban transformations. This fosters a transparent and shared learning process, helping to build a body of knowledge that reduces uncertainty, duplication and accelerates future implementation.	Interview B	The establishment of a regional and/or national knowledge team facilitates shared learning and problem-solving across energy hubs, helping to build a collective body of knowledge and reduce duplication. The current lack of knowledge slows progress, but this knowledge team is expected to accelerate future implementation.
	Interview C	Same as Interview B. Additionally, regular sessions hosted by regional and national sustainability organisations can facilitate inter-organisational knowledge exchange, thereby accelerating progress across initiatives.
	Interview F	Same as Interview C.
	Interview H	Same as Interview C.

Table L19 (continued)

Interventions: Resource/Knowledge/Power Asymmetries	**Interview**	**Insight per Interview**
(4) Plan stakeholder meetings efficiently and only when necessary, either to demonstrate progress and maintain engagement, or to gather input for key decisions, since many participants contribute alongside their primary activities.	Interview D	It was deliberately chosen to avoid structural meetings with the broader stakeholder group; sessions are only held when progress can be demonstrated or deliverables require review.
	Interview E	Synchronising stakeholder agendas is a major barrier, especially since many participants contribute alongside their primary activities. Meetings are therefore limited to essential moments.
	Interview F	Same as Interview E. Additionally, since many participants participate alongside their regular work, they are unwilling to spend excessive time, making efficient use of their limited availability essential.
	Interview I	Same as Interview F.
(5) Ensure that the core team's activities are explained in an accessible way during stakeholder meetings, since many participants are not primarily involved in the collective SUT and lack the specific expertise. The institutional entrepreneurs play a key role in translating specialist content to support understanding, communicating proposals to mandate holders, and building broader support.	Interview G	Differences in knowledge between participants can be a huge barrier to collaboration. Therefore, continuous explanation and engagement are needed to keep stakeholders involved.
	Interview H	Early on, invest significant time to ensure all participants reach a similar level of understanding.
	Interview J	Some participants lack subject-matter knowledge or were not involved from the start, so clear explanations of ongoing work are needed, especially since the content is not part of their daily practices.

Illustrative Quote per Finding

(1) Interviewee G: *["The municipality participates with its real estate mainly to set a good example. Their involvement is valuable because they can escalate issues internally. … They can reach aldermen and people in powerful positions higher up the ladder, who in turn can knock on the doors of the people in powerful positions at Organisation E, saying, 'Hey, what are you doing!?'"]*

(2) Interviewee B: *["With energy hubs, there's always a certain sequence: first measuring, then addressing legal and technical issues, and then creating a business case that benefits all parties. In the end, everyone wants to know: I invest this amount, and I'll benefit from it, or it'll help my company grow. So the business case is crucial. When it comes to trust, we can have great conversations and really like each other, but if the business case doesn't add up, it's over."]*

(3) Interviewee B: *["Within our regional team, we discuss all existing hubs and reflect as peers: How are things going, what problems keep arising, and how are they being solved? … Person F also participates in a national provincial meeting, bringing in and taking back knowledge. ... Collectively, we are building knowledge. At the moment, initiatives take much longer because many parties start with limited knowledge and try to reinvent the wheel, but I expect this will be less of an issue in two or three years."]*

(4) Interviewee F: *["Companies do this on the side, or at least, some people within companies have to do this on top of their regular work. They're not really waiting to spend lots of hours on these kinds of projects."]*

(5) Interviewee G: *["We'll definitely encounter that knowledge, the question is when. ... From what I learned in Project G, the chairperson shared a valuable story and experience from a project already a few years ahead of ours. He emphasised the importance of continuously involving people to keep them engaged."]*

Table L20

Empirical Findings Regarding Interventions: Incentives to Participate (Sub-paragraph 4.4.2) (Own table)

Interventions: Incentives to Participate	Interview	Insight per Interview
(1) Support or stimulate the collective in applying for subsidies, particularly in the early stages of the project when the success/realisation of the collective solution is still uncertain, or when financial resources play a crucial role in their willingness to participate.	Interview B	When financial constraints dominate, supporting stakeholders in acquiring subsidies can be crucial to both progress and the overall success of the initiative.
	Interview C	Uncertainty about the progress and success of the initiative, especially in its early stages, combined with repeated funding requests, can hinder stakeholders' financial commitment. Access to subsidies can therefore be highly valuable in sustaining momentum.
	Interview D	Same as Interview C.
	Interview G	Same as Interview C.
	Interview H	Same as Interview C.
(2) Strategically frame the collective initiative and shared investments as financially attractive, emphasising that parties avoid individual costs by contributing to joint solutions. This increases stakeholders' willingness to participate and co-invest in shared assets.	Interview E	Framing collective investments, such as a shared battery, as financially attractive encourages stakeholders to co-invest in joint solutions.
	Interview G	The financial benefits of collectively investing in shared assets, such as batteries to address grid congestion, make joint solutions more attractive to stakeholders.

Illustrative Quote per Finding

(1) Interviewee C: *["Well, financially, I think there will eventually be some constraints. If we have to come back later with a second request for additional funding, that can be quite sensitive. … Because we're investing now, but there's a risk that later it might turn out the project won't proceed, and then you've made an investment you won't see back. So that can ultimately be a limiting factor. In that sense, a subsidy scheme can help to make it work."]*

(2) Interviewee E: *["SP1: Isn't the idea eventually to invest together in batteries? SP2: Yes, that's financially attractive as well. That's how I try to pitch it internally: showing that investing together is both economically beneficial and better overall."]*

Table L21

Empirical Findings Regarding Interventions: Stakeholder Access (Sub-paragraph 4.4.3) (Own table)

Interventions: Stakeholder Access	Interview	Insight per Interview
(1) Actively engage key stakeholders who can contribute essential knowledge or resources to the collective solution. This strengthens collaboration and can reduce costs by avoiding unnecessary investment in shared assets.	Interview B	Actively involve stakeholders with unique energy profiles, such as, in this case, a stadium or concert hall, as they contribute to atypical demand patterns that make a shared energy hub more interesting. Additionally, engage parties with existing assets (e.g. batteries) that can be shared to reduce collective investment.
	Interview C	Same as the second part of Interview B.
	Interview F	Same as the first part of Interview B. Additionally, they must be located within the same grid segment.
	Interview G	Additionally, existing load platforms, alongside batteries, can strengthen the energy hub by providing shared capacity.
	Interview H	Same as the first part of Interview B.

Table L21 (continued)

Interventions: Stakeholder Access	Interview	Insight per Interview
(2) Start the collective SUT initiative with a relatively small group of directly interested stakeholders (max. 7 to 10) to facilitate effective decision-making, reduce legal complexity, and accelerate progress. Ensure the group is sufficiently diverse to utilise collective knowledge and resources. This balance creates a foundation for the collective that can grow over time.	Interview C	Limiting the initial group to about 7–10 stakeholders avoids legal complexity and keeps the initiative manageable to make progress, while still ensuring sufficient diversity. In the long run, others can join.
	Interview D	In collaborative initiatives focused on innovative themes and ecosystem building, it is effective to start with a relatively small core group, a coalition of the willing, with stakeholders who have a direct stake in the outcome. This creates critical mass, enables early results, and allows others to join as the initiative progresses.
	Interview E	Same as Interview D. Additionally, in such collectives, progress is determined by the slowest participant. Therefore, if hesitation exists among participants, it may be necessary to reconsider their involvement.
	Interview G	Same as Interview C.
	Interview H	Same as Interviews C and D.
(3) Select stakeholders for participation in the collective initiative (collective SUT) based on their geographic proximity and the relevance of this location and their profiles to their involvement in the collaboration.	Interview C	Stakeholders should be selected based on their proximity to the relevant grid infrastructure, as distant parties complicate collaboration.
	Interview F	Same as Interview C.
	Interview H	Same as Interview C.
	Interview I	Same as Interview C. Additionally, select stakeholders based on their energy capacity profiles, as these are essential to the atypical composition that makes the collective valuable.
(4) Ensure a diverse stakeholder composition to combine complementary knowledge, resources, and profiles. In areas with atypical functional mixes, such diversity can create unique opportunities for shared solutions.	Interview C	The presence of stakeholders with both local development activities and varying relevant expertise creates a promising mix for the hub.
	Interview G	Individual participants can bring relevant expertise to the collective, benefiting the whole collective.
	Interview H	The area's atypical functional mix creates opportunities for matching complementary energy profiles, making it a promising context for an Energy Hub.
(5) Establish transparent and objective criteria for participation, including clear entry and exit arrangements. This ensures that potential participants understand their suitability and the benefits of joining, while safeguarding existing members from disadvantage, potentially through a financial contribution. Such clarity increases transparency, stimulates participation, and reduces inequalities within the collective.	Interview B	Participation is open to all large-scale energy users with a suitable connection; a broader mix of such users improves the collective energy profile.
	Interview C	When new stakeholders join at a later stage, it is essential to consider fair contribution mechanisms, such as financial contributions, to acknowledge the early investments of existing participants.
(6) Introduce a financial contribution as a condition for entry to improve commitment among participants and filter out free riders. This ensures that only actively involved stakeholders join and remain in the collective, while providing resources to fund essential expenditures such as project management or expert support.	Interview B	Introducing a financial contribution as a condition for access encourages stakeholders who are truly willing to commit and contribute to join the collective.
	Interview C	Introducing a financial contribution as a condition for participation reveals which stakeholders are truly committed, filtering out passive participants. This moment of choice strengthens the composition of the collective, leading to a stable group of committed stakeholders.
	Interview F	A financial contribution is required to fund essential expenditures, such as project management and expert support, as well as costs related to addressing collective challenges, including shared assets.
	Interview G	Same as Interviews B and C.
	Interview I	Same as Interview F.

Illustrative Quote per Finding

(1) Interviewee B: *["For instance, when Taylor Swift performs, you can clearly see that for three days straight, everything is running at full capacity, and without the battery, it simply wouldn't be possible. But it also means that on the days when there's no performance, and the battery is being recharged, it just sits there, more or less. And of course, those batteries don't come cheap."]*

(2) Interviewee D: *["From my experience setting up partnerships over the past 30 years around various innovative themes like hydrogen infrastructure, if you want to build a large ecosystem or broad collaboration, you need to start with a relatively small core group, a 'coalition of the willing,' involving a few parties with a direct stake in the outcome. In this consortium in Project A, it includes companies facing grid congestion and that have both the space and the willingness to act together. So, a relatively small core consortium: large enough for critical mass, but not bigger. The idea is to achieve an initial result, after which other parties can join."]*

(3) Interviewee C: *["Of course, you also have to look at the local energy grid in the area. It wouldn't make sense to select a party located all the way in Area G. You need to be close to the medium-voltage station and the underlying installation."]*

(4) Interviewee H: *["This area is one of the few in the Netherlands performing well economically. It has major event centres, while also having banks that mainly operate during the week, creating an atypical mix of housing, offices, and events. That's why I find it so interesting for an energy hub: the different functions can complement each other and share resources."]*

(5) Interviewee C: *["I can imagine that, over time, other parties may want to join, and that's something we'll need to assess: whether it's possible and how we would approach it. After all, the current partners have already contributed money and knowledge in the initial phase, so if a new party joins a year later, we have to consider how to handle that. Otherwise, it wouldn't be fair to the existing partners. … Yes, probably through some form of contribution, a financial one."]*

(6) Interviewee C: *["At some point, we said: if you want to participate, you need to contribute financially. That was a real eye-opener. Some parties that had previously been willing to join, essentially just riding along, dropped out when asked to pay a €5,000 entry fee. It made clear who was genuinely committed. … That financial contribution marked the real start, and since then, no one has dropped out."]*

Table L22

Empirical Findings Regarding Interventions: Clear Ground Rules and Protocols (Sub-paragraph 4.4.4) (Own table)

Interventions: Clear Ground Rules and Protocols	Interview	Insight per Interview
(1) Establish a legal entity early in the process to access subsidies and external capital, formally consult experts, enable binding agreements, and facilitate communication and coordination within the collective.	Interview B	Without a formal legal entity, the collective risks missing out on subsidies and lacks legitimacy in negotiations, making it impossible to establish binding agreements (e.g. contracts with the grid operator).
	Interview D	A designated organisation can temporarily coordinate the collective, but a formal legal entity must be established as soon as possible.

Table L22 (continued)

Interventions: Clear Ground Rules and Protocols	Interview	Insight per Interview
(2) Define responsibilities, decision-making procedures, communication structures, and entry/exit arrangements early to strengthen continuity, transparency, commitment, and reduce free riding. In the exploratory phases, keep agreements low-threshold and non-binding to maintain openness, followed by gradual formalisation as the project matures. This requires balancing between flexibility and structure.	Interview B	Early agreements, such as Letters of Intent, can remain non-binding to preserve openness and trust, but must gradually evolve into formal arrangements to ensure clarity, commitment, and continuity. Entry and exit provisions are essential to manage changing group composition.
	Interview C	Same as Interview B.
	Interview E	Flexibility in early contractual arrangements, such as the option to exit the group transport agreement within three years, lowers the barrier for participation. It allows parties to pioneer collectively without long-term risk, while maintaining the possibility to withdraw if the initiative proves unsuccessful, or to let the deadline pass if the initiative proves successful.
	Interview F	The moment of formal agreement, signing binding contracts, marks a critical shift from intention to action, showing real (financial) commitment, limiting free riding.
	Interview G	Acknowledging uncertainty through low-threshold, non-binding agreements, such as a trial-phase exit option, lowers the barrier to entry, but also introduces fragility, as each withdrawal impacts the remaining participants.
	Interview I	Same as Interview B.
(3) Part of the early formalisation of the collective, a Letter of Intent (LoI) helps clarify who is genuinely willing to commit to the shared ambition. Signing parties signal ownership and strengthen commitment. Signed by mandate holders, such agreements help secure broad organisational support, strengthening trust and commitment throughout the participating organisations. Additionally, such agreements can encourage the willingness to share essential information needed for project progress.	Interview A	Signing Letters of Intent helps to gradually formalise shared ownership by clarifying who recognises the need for collaboration and is willing to commit to the collective ambition.
	Interview C	Same as Interview A.
	Interview E	A Letter of Intent serves as a preliminary step toward formal collaboration, helping to capture verbal intentions in writing and initiate alignment on future agreements. Although non-binding, it introduces a degree of (financial) commitment. As LOIs are typically signed by mandate holders, they provide organisational backing and internal commitment.
	Interview F	Same as Interviews A and E. Additionally, a Letter of Intent can help acknowledge the shared ambition and sense of urgency, as well as encourage the willingness to share essential information.
	Interview G	Although still not that formal and binding, a Letter of Intent can serve as a test of commitment, revealing who is truly committed to engage in the collective.
	Interview H	Same as Interviews F and G.
	Interview I	Same as Interview A.
	Interview J	Same as Interview G.

Table L22 (continued)

Interventions: Clear Ground Rules and Protocols	**Interview**	**Insight per Interview**
(4) Establish specialised working groups with independent experts (i.e. legal, technical, financial) and knowledge- and/or mandate-holding representatives from each stakeholder organisation. These groups address complex, topic-specific issues in dedicated settings and provide targeted input to the core team and broader collaboration. By establishing such groups, participant roles are clarified, fostering shared ownership, a sense of responsibility and commitment.	Interview B	The legal elaboration is handled by a dedicated working group of legal experts from the participating organisations, facilitated by an independent legal specialist in grid congestion. Within this group, legal terms are negotiated and internally approved by each organisation. This process ensures formal backing and strengthens shared ownership.
	Interview C	Form specialised working groups based on individual expertise and interest, utilising stakeholder knowledge and strengthening ownership. Activation depends on the project phase; for instance, the legal group is more active during the early phase.
	Interview D	Same as Interview B.
	Interview E	Same as Interview B.
	Interview G	Same as Interview B. Additionally, each organisation must assign a legal representative to the working group to enable internal alignment throughout the process and prevent delays during formal approval.
	Interview H	Same as Interview C. Additionally, active contribution within working groups by each participant strengthens commitment and a sense of responsibility, as passive participation leads to loss of commitment.
	Interview I	Same as Interviews B and H.
	Interview J	Same as Interviews B and G.

Illustrative Quote per Finding

(1) Interviewee B: *["For example, in Area A, just a small glimpse, they didn't properly follow the seven-step plan, which means they don't formally exist. ... As a result, they can't apply for a subsidy that's currently open until the end of next week from the European Commission for €45,000, because they haven't established a cooperative. You can have a plan to develop something, but you need a legal entity to do so, and they don't have one. … So, for example, you can't make agreements with the grid operator without one."]*

(2) Interviewee G: *["Legally, we all agree that we don't really know where this is going, whether it will be useful, and that we can exit if we want. SP1: So it's important to keep the option to exit for as long as possible? SP2: Yes, but that's inherently complicated, because once you're in, exiting has consequences for all remaining parties."]*

(3) Interviewee E: *["We're currently drafting the LoI, stating that we will work together on the collaboration agreement. It formalises things without being legally binding … By drafting it, you at least put something on paper ... The intent matters, as having it signed by management ensures that statements at the table are officially backed by their organisation."]*

(4) Interviewee C: *["So we looked back and asked ourselves how we could move forward as a team and who could contribute what. Do you want to join the legal working group, focus on the technical aspects, or work on communication? We had a very open discussion and agreed to continue in this way, meeting every once in a while. Then you start looking at who has specific expertise. Some people are very knowledgeable about the topic, so they can share their knowledge within the technical working group. Others are still exploring the topic, while some are more commercially oriented and can contribute to communication."]*

Table L23

Empirical Findings Regarding Interventions: Face-to-face Dialogue (Sub-paragraph 4.4.5) (Own table)

Interventions: Face-to-face Dialogue	Interview	Insight per Interview
(1) Organise both individual stakeholder conversations and collective sessions throughout the project, starting from its initiation. One-on-one conversations are essential to build trust, address concerns, and uncover individual and organisational interests. These insights can then be integrated into the collective sessions to support the development of a shared goal. The collective sessions provide transparency on project progress, including less visible processes, to keep stakeholders informed, while consistently communicating the relevance and urgency of participation. Simultaneously, space should be created for stakeholders to openly share uncertainties, expectations, dilemmas, and interests, strengthening shared understanding, trust and commitment.	Interview A	Organise open stakeholder meetings from the start of the initiative, allowing participants to openly discuss their uncertainties, expectations, dilemmas, and interests, while reminding and emphasising the collective problem and the potential of a shared approach. This open and transparent communication should be sustained as plans become more concrete.
	Interview B	Building and maintaining trust requires ongoing conversations, including one-on-one conversations with (potential) participants, focused on transparently explaining the benefits of participation ("what's in it for me"), ultimately strengthening commitment.
	Interview C	Same as Interview A. Additionally, these stakeholder meetings are necessary to keep them engaged, especially when the progress is less visible.
	Interview E	As formalisation increases, one-on-one conversations remain essential to keep stakeholders engaged. These conversations help uncover individual concerns and assess internal support (from their mandate holders), allowing for timely and tailored action to sustain commitment.
	Interview F	Same as Interview B. Additionally, trust established through these one-on-one conversations enables the sharing of individual insights that contribute to the collective's development.
	Interview G	Same as the first part of Interview A.
	Interview H	Same as Interview A. Additionally, start with individual stakeholder conversations to address confidential concerns and sensitivities before moving to collective sessions. This approach enables stakeholders to express both organisational and personal interests, which can then be integrated into the collective sessions to support the development of a shared goal.
(2) Facilitate informal and personal interactions and introductions between stakeholders, for example, by organising meetings at participants' own locations and introducing one another, including organisational profiles and interests, at the start of the initiative. This supports low-threshold relationship- and relational-trust building, transparency and mutual understanding.	Interview C	Relationship-building and trust need to be built and maintained primarily within the broader stakeholder group. Organising meetings at participants' own locations, rather than external venues, supports this process.
	Interview D	The most important aspect for building trust and relationships is having consistent contact.
	Interview E	Trust and relationship building are strengthened through informal, low-threshold in-person interactions.
	Interview F	Same as Interview E.
	Interview H	Same as Interview E.
	Interview I	Same as interviews C and E.
	Interview J	To strengthen collaboration, stakeholders should share more about their organisational profiles and interests, especially when entering into agreements.

Illustrative Quote per Finding

(1) Interviewee A: *["We held several stakeholder meetings, bringing together all interested parties, so they could discuss their uncertainties, expectations, and dilemmas. … Simply talking about shared problems helped everyone realise that others face similar challenges … We took many important steps to build that shared understanding; recognising and discussing each other's issues without making false promises. … As the plans become more concrete, it's essential to continue having open and honest conversations. … Transparency about interests and positions is absolutely crucial."]*

(2) Interviewee I: *["SP1: How have trust and relationships between stakeholders been built and maintained? SP2: I find it crucial that relationships and the overall atmosphere are good. That's why I strongly prefer on-site meetings, so people can get to know each other, including having lunch together, to discuss more than just the*

hub. … This helps you understand each other's organisations and personalities. … I'm convinced this is often underestimated or skipped. ... When personal connection works, everything becomes much easier, beyond the content itself."]

Table L24

Empirical Findings Regarding Intervention: Commitment to the Process (Sub-paragraph 4.4.6) (Own table)

Interventions: Commitment to the Process	Interview	Insight per Interview
(1) Regularly emphasise the shared goal, collective direction, and underlying urgency of the innovative collective initiative (SUT) to maintain alignment among participants. Especially in later phases, when collective decisions may not benefit all parties equally. This helps maintain active involvement and commitment.	Interview H	A strong sense of group cohesion and shared responsibility strengthens stakeholder commitment. Regularly emphasising this collective feeling is key to maintaining active involvement and preventing drop-out.
	Interview I	In later phases, maintaining alignment among stakeholders requires continuously reminding them of the shared purpose and underlying urgency. The institutional entrepreneur plays a key role in this, along with emphasising the collective direction and envisioned outcome.

Illustrative Quote per Finding

(1) Interviewee H: *["SP1: Regarding commitment, how has commitment from the various stakeholders been created, and how do you try to maintain it, so that parties don't drop out and remain actively involved? SP2: Well, as I mentioned, some of the larger project developers could always decide to withdraw. However, there is quite a strong sense of community within this area; everyone recognises the value of collaboration. I think it's important to keep emphasising that group spirit, the notion that we have to do this together. That's probably the most important thing."]*

Table L25

Empirical Findings Regarding Interventions: Intermediate Outcomes and Evaluations (Sub-paragraph 4.4.7) (Own table)

Interventions: Intermediate Outcomes and Evaluations	Interview	Insight per Interview
(1) Appoint a project manager with experience in similar collective initiatives (SUTs) and a strong results-oriented approach, as this contributes to tangible progress and helps prevent stagnation in the initiating phase, where endless discussions risk taking action. A concrete plan with clear milestones and intermediate steps is essential. By consistently referring to this planning in stakeholder meetings, the path toward the collective goal becomes visible, strengthening engagement and commitment.	Interview D	Participating stakeholders deliberately assigned an independent project leader with experience in similar collective innovation initiatives in the energy transition, and a strong results-oriented approach. This helps overcome stagnation caused by prolonged discussion and lack of progress. By implementing a clear project plan with concrete steps and milestones, the project leader maintains focus, momentum, and stakeholder engagement throughout the process.
	Interview E	Based on stakeholder consensus, a project manager was appointed to lead the initiative forward.
	Interview F	Projects of such innovative nature depend on having a capable and suitable project manager.
	Interview H	Same as Interview F. Additionally, assigning a project manager with specific expertise in energy hubs is particularly valuable, given the scarcity of such profiles.

Table L25 (continued)

Interventions: Intermediate Outcomes and Evaluations	Interview	Insight per Interview
(2) Explicitly and regularly articulate the urgency of collective action, as well as its benefits, such as greater impact and potential cost advantages, which increase the perceived value of collaboration and motivate stakeholders to actively participate and remain committed, even when individual interests differ. At the same time, periodic one-on-one conversations help monitor individual commitment.	Interview A	While individual actors may move faster, collective action offers greater impact, as argued by the research project. This argument should be articulated regularly, and from the initial start, motivating stakeholders to participate.
	Interview H	Emphasising the urgency and significance of the underlying problem of contributing to the innovative collective initiative (SUT) helps establish a shared understanding and ambition, and motivates (potential) stakeholders to actively participate. Furthermore, one-on-one conversations help monitor the individual's commitment.
	Interview J	Same as Interview H. Additionally, emphasise the potential of collective action, in contrast to individual action.
(3) Due to operational constraints, the power of key actors, and the difficulty of system change, it can be strategic to implement the project in phases, starting with low-hanging or sub-optimal solutions that can be expanded over time. To anticipate these potential barriers and safeguard progress, multiple scenarios should be developed during the exploratory phase. These scenarios can also serve to demonstrate the initiative's added value and support negotiation with key external actors.	Interview A	Given the operational constraints, the influence of key actors, such as grid operators, and the difficulty of system change required for the collective innovative initiative, it is essential not to be deterred by temporary sub-optimal solutions. Instead, a phased transformation toward the long-term goal should be adopted.
	Interview C	To anticipate regulatory flexibility or inflexibility, it is advisable to develop multiple solution scenarios during the analysis phase, including sub-optimal ones. Additionally, these can be used to demonstrate the potential added value of such a collective initiative during negotiations.
(4) Given the complexity of the collective innovative initiative (SUT), it is essential to start with a clearly defined scope to enable step-by-step progress toward the shared goal. By initiating low-threshold interventions that require minimal investment, stakeholders can be gradually engaged, build trust in the collective approach, and make effective use of their limited time and capacity.	Interview C	Same as the first part of Interview D.
	Interview D	In this complex collective initiative, it can be strategic to limit the initial scope and postpone related large-scale developments, such as, in this case, a regional mobility infrastructure, to maintain focus and ensure progress within the complexity. Starting with low-threshold solutions, such as shared contracts, allows for gradual expansion toward more substantial interventions and investments, such as a collective battery.
	Interview F	Same as the second part of Interview D.
(5) If certain participants structurally hinder progress, due to legal, financial, or organisational constraints (linked to their public role), it can be strategic to postpone or exclude their formal involvement in the collective (or legal entity), while allowing them to participate through alternative collaboration models that respect their institutional boundaries. This prevents stagnation while keeping the door open for future participation.	Interview D	To safeguard progress, it may be necessary to exclude or postpone the involvement of participants who hinder progress. A legal entity singularly led by private actors can help maintain momentum while allowing public actors to participate and collaborate by respecting their institutional boundaries.
	Interview E	Same as Interview D. Additionally, the same counts for actors who face organisational or financial constraints.
	Interview H	Same as Interview D. Additionally, it emphasises the difference in legal flexibility between public and private actors.
	Interview I	Same as Interview D.

Illustrative Quote per Finding

(1) Interviewee D: *["I've been involved in various collaboration initiatives related to the energy transition for several years. … Previously, the group met bimonthly; in April, the companies deliberately chose a results-oriented, project-based approach. Instead of meeting every two months to discuss the idea of an energy hub, we're now focusing on making it happen. My main task as a project manager is therefore to ensure that the first implementation of the energy hub is delivered as a concrete outcome. … One important intervention I made was*

developing a clear and concrete timeline: this is where we are now. And these are the steps we'll take over the next eight months. … By clarifying what needs to be done, we made the process much more tangible."]

(2) Interviewee J: ["SP1: How was a shared understanding developed during the early phase, and how did that lead to a joint ambition? SP2: Honestly, I find that really difficult to answer, because I don't think I experienced that part. As Organisation K, of course, we have our own ambition to become more sustainable, and every other property owner has their own ambitions they want to pursue. Ultimately, I think the goal is for everyone to have more capacity to achieve their individual ambitions. … It's really about the same problem and the same urgency. And we try to make use of each other's strengths, that's what it comes down to. … So, in that sense, our usage patterns can complement each other."]

(3) Interviewee A: ["My reasoning is this: if using gas for 500 hours a year enables infrastructure that will remain sustainable for the next 40 years, then it makes sense to do so for a limited period. We don't have the workforce to wait ten years and make everything sustainable at once. Operationally, it's impossible to transform the system in time if we don't take this step. That's why a phased approach is needed. In this process, Organisation P holds a position of power: they can either block the entire project or prevent it from reaching its optimal outcome."]

(4) Interviewee D: ["Here are also a few initiatives in the area around this Energy Hub that are looking at a mobility plan in the same region where these companies and the hub are located. The idea is to integrate the large infrastructure for electric vehicle charging as well, but that's a project that will take at least three to four years. I've deliberately put that aside for now; that's something others can focus on later, but it's currently outside the scope of this project. … As I see it, an Energy Hub, or the energy transition we're discussing here, is a process where you can start on a small scale by sharing contracts and coordinating intelligently. But at some point, you do need to invest in batteries or build a part of the network."]

(5) Interviewee D: ["There's one party that is causing delays in the first phase of the hub. I see it as my responsibility to assess whether it might be better for that party to step back. … We're already anticipating that once a legal entity needs to be established, it will likely be founded by private parties, or a subset of them. We want to ensure that public partners can collaborate with this entity without necessarily becoming participants or co-founders. … It's about managing expectations and preventing public partners from ending up in a process where they feel obliged to take on a role they're uncomfortable with or legally can't fulfil. We address these concerns explicitly by stating that we're working towards a legal structure, such as a collective in which companies jointly establish a limited company or cooperative, and that we understand their concerns and incorporate them into the design process."]

Table L26

Empirical Findings Regarding Interventions: Institutional Context (Sub-paragraph 4.4.8) (Own table)

Interventions: Institutional Context	Interview	Insight per Interview
(1) When existing regulations or institutional frameworks hinder the collective innovative initiative (SUT), initiating a dialogue with relevant authorities to launch the initiative as a pilot or granting temporary conditional agreements can be effective. After all, a pilot generates experiential knowledge that can support broader implementation.	Interview C	Proposing the initiative as a pilot to relevant authorities, such as governmental bodies and other institutional actors, helps the initiative navigate regulatory boundaries. It enables local experimentation while generating valuable insights for broader learning and national scaling.
	Interview D	When formal procedures hinder the development of the collective innovative initiative, initiating negotiations with key institutional actors, such as grid operators or governmental bodies, can help acquire temporary conditional agreements, such as framing the initiative as a pilot or providing preliminary GTOs (ie. group contracts), making the initiative legitimate.
	Interview E	Same as Interview D.

Illustrative Quote per Finding

(1) Interviewee D: *["We are trying to work around the fact that the grid operator says, formally, this can only happen at the end of next year, while we want to start now. This requires negotiating with the grid operator about whether the hub could function as a pilot ... or operate under conditioned contracts. For this, we also need lobbying support from major actors such as Organisations D and C, as well as the province and municipality,*

given their influence over the grid operator. … The main goal is to show that initiating a preliminary GTO for this hub is valuable.”]

Appendix M – Case Description

This appendix provides a more comprehensive description of the case study underlying the concise explanation presented in Paragraph 4.1. It elaborates on the global and national context and how this context translates into local challenges, explains the proposed solution (the energy hub), and provides a detailed description of the specific case itself.

Global and National Context

Worldwide, energy demand is rapidly increasing, with electricity demand growing almost twice as fast as overall energy demand (International Energy Agency, 2025). Although the sales of electric cars have risen by 25%, and data centre capacity has expanded by 20%, the most significant increase in demand comes from buildings (Netbeheer Nederland, 2025b). In 2024 alone, this demand grew by nearly 60% (ibid.). An increasing number of companies aim to become more sustainable by generating renewable electricity on-site and switching to electric mobility, in addition to existing continuity and growth aims and ambitions (Kennisplatform Energiehubs, 2025).

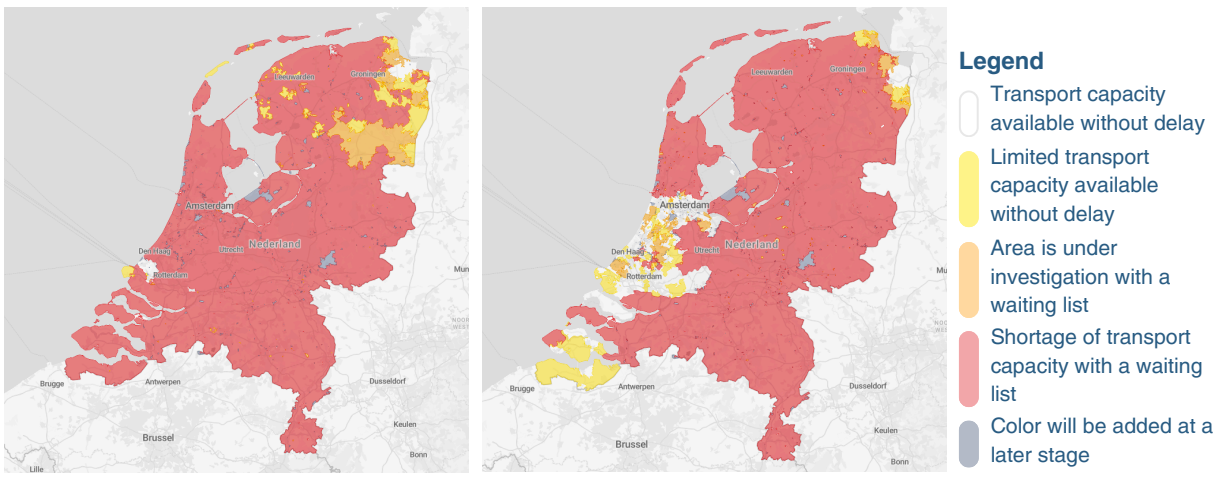
However, the current electricity grid was not designed to accommodate this rapid pace of electrification (R. Ruijtenbeek, personal communication, September 8, 2025), and grid expansion cannot keep pace with this growing demand (Kennisplatform Energiehubs, 2025). Consequently, the electricity grid has become overloaded in many areas, a phenomenon known as grid congestion (RvO, 2025). This situation is illustrated in Figure M1, which shows the combined results of grid congestion in the Netherlands at both high- and medium-voltage levels, for consumption (left) and feed-in (right) (Netbeheer Nederland, 2025a).

Local Problem and Solution

As a result, new requests for electricity or new connections are being placed on waiting lists (RvO, 2025), constraining or delaying users who aim to become more sustainable, expand operations, develop new buildings, or establish themselves in affected areas (R. Ruijtenbeek, personal communication, September 8, 2025). Establishing an energy hub, an integrated local approach in which companies and organisations collaborate to organise local energy provision, offers a

Figure M1

Grid Congestion in the Netherlands for Consumption (left) and Feed-in (right) (Netbeheer Nederland, 2025a)



practical solution (Kennisplatform Energiehubs, 2025). An energy hub can relieve pressure on the electricity grid while enabling participants to use their available energy resources more efficiently together (ibid.). By producing, storing and consuming energy locally, an energy hub contributes to a smarter, more reliable, and more sustainable energy system (ibid.). This not only benefits new and existing users at the local level but also delivers broader advantages such as reduced grid congestion for network operators and its contribution to accelerated emission reductions and the wider energy transition for society at large (ibid.). Figure M2 provides an overview of the benefits of an energy hub across these levels.

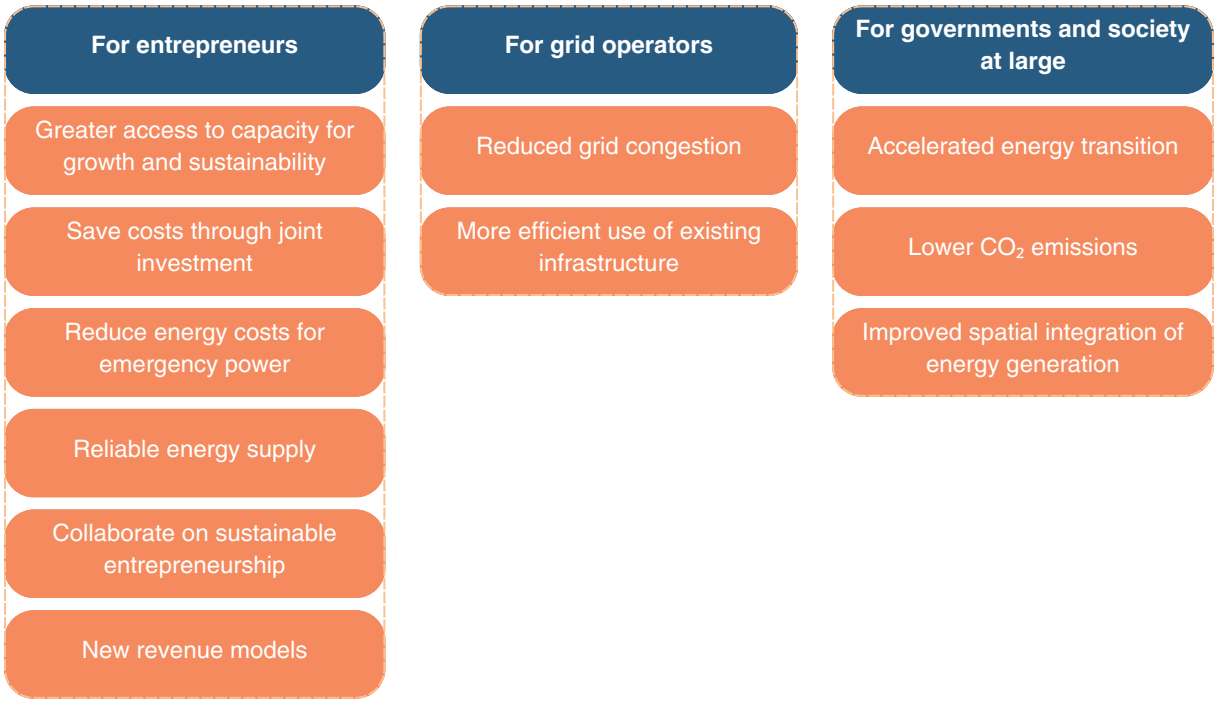
Energy Hub Amsterdam Southeast

This national issue is also evident locally in Amsterdam Southeast, where ambitious plans for sustainability and expansion conflict with the available network capacity, threatening to halt development in the area (R. Ruijtenbeek, personal communication, September 8, 2025). This includes, among others, the inability to connect new charging stations with sufficient capacity, the expansion and development of new offices, community-oriented ground floors, schools, and sports facilities, as well as the impossibility of implementing sustainability measures such as heat pumps and thermal energy storage systems (Dutch: WKO's) (ibid.).

This significant challenge, which is also evident or forecasted in other parts of the city, with grid operator Liander estimating that 17 out of 25 substations in Amsterdam will reach peak capacity by 2030 (RvO, n.d.), led to the establishment of the LIFE (Local Inclusive Future Energy) project in 2021. This four-year research initiative, funded by the RvO (Energie Lab Zuidoost, n.d.), aimed to explore innovative ways to optimise Amsterdam Southeast's increasingly congested electricity grid (AMS-Institute, 2025).

Figure M2

Benefits of an Energy Hub (Own figure), based on Kennisplatform Energiehubs (2025)



Through collaboration between knowledge institutions, businesses, and governments, the project demonstrated that a collective approach, utilising shared resources, can significantly reduce peak loads on the grid (AMS-Institute, 2025). In addition, a data tool was developed to identify opportunities for collaboration to optimise grid capacity, as well as a simulation model to explore sustainable urbanisation strategies (ibid.). These outcomes helped to determine the potential for establishing an energy hub in Amsterdam Southeast (R. Ruijtenbeek, personal communication, September 8, 2025). This potential is particularly strong due to the area's atypical functional profile, consisting of entertainment venues (active during evenings and weekends), offices (used during weekdays), educational organisations, and residential areas (ibid.). LIFE estimated that, when these functions collaborate, up to 50% more efficient energy distribution can be achieved (ibid.).

Building on this demonstrated potential, the Green Business Club Amsterdam Zuidoost (GBC ZO), an area-oriented impact organisation in which organisations and businesses collaborate on various projects to contribute to advancing the area's sustainability (R. Ruijtenbeek, personal communication, September 8, 2025), has continued the efforts initiated by LIFE to ultimately establish an energy hub, acting as the coordinating lead during the initial phases (Interviewee F, personal communication September 26, 2025, see Table 3). Within this process, the GBC ZO, and in particular Interviewees C and E (see Table 3), who can be identified as the institutional entrepreneurs driving the initiative, have played a crucial role in inspiring others to participate and actively contribute to the collective efforts (Interviewee H, personal communication, September 30, 2025).

As a result, eight/nine organisations, both public and private, are currently preparing a letter of intent (LOI) as a preliminary step towards establishing an energy cooperative in a legal working group, facilitated by a legal advisor specialised in net congestion (R. Ruijtenbeek, personal communication, September 8, 2025). In parallel, two other working groups are exploring the technical and organisational aspects required to realise the envisioned energy hub, with the prior facilitated by a technical advisor (ibid.). Furthermore, the collaboration is organised around a core group, consisting of institutional entrepreneurs, experts, and facilitators, responsible for progress and momentum, and a broader participant group, in which all participants are kept informed, and joint decision-making takes place (Interviewee B, personal communication, September 17, 2025; Interviewee E, personal communication, September 26, 2025). Figure 17 illustrates the current status of the project within the step-by-step roadmap for energy hubs developed by Aliander, Enexis and Stedin in collaboration with Netbeheer Nederland and several process coordinators (Netbeheer Nederland, 2024).

As illustrated in Figure 17, the initiative is currently operating between the analysis and criteria stages as part of the broader planning and design phase. The long-term goal of the current collective is to collectively maximise sustainability and growth in this area, taking into account existing grid congestion and, where possible, implementing local solutions (R. Ruijtenbeek, personal communication, September 8, 2025). In the short term, the focus is on establishing a Group Transport Agreement (GTO) for a cluster of medium-voltage connections with Liander around the Arenapoort area by the end of 2025 (ibid.), which first requires establishing a legal entity, such as an energy cooperative

(Interviewee I, personal communication, October 2, 2025). In addition, other initiatives are collected into a roadmap for 2026 and beyond, including the plan for a charging plaza/mobility hub, which is already on the agenda for 2026 or 2027 (ibid.).

Based on insights from energy hubs and the outlined specific goals of this initiative, the case can be considered a SUT, as it addresses both the drivers of radical change and multi-dimensional sustainable urban structures. Changes regarding the drivers of radical change involve shifts in governance within the collective through the adoption of an innovative collaborative model, innovations in local energy production and management, and changes in lifestyle and consumption due to the required shift towards more collective and efficient use of energy resources. Regarding the multi-dimensional sustainable urban structures, the changes primarily focus on resource management, as the hub enables local and collective production, storage, and consumption of electricity, and in the long run also on transport, given the planned development of a mobility hub/charging plaza that supports more sustainable transport in the area.

Participant Selection and Overview Interviewees

To select the most relevant stakeholders to interview from the collective, non-probability sampling was employed. The graduation organisation helped identify which actors were essential to interview, including the assumed institutional entrepreneurs, facilitating representatives from municipal and provincial governments, the project lead, and experts, all taking part in the core group driving the initiative (as becomes clear in Chapter 4). In addition, other public and private actors were selected using snowball sampling, where the previously mentioned stakeholders helped identify other relevant participants. These include actors who are less active in the collective and only participate in the participant meetings, such as several developers, portfolio managers, and academic institutions. Table 3 provides an overview of the interviewed participants.

Appendix N – Preliminary Guidelines

				Exploration Phase		Planning & Design phase			Execution phase		Exploitation Phase
Theme	**Intervention**	**Barriers**	**Enablers**	**Initiative and Insight**	**Exploring Collective Solution**	**Analysis**	**Design Criteria**	**Design**	**Contract**	**Implementation**	**Exploitation**
Starting Conditions											
Resource/ knowledge/ power Asymmetries	4.4.1.a | Mobilise communication channels and networks of influential actors (e.g. governmental bodies), to engage hesitant key external actors (e.g. grid operator) to participate, co-develop, think-along or act more flexibly	4.2.3.a	-								
	4.4.1.b | Engage experts early on to develop multiple solution scenarios (incl. business cases) and conduct technical, legal and financial analyses	4.2.1.d | 4.2.2.a | 4.2.4.c | 4.2.9.a | 4.2.9.d	4.3.1.a | 4.3.2.e								
	4.3.2.a | Engage research institutions early on for knowledge generation and sharing, and clarifying the relevance to potential participants, stimulating participation	-	4.3.1.a | 4.3.1.b | 4.3.2.a								
	4.4.1.c | Establish/join a national or regional knowledge team for shared learning across similar SUTs, collectively building a body of knowledge	4.2.1.d | 4.2.8.a | 4.2.9.d	-								
	4.4.1.d |Organise efficient and targeted participant meetings, either to demonstrate progress, provide updates, maintain engagement or make collective decisions	4.2.1.a	4.3.6.b								
	4.4.1.e | 4.3.9.g| Translate core team activities accessibly in participant meetings, and translate participants' concerns back to the core group to ensure alignment	4.2.1.a | 4.2.5.a	4.3.9.g								
Incentives or constraints to participate	4.4.2.a | Support or stimulate the collective in applying for subsidies, especially in early stages when there is a high level of uncertainty, or when financial incentives play a key role	4.2.1.d | 4.2.1.e | 4.2.8.a	-								
	4.4.2.b | Frame collective SUTs and shared investments as financially attractive to strengthen willingness to participate and co-invest	4.2.2.a	-								
	4.3.1.b | Engage local stakeholders early on through presentations and workshops to clarify the shared problem and potential of a collective SUT as a solution, inspiring participation	-	4.3.1.b								
	4.3.1.c | Actively engage large credible actors, signaling legitimacy, encouraging others to follow	-	4.3.1.c								
	4.3.1.d | Invite key external actors (e.g. governmental bodies, grid operators) to highlight the urgency and potential of the SUT in (potential) participant meetings	-	4.3.1.d								
Institutional Design / Professional Organisation											
Stakeholder access	4.4.3.b | Start and form a relatively small coalition of the willing; After initial results, others can gradually join	4.2.7.a	4.4.3.b								
	4.4.3.a | 4.4.3d | Actively inspire and engage stakeholders who can contribute essential and complementary knowledge and or resources (e.g. atypical energy profile mix)	-	-								
	4.4.3.c | Engage stakeholders based on geographic proximity	-	-								
	4.3.2.b | Actively inspire and engage stakeholders with existing relationships in the early collaborative phase to accelerate progress	-	4.3.2.b								
	4.3.2.d | Start with a group of professional, commercial stakeholders instead of civic actors, who can be included over time	4.2.4.a	4.3.2.d								
	4.4.3.e | Establish transparent participation criteria (incl. exit and entry agreements), to reduce inequalities and clarify suitability and benefit of joining	-	-								
	4.4.3.f | Include financial contribution as an entry condition to improve commitment and filter out free-riders	-	-								
	4.3.2.c | Consult public bodies (i.e. province, municipality) to identify how they can support the initiative with expertise, resources and guidance	-	4.3.2.c								
Clear ground rules and protocols	4.4.4.a | Establish a legal entity or assign temporary formal responsibility early on, strengthening access to external resources and expertise	4.2.4.b	4.3.3.a								
	4.4.7.e | Temporarily postpone or exclude the involvement of public actors constrained by institutional boundaries and establish alternative collaboration models	4.2.9.c									
	4.4.4.b | Define roles, procedures and agreements early on with gradual formalisation	-	-								
	4.4.4.c | Introduce a Letter of Intent for early commitment, organisational backing, and data sharing	4.2.1.b | 4.2.5.a	-								
	4.4.4.d |Establish specialised working groups with representatives and facilitating experts that meet regularly to work on topic-specific issues, providing targeted input to the collective	4.2.4.c	-								
	4.2.4.a | Facilitated by an expert, establish a dialogue between participants to jointly develop an exclusive business case	-	4.2.4.a								
Clearly defined roles	4.3.5.a |Define roles and responsibilities among participating representatives based on expertise and interests through a joint dialogue; Creating ownership and commitment	-	4.3.5.a								
Process transparancy	4.3.4.a | Establish and maintain open and transparent communication channels with regular updates and information sharing from the core group to the participant group and back	-	4.3.4.a | 4.3.7.b								
Collaborative Process											
Face-to-face dialogue	4.4.5.a | 4.4.7.b | Organise from the start individual participant conversations to build trust, surface interests and concerns, and monitor individual commitment	4.2.7.a	4.3.6.b | 4.3.8.b								
	4.4.5.a | 4.3.6.b | Regularly organise participant meetings to demonstrate progress, provide updates, maintain engagement, build relationships and trust or make collective decisions	4.2.7.a	4.3.6.b								
	4.4.5.b | Facilitate informal and personal interactions and introductions between participants, contributing to relational trust building	4.2.6.a | 4.2.6.b	4.3.7.a | 4.3.7.b | 4.3.8.b								
	4.3.6.a | Establish a weekly core group with institutional entrepreneurs, experts and facilitators, responsible for safeguarding progress and alignment with the shared ambition	-	4.3.6.a								
Trust and relationship building	4.3.9.d |By taking on a mediating role, identify participants' interests and facilitate an open dialogue to bridge and align them towards a shared understanding and ambition	-	4.3.9.d								
	4.3.7.b | In consultation with participants, appoint a competent project leader and experts; contributing to task-based trust	-	4.3.7.b								
Commitment to the process	4.4.6.a | 4.4.7.b | Regularly emphasise in individual and collective settings the urgency, benefits, shared goal and path, to maintain alignment and active commitment	4.2.2.a |4.2.7.a	4.3.1.a								
Shared understanding & shared ambition	4.3.9.b |Shape a shared vision and translate it into a clear long-term goal, actively involving stakeholders to strengthen the shared ambition, alignment and commitment	-	4.3.9.b								
	4.3.8.a | Show comparable realised projects or components to concretise the collective ambition and build trust in the effectiveness of such a collective initiative	-	4.3.7.a | 4.3.8.a								
Intermediate outcomes and evaluations	4.3.9.a | Identify and act on opportunities to initiate collective innovative initiatives (SUTs)	-	4.3.9.a								
	4.4.7.a | Appoint a result-oriented project manager with experience in similar SUTs to prevent stagnation and secure operational progress	4.2.8.b	-								
	4.4.7.a | Establish a concrete plan with milestones, and refer to it regularly in participant meetings to concretise the collective goal and strengthen engagement and commitment	4.2.8.b	-								
	4.4.7.c | Implement project in phases, starting with low-hanging solutions that can be expanded over time in parallel with gradual trust building in the collective approach	4.2.9.a	-								
	4.4.7.d | Develop a clearly defined scope to enable step-by-step progress towards the shared goal	-	-								
Institutional Context											
Institutional Context	4.4.8.a | Initiate a dialogue with relevant authorities to launch the initiative as a pilot or grant temporary conditional agreements	4.2.9.a	-								

Legend
Task of importance to be carried out by institutional entrepreneurs (IE's)
Task of importance to be carried out by facilitators/coordinators
Task of importance to be carried out by both

Appendix O – Final Set of Guidelines

Guidelines For Institutional Entrepreneurs

Towards Sustainable Urban Transformations in Stakeholder Collaborations

Mirte Hoitink

Guidelines for Institutional Entrepreneurs

Towards Sustainable Urban Transformations in Stakeholder Collaborations

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Introduction

Background and Justification

Cities and urban areas play a crucial role in driving sustainable urban transformations (SUTs), especially since reductions in greenhouse gas emissions and the systemic changes required to keep global warming within safe limits are still insufficiently realised and prioritised (IEA, 2011). However, cities face strong pressures (McCormick et al., 2013), while SUTs are inherently complex, as they are highly context-dependent, unfold across multiple scales, and require continuous alignment among diverse actors with different interests (Klein Woolthuis et al., 2013).

Because of this complexity, success is not only about finding the right solutions, but also about creating the conditions under which these solutions can be effectively realised, which often requires institutional change (Klein Woolthuis et al, 2013). Furthermore, the success of such transformations strongly depends on effective stakeholder collaborations (Campbell, 2009; Zilahy and Huisingh, 2009), while institutional entrepreneurs play an important role in stimulating institutional change and driving sustainable urban development (Klein Woolthuis et al., 2013).

Definitions

Sustainable Urban Transformations (SUTs) are projects in which structural changes occur in urban areas at both the physical scale and within their underlying systems (McCormick et al., 2013). On the physical side (i.e. multi-dimensional sustainable urban structures), this includes resource management, climate adaptation and mitigation, mobility and accessibility, buildings, and the spatial environment (ibid.). Concerning the underlying systems (i.e. drivers of radical change), it involves changes in governance and collaboration structures, lifestyle and consumption patterns, and innovation and competitiveness (ibid.).

Institutional entrepreneurs are participants in SUT collaborations who play a crucial role in challenging and initiating formal and informal institutional change (Klein Woolthuis et al., 2013), both within and beyond the collaboration, thereby enabling and advancing such projects. They can be seen as visionary drivers, motivated by a strong personal belief in the need for transformation through collective action. Through their intrinsic motivation, authority and leadership, they take ownership and act proactively. Their core roles include: identifying opportunities and initiating initiatives; shaping and articulating a compelling narrative; inspiring and engaging others to participate; bridging diverse stakeholder interests and perspectives to build a shared ambition; continuously building and maintaining trust and commitment among participants; mediating between experts and participants; and safeguarding collective progress.

Purpose of the Guidelines

Against this background, this set of guidelines provides practical guidance for institutional entrepreneurs and externally commissioned coordinators and facilitators, such as project leaders, involved in collective SUT projects. They are

Introduction

intended as a reflective instrument, acknowledging the intuitive and organic nature of interventions in stakeholder collaborations, rather than offering prescriptive solutions. The guidelines can be used to sharpen one's own practices, to evaluate situations when facing barriers, to test intuition regarding possible interventions, to serve as a source of inspiration, and to uncover blind spots that help avoid moving in circles. At the same time, their use requires continuous reflection on whether interventions achieve their intended purpose or overcome the relevant barriers, and whether new or adjusted interventions are needed. Ultimately, the guidelines support institutional entrepreneurs and other coordinators and facilitators in overcoming barriers and leveraging enablers in stakeholder collaborations through targeted interventions, thereby contributing to favourable institutional conditions for establishing SUTs.

Structure and Use

This document is structured around 11 variables that influence the success of collaboration, and one additional variable, the institutional context, which also exerts influence on collaborative processes. For each variable, barriers and enablers are identified, with targeted interventions linked to them in order to overcome the barriers or leverage the respective enablers.

You, as a reader, are encouraged to use the table of contents (see pages 5 and 6) to navigate directly to the specific variable chapter, or to the related barrier or enabler of interest, where you will find an explanation together with possible solution pathways in the form of suggested interventions that may help to overcome the barrier or leverage the enabler.

Finally, as the guidelines are based on a single case study, and barriers, enablers, and interventions vary across SUT projects and contexts, they should be tested, refined, and regularly updated with additional insights from ongoing SUT projects, including barriers, enablers and proven interventions. This keeps the guidelines as a living document that remains enriched over time, enabling others to learn from its lessons.

Resource / Knowledge / Power Asymmetries

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KNOWLEDGE LEVELS

FINANCIAL CAPABILITIES

DATA

TIME

FUNDAMENTAL UNCERTAINTIES

1. Uneven Knowledge Levels and Litmited Time of Participants

The complexity of SUTs and organisations' voluntary, non-core participation results in uneven knowledge levels and limited availability, hindering progress, decision-making, and representatives' ability to secure support from their mandate holders.



Efficiënt Stakeholder Meetings

Plan stakeholder meetings efficiently and only when necessary, either to demonstrate progress and maintain engagement, or to gather input for key decisions.

> *["**We will definitely encounter that knowledge**, the question is when... The chairperson shared valuable experience from a project further ahead and **emphasised the importance of constantly involving people to keep them engaged**."]*



Bridging Experts and Participants

Explain the core team's activities in accessible terms during participant meetings. By bridging experts and participants, institutional entrepreneurs translate technical and legal knowledge into clear insights, enabling stakeholders to understand and sell the initiative to mandate holders, strengthening broader support and momentum. At the same time, they translate participant concerns back to the core group to ensure these are acknowledged and integrated.

2. Lack of Data or Reluctance to Share Data Among Participants

A lack of available data about participants, as well as an unwillingness to share it within the collective, hinders collaboration and the identification of collective opportunities. Mutual trust is essential to foster transparency.



Introduce a Letter of Intent

Introduce a Letter of Intent in the early formalisation phase, for instance, to clarify who is genuinely willing to commit to the shared ambition or to encourage the sharing of essential information needed for project progress. Since such documents are generally signed by mandate holders of participating organisations, these agreements help secure broad organisational support, strengthening trust and commitment.

> *["When engaging in collaborative energy initiatives, **participants need to be willing to share information**, such as energy consumption at their specific sites. This **proved challenging, as organisations are often reluctant to disclose such data**, partly because it can reveal the rates they pay, sensitive information, even if only indirectly estimable. **It took considerable effort to ensure that this information was ultimately made available to the collective.**"]*

3. Fundamental Uncertainties of SUT Projects

Fundamental uncertainties in innovative projects, including the unknown nature of collective SUTs, can discourage participation, complicate collective decision-making and delay or stop the initiative.



Early Expert Engagement

Engage experts early to explore solution directions, conduct technical, legal and financial analyses, and develop a feasible business case aligned with individual stakeholder interests. This clarifies the collective potential, increases willingness to participate, especially among private actors (“what's in it for me”), and strengthens the negotiation position towards powerful external actors (e.g. grid operators and governments).



Cross-Project Learning

Establish or join a national or regional knowledge team that enables exchange and learning across collective initiatives focused on similar SUTs. This fosters a transparent, shared learning process, helping build a body of knowledge that reduces uncertainty and duplication, and accelerates future implementation.



Stimulate Subsidy Application

Support or stimulate the collective in applying for subsidies, particularly in the early stages of the project when the success or realisation of the collective solution is still uncertain, or when financial resources play a crucial role in their willingness to participate.

> *[“You can tell people are taking a wait-and-see attitude, saying things like, **‘What if the establishment of the Energy Hub doesn’t turn out to be the solution to grid congestion, and we end up having to do things differently again?’**”]*

4. Unequal Financial Capabilities Among Participants

Unequal financial capabilities among participants complicate collective investment decision-making and can slow or halt progress. These inequalities stem from differences in budget size, budget cycles, and internal approval rules, often between public and private participants, as well as among private organisations of different types and scales.



Stimulate Subsidy Application

Support or stimulate the collective in applying for subsidies, particularly in the early stages of the project when the success or realisation of the collective solution is still uncertain, or when financial resources play a crucial role in their willingness to participate.

> *"*
>
> *["Take Organisations M and N... everything there is budgeted a year in advance.* ***If something doesn't fit an existing category, they simply can't allocate any money to it. It's frustrating.*** *For us it's different: we're a corporate company, and if I want something to happen, I just make it happen and sort out the budget myself."]*
>
> *"*

Incentives or Constraints to Participate

Barrier

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BUSINESS CASE

URGENCY

EARLY ENGAGEMENT

EXTERNAL SIGNALS

REPUTABLE PARTICIPANTS

1. Alternative Individual Solutions with a More Attractive Business Case

When an actor, particularly a commercial one, has alternative solutions, especially independent options with a more favourable business case, they are unlikely to join a collective solution, unless the collective offers a clear, quantifiable, favourable business case.



Early Expert Engagement

Engage experts early to explore solution directions, conduct technical, legal and financial analyses, and develop a feasible business case aligned with individual stakeholder interests. This clarifies the collective potential, increases willingness to participate, especially among private actors (“what's in it for me”), and strengthens the negotiation position towards powerful external actors (e.g. grid operators and governments).



Frame SUTs as Financially Attractive

Strategically frame collective initiatives and shared investments as financially attractive, emphasising that parties avoid individual costs by contributing to joint solutions. This increases stakeholders’ willingness to participate and co-invest in shared assets.



Stress Collective Benefits and Path

Regularly emphasise in both individual and collective settings the urgency, (financial) benefits, shared goal, and collective path. This helps maintain alignment and active involvement, motivates stakeholders to remain committed, and strengthens the perceived value of collaboration. Periodic one-on-one conversations complement this by monitoring individual commitment.

> *[“For example, if Organisation F has no events, the batteries could be used there very effectively. However, **if they would receive only, for instance, 10% of the revenue** they normally earn during office hours from Organisation P, and Organisation P requests the same contribution from Organisation F, **then Organisation F may respond by saying, ‘Yes, but we’re already doing good things. We’re earning even more anyway**."]*

1. Sense of Urgency and Recognition of Collective as a Viable Solution

Participation in a collective SUT becomes attractive when stakeholders perceive urgency arising from their own interests or operations, combined with recognition that the collective offers a solution to a shared challenge or urgency. This recognition forms the foundation for shared understanding, stimulates commitment, and increases the willingness to invest in the collective.



Early Expert Engagement

Engage experts early to explore solution directions, conduct technical, legal and financial analyses, and develop a feasible business case aligned with individual stakeholder interests. This clarifies the collective potential, increases willingness to participate, especially among private actors (“what's in it for me”), and strengthens the negotiation position towards powerful external actors (e.g. grid operators and governments).



Stress Collective Benefits and Path

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Engage Research Institutions

Engage research institutions early on to contribute to knowledge generation and sharing. Actively involving (potential) participants in this research process clarifies the relevance and potential of such collectives, stimulating participation. Furthermore, it forms the basis for a shared understanding and ambition.

> *“What is **important is that there is a sense of urgency; without it, it’s better not to start at all.** In this case, parties are facing a problem because grid congestion in Area A is very high. **They need to collaborate to continue developing**. Working together is essential, so **the urgency is a key factor.**”]*

2. Early Local Stakeholder Engagement

Early engagement of local stakeholders helps introduce and clarify the shared problem and potential collective solution. This fosters mutual understanding and increases both willingness and interest in participation.



Early Participant Engagement

Engage (potential) participants early through seminars, workshops, and presentations to create a shared understanding and ambition. Such early involvement generates buy-in and motivates (potential) stakeholders to participate in the collective initiative.



Engage Research Institutions

Engage research institutions early on to contribute to knowledge generation and sharing. Actively involving (potential) participants in this research process clarifies the relevance and potential of such collectives, stimulating participation. Furthermore, it forms the basis for a shared understanding and ambition.

3. Participation of Large Reputable Actors Signalling Confidence

The participation of large organisations (as institutional entrepreneurs) in innovative collective initiatives (collective SUTs), serves as a catalyst for motivating others to follow. Their strong reputation, organisational capacity, and the personal credibility of their representatives signal confidence in the initiative.



Involve Reputable Organisations

Actively identify, inspire and engage large, reputable organisations during the early stages of collective SUT innitiatives to participate, as these actors stimulate others to follow.

> *["**They are also the kind of parties where, if those two participate, others will join more easily**. This **has to do with** the company's **reputation**, the organisation's **influence**, and also the personal **profiles** of Persons C and D"].*

4. Signals from Media and Key External Actors as External Motivation

When the urgency of the underlying problem of a SUT, or the potential of a collective initiative, is emphasised by the media or key external actors within the urban system, such as grid operators, it raises awareness among involved and potential participants and provides external motivation to participate and actively commit to such a collective.



Invite Key External Actors

Invite key external actors (e.g. grid operators and governmental bodies) to participate in (potential) participant meetings. Their role is to present upcoming or increasing constraints within the urban system and to articulate their view of the collective SUT as a viable solution to the particular challenge. By doing so, these actors raise awareness and strengthen the legitimacy of the collective, thereby providing external motivation to participate and actively commit.

> *"*
>
> *["So they **clearly noticed that a bottleneck** was **approaching**, and it **was coming so close that they had to solve it**. The fact that they could solve it together **emerged** from Organisation B, from Project B, but also **from the sessions that Municipality A organised on Energy Hubs as a possible solution to grid congestion**."]*
>
> *"*

Stakeholder Access

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COALITION OF THE WILLING **STRUCTURAL SUPPORT**

1. Lack of Key External Actor Engagement

A lack of active engagement, participation, transparency, and flexibility from powerful external actors (e.g. governments and grid operators) creates uncertainty about collective SUT opportunities and can therefore halt these collective projects or force suboptimal outcomes.



Mobilise Communication Channels of Influential Actors

Strategically mobilise the communication channels and networks of influential or public actors to engage hesitant key stakeholders (e.g. grid operators). This involves raising awareness of the impact of their actions, encouraging their participation, and inviting them to co-develop solutions that support the progress of the collective innovative initiative (collective SUT). Such efforts are often driven by public actors' own interests in area development and the effective use of allocated subsidies.

> *"[*"Understanding what the appropriate solution for the issue in Area A would be depends on what Organisation P allows on the infrastructure at specific times. ... **Ultimately, this key stakeholder has not yet joined, which poses a challenge faced by all Energy Hubs in the Netherlands, a well-recognised issue**."]*

2. Difficulty of Late Participant or Representative Integration

Once a collective initiative is advanced in defining its shared goals, working methods, and conditions, it becomes harder to involve new participants or replace existing representatives. Integrating them into the already established collaborative structure takes time, their individual interests are harder to integrate, and it necessitates renewed relationship and trust-building.



Formalise Representation and Substitution Protocols

Ensure consistency in group composition by formalising agreements on representatives and establishing clear protocols for substitutions and the integration of new entrants. This helps maintain continuity and reduces uncertainty.

> *"[*"**Involving new participants at this stage is complicated, as they need to be brought up to speed**. In this phase, adding new participants isn't very practical because developing a shared understanding of the business objectives and boundary conditions takes time. I actually expect that some parties may drop out, so **we'll likely reach the first results with a smaller group. After that, we can reassess and determine**, based on what has been achieved, the next steps and **which parties would logically fit to continue building on this foundation.**"]*

3. Progress Constrained by Slowest Participant

The progress of collective initiatives is constrained by the slowest participant. Hesitation among those lacking urgency or direct interest, combined with overly large groups that delay decision-making, undermines momentum and may reduced the perceived benefits of collaboration among other participants.



Start with Coalition of the Willing

Start collective SUT initiatives with a relatively small group of directly interested stakeholders (max. 7 to 10), known as the Coalition of the Willing, to facilitate effective decision-making, reduce legal complexity, and accelerate progress. Ensure the group is sufficiently diverse to utilise collective knowledge and resources. This balance creates a foundation for a collective that can grow over time.

> *"*
>
> *["From my experience setting up partnerships over the past 30 years around various innovative themes like hydrogen infrastructure,* ***if you want to build a large ecosystem or broad collaboration, you need to start with a relatively small core group, a 'coalition of the willing,'*** *involving* ***a few parties with a direct stake in the outcome****. In this consortium in Project A, it includes companies facing grid congestion and that have both the space and the willingness to act together. So, a relatively small core consortium: large enough for critical mass, but not bigger. The idea is to achieve an initial result, after which other parties can join."]*
>
> *"*

4. Added Complexity in Public-Private Collectives

Public-private collaboration within collective SUTs adds complexity. Public actors, constrained by formal frameworks, accountability, and documentation, have limited flexibility to commit or formalise participation, while private actors enjoy greater operational freedom. This asymmetry slows decision-making and collective progress, reducing trust and commitment as the added value of collaboration becomes less visible.



Postpone or Exclude Formal Involvement of Constrained Participants

If certain participants structurally hinder progress, due to legal, financial, or organisational constraints (linked to their public role), it can be strategic to postpone or exclude their formal involvement in the collective (or legal entity), while allowing them to participate through alternative collaboration models that respect their institutional boundaries. This prevents stagnation while keeping the door open for future participation.

> *"*
>
> *["In this case, we agreed they would join later, and for now, Persons E and J are simply hired by the companies. Then* ***the municipality's lawyers have to go back to the municipality to check whether that's acceptable*** *…* ***and that's when you get those bureaucratic processes.*** *When such processes are lengthy, complex, and demanding,* ***it does put some strain on mutual trust****. …* ***You want them to participate, but you want to benefit from their involvement, not be burdened by it****."]*
>
> *"*

1. Early Involvement of Research Institutions

Involving research institutions in innovative collective initiatives (collective SUTs) contributes to knowledge generation and sharing , and clarifies the relevance of such collective SUTs to (potential) participants, thereby promoting participation.



Engage Research Institutions

Engage research institutions early on to contribute to knowledge generation and sharing. Actively involving (potential) participants in this research process clarifies the relevance and potential of such collectives, stimulating participation. Furthermore, it forms the basis for a shared understanding and ambition.

> *"[“Over the past four years, we have worked closely together in Project B to ensure that local stakeholders were genuinely interested in the project’s outcomes. … Including large consumers whom we engaged outside the research and innovation project. These large consumers continued their efforts within Organisation B to launch an Energy Hub,* ***making use of all the insights and analyses derived from the project’s scientific results****. … Within the project,* ***we were able to provide supporting information that helped create a shared understanding among people, showing them that they truly had something to work on together****.”]"*

2. Pre-existing Trust and Relationships Among Participants

A collective in which participants already know and trust each other before the initiative promotes collaboration, as less time is needed to establish both relationships and trust. After all, relational trust is essential for the success of such collaborative projects, and building it takes time and continuous effort.



Involve Participants with Pre-existing Trust and Relationships

Actively identify, inspire, and engage local stakeholders with existing relationships and mutual trust during the early stages of the initiative. Their early involvement facilitates smoother collaboration and accelerates progress, which is particularly valuable in the initial phases characterised by high levels of uncertainty.



Facilitate Informal Participant Interactions and Introductions

Facilitate informal and personal interactions and introductions among participants, for example, by organising meetings at participants’ own locations and encouraging introductions that include organisational profiles, interests and intended contributions at the start of the initiative. This supports low-threshold relationship- and relational-trust building, transparency and mutual understanding.

3. Structural Support from Provinces and Municipalities

Structural support from provinces and municipalities strengthens the collaboration and development of the collective SUT by contributing knowledge, offering process support, providing subsidies, and granting access to their networks. This support is especially valuable given the limited capacity and expertise of many participants.



Engage Public Bodies for Support

Actively consult public bodies (i.e. province, municipality) to identify how they can support the initiative with their expertise, networks, resources, subsidies, and guidance.

> *["**If the goal is to stimulate sustainability and spatial efficiency**, create capacity in waiting queues, **and relieve grid congestion for social developments**, ... this requires additional support measures, **rather than expecting a small group of companies to handle it alone**. ... Therefore, **the province or the municipality must continue to support such collaboration structurally**."]*

4. Collective of Professional Stakeholders

A collective of professional parties, both hired experts and coordinators, as well as the collaborating organisations, supports efficient collaboration, as their experience and expertise enable a focused, results-driven approach while allowing them to dedicate time and resources to the initiative.



Prioritise Involvement of Professional/Commercial Stakeholders

Prioritise the involvement of professional and commercial stakeholders in the early stages of the initiative, while enabling the gradual inclusion of civic actors over time. This ensures a focused, results-driven approach from the outset, while allowing them to dedicate time and resources to the initiative, maintaining momentum and accelerating progress.



Appointing a Competent Project Leader and Experts

Appoint a competent and experienced project leader, as well as relevant experts, in consultation with the participants. This ensures that responsibilities are assigned to actors with the appropriate expertise and mandate, strengthening confidence in the collective and contributing to task-based trust.

5. Early Involvement of Specialised Experts

Early involvement and collaboration with specialised experts who can explore and clarify collective solution pathways, technical scenarios, and business cases helps demonstrate the value of collaboration, support joint decision-making, and increase the likelihood of integrated solutions.



Early Expert Engagement

Engage experts early to explore solution directions, conduct technical, legal and financial analyses, and develop a feasible business case aligned with individual stakeholder interests. This clarifies the collective potential, increases willingness to participate, especially among private actors ("what's in it for me"), and strengthens the negotiation position towards powerful external actors (e.g. grid operators and governments).

> *["**Organisation Y is essentially the party that can ... develop a strategy across different energy systems that aligns with the preferences of a stakeholder or a group of stakeholders**. ... And because Organisations Z and Y are now working together, Organisation X has **even more possibilities to offer an integrated solution for the Energy Hub**."]*

6. Collective of Knowledgeable and Resourced Participants

Stakeholders who bring essential expertise and resources to the collective strengthen collaboration and efficiency by sharing assets and preventing unnecessary expenditures.



Engage Participants with Essential Knowledge and Resources

Actively engage key participants who can contribute essential and complementary knowledge or resources to the collective solution. This strengthens collaboration and can reduce costs by avoiding unnecessary investment in shared assets.

> *["For instance, when Taylor Swift performs, you can clearly see that for three days straight, everything is running at full capacity, and without the battery, it simply wouldn't be possible. **But it also means that on the days when there's no performance, and the battery is being recharged, it just sits there, more or less. And of course, those batteries don't come cheap**."]*

Clear Ground Rules and Protocols

Barriers

1. Absence of a Jointly Developed Viable Business Case 25
2. Absence of a Legal Entity 25
3. Absence of a Well-considered Legal Framework 26

Enablers

1. Clear and Transparent Participation Criteria 26
2. Financial Contributions by Participants 27
3. Balance Between Formalisation and Flexibility 27

BUSINESS CASE

LEGAL ENTITY & FRAMEWORK

PARTICIPATION CRITERIA

FINANCIAL CONTRIBUTIONS

1. Absence of a Jointly Developed Viable Business Case

If industrial or commercial actors do not take a central role in innovative collective initiatives (collective SUTs) and jointly develop an exclusive business case with clear cost and benefit agreements, collaborations tend to remain at a consultative level.



Prioritise Involvement of Professional/Commercial Stakeholders

Prioritise the involvement of professional and commercial stakeholders in the early stages of the initiative, while enabling the gradual inclusion of civic actors over time. This ensures a focused, results-driven approach from the outset, while allowing them to dedicate time and resources to the initiative, maintaining momentum and accelerating progress.



Facilitate a Financial Expert Guided Dialogue among Participants

Facilitate a financial expert-guided dialogue among participants to jointly develop an exclusive business case with clear cost-benefit agreements. This moves the initiative beyond the consultative level and aligns all stakeholders, thereby reducing the risk of participants withdrawing.

2. Absence of a Legal Entity

Without a legal entity or an existing organisation temporarly assuming formal responsibilities, collective initiatives face barriers in applying for subsidies, attracting external funding, formally commissioning expertise, or making collective binding agreements with external key actors such as grid operators.

> *"[“About 10 to 12 years ago, in one of my previous roles, **we wrote a report on innovation and collaborative partnerships**. It showed that **when no industrial parties or business participants take a central role in the collaboration and jointly develop an exclusive business case**, explicitly discussing costs and benefits, **these collaborations tend to remain stuck at a consultative level**, involving only small-scale investments of time and money, because there's no ability to move things forward."]"*



Establish a Legal Entity Early on

Establish a legal entity for the collective early in the process. This enables access to subsidies and external capital, facilitates formal consultation with experts, allows for binding agreements, and supports effective communication and coordination, both within and beyond the collective. Alternatively, an existing organisation can be appointed to temporarily take on formal responsibility, before the establishment of a legal entity for the collective.

Barriers | Clear Ground Rules and Protocols

3. Absence of a Well-considered Legal Framework

Without a robust and well-considered legal framework, collective innovative initiatives (collective SUTs) fail to get off the ground, as stakeholders are discouraged from participating and initiatives remain stuck in the consultation phase rather than moving on to implementation.



Early Expert Engagement

Engage experts early to explore solution directions, conduct technical, legal and financial analyses, and develop a feasible business case aligned with individual stakeholder interests. This clarifies the collective potential, increases willingness to participate, especially among private actors (“what's in it for me”), and strengthens the negotiation position towards powerful external actors (e.g. grid operators and governments).



Specialised Working Groups with Participants and Experts

Establish specialised working groups with independent experts (e.g. legal, technical, financial) and representatives from each stakeholder organisation. These groups address complex, topic-specific issues in dedicated settings and provide targeted input to the core team and broader collaboration. By establishing such groups, participant roles are clarified, fostering shared ownership, a sense of responsibility and commitment.

Enablers | Clear Ground Rules and Protocols

1. Clear and Transparent Participation Criteria

Clear and transparent participation criteria, including entry and exit arrangements, clarify the suitability and benefits of joining, increase transparency, and reduce inequalities between participants.



Establish Transparent and Objective Participation Criteria

Establish transparent and objective criteria for participation, including clear entry and exit arrangements. This ensures that potential participants understand their suitability and the benefits of joining, while safeguarding existing members from disadvantage, potentially through a financial contribution. Such clarity increases transparency, stimulates participation, and reduces inequalities within the collective.

> *“[“I can imagine that, over time, other parties may want to join, and that’s something we’ll need to assess: whether it’s possible and how we would approach it. After all, the current partners have already contributed money and knowledge in the initial phase,* ***so if a new party joins a year later, we have to consider how to handle that. Otherwise, it wouldn’t be fair to the existing partners.*** *… Yes,* ***probably through some form of contribution, a financial one****.”]”*

2. Financial Contributions by Participants

Financial contributions ensure that only actively involved and committed stakeholders join and remain involved, while providing resources for essential expenditures such as expert commissioning.



Financial Contribution as Entry Condition

Introduce a financial contribution as a condition for entry to improve commitment among participants and filter out free riders. This ensures that only actively involved stakeholders join and remain in the collective, while providing resources to fund essential expenditures, such as a project manager or expert support.

> *"At some point, we said: **if you want to participate, you need to contribute financially. That was a real eye-opener**. Some parties that had previously been willing to join, essentially just riding along, dropped out when asked to pay a €5,000 entry fee. **It made clear who was genuinely committed**. ... That financial contribution marked the real start, and since then, no one has dropped out."*

3. Balance Between Formalisation and Flexibility

Early clarity and gradual formalisation of roles, rules, and protocols enable continuity and operational stability, strengthening trust in the collective. At the same time, flexibility during exploratory phases is essential under conditions of fundamental uncertainty, avoiding discouragement and reducing the risk of stakeholder withdrawal.



Gradual Formalisation of Collective Agreements

Define responsibilities, decision-making procedures, communication structures, and entry/exit criteria early to strengthen continuity, transparency, commitment, and reduce free riding. In exploratory phases, keep agreements low-threshold and non-binding to maintain openness, followed by gradual formalisation as the project matures. This requires a careful balance between flexibility and structure.

> *"**Legally, we all agree that we don't really know where this is going**, whether it will be useful, and that we can exit if we want. SP1: **So it's important to keep the option to exit for as long as possible**? SP2: Yes, **but that's inherently complicated, because once you're in, exiting has consequences for all remaining parties.**"*

Clearly Defined Roles

Barrier

1. Lack of Mandate Among Representatives 29

Enabler

1. Clear Role and Responsibility Definition Among Representatives 29

MANDATE LAYERED DECISON-MAKING LOI

ROLE DEFINITION OWNERSHIP

Barrier | Clearly Defined Roles

1. Lack of Mandate Among Representatives

Lack of mandate among representatives from participating organisations forms a barrier to collective progress. In larger organisations, this is amplified by hierarchical structures and layered decision-making procedures. Therefore, approval and progress depend on the representatives' ability to sell the collective initiative to their mandate holders.



Bridging Experts and Participants

Explain the core team's activities in accessible terms during participant meetings. By bridging experts and participants, institutional entrepreneurs translate technical and legal knowledge into clear insights, enabling stakeholders to understand and sell the initiative to mandate holders, strengthening broader support and momentum. At the same time, they translate stakeholder concerns back to the core group to ensure these are acknowledged and integrated.



Introduce a Letter of Intent

Introduce a Letter of Intent in the early formalisation phase, for instance, to clarify who is genuinely willing to commit to the shared ambition or to encourage the sharing of essential information needed for project progress. Since such documents are generally signed by mandate holders of participating organisations, these agreements help secure broad organisational support, strengthening trust and commitment.

Enabler | Clearly Defined Roles

1. Clear Role and Responsibility Definition Among Representatives

Clearly defining roles and responsibilities among representatives supports clarity and commitment. Assigning suitable roles within working groups and distributing tasks improves ownership and therefore encourages active participation in the collective.



Clear Role Definition through Open Dialogue

Define and assign roles and responsibilities among representatives through open dialogue based on expertise and interests. This process creates a sense of ownership and therefore encourages active participation in the collective. In addition, regular check-ins with each representative are essential to review progress, strengthen responsibility, and sustain commitment over time.

> *"*
>
> *["SP1: How is commitment created and maintained? SP2: **I deliberately place ownership of actions with the participants... to sustain their engagement.** Ultimately, I am not the contracting party or the one signing the agreement; they are. Therefore, **the content needs to be developed and supported by them**. I take a facilitating and guiding role ... SP1: So commitment is created by giving ownership throughout the process? SP2: Yes, absolutely."]*
>
> *"*

Process Transparency

Enabler

1. Open Communication Channels and Regular Updating 31

OPEN COMMUNICATION REGULAR UPDATING

TRANSPARANCY RESPONSIVENESS

1. Open Communication Channels and Regular Updating

Open and transparent communication channels, with regular and honest updates and information sharing, along with responsiveness, both during stakeholder meetings and beyond, contribute to transparency, trust building, commitment, and confidence in the integrity of the collective.



Open Communication Channels and Honest Updates

Establish open and transparent communication channels, with regular and honest updates both during participant meetings and beyond, as this contributes to integrity and trust in the collective. In participant meetings, in addition to updates from the core group to the participant group, allocate structured time for questions and ensure responsive, honest answers to strengthen transparency, trust, and active engagement.

> *"*
>
> *["SP1: A**nd what do you think is important to incorporate into the collaboration to safeguard transparency and thus build trust**? SP2: I think it has to do with **ensuring regular email communication** and **consistent information sharing**, including information that isn't directly about the project but, for example, shows how things are done in other projects in the Netherlands. Another thing is **meeting regularly**, even when there's nothing specific to discuss. Just meeting regularly, because you notice that there are always things that naturally come up."]*
>
> *"*

Face-to-face Dialogue

Enablers

1. Structural Core Group Meetings 33
2. Regular Participant Meetings 33
3. Specialised Working Groups 34

OPERATIONAL PROGRESS **INDIVIDUAL CONVERSATIONS**

CO-CREATION **JOINT DECISION-MAKING**

1. Structural Core Group Meetings

Structural core group meeting with a manageable, representative group of stakeholders, including institutional entrepreneurs, experts, and project/process coordinators, promotes coordination, safeguards operational progress and momentum, and serves as a point of contact for participants and external parties. Hereby, task-based trust in the core group, strengthened by the selection of experienced experts, is essential from the wider collective.



Weely Core Group Meetings for Operational Progress

Structurally organise a weekly core group meeting to safeguard progress and momentum and to serve as a central point of contact. In these meetings, operational progress should be reviewed and assessed against the collective goal, drawing on outputs from the working groups to ensure alignment across all relevant themes while delegating follow-up actions. In addition, the core group should prepare recommendations for the broader participant group to enable effective and well-informed decision-making.

> *"[“There is a **weekly meeting** on Tuesdays **with the core group**. ... Within this group, **we determine every week where we stand, what everyone is working on, and what needs to be done**. ... It's a core group. ... Because if you start meeting with too many people in such a core group, you need much more time, since everyone will have an opinion about everything. ... **In the end, you need to ensure that there is a core group that has the trust of the others, but at the same time is not too large, because then it becomes unmanageable**.”]"*

2. Regular Participant Meetings

Regular participant meetings with representatives from each participating organisation, in which progress is demonstrated, input is gathered for key decisions, and space is provided for open dialogue, contribute to transparency and a sense of ownership. This, in turn, strengthens stakeholder engagement, trust, and commitment.



Individual Participant Conversations

Organise individual stakeholder conversations from the start of the project to build trust, address concerns, uncover both personal and organisational interests, and monitor commitment. These one-on-one conversations provide essential insights to be integrated into the collective participant meetings, ensuring that all perspectives inform the development of a shared ambition.



Regular Participant Meetings

Organise regular participant meetings to ensure transparency about the collective's progress and to sustain stakeholder commitment. Communicating the relevance and urgency of participation exemplifies this. These meetings should include representatives from each participating organisation. By creating space to discuss uncertainties, expectations, dilemmas, and interests, these meetings strengthen relationships and trust. They also serve as moments of joint decision-making, ensuring active involvement in key decisions, strengthening ownership and commitment.

3. Specialised Working Groups

Specialised working groups, consisting of representatives from each participating organisation, supported by consulted experts with legal, technical, or financial experience in similar SUT projects, enable complex issues to be addressed in co-creation with participants. This structure provides targeted input to the collective, clarifies roles, and fosters ownership, thereby stimulating commitment from all involved.



Specialised Working Groups with Participants and Experts

Establish specialised working groups with independent experts (e.g. legal, technical, financial) and representatives from each stakeholder organisation. These groups address complex, topic-specific issues in dedicated settings and provide targeted input to the core team and broader collaboration. By establishing such groups, participant roles are clarified, fostering shared ownership, a sense of responsibility and commitment.

> *"*
>
> *["So we looked back and asked ourselves how we could move forward as a team and who could contribute what.* ***Do you want to join the legal working group, focus on the technical aspects, or work on communication****? We had a very open discussion and agreed to continue in this way, meeting every once in a while. Then* ***you start looking at who has specific expertise****. Some people are very knowledgeable about the topic, so they can share their knowledge within the technical working group. Others are still exploring the topic, while some are more commercially oriented and can contribute to communication."]*
>
> *"*

Trust and Relationship Building

Barrier

1. Underdeveloped Relationships and Resulting Limited Trust 36

Enablers

1. Relational Trust and Trust in the Collective Solution 36
2. Task-based Trust and Relational Trust 37

INFORMAL INTERACTIONS

EXPERIENCED PEOPLE

RELATIONAL- AND TASK-BASED TRUST

TRANSPARANCY

Barrier | Trust and Relationship Building

1. Underdeveloped Relationships and Resulting Limited Trust

Underdeveloped relationships and the resulting limited trust between stakeholders, especially in the early stages of collaboration where interests and agreements have not been clarified, can lead to hesitation in sharing sensitive information, such as company profiles. This lack of transparency complicates the exploration of joint possibilities and slows down overall progress.



Facilitate Informal Participant Interactions and Introductions

Facilitate informal and personal interactions and introductions among participants, for example, by organising meetings at participants' own locations and encouraging introductions that include organisational profiles, interests and intended contributions at the start of the initiative. This supports low-threshold relationship- and relational-trust building, transparency and mutual understanding.

> *"[**"People needed to trust each other before sharing data**. In the early sessions, **we took time to guide everyone through the process, build trust**, and calculate scenarios to show what it would mean for them. **At the start, when trust is low, sharing data is the most difficult.**"]"*

Enablers | Trust and Relationship Building

1. Relational Trust and Trust in the Collective Solution

Innovative collective initiatives (collective SUTs) rely heavily on relational trust and trust in the collective solution. Continuously building and maintaining trust is therefore crucial to their success. Because relational trust requires time and sustained effort, it is important not to rush this process, as doing so risks undermining collaboration and hindering collective progress.



Facilitate Informal Participant Interactions and Introductions

Facilitate informal and personal interactions and introductions among participants, for example, by organising meetings at participants' own locations and encouraging introductions that include organisational profiles, interests and intended contributions at the start of the initiative. This supports low-threshold relationship- and relational-trust building, transparency and mutual understanding.



Showcasing Comparable Realised SUT Projects or Components

Showcase comparable realised projects or components (e.g., battery installations, shared-ownership models) during the early stages of collective SUTs, as this helps make abstract ambitions more concrete and tangible. This supports participant engagement, clarifies the pathway towards the collective goal, and builds trust in the effectiveness of the initiative.

2. Task-based and Relational Trust

Building trust within collaborative initiatives relies on two complementary forms of trust. Task-based trust emerges when responsibilities are assigned to actors with the appropriate expertise and mandate, supported by a professional organisation, ensuring progress and strengthening confidence in the collective. Relational trust develops through informal interactions, shared understanding, and mutual and consistent commitment to the joint goal.



Facilitate Informal Participant Interactions and Introductions

Facilitate informal and personal interactions and introductions among participants, for example, by organising meetings at participants' own locations and encouraging introductions that include organisational profiles, interests and intended contributions at the start of the initiative. This supports low-threshold relationship- and relational-trust building, transparency and mutual understanding.



Open Communication Channels and Honest Updates

Establish open and transparent communication channels, with regular and honest updates both during participant meetings and beyond, as this contributes to integrity and trust in the collective. In participant meetings, in addition to updates from the core group to the participant group, allocate structured time for questions and ensure responsive, honest answers to strengthen transparency, trust, and active engagement.



Appointing a Competent Project Leader and Experts

Appoint a competent and experienced project leader, as well as relevant experts, in consultation with the participants. This ensures that responsibilities are assigned to actors with the appropriate expertise and mandate, strengthening confidence in the collective and contributing to task-based trust.

> *"[**"There are two types of trust ... Task-based trust is about trusting that someone will carry out the responsibilities assigned within the collaboration**. ... involves planning, showing progress, providing justification, and ensuring the right person is responsible for the right actions. ... **Relational trust, by contrast, is about trusting someone as a person, handling shared information responsibly, considering others' interests. It develops over the long-term.** ... Weekly meetings help build this, as do sitting together, keeping each other informed, informal contact, and discussing how the collaboration is progressing."]*

Commitment to the Process

Enabler

1. Group Cohesion, Shared Responsibility and Ownership 39

COHESION

OWNERSHIP

MUTUAL UNDERSTANDING

SHARED RESPONSIBILITY

ALLIGNMENT

1. Group Cohesion, Shared Responsibility and Ownership

A strong sense of group cohesion, shared responsibility and ownership, and alignment among participants contribute to sustained involvement and commitment.



Regularly Emphasising the Shared Goal, Directon, and Urgency

Regularly emphasise the shared goal, collective direction, and underlying urgency of the innovative collective initiative (collective SUT) to maintain alignment among participants. Especially in later phases, when collective decisions may not benefit all parties equally. This helps maintain active involvement and commitment.



Clear Role Definition through Open Dialogue

Define and assign roles and responsibilities among representatives through open dialogue based on expertise and interests. This process creates a sense of ownership and therefore encourages active participation in the collective. In addition, regular check-ins with each representative are essential to review progress, strengthen responsibility, and sustain commitment over time.

> *"*
>
> *["SP1: Regarding commitment, **how has commitment from the various stakeholders been created, and how do you try to maintain it**, so that parties don't drop out and remain actively involved? SP2: Well, as I mentioned, some of the larger project developers could always decide to withdraw. However, **there is quite a strong sense of community within this area; everyone recognises the value of collaboration**. I think **it's important to keep emphasising that group spirit, the notion that we have to do this together. That's probably the most important thing.**"]*
>
> *"*

Shared Understanding and Shared Ambition

Barrier

1. Differing Interests, Ambitions, and Urgency 41

Enablers

1. Showing Comparable Realised SUT Projects 42
2. Early Stage Dialogue on Participants Interests and Contributions 43
3. Tangible Picture of Vision and Pathway 44

COMPELING NARRATIVE

INDIVIDUAL CONVERSATIONS

COALITION OF THE WILLING

MEDIATING DIALOGUE

Barrier | Shared Understanding and Shared Ambition

1. Differing Interests, Ambitions, and Urgency

Differences in individual interests, ambitions, and sense of urgency hinder the development of a shared understanding, shared ambition, and joint decision-making. This may result in varying levels of commitment, stagnation of the collective, or even participant dropouts.



Start with Coalition of the Willing

Start collective SUT initiatives with a relatively small group of directly interested stakeholders (max. 7 to 10), known as the Coalition of the Willing, to facilitate effective decision-making, reduce legal complexity, and accelerate progress. Ensure the group is sufficiently diverse to utilise collective knowledge and resources. This balance creates a foundation for a collective that can grow over time.



Individual Participant Conversations

Organise individual stakeholder conversations from the start of the project to build trust, address concerns, uncover both personal and organisational interests, and monitor commitment. These one-on-one conversations provide essential insights to be integrated into the collective participant meetings, ensuring that all perspectives inform the development of a shared ambition.



Stress Collective Benefits and Path

Regularly emphasise in both individual and collective settings the urgency, (financial) benefits, shared goal, and collective path. This helps maintain alignment and active involvement, motivates stakeholders to remain committed, and strengthens the perceived value of collaboration. Periodic one-on-one conversations complement this by monitoring individual commitment.



Regular Participant Meetings

Organise regular participant meetings to ensure transparency about the collective's progress and to sustain stakeholder commitment. Communicating the relevance and urgency of participation exemplifies this. These meetings should include representatives from each participating organisation. By creating space to discuss uncertainties, expectations, dilemmas, and interests, these meetings strengthen relationships and trust. They also serve as moments of joint decision-making, ensuring active involvement in key decisions, strengthening ownership and commitment.

Barrier | Shared Understanding and Shared Ambition

1. Differing Interests, Ambitions, and Urgency (continued)

Differences in individual interests, ambitions, and sense of urgency hinder the development of a shared understanding, shared ambition, and joint decision-making. This may result in varying levels of commitment, stagnation of the collective, or even participant dropouts.



Mediating Dialogue to Bridge Interests

Facilitate a dialogue among participants and formulate a shared ambition by acting as a trusted intermediary who identifies and bridges diverse participant interests and perspectives. Through this mediating role, institutional entrepreneurs create mutual understanding, make individual benefits visible, and align stakeholders towards a collective goal, thereby strengthening commitment and trust in the initiative.

> *"[“In the same area, we also worked on two district heating networks that were never realised. I think **what was missing was an independent institutional entrepreneur. Everyone kept reasoning and acting from their own existing interests and positions. That’s a problem we see recurring quite often.”**]"*

Enablers | Shared Understanding and Shared Ambition

1. Showing Comparable Realised SUT Projects

Showing comparable realised projects or physical components within collective SUTs helps make abstract collective ambitions more concrete and tangible, contributing to a mutual understanding and trust in the collective.



Showcasing Comparable Realised SUT Projects or Components

Showcase comparable realised projects or components (e.g., battery installations, shared-ownership models) during the early stages of collective SUTs, as this helps make abstract ambitions more concrete and tangible. This supports participant engagement, clarifies the pathway towards the collective goal, and builds trust in the effectiveness of the initiative.

> *"[“Over time, we’ve reached several arrangements that we consider acceptable. Most real estate, especially inner-city properties, is organised within VVE structures. ... which in the Netherlands is seen as a normal limitation of real estate. **What also helps is that more and more area developments now include WKO systems ... that are not used exclusively by a single party but shared with others. This creates a kind of connection that can be seen as a precursor to an Energy Hub.”**]"*

2. Early Stage Dialogue on Participants Interests and Contributions

Openly discussing from an early stage what participants aim to gain from the collaboration, as well as what they are willing to contribute, supports shared understanding and the development of a shared ambition that resonates with all involved.



Individual Participant Conversations

Organise individual participant conversations from the start of the project to build trust, address concerns, uncover both personal and organisational interests, and monitor commitment. These one-on-one conversations provide essential insights to be integrated into the collective participant meetings, ensuring that all perspectives inform the development of a shared ambition.



Facilitate Informal Participant Interactions and Introductions

Facilitate informal and personal interactions and introductions among participants, for example, by organising meetings at participants' own locations and encouraging introductions that include organisational profiles, interests and intended contributions at the start of the initiative. This supports low-threshold relationship- and relational-trust building, transparency and mutual understanding.



Mediating Dialogue to Bridge Interests

Facilitate a dialogue among participants and formulate a shared ambition by acting as a trusted intermediary who identifies and bridges diverse participant interests and perspectives. Through this mediating role, institutional entrepreneurs create mutual understanding, make individual benefits visible, and align stakeholders towards a collective goal, thereby strengthening commitment and trust in the initiative.

> *"[**"Ultimately, it is also important, taking it one step further, that we make 'what's in it for me' an open topic of discussion**. In other words, what do I personally want, and what do I want my organisation to achieve within this collaboration? **It means clearly and credibly stating why I**, as Organisation N, Municipality A, or Organisation C, **am part of this partnership. What do I expect to gain? And what am I willing to contribute?**"]*

Enablers | Shared Understanding and Shared Ambition

3. Tangible Picture of Vision and Pathway

A tangible picture of both the direction and process of the collective to reach a shared goal, contributes to the establishment of a shared understanding and collective ambition, along with participant engagement and commitment.



Articulating a Compelling Narrative of the Shared Vision and Path

Develop and articulate a compelling narrative that expresses the shared vision and clarifies the steps required to reach it, while continuously involving participants and referring back to this vision and pathway during collective and individual participant meetings, as this reduces confusion and uncertainty, strengthens alignment, and secures buy-in and trust in the initiative.

> *"SP1: Could you already indicate whether there are certain actions or interventions that relate to the role they (i.e. the institutional entrepreneurs) have taken on in influencing the collaboration? SP2: Yes,* ***I think it is mainly about taking initiative, actively approaching parties, presenting a strong narrative, and convincingly explaining why a hub is truly needed. I believe that has been their main strength."***

Intermediate Outcomes and Evaluations

Barriers

1. Extended Timelines Compared to Conventional Projects 46
2. Stagnation in Consultative Stage Without Concrete Action 46

Enabler

1. Clearly Defined Scope 47

CROSS-LEARNING

LOW-THRESHOLD INTERVENTIONS

EXPERIENCED SUT PROJECT LEADER

SCOPE DEFINITION

1. Extended Timelines Compared to Conventional Projects

Collective innovative initiatives (collective SUTs) typically require significantly more time than conventional projects because more time is required to sort out technical, legal, financial, and organisational aspects that standard frameworks do not cover. This extended timeline raises costs, reduces visibility of progress, and makes it harder to sustain participants' (financial) commitment or even leads them to withdraw from the collective.



Cross-Project Learning

Establish or join a national or regional knowledge team that enables exchange and learning across collective initiatives focused on similar SUTs. This fosters a transparent, shared learning process, helping build a body of knowledge that reduces uncertainty and duplication, and accelerates future implementation.



Stimulate Subsidy Application

Support or stimulate the collective in applying for subsidies, particularly in the early stages of the project when the success or realisation of the collective solution is still uncertain, or when financial resources play a crucial role in their willingness to participate.

2. Stagnation in Consultative Stage Without Concrete Action

Collective innovative initiatives (collective SUTs) often get stuck in the exploratory, consultative phase, where extensive discussions with insufficient concrete actions lead to limited progress and prevent the initiative from moving forward.



Appoint a Result-Oriented Project Leader with Experience in Similar Projects

Appoint a project leader, in consultation with participants, who has experience in similar collective innovation initiatives (SUTs) and a result-oriented approach. This contributes to tangible progress and helps prevent stagnation in the initiating phase. By developing a concrete plan with clear milestones and intermediate steps, and consistently referring to this plan, the pathway towards the collective goal becomes visible, strengthening engagement and commitment.

> *"[“In April, **the companies deliberately chose a results-oriented, project-based approach. Instead of meeting every two months to discuss the idea of an energy hub, we’re now focusing on making it happen. My main task as a project manager is therefore to ensure that the first implementation of the energy hub is delivered as a concrete outcome.** … One important intervention I made was developing a clear and concrete timeline: this is where we are now. And these are the steps we’ll take over the next eight months. … **By clarifying what needs to be done, we made the process much more tangible.**”]"*

1. Clearly Defined Scope

Given the complexity of collective innovative initiatives (collective SUTs), it is essential to start with a clearly defined scope to enable step-by-step progress toward the shared goal.



Scope Definition and Extension Aligned with Collective Trust

Define and communicate a clearly framed scope to enable a step-by-step approach in which the scope can be progressively broadened, aligned with gradual trust-building in the collective and working towards the shared goal. By initiating low-threshold interventions that require minimal investment, stakeholders can be gradually engaged, build trust in the collective approach, and make effective use of their limited time and capacity.



Phased Implementation Starting with Low-hanging Solutions

Implement the project in phases, starting with low-hanging or sub-optimal solutions, forced, for instance, by operational constraints, the power of key actors, or the difficulty of system change, that can be expanded over time. To anticipate this, multiple scenarios should be developed during the exploratory phase. These scenarios can also serve to demonstrate the initiative's added value and support negotiation with key external actors.

> *"[“There are also a few initiatives in the area around this Energy Hub that are looking at a mobility plan in the same region where these companies and the hub are located. The idea is to integrate the large infrastructure for electric vehicle charging as well, but that's a project that will take at least three to four years. I've deliberately put that aside for now; that's something others can focus on later, but it's currently outside the scope of this project. ... **As I see it, an Energy Hub, or the energy transition we're discussing here, is a process where you can start on a small scale** by sharing contracts and coordinating intelligently. **But at some point, you do need to invest in batteries or build a part of the network.**”]"*

Institutional Context

Barriers

1. Mismatch with Existing Regulations, Contracts and Infrastructure 49
2. Lack of a Quantifiable Business Case and Financial Settlement Models 50

CLARIFY COLLECTIVE POTENTIAL

PILOT

TEMPORARY AGREEMENTS

PHASED IMPLEMENTATION

1. Mismatch with Existing Regulations, Contracts and Infrastructure

The necessary developments for innovative collective initiatives (collective SUTs) are often hindered by a mismatch with existing regulations, contracts, and infrastructure, which were developed for stability and control but lack the flexibility needed for innovative collective initiatives (collective SUTs). This can lead to sub-optimal outcomes or even stop the initiative.



Early Expert Engagement

Engage experts early to explore solution directions, conduct technical, legal and financial analyses, and develop a feasible business case aligned with individual stakeholder interests. This clarifies the collective potential, increases willingness to participate, especially among private actors (“what's in it for me”), and strengthens the negotiation position towards powerful external actors (e.g. grid operators and governments).



Pilot and Temporary Conditional Agreements

When existing regulations or institutional frameworks hinder the collective innovative initiative (collective SUT), initiating a dialogue with relevant authorities to launch the initiative as a pilot or granting temporary conditional agreements can be effective. After all, a pilot generates experiential knowledge that can support broader implementation.



Phased Implementation Starting with Low-hanging Solutions

Implement the project in phases, starting with low-hanging or sub-optimal solutions, forced, for instance, by operational constraints, the power of key actors, or the difficulty of system change, that can be expanded over time. To anticipate this, multiple scenarios should be developed during the exploratory phase. These scenarios can also serve to demonstrate the initiative’s added value and support negotiation with key external actors.

> *[“**We are trying to work around the fact that the grid operator says, formally, this can only happen at the end of next year, while we want to start now. This requires negotiating with the grid operator about whether the hub could function as a pilot … or operate under conditioned contracts**. For this, **we also need lobbying support from** major actors such as Organisations D and C, as well as **the province and municipality, given their influence over the grid operator**. … The main goal is to show that initiating a preliminary GTO for this hub is valuable.”]*

2. Lack of a Quantifiable Business Case and Financial Settlement Models

The business case and financial settlement models for innovative collective initiatives (Collective SUTs) are often not yet well quantifiable or still underdeveloped, while financial incentives strongly influence participation decisions. Furthermore, existing assessment systems (e.g. BREEAM) do not yet recognise or reward these types of initiatives, making them appear riskier and less attractive.



Early Expert Engagement

Engage experts early to explore solution directions, conduct technical, legal and financial analyses, and develop a feasible business case aligned with individual stakeholder interests. This clarifies the collective potential, increases willingness to participate, especially among private actors (“what's in it for me”), and strengthens the negotiation position towards powerful external actors (e.g. grid operators and governments).



Cross-Project Learning

Establish or join a national or regional knowledge team that enables exchange and learning across collective initiatives focused on similar SUTs. This fosters a transparent, shared learning process, helping build a body of knowledge that reduces uncertainty and duplication, and accelerates future implementation.

> *[**“Within our regional team, we discuss all existing hubs and reflect as peers**: How are things going, what problems keep arising, and how are they being solved? ... Person F also participates in a national provincial meeting, **bringing in and taking back knowledge**. ... **Collectively, we are building knowledge. At the moment, initiatives take much longer** because many parties start with limited knowledge and try to reinvent the wheel, **but I expect this will be less of an issue in two or three years**.”]*

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Appendix P – Reflection

This appendix reflects on the positioning of the graduation project, the research approach and process, and the study's academic and societal value. It also includes a reflection on the feedback received throughout the graduation phase and the professional and personal development that occurred during this period.

Positioning of the Graduation Project
This thesis examined the role of institutional entrepreneurs in influencing stakeholder collaborations towards sustainable urban transformations (SUTs). This directly relates to the graduation theme of area development, which examines the game of area development, played by a variety of actors, and explores how it can be improved to tackle societal challenges such as climate change (Daamen, 2025).

The master track Management in the Built Environment (MBE) focuses on the development and management of buildings, real estate portfolios and urban area projects (BK TUDelft, 2023). A key focus of this track is to guide and coordinate the many stakeholders to achieve high-quality outcomes (ibid.). It emphasises future-proof development and addressing societal challenges, such as the circular economy and the housing crisis (ibid.). This thesis aligns closely with this master track as it examines how institutional entrepreneurs can influence stakeholder collaborations (stakeholder management) in the context of urban development, towards SUTs (addressing a societal challenge).

Research Approach, Methods and Process
This research adopted a qualitative research design, combining a literature review with a single case study analysis (document analysis and interviews), and an expert meeting (Chater 2). Upon reflection, this approach proved suitable for addressing the exploratory research question.

The single case study, focused on a specific SUT collaboration, enabled an in-depth exploration of the various perspectives and experiences of stakeholders across the multiple variables identified in the conceptual framework (Paragraph 3.4). This approach allowed for a deep understanding of the barriers and enablers influencing collaborative success (within the particular case), as well as the role and influence of the institutional entrepreneurs on the stakeholder collaboration towards the SUT.

Given the largely intangible and informal nature of the studied variables, a qualitative approach relying on interviews and an expert meeting was particularly appropriate. Concepts, such as trust, commitment and informal interactions, are difficult, if not impossible, to capture through quantitative methods, and are rarely documented. Consequently, the document analysis contributed minimally to the analysis of the collaboration variables, but proved valuable in providing an initial understanding of the case study context, supporting the case description (Paragraph 4.1 and Appendix M), selecting relevant interviewees, and refining the interview questions before data collection.

At the same time, this approach required a careful approach, as interpretations are inherently shaped by the researcher and therefore subject to potential research bias. To mitigate this, a structured and transparent analysis process was applied (Paragraph 2.3). The interviews were deductively coded using Atlas.ti, while in parallel, extensive Excel tables allowed for a systematic cross-interview comparison, documenting which quotes supported each finding. Only findings

supported by at least two interviewees were included in the research findings chapter (Chapter 4). Additionally, the expert meeting helped to validate and refine these findings, further mitigating potential research bias and strengthening the findings.

Moreover, the literature review and case study analysis informed the development of a preliminary set of guidelines for institutional entrepreneurs and externally commissioned coordinators and facilitators (Appendix N). The subsequent expert meeting provided important insights into the organic and intuitive use of intervention, as their timing and necessity vary across projects and contexts. It also highlighted the value of the guidelines as a living document, which should be continuously updated by incorporating newly identified barriers, enablers and interventions, allowing others to learn from them. These insights were incorporated into the final set of guidelines (Appendix O).

Additionally, due to the use of a single case study approach, the generalisability, and therefore the transferability, of the findings is limited, as described in Paragraph 5.2. However, by deliberately designing the guidelines as a source of inspiration, rather than prescriptive solutions, and by framing them as a living document, this limitation is acknowledged and partially addressed. In this way, the guidelines remain adaptable to different contexts and, by continuous enrichment, strengthen their relevance and transferability over time.

Academic and Societal Value
The social and scientific relevance of this research is introduced in Paragraph 1.2, while Paragraph 5.3 presents the practical and scientific implications of the research outcomes.

In short, this research offers societal value by examining barriers and enablers in a SUT collaboration, along with potential interventions that institutional entrepreneurs, externally commissioned coordinators and facilitators can use as solution pathways to influence such collaborations towards the realisation of SUTs. This is particularly relevant for wider society, given the urgency of climate change and the central role of cities and urban areas in addressing sustainability challenges. Therefore, through its set of practical guidelines, this research has the potential to contribute to the more widespread realisation of SUTs.

It also holds academic value, by contributing to the growing body of knowledge on SUTs, institutional entrepreneurs, and collaborations. Specifically, it provides insight into inherent enablers and barriers within a SUT collaboration, as well as the role, characteristics and interventions of institutional entrepreneurs in influencing this and potentially other stakeholder collaborations towards the realisation of SUTs.

Feedback
This paragraph reflects on how the feedback obtained from the supervisors was incorporated into the thesis. A recurring and central point of feedback from my mentors was that parts of my writing were too extensive and contained more detail than was necessary. I recognised this feedback, as it relates to my tendency, rooted in perfectionism, to treat every detail as important and to justify each line of reasoning as nuanced as possible, to be correct. At the same time, I believe this tendency did contribute positively to the development of an extensive literature review and a systematic analysis underlying the empirical findings.

In particular, in the final stage of writing this thesis, my mentors emphasised the importance of critically reassessing which elements of the literature review were essential for supporting the empirical study and, therefore, relevant to include in the main body, and which sections were merely contextual. The same applied to the findings chapter, where I initially provided a highly nuanced argumentation for each finding, often including detailed reasoning per interview. I translated this feedback into my work by rereading, restructuring and refining all chapters. This included shortening and streamlining the text, as well as removing or relocating less central sections to the appendix. I believe this significantly improved the coherence and readability of this thesis.

A similar point was raised during the expert meeting. Although the participating scholar complimented the thoroughness of my work and the amount of theory I had integrated, he also noted that this strength could become a pitfall. His feedback was that, particularly in formulating my conclusion and overarching message, I needed to balance completeness and nuance with a clear storyline and a strong central argument.

I incorporated this feedback by dedicating a paragraph in the results section to clearly articulating the role of institutional entrepreneurs in SUT stakeholder collaborations, outlining the key functions they perform and the characteristics that enable them to take on this role effectively. In my view, this strengthened both the narrative and the conclusion of this research.

Professional Development
Reflecting on my initial personal study targets, conducting this thesis offered me a valuable professional learning process, both in strengthening my academic skills and in gaining practical experience with the complexities of area development. Regarding the former, it taught me how to conduct a large-scale research project, including carrying out a comprehensive literature review and synthesising it into a conceptual framework that served as the foundation for the empirical research. It also taught me how to design and conduct empirical research and subsequently analyse and interpret the data, which was my first experience with carrying out qualitative research.

Regarding the latter, the empirical research revealed the various complexities involved in area development, particularly when aiming for structural change through the establishment of a SUT. These complexities arise not only from the many and often divergent interests of stakeholders, but also from the formal and informal institutions, both within and beyond the collaboration, that can pose significant barriers to such transformations. At the same time, the research provided insights into how these existing institutions can be influenced to stimulate and support the establishment of this and potentially other SUTs.

Personal Development
Alongside the professional development, this research process has also been a significant personal learning experience. The process often felt like a rollercoaster, with many moments of uncertainty in which I questioned whether I had made the right choices (regarding the topic and case study), whether I had conducted the analysis appropriately, and whether I would be able to complete the thesis in time. Reaching the final stages of this thesis, however, has shown me that I am capable of carrying out such large-scale research projects independently, as long as I work carefully, trust my own capabilities, and avoid panicking when something does not go as planned.

This period was also challenging on a mental and physical level. I experienced considerable stress, something I have been dealing with for a long time already, and I developed RSI symptoms that significantly affected my ability to work on the thesis and ultimately forced me to postpone my graduation. Although this was, and at times still is, difficult, it taught me an important lesson that nothing is more important than health. This is a realisation I often need to remind myself of to put the stress and uncertainty related to academic work into a better perspective.

Internship
Conducting this research within a graduation organisation contributed significantly to both the research and my personal development. Although I have heard from many graduates that they perceived tension between expectations from the graduating organisation and academic requirements, I did not encounter such conflicts. On the contrary, the organisation and my organisation mentor provided me with the freedom to determine my own direction and choices regarding the research, as long as these were well-considered and argued.

Moreover, conducting this research within an organisation offered several advantages, including access to the case study and the contact details of relevant stakeholders for the interviews and expert meeting. In addition, my organisation mentor, who had previously been involved in the case study and in many similar SUT projects, provided valuable feedback based on his practical experience, complementing the guidance of my academic supervisors and strengthening the research.

On a more personal level, I appreciated how warmly I was welcomed and included within the organisation, even though I carried out my work independently. The monthly hubs, in particular, offered valuable insight into the wide range of projects the department is involved in, broadening my perspective on the many inspiring professional directions that are possible after graduation.