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# Scaling Urban Experiments for Sustainability Transitions

Exploring opportunities for organisational transformation by embedding values created in experiments

Master's thesis at Challenge Lab

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Gothenburg, Sweden 2019

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Cover: Visual representation of values created in Stadslandet. More information can be found, starting on page 27.

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## Abstract

To meet the grand challenges facing humanity sustainability transitions are needed. The United Nations' Agenda 2030 for sustainable development, 'Transforming our world', calls for urgent transformation. Urban experimentation has emerged as a form of governance for sustainability transitions, where Urban Living Labs (ULLs) are emerging arenas. To achieve the desired sustainability transitions, it is necessary to scale up experiments and change the existing socio-technical regimes. Despite this, it is common for experiments to stay only within the original ULL. Embedding is a mechanism of scaling, where the learnings and experiences from participation in ULLs are aligned and integrated into practices, policies, culture etc. It is creating institutional change through new ways of thinking, doing and organising, whether formal and informal.

The aim of this thesis is to explore the opportunities for municipal organisations to embed the learnings and experiences from their ULL participation into their ways of working, and thus transforming their organisations. The municipality of Gothenburg, Sweden, was studied through a qualitative single-case study of Stadslandet, a municipal sustainability project. Semi-structured interviews were used as the main data source and were complemented with added insights from documents from Stadslandet and workshops during the analysis. The data was analysed through a five-phased cycle including; compiling, disassembling, reassembling, interpreting and concluding.

The results of this thesis present the perceived values emerged within Stadslandet; i) Building multi-stakeholder networks, ii) Collaboration, iii) New perspectives, iv) Space for experimentation, v) Knowledge building and vi) Other contributions. Furthermore, barriers for embedding these values in the ordinary structures of the municipality and through that transform the organisations. The barriers found was; i) Wicked systems, ii) Lack of mandate, organisational and political leadership, iii) circumstances changes over time and iv) Current system not designed for experimental activities.

Identification of values from Stadslandet and barriers for embedding those values, are important first steps for achieving organisational transformation. Further research is needed for determining how the learnings and experiences can be embedded.

Keywords: sustainability transitions, system innovation, transformation, institutional change, experimentation, urban experiments, Urban Living Labs, scaling, embedding, backcasting

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*Annica*

This master's thesis is the second one I've started. I went on an amazing and difficult journey with the first one: spending time in Sri Lanka, learning invaluable lessons and struggling for a long time. Finally letting go was both one of the best, and, one of the hardest decisions I've ever made. Somehow, all the challenges and misfortunes led me to this year of the Challenge Lab's master's thesis lab. I feel like I am right where I am meant to be: Being a changemaker and working with sustainability transitions.

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# How to Read this Report

This thesis was conducted at the Challenge Lab at Chalmers University of Technology in Gothenburg, Sweden. The thesis process at Challenge Lab differs from most other theses, as we do extensive work to develop our own research questions. We find real challenges and opportunities in our local society and design our theses as meaningful contributions to sustainability transitions in our local context. Since this accounted for half of our thesis work, a substantial part of this report is dedicated to illuminating our work of developing the research questions. We also want to give those who are curious the opportunity to peek inside our lab and the Challenge Lab process.

Due to the nature of the multi-stakeholder, real-world challenge that this thesis addresses, we acknowledge it will appeal to different audiences, searching for different kinds of information (process and findings). To accommodate that, the thesis outline below is meant to guide the reader to the chapters that might be of interest.

## Thesis Outline

Chapter 1 - *Introduction*, describes the background for the thesis and includes our aim and research questions, the scope of the thesis and the context that we did the thesis within, Chalmers Challenge Lab.

Chapter 2 - *Theoretical background*, presents the theoretical background used both for developing the research questions and for the study itself, including backcasting, sustainability transitions and stakeholder engagement.

Chapter 3 - *Developing the Research Questions*, describes our process to develop the research questions for the thesis, including the Challenge Lab thesis process, the methods used and consequent results.

Chapter 4 - *Case Study: Stadslandet*, describes the case study of Stadslandet. It explains what Stadslandet is and how it is organised, in order to set results and analysis in a context.

Chapter 5 - *Methodology*, presents the methods used to answer the research questions, when and in what way they were applied, including motivation on method choices.

Chapter 6 - *Results & Analysis*, presents the collected data and insights gained in response to the research questions presented in the Introduction (chapter 1). This includes identified values created within the case study of Stadslandet, existing methods for embedding these values within the municipal organisations and barriers for implementation.

Chapter 7 - *Discussion*, discusses interesting findings, the methodology used and implications of the thesis, for practitioners and policies, as well as possibilities for future research.

Chapter 8 - *Conclusion*, summarizes the contribution of the research as a whole, before identifying potential future research and future work for practitioners.

# 1 Introduction

Sustainability transitions are needed to meet the grand challenges facing humanity. The United Nations Agenda 2030 for sustainable development, ‘*Transforming our world*’, calls for urgent transformation to secure the sustainability and resilience of the planet and its biological support systems (UNGA, 2015). It does this by recognising that planet Earth is “*our common home*” (p. 13) and that the sustainability challenges we face are a matter of survival. Agenda 2030 emphasises the interconnected nature of ecological, social and economic sustainability, that they are inextricably linked and indivisible. Therefore, the sustainability challenges need to be addressed simultaneously and in relation to each other (UNGA, 2015).

The transformative change referred to in Agenda 2030 can be “*understood as ‘system innovation’ or ‘transitions’, involving fundamental processes of change on a level of systems in society*” (Holmberg & Larsson, 2018, p. 1). Societal and ecological systems are “wicked systems”, with both dynamic and structural complexity (Andersson, Törnberg & Törnberg, 2014). Dealing with wicked systems, and consequently transitions, is inherently uncertain. Transitions can neither be predicted nor controlled, they can only be influenced (Rotmans, Kemp & Van Asselt, 2001).

Finding solutions for transition challenges, and spreading the solutions to new contexts, require multi-stakeholder experimentation with iterative assessment and learning (Bulkeley & Castán Broto, 2013; Sengers, Wieczorek & Raven, 2016). The experimentation setting provides legitimacy for going outside of the entrenched “*business as usual*”, it becomes a safe space and gives greater agency to the participating stakeholders (Fuenfschilling, Frantzeskaki & Coenen, 2018). Thereby the experimentation drives innovation and change. There are several approaches to urban experimentation for sustainability transitions, a prominent one is the emerging concept of Urban Living Labs (ULLs) (Voytenko et al., 2015). ULLs are a form of governance where sustainability challenges and opportunities within the urban context are addressed through experimentation, learning and innovation (see chapter 2.2.1).

Urban Living Labs are expected to accelerate sustainability transitions (Kronsell & Mukhtar-Landgren, 2018), and as the current rate of change is not enough for the realisation of Agenda 2030 (UN, 2018), acceleration is critical for the wellbeing of people and the planet. Scaling mechanisms, sometimes referred to in terms of accelerating transitions, are the mechanisms that grow and spread learnings and innovations (Van den Bosch & Rotmans, 2008; Gorissen et al., 2018; Ehnert et al., 2018). Experiments derive their meaning from scaling, where they can have an impact beyond the context of the ULL and contribute to system innovations and transitions (Fuenfschilling, Frantzeskaki & Coenen, 2018; Van Doren et al., 2018; Kronsell & Mukhtar-Landgren, 2018). Yet, it is common for experiments to stay only within the original initiative (Van Doren et al., 2018).

There are different scaling mechanisms, where one of the less researched is embedding (Fuenfschilling, Frantzeskaki & Coenen, 2018; Naber et al., 2017). Embedding is the mechanism of scaling, that denotes alignment and integration of the learnings and experiences from participation in ULLs into practices, policies and other formal and informal institutions. Embedding results in institutional change through new ways of thinking (culture), doing (practices) and organising (structures).

Experimental governance literature tends to diminish the importance of formal decision-making institutions, though research has found that municipalities have powerful and leading roles in transitions (Bulkeley & Castán Broto, 2013; Warbroek & Hoppe, 2017; Kronsell & Mukhtar-Landgren, 2018). In this thesis we developed the research focus of embedding the values created in Urban Living Labs into municipal organisations in Gothenburg City. We will do this by studying the municipal sustainability project *Stadslandet*. We define the values created in Urban Living Labs as the learnings created within the lab in the form of new ways of thinking, doing and organising. Embedding the values create organisational transformation through changing the culture, practices and structures.

## 1.1 Aim, Research Questions & Purpose

By using the municipal sustainability project *Stadslandet* as our case study and framing it in the context of Urban Living Labs (ULLs), this thesis aims to explore the opportunities for municipal organisations to embed the learnings and experiences from their ULL participation into their ways of thinking, working and organising, and thus transform their organisations.

To fulfil our aim, we will explore the research questions:

1. *What values are created in municipal Urban Living Labs?*
2. *What are the barriers for embedding the learnings and experiences from Urban Living Lab participation for organisational transformation within the municipality of Gothenburg?*

The purpose of this thesis is threefold. First, to make a meaningful contribution to the underdeveloped research area of embedding. Second, to contribute to the practical application of ULLs. Third, to add value in the local context of Gothenburg City, specifically embedding knowledge and experience of experimentation into the ordinary work of the municipal organisations.

## 1.2 Scope and Delimitations

The study is limited to the municipal organisations within Gothenburg City that are participating in the sustainability project *Stadslandet*, which serves as our case study. We are studying both the embedding of the values created in *Stadslandet* into the participating organisations, as well as their opportunities, in the form of barriers to embed values from participation in other kinds of exploratory projects/ULLs.

## 1.3 Thesis Context: Chalmers Challenge Lab

The Challenge Lab is a space for students to conduct their master theses, and through their thesis work address local sustainability challenges and become leaders in sustainability transitions. A fundamental aspect of the Challenge Lab is the real-world context, where the theses topics are developed through interaction with local stakeholders from academia, the public sector and industry (Larsson & Holmberg, 2018).

*“Challenge Lab at Chalmers University of Technology is a challenge driven innovation and co-creation arena for a sustainable future.”*  
- Challenge Lab brochure (Chalmers University of Technology, n.d.)

### 1.3.1 Co-creation & Diversity

Co-creation is at the centre of the thesis process at Challenge Lab. The theses topics are developed using backcasting as an overarching methodology, looking first to a sustainable future, then to current systems (of the societal functions or thematic areas that are being explored) and defining the gap between the two, followed by identification of leverage points as opportunities to shift the system toward sustainability. During this first part of the thesis process all the students work together to co-create the material and foundation for all the different master theses. The Challenge Lab team facilitate and support this process throughout the entire thesis work.

The work of defining the thesis topic and developing the research question is a substantial part of the thesis process. Read more about the Challenge Lab process for developing the theses topics and research questions in chapter 3.

Challenge Lab brings together students from different cultures and educational backgrounds. In 2019, we are 12 students with 7 different nationalities (Sweden, South Africa, Greece, Egypt, Germany, Syria and India), 4 women and 8 men, all with different educational backgrounds (mainly different engineering bachelors and master's studies).

The diversity represented in the group brings out a multitude of perspectives, thus creating a rich learning environment. It both requires more in terms of understanding and collaboration, and provides invaluable experience for working in real world contexts outside of university studies (one of the main goals of Challenge Lab).

### 1.3.2 The Local Perspective

In order to facilitate the theses to have an impact, and to allow collaboration with important stakeholders, there is a clear focus on the local perspective at the Challenge Lab. Region Västra Götaland provides the systems boundary within which theses are developed. It follows the motto:

*“Think Big. Start Small. Act Now.” – John Holmberg*

### 1.3.3 Multi-Stakeholder Engagement

The stakeholder interactions enable the students to find and create connections with current initiatives and engaged actors. This is invaluable both for the thesis process itself, and to ensure that the theses are created with clearly defined and explicitly interested recipients. For the thesis process, it means that there are engaged stakeholders and sources of information for the local conditions from which the research question can be developed, and the research can be carried out. Students can design their work together with engaged stakeholders to make it relevant and appreciated, thereby contributing towards local sustainability transitions.

The benefits of the stakeholder engagement in the Challenge Lab go beyond the thesis work. As the students and the lab represents a neutral space, it becomes an enabler for connections between the participating stakeholders. People and organisations meet, that might not have otherwise done so, and they come together in their shared commitment to sustainability transitions in their respective fields. The Challenge Lab becomes a safe space where open dialogue can take place and where trust can be fostered. One of the main reasons for this is the neutrality of the students, whom are engaged in addressing sustainability challenges and do not represent a particular interest or agenda. During our dialogues in the beginning of our

thesis process we found connections being made and contact information being exchanged by the participating stakeholders.

#### 1.3.4 Inside-Out & Outside-in Perspectives

There are two distinct perspectives that govern the Challenge Lab process: “*inside-out*” and “*outside-in*”. Inside-out, is the perspective where we explore our own motivation and drive, through our values, strengths and our personal interests. The choice of our thesis topics is greatly determined by our own preference. The outside-in perspective, entails looking at theory, methods and the systems that govern sustainability and transition management. Besides being motivated, knowledge and the skill to operationalise that knowledge is essential to creating change.

#### 1.3.5 Cultivating Changemakers

The aim of Challenge Lab is addressing sustainability transitions (Larsson & Holmberg, 2018). The magnitude and wickedness (complexity plus complicatedness) of the sustainability challenges the world is facing require not only new solutions, but also new ways of thinking, and so too new ways of leading.

*“We cannot solve our problem with the same level of thinking, that created them.” - Albert Einstein*

The new way of leading require comfort with uncertainty, navigating complex systems, the ability to facilitate multi-stakeholder processes (Larsson & Holmberg, 2018), and in the words of one of our dialogue participants “*make good decisions based on bad data*”. All of these skills and more, are explicitly or implicitly learned through conducting a master thesis at Challenge Lab. Read more about the Challenge Lab process in chapter 3.

The essence of Challenge Lab is the curious, open exploration of societal challenges and the need for sustainability transitions to solve them. Learning is at the centre as we explore the local expression of global sustainability challenges.

Challenge Lab cultivates changemakers for leading sustainability transitions, with the goal “*to transform the way we live together and create a planet where 10 billion people can enjoy a good life within our planetary boundaries.*” (Chalmers University of Technology, n.d.)

## 2 Theoretical Background

This chapter provides a theoretical background for this thesis, introducing concepts and building an understanding of sustainability transitions, governance through experimentation and scaling of experiments, including the central mechanism of this thesis: embedding. Our two research questions address embedding, first what to embed and second what the barriers to embedding are. Lastly, this chapter presents the theory of backcasting, which is the foundational methodology of the Challenge Lab process.

### 2.1 Sustainability Transitions

As expressed in the Introduction (chapter 1), addressing the sustainability challenges of our time require transitions of societal systems. “[T]he scale, scope and urgency of the transitions required are considerable” (Turnheim et al., 2015).

Transitions are massive shifts, or transformations, in the foundational structure of society, including technology, organisation, institutions and culture (Rotmans, Kemp & Van Asselt, 2001; Loorbach & Rotmans, 2006; Naber et al. 2017). *“Transitions are considered long-term, open-ended, co-evolutionary, multi-actor processes, inherently complex, uncertain and ambiguous”* (Holmberg & Larsson, 2018, p. 1). Transitions can be understood through different systems framings. In the context of this thesis, transitions are understood as shifts from one socio-technical system to another, also called system innovation (e.g. Rotmans Kemp & Van Asselt, 2001; Geels, 2005).

#### 2.1.1 Socio-Technical Systems

Socio-technical systems encompass the interconnected nature of society and technology. These are wicked systems that include: laws & regulation, market forces and mechanisms, culture and customs (including lifestyles, values and socially accepted behaviour), infrastructure, artefacts, technology, and more (Geels, 2002; Andersson, Törnberg & Törnberg, 2018). Socio-technical systems can be understood as the fulfilment mechanism of societal functions, e.g. water and sanitation, energy, and transportation.

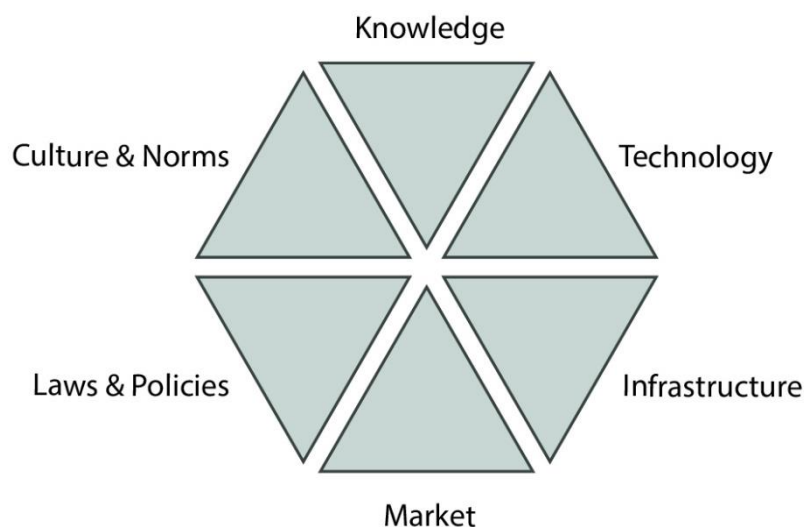


Figure 2.1 Parts of Socio-technical systems.  
(Inspired by Geels & Schot, 2007, as used in Holmberg, 2018b)

### ***Multi-Level Perspective, MLP***

The Multi-Level Perspective (MLP) is a common framework used to understand the nature of socio-technical transitions (Geels, 2005). Traditionally, it was mostly used to trace historical systems change (Geels, 2002). In recent years, attention has grown in the utility of MLP on going beyond understanding change, to actively influencing change processes (Meadowcroft, 2011; Roberts et al., 2018).

In MLP, a socio-technical system is described on three levels (see fig. 2.2 below): landscape (macro), regime (meso), and niche (micro). The regime signifies the mainstream “*business as usual*”, the entrenched part of the system, with forces keeping it in a dynamic equilibrium. The landscape level represents global trends and forces that apply pressure on the regime, e.g. globalisation, aging population, climate change, urbanisation, and digitalisation. The niches are smaller pockets of innovations or new ways of doing things that are of limited diffusion and adoption. The collective force of niches, or a force well placed at a point of leverage in the system, can bring about change in the socio-technical regime. (Geels, 2005)

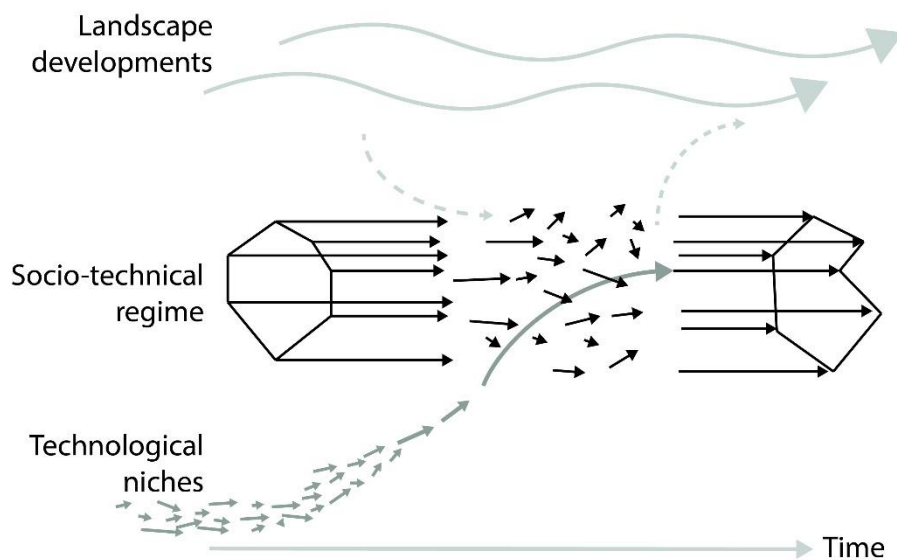


Figure 2.2 Multi-level perspective on transitions, created by Geels (2005)

MLP provides a framework for a structured view of the system in question. However, socio-technical systems are wicked in nature (Andersson, Törnberg & Törnberg, 2018). Therefore, it is important to acknowledge that: “*The map is not the territory*” (Korzybski, 1933).

### ***Wicked Systems***

A wicked system has both complexity (dynamic complexity) and complicatedness (structural complexity) (Andersson, Törnberg & Törnberg, 2018). The presence of both these characteristics in a system creates emergent characteristics that are fundamentally different from both complexity and complicatedness.

A “*breakdown*” in a wicked system does not stop it from working, e.g. the planet dying, rather conditions and components of the system change in a dramatic way, resulting in e.g. eroding the conditions for survival of human societies, mass extinctions, or systematic crop failures and consequent starvation (Andersson, Törnberg & Törnberg, 2018).

Wicked systems cannot be addressed by methods from complex science or systems-based theories (which addresses complicatedness), as the strength of the methods respectively are

related to the absence of the other phenomena (Andersson, Törnberg & Törnberg, 2018). Wicked systems need to be addressed in other ways.

## 2.2 Governing Sustainability Transitions

Sustainability transitions are messy, dynamic and uncertain (Fuenfschilling, Frantzeskaki & Coenen, 2018; Andersson, Törnberg & Törnberg, 2018). Factors necessary for the effective governance of transitions are experimentation, continuous adaptation and multi-stakeholder processes (Turnheim et al., 2018). In the academic field of socio-technical system innovation, experimentation is at the centre (Sengers, Wieczorek & Raven, 2016), and in transition studies experimentation is indicated as a catalyst for change (Fuenfschilling, Frantzeskaki & Coenen, 2018).

Urban experimentation has emerged as a form of governance for sustainability transitions (Bulkeley and Castán Broto, 2013), where the local impact of global sustainability challenges is addressed (Gorissen et al., 2018). What is an experiment in this context? According to a literature review on experimenting for sustainability transitions by Sengers, Wieczorek & Raven (2016) an experiment is “*an inclusive, practice-based and challenge-led initiative, which is designed to promote system innovation through social learning under conditions of uncertainty and ambiguity*”. Holmberg & Larsson (2018) uses the metaphor of a cruise and an expedition, to distinguish between the system optimisation of ordinary activities, and the system innovation of exploring new solutions through experimentation. Experimentations have no certain outcome, where failing is a natural part of the learning process and thus require the participants to trust both each other and the process itself (Fuenfschilling, Frantzeskaki & Coenen, 2018). This serves the additional value of reducing the risk and impact of the process of finding new solutions, as an experiment is bounded.

It is important to understand that the “*cruise*” and the “*expedition*” follow different logic, and that they are mutually interdependent (Holmberg & Larsson, 2018). The cruise needs the expedition to find ways forward to a desirable future. Sending out a smaller expedition allows for risk to be minimised and learning maximised. According to Holmberg & Larsson (2018), the expedition derives its purpose from the cruise, as finding sustainable ways forward becomes largely irrelevant if not transferred to the greater society. In a cruise, the logic surrounds certainty, effectiveness and cost-efficiency. This logic calls for specific targets and goals, control, measuring and assessments. In an expedition, an experiment, the logic is based on learning. This logic calls for openness, trust, safe spaces, autonomy, adaptivity and the willingness to learn from any outcome. Each of them appropriate for their domain. Each of them necessary. In transition management (TM) the complementing nature of system innovation and system optimisation is central (Rotmans, Kemp & Van Asselt, 2001). Where the most desirable solutions satisfy both optimisation and act as a bridge to innovation.

Urban experiments are called different things in the literature: Transition Initiatives (Gorissen et al., 2018), transition experiments, urban laboratories (Bulkeley et al., 2015; Fuenfschilling, Frantzeskaki & Coenen, 2018), or simply ‘experiments’ (Naber et al., 2018). There are different concepts within the field of urban laboratories: Living Labs, Urban Transition Labs, Sustainable Living Labs, and Urban Living Labs, to name a few (Schliwa, 2013; Nevens et al., 2013). In this thesis, we have chosen Urban Living Labs as our experimentation framework.



### 2.2.1 Urban Living Labs

Urban Living Labs (ULLs) are geographically embedded arenas where sustainability challenges and opportunities within the urban context are addressed through experimentation, learning and innovation (Voytenko et.al., 2015). It is seen as an emerging concept, with differences occurring between existing ULLs. However, there are shared properties, presented below:

1. Geographical embeddedness - ULLs are physically placed in a geographical area,
2. Experimentation and learning - ULLs test new solutions in a real-world setting,
3. Participation and user involvement - Stakeholder engagement and Co-design processes are used in ULLs,
4. Leadership and Ownership - It is crucial for an ULL to have a clear leader or owner
5. Evaluation and refinement - Through evaluation, ULLs ability to facilitate learning and knowledge building is supported.

In an attempt to understand the role of Urban Living Labs in urban sustainability transitions, several authors connect ULLs to the Multi-Level Perspective (MLP, chapter 2.1.1). Both Bulkeley et al. (2015) and Gorissen et al. (2018) have made the argument that ULLs are part of the niche level in MLP. Urban Living Labs can be seen as arenas for niche experimentation and innovation, that challenges the regime (Gorissen et al., 2018). The work of Bulkeley et al. (2015) make a strong connection using Strategic Niche Management (SNM), where stakeholders design environments for niche innovations to disrupt the regime. Thus, they make that case that from a socio-technical systems point of view, sustainability transitions can be influenced through strategic niche management. SNM can be used as a framework for understanding ULLs. The three foci on SNM are the creation of social networks (multi-stakeholder processes), emphasising learning, and gathering behind visions and expectations (Naber et al., 2017), which align with the characteristics of ULLs. By cultivating niches locally, they can influence the “global niche level” (Naber et al., 2017) and create niche power structures akin to regimes, called “niche regimes” (Frantzeskaki & Haan, 2009).

For an urban experiment to lead to sustainability transitions, the learnings and experiences need to be spread beyond the context of the initiative (Van Doren et al., 2018). In going from the bounded value contributed within the lab itself to having greater impact, an ULL needs scaling.

### 2.2.2 Scaling Experiments

The scaling literature used in this thesis focus on different conceptualisations of experiments, as mentioned above there are e.g. experiments, Urban Living Labs and Transition Initiatives. Therefore, these different concepts will be used here as it is used by the different authors.

Scaling is the growth and expansion of labs, initiatives or experiments. Yet, it is common for experiments to stay only within the original context (Van Doren et al., 2018). Besides foregoing the opportunity to facilitate transitions, this creates resource inefficiencies as different organisations invest in solutions instead of learning from each other.

In the literature on scaling experiments, there is no unanimous usage of terms. Scaling is by some referred to as upscaling or scaling-up (Naber et al., 2018; Van Doren et al., 2018), while upscaling is a specific scaling mechanism according to others (Gorissen et al., 2018). We have chosen to refer to *scaling* as the overarching term for spreading and growing experiments (means) and the solutions and results created within them (ends). We use the

terms for scaling mechanisms developed in the research project *Accelerating and Rescaling Transitions to Sustainability* (ARTS) (The ARTS Project, 2016).

The scaling mechanisms presented by ARTS are: *replicating* (creating a new initiatives), *partnering* (bringing in more resources and creating synergies), *upscaling* (growing the number of stakeholder and users), *instrumentalising* (using opportunities in multi-level governance), and *embedding* (strategically transforming the initiative context) (Gorissen et al., 2018). The scaling mechanisms “*reinforce each other*” (Ehnert et al., 2018).

Within scaling, this thesis specifically addresses the mechanism embedding. Not to be confused with the embeddedness of ULLs in local contexts.

### ***Embedding***

Embedding is the process of scaling where learning and experiences are integrated into organisations and thus transforming the organisations away from business as usual. It is one of “*the core mechanisms for accelerating sustainability transitions*” (Ehnert et al. 2018).

Among the different mechanisms of scaling, embedding has received limited attention and is considered underexplored (Fuenfschilling, Frantzeskaki & Coenen, 2018). As can be seen in Table 2.1, embedding has been conceptualised in different ways by different authors.

<b>Term</b>	<b>Definition</b>	<b>Source</b>
Embedding	“Embedding is the alignment of old and new ways of [thinking (cultures), organising (structures) and doing (practices)] in order to integrate them into city-regional governance patterns.”	Gorissen et al. (2018), p. 172 & 173
Transformation	“The experiment shapes wider institutional change in the regime selection environment”, which can be “regulatory, normative or cognitive”.	Naber et al. (2017), p. 344 & p. 346
Vertical pathways to scaling-up	“Vertical scaling-up refers to the process where the information concerning ideas, values, knowledge or other lessons from individual [initiatives] inform institutions at higher administrative and organisational levels with wider-reaching impact”.	Van Doren et al. (2018), p. 178
Embedding	“Embedding captures the connecting of issues and solutions to institutions as a way to spread and formalize new ways of doing, thinking, and organizing and the extent to which local [Transition Initiatives] strategically shape local governance dynamics.”	Ehnert et al. (2018), p. 3

Table 2.1 Definitions of embedding in the literature

Embedding is about strategically shaping the context that the lab operates in, and “*anchoring more sustainable practices in local governance*” (Gorissen et al., 2018). It is “*structural learning and changing the institutional roots*” (Van Doren et al., 2018).

Embedding can transform formal and informal institutions (Gorissen et al., 2018; Van Doren et al., 2018). In formal embedding, there is a formalisation of the values from the transition initiative, and results in e.g. policy and organisational changes. Institutionalisation is a mechanism of formal embedding (Ehnert et al., 2018). Formal embedding provides legitimacy, and thus facilitates in further diffusion. It can have negative effects, as there can be a perceived loss of “*ownership and responsibility*”, leading to disempowerment and reduced innovative capacity (Gorissen et al., 2018). Informal embedding transforms values, ideas and thinking, as well as practices. Routinisation is a mechanism of informal embedding. Routinisation is when the people who are involved in the transition initiative changes their own practices, the way that they allow the experiences and learnings from the initiative to influence their ordinary activities (routines), thus transforming the way that they work.

Partnering has been found to be crucial for embedding (Gorissen et al., 2018) and the stakeholders are “*important entry points*” (Ehnert et al., 2018). Van Doren et al. (2018) found the following significant influences on embedding: leadership (leading the activities and scaling, including challenging changes within the organisation and the socio-technical system), stakeholder involvement (participation of relevant stakeholders, creating shared understanding and co-creating ways forward), communication (internal and external sharing of ideas and experiences, for coordination and laying the foundation for scaling), political leadership (government leadership in relevant areas, building trust, encouraging scaling and influencing the “*formal and informal institutions of the policy network*”) (Van Doren et al., 2018). Local political leadership plays an important role, where policies are adapted from experiences and learning (Naber et al., 2017).

The most efficient path to embedding is aligning the “*objectives and activities*” of the transition initiative and regime stakeholders, and having a shared acknowledgement of the “*synergies*” (Ehnert et al., 2018). Which can be on the level of resources, governance and institutional, or social. One of the challenges is to reach shared understanding, as different stakeholders follow different logic and have different contextual “*languages*”. Again, creating the need for trust and what Ehnert et al. (2018) calls translation. To facilitate embedding, the stakeholders need to understand, compile, and communicate the value created in the lab within their local context (Van Doren et al., 2018). Naber et al. (2017) found the utility of each stakeholder having clear expectations for their participation in the experiment, and communicating that among the participating stakeholder, so that they all understood each other.

Not all transition initiatives aim for embedding, as some stakeholders see their role as being practitioners and not as being a part of sustainability transitions and driving system innovation (Ehnert et al., 2018). It is worth noting that embedding is more difficult to evaluate than other mechanisms of scaling, as causal relationships are difficult to determine for formal and informal institutional change (Van Doren et al., 2018).

## 2.3 Backcasting Theory

In short, backcasting is envisioning a desirable future, contrasting that future with the current state, and then developing ways to go from the present to the desirable future (Vergragt &

Quist, 2011). As presented in chapter 1.3, backcasting is used as an overarching methodology in the Challenge Lab thesis process.

Backcasting is a strategic and systematic process for addressing complex, and wicked, challenges (Holmberg & Robèrt, 2000). It is particularly useful when the challenge requires system innovation, when the problem is defined by dominant trends and consists of externalities, and when there is considerable time for proactive action (Dreborg, 1996). This makes backcasting key when addressing sustainability challenges. In 2018 the Sustainable Development Solutions Network recommended backcasting for realising Agenda 2030 and the Sustainable Development Goals (Holmberg & Larsson, 2018). Skilled facilitation is critical for the success of this process.

The four steps of the backcasting process, illustrated in figure 2.3, are (Larsson & Holmberg, 2019):

1. Develop principles for a sustainable future
2. Analyse the gap between the present situation and the sustainable future
3. Identify leverage points for bridging the gap
4. Create strategies for addressing the leverage points

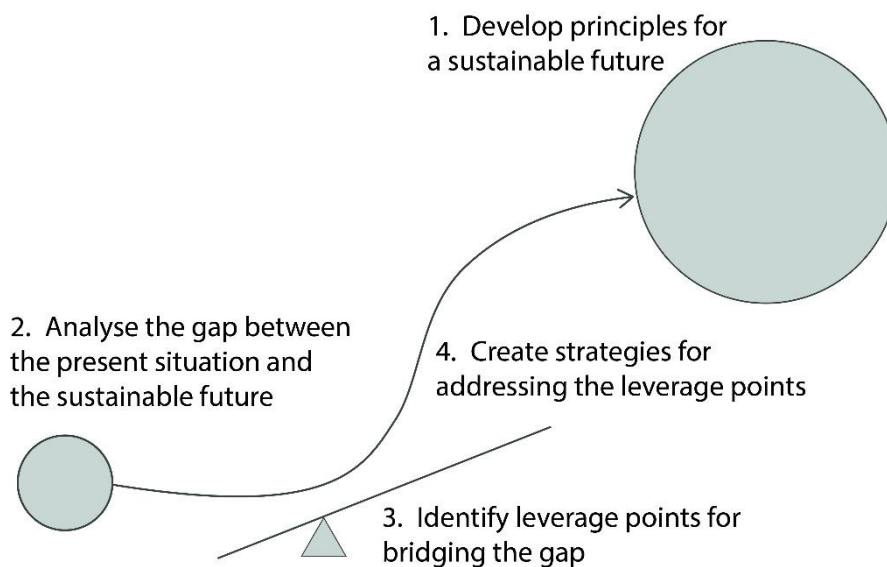


Figure 2.3 The steps in Backcasting (Larsson & Holmberg, 2019)

Though it is presented in a linear fashion here, backcasting is by nature an iterative process, where e.g. the identification of a leverage point opens up a deeper investigation around the circumstances of the system pertaining to the leverage point.

### 2.3.1 Backcasting Step 1: Develop Principles for a Sustainable Future

The first step in backcasting is to envision a sustainable future at the level of principles. This creates a robust foundation, as the expression of the future will differ from what we know and believe today, as well as between different countries and contexts. Staying at the level of principles allow us to be open to the possibilities and opportunities that will arise along the way, and to accommodate the uncertainty and unknowable nature of the future.

There are different ways to approach developing these principles. Holmberg & Larsson (2018) promotes a *balanced approach* where a foundational framework, the Sustainability Lighthouse, is provided and the contextual expression of the principles are developed by the stakeholders. This encourages engagement and ownership, through tapping into basic human motivation and inviting the stakeholders to participate rather than telling them what rules to follow. It also honours that sustainability is essentially political and normative. The framework provided facilitates the conversation and helps the stakeholders to think beyond the current unsustainable systems, to integrate their thinking of the different dimensions of sustainability (while providing guidance on each one) and thinking together to create shared understanding (Holmberg & Larsson, 2018).

### ***The Sustainability Lighthouse***

The Sustainability Lighthouse is a framework designed to make it easier to visualise and communicate around the different dimensions of sustainability (Holmberg & Larsson, 2018). It takes on a balanced approach in defining sustainability, where it is both open and guided. The three pillars often talked about in sustainability: ecological, economic and social, are complemented by “*human needs and wellbeing*” to distinguish our collective human needs as a society from our individual needs. The latter is the aim for us all to live a good life and is often missed when bundled into “*social sustainability*”. Ecological sustainability is the foundation of all sustainability, supporting both the social and economic dimensions.

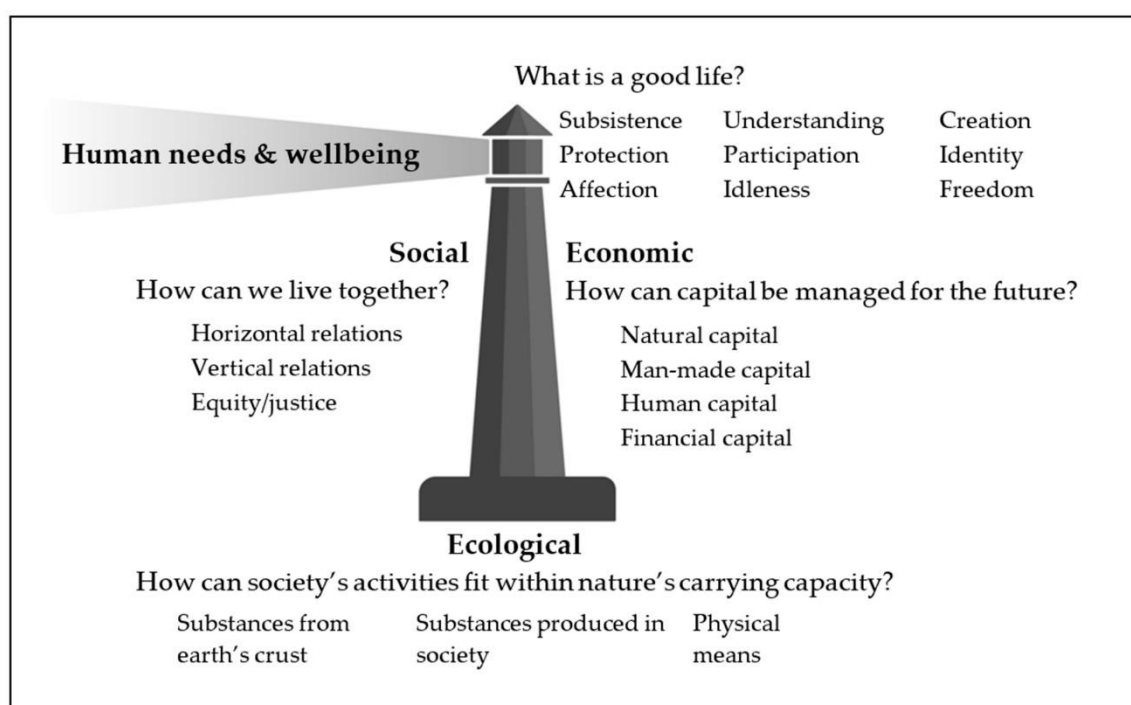


Figure 2.4 Sustainability lighthouse (from Holmberg & Larsson, 2018)

### **2.3.2 Backcasting Step 2: Analyse Gap Between the Present & Desired Future**

In the second step of backcasting, the current socio-technical system of the given challenge or thematic area is mapped out using Multi-Level Perspective (chapter 2.1.1). The system's map is then contrasted with the sustainability principles developed in step one, and the gap between the two is analysed.

### 2.3.3 Backcasting Step 3: Identify Leverage Points

In the third step of backcasting, leverage points for addressing the gap analysed in step two are identified. As the name indicates, a leverage point is a point in the system where a targeted action leads to disproportionate results. In this context it can be seen as opportunities for creating shifts in the socio-technical system. Meadows (1999) defines leverage points as *“places within a complex system ... where a small shift in one thing can produce big changes in everything.”*

### 2.3.4 Backcasting Step 4: Create Strategies for Addressing the Leverage Points

In the fourth, and last, step of backcasting, strategies are created for addressing the selected leverage point. The leverage point itself is only an opportunity. To realise that opportunity strategies and actions are needed. Note that it is not until this last step that solutions come into play.

## 3 Developing the Research Questions

This chapter presents the process of developing our research questions, with the aim of provide insight into how it is possible to work with wicked systems and our global challenges. It is meant to give an idea of how messy and arbitrary the process can be, and to show the truth of the work rather than just the cleaned up results.

### 3.1 The Challenge Lab Process

The thesis process at Chalmers Challenge Lab uses backcasting as an overarching methodology. Therefore, it is used to frame the process of developing the research questions. It is an iterative process, iterating through the different backcasting steps and methods in order to reach the final result.

The first four weeks at Challenge Lab were a co-creative process engaging all the 12 participating students, and only on week four did we choose our thesis partners and what topic to work with. Throughout the thesis work we were also supported by the Challenge Lab team. The co-creative process entailed: defining sustainability principles, mapping socio-technical systems, identifying gaps between the current system and the sustainability principles, and identifying leverage points to address the gaps.

### 3.2 Backcasting Step 1: Develop Principles for a Sustainable Future

In the initial step of backcasting, sustainability is defined at the level of principles (for more detail see chapter 2.3 Backcasting Theory). The resulting principles are a representation of sustainability as seen by the participating students, as they are developed through a process of connecting personal values and beliefs with the knowledge and experience of the group.

#### 3.2.1 Self-leadership

Understanding personal motivation and needs are important to ensure that the sustainability principles are relatable on a personal and human level. In addition to creating connection between the participants and the principles, it also creates greater understanding among the participants and bonds the group together.

Personal values were identified and reflected upon individually. This was followed by sharing the personal values in groups of three where we told stories from our lives that exemplified how we live those values. Resulting in a transformation from separate individuals in a new context to be a cohesive group. To increase the students' self-leadership abilities, the self-exploration continued with working on personal mission statements based on their values. The self-leadership was finished with exploration of each individuals' strengths, and their complementary strengths as well as the negative expressions of these when they are excessive. The strengths exercises were used both for better self-knowledge, and for each student to appreciate the strengths of individual with different strengths, including the positive strengths that are over expressed in negative behaviours.

#### 3.2.2 The Sustainability Principles

The sustainability principles were developed with the foundation of *The Sustainability Lighthouse*, described in chapter 2.3.1, where the sustainability principles are categorised into

Human needs & wellbeing, Social, Ecological and Economic. They were all developed through workshops teasing out the knowledge of the participating students, with limited to no outside input. Human needs & wellbeing principles were the first developed, using a brainstorming and clustering session, resulting in keywords.

<b>Human needs &amp; wellbeing sustainability principles</b>		
Safety	Intellectual	Institutions (social structures)
Freedom	Spiritual	Social
Purpose	Nature	Self-actualisation
Leisure	Love & Belonging	

Table 3.1 Sustainability principles for Human needs & wellbeing.

The rest of the principles were developed in a world café workshop, where students rotate through the different categories successively building the principles. The principles for social, ecological and economic hence became more well-developed. They are full sentences capturing the essence of their meaning in a more comprehensive way than the keywords of the Human needs & wellbeing principles.

<p><b>Social sustainability principles</b></p> <ul style="list-style-type: none"> <li>• Embracing the interdependent nature of our human society, every individual has the sense of responsibility and involvement.</li> <li>• The foundation of our society is sufficiency.</li> <li>• All our interactions are meaningful and honour the humanity in all of us.</li> <li>• Equal rights and opportunities, the freedom to direct our own lives.</li> <li>• Fair distribution of resources and knowledge with a culture of sharing and generosity.</li> </ul> <p><b>Ecological sustainability principles</b></p> <ul style="list-style-type: none"> <li>• No systematic accumulation of emissions and waste in nature from society. (and if needed, restore).</li> <li>• Use only the amount of resources that are renewable, not depleting resources.</li> <li>• Support and preserve biodiversity.</li> </ul> <p><b>Economic sustainability principles</b></p> <ul style="list-style-type: none"> <li>• Resource management that allows all humans to fulfil their needs.</li> <li>• Long lifetime in man-made capital (durable, resource-efficient, circular).</li> <li>• Optimal use of non-renewable natural resources.</li> <li>• Use renewable resources within the natural regeneration capacity.</li> </ul>
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Table 3.2 Social, ecological and economic sustainability principles.



### 3.3 Backcasting Step 2: Map Current System and Identify Gaps

The second step in the backcasting process is mapping the current socio-technical system, followed by identifying the gap between the current system and the sustainability principles defined in step 1. The systems mapping uses the Multi-level perspective (chapter 2.1.1) as a framework.

The Challenge Lab students of 2019 were presented with three thematic areas: *Mobility*, *Food*, and, *Energy, materials and resources* within which to develop our theses. We were also encouraged to look beyond these themes and keep meta aspects in mind.

By taking inventory of our previous knowledge we started exploring the socio-technical systems of the three thematic areas within Region Västra Götaland. Knowledge of the systems was expanded through dialogues with societal stakeholders from academia, the public sector and industry. Seven different dialogues were held with the themes Mobility of people, Food, Energy, Circularity/circular flows, Equality/accessibility and participation, Climate 2030 agenda and Mobility of goods. By sharing their perspectives and thinking together, a rich understanding of the local context was created among the participating stakeholders, including the students. This understanding and acquired knowledge was then used to further develop the initial maps of the socio-technical systems. Beyond increasing our knowledge, the dialogues also served the purpose of finding engagement and identifying willing recipient(s) for our thesis work. As mentioned in chapter 1.3.3 choosing these topics with engaged stakeholders is foundational.

#### 3.3.1 Dialogue insights

Through the process of mapping the systems and engaging with societal stakeholders, we found gaps between the present and the sustainability principles developed in step 1.

A general opinion of the participating stakeholders was that the transition towards a sustainable future is too slow. It was found that there is insufficient competence within many organisations when it comes to leading the experimental and explorative processes that are necessary for sustainability transitions.

During a majority of the dialogues, *collaboration* between actors was a hot topic. The stakeholders perceived there to be a lack of collaboration, and an expressed desire to increase their collaborations. The main reason stated for not initiating more collaborations was the lack of resources, e.g. time and money. The large amount of potentially relevant actors was raised as a big problem, especially in the Gothenburg region. Just getting an understanding of which actors that might be relevant for collaboration was deemed as too time consuming, creating a barrier for collaboration.

*Trust*, or rather the lack of it, was another aspect that was identified as a barrier for collaboration between actors. Many actors, mainly within the industry, tend to be protective about their insights and knowledge, because it is seen as a competitive advantage. However, it is starting to shift, where the value of sharing knowledge becomes clearer within the industry.

Along with collaboration and trust, the value and need for *participation* was highlighted. Participation was seen as key, when the following two subjects were discussed. First, the importance of creating a common understanding, on a residential level, of why change is

needed. Second, making sure that everyone feels heard and justly treated. An approach to participation mentioned was including co-creating methods in the processes.

### 3.4 Backcasting Step 3: Identify Leverage Points

Leverage points were identified using the material from the systems mapping and gap analysis, prior knowledge and experience, and the students' personal preferences. A number of different potential leverage points were brainstormed, and three themes emerged, *Innovation and Strategies*, *Mobility*, and, *Material and resources*. The themes were divided among the students, to be researched and used to develop leverage points. Each leverage point had to fulfil certain criteria: a bigger problem, a specific system lock-in, a local problem, interested stakeholder(s), and personal motivation. The leverage points were refined through iteration. Through matching interests and personal preferences, the thesis topics and thesis partners were chosen. From here on this thesis was developed by the two authors. The Challenge Lab students still shared knowledge and insights, and provided each other with support on the process and the specifics.

The urgency of sustainability transitions was emphasised through the dialogues. The need for increasing the speed of transitions and system innovation were identified as critical. It was clear that the stakeholders were aware of the need for disruptive ideas and changes in order to transition fast enough. We found that sustainability was lacking in many of the existing local innovation strategies within in the region. Trust and collaboration were recurring topics in the dialogues, with a consensus around their central importance for system innovation.

#### 3.4.1 Choosing Leverage Point and Initial Research Question

We chose to delve deeper into the integration of sustainability and innovation. Using the dialogues, systems mapping and complementary conversations, we identified leverage points to address the gap in the innovation system. The two initial leverage points were:

- Using sustainability as a driving force for innovation, to increase the speed of sustainability transitions.
- Facilitating sustainability transitions by providing a space for societal actors to explore and co-create.

The gap and leverage points were further researched, e.g. through mapping the current innovation system within the city of Gothenburg and through discussions with the Challenge Lab team, in order to find a suitable approach and scope for a master's thesis. Our personal interests and engagement were given high priority. The decision was made to focus on a transition arena, a sustainability lab, and how that could be used to facilitate sustainability transitions within the region. This resulted in an initial research question:

*How can a City Lab in Gothenburg facilitate sustainable transitions?*

We now had our first potential leverage point to develop our thesis from, including an initial research question.

### 3.5 Develop the Leverage Point into the Research Questions

This section will provide a brief summary of our work in going from the initial research question presented below, to the final one presented in the introduction. We include this mostly to create transparency on the challenging process of this kind of work, which we

believe can serve as preparation or hope for others. The work presented in the following three paragraphs took us a full month.

While we were thrilled about our initial research question, we knew that the research needed to be narrowed to fit within the scope of a master thesis. This was a messy and arduous process. We started looking at Living Labs, and our first intention was to develop a set of design principles, describing how the lab should be designed in order to facilitate sustainability transitions within West Sweden. After doing some research, we realised that it had been done already and that there was no contribution we could make. Through co-creative processes, moving back and forth in iteration, we entertained a variety of different thesis options.

Eventually we started digging deeper into a challenge that had been presented to us by John Holmberg. Organisations that engage in sustainability initiatives and experiments (expedition) too often integrate the learnings and experiences into their ordinary activities and structures (cruise) (see chapter 2.2 on experimentation). It was brought to our attention that this is an underexplored challenge in sustainable development. The challenge is found in everything from participating in smaller workshops to large projects, and it can be the case even if the participants are engaged and inspired to take action. We were intrigued.

As we started our research, we found no relevant literature and lost hope. That is, until we discussed it with our supervisor, Gavin McCrory, and were connected with the literature we needed to enter this field. We found the overarching concept of scaling, and the mechanism of embedding. Embedding was the bridge between the expedition and the cruise that we had been looking for. We were still undecided. Then one day soon thereafter, we decided that we just needed to make a choice in order to move forward and make the most of the remaining time of our thesis work. We chose to look at scaling/embedding and the project Stadslandet as our case study. We booked our first exploratory interview the next day.

From there, we iterated and further developed our existing research question into the following research question, with three sub-questions:

*What are the opportunities within municipal organisations in Gothenburg to transform from the learning and experiences of participating in urban living labs?*

1. How do different municipal organisations enable these transformations today?
2. What are the drivers and barriers for organisational transformations from urban living lab participation within the municipality?
3. What good examples are there of these kinds of transformations within municipal organisations?

The sub-questions were iteratively adapted from the information and results we found during the research process. Due to the time and data available, we finally ended up with the research questions presented in the introduction (chapter 1.1).

## 4 Case Study of Stadslandet

To answer our research questions, we used a qualitative single-case study approach, with the municipal sustainability project, *Stadslandet*, as our case. This chapter will describe Stadslandet, including background, aims, and organisation. In addition, we will motivate Stadslandet as an Urban Living Lab (ULL). The methodology and research design are described further in chapter 6.

### 4.1 Background

Stadslandet, *Urban Rural Gothenburg*, is a three-year EU-project (2017-2019) for sustainable city development within the municipality of Gothenburg (City of Gothenburg, 2017). The project focuses on uncovering and actualising the potential of the peri-urban areas of northern Gothenburg. A pre-study for Stadslandet was conducted in 2011 as a part of an earlier municipal project, Utveckling Nordost. The pre-study found potential in the northern areas for green business development and green innovation. Furthermore, the collaboration between urban, peri-urban and rural areas are deemed necessary for the sustainable development of the city as a whole (City of Gothenburg, 2013). Stadslandet is funded by the European Regional Development Fund, which is allocated by Tillväxtverket (the Swedish Agency for Economic and Regional Growth), and the City of Gothenburg (which is the same as *the municipality of Gothenburg*). The funding from the municipality is to a large degree contribution of working hours.

The scope of this project is wide and disparate, and can be difficult to summarise. Different people and resources about the project, emphasise different things. We have done our best to present Stadslandet, though this chapter is merely a cursory introduction to this project.

### 4.2 Mission and Aim

The overarching goal with Stadslandet is to develop test and demonstration environments for a low-carbon economy, and thus create conditions for green innovation and green business development between the urban and the rural.

The mission of the project is stated as follows:

*“create improved conditions for green innovation and green business development between the city and the countryside. Through increased collaboration between municipality, industry, academia and civil society to find new ways of working and develop new knowledge facilitating the transition to a low carbon dioxide city.”* (City of Gothenburg, 2018)

The project involves local actors to develop low carbon products, services and solutions, with the aim of supporting small and medium businesses (SMEs) to develop sustainable businesses (City of Gothenburg, 2018). As mentioned in the background, there is untapped potential in the northern areas of Gothenburg. Knowledge and collaboration are key to actualise that potential. This project flips the perspective on several important elements regarding these areas of the city. First, these areas are often viewed in the light of their problems; Stadslandet emphasises the potential within them. Second, the peri-urban areas are geographically framed in relation to the city centre, as being far outside of it. In Stadslandet the peri-urban areas are celebrated for their proximity to the rural areas, and connecting the city with the rural. The interplay with the urban and peri-urban is in focus in Stadslandet.

## 4.3 Organisation

### 4.3.1 Operative Organisation

The project consists of five testbeds and four local hubs, in northern Gothenburg (figure 4.1). These are all sub-projects within Stadslandet, with their own aims, project teams and project managers. There are collaborations both between and among the testbeds and the hubs, depending on the need and relevance.

The testbeds are thematically focused (City of Gothenburg, 2017), and each one could be deemed Urban Living Labs in their own right. The themes for the testbeds are: local food strategy, locally produced food for public kitchens, sustainable tourism, new business models for hotels, restaurants and trade, and climate-friendly local logistics.

The local hubs are geographically embedded in the northern communities in Gothenburg, to enable meetings and enhance collaboration for the creation of sustainable local communities, and to strengthen the interplay between the rural areas and the city (City of Gothenburg, 2018).

In connection to the testbeds and hubs, a research forum is established to create an operative research environment. The research forum enables a mutually beneficial collaboration between the practitioners and researchers, where knowledge from academia can be applied to the operational work and research is influenced by the empirical results.

There is also a European exchange in the project in collaboration with region Hannover and Brussels (City of Gothenburg, 2017). The aim of the collaboration is to spread results and exchange experiences regarding sustainable development in business development, city development, infrastructure and logistics (City of Gothenburg, 2018).

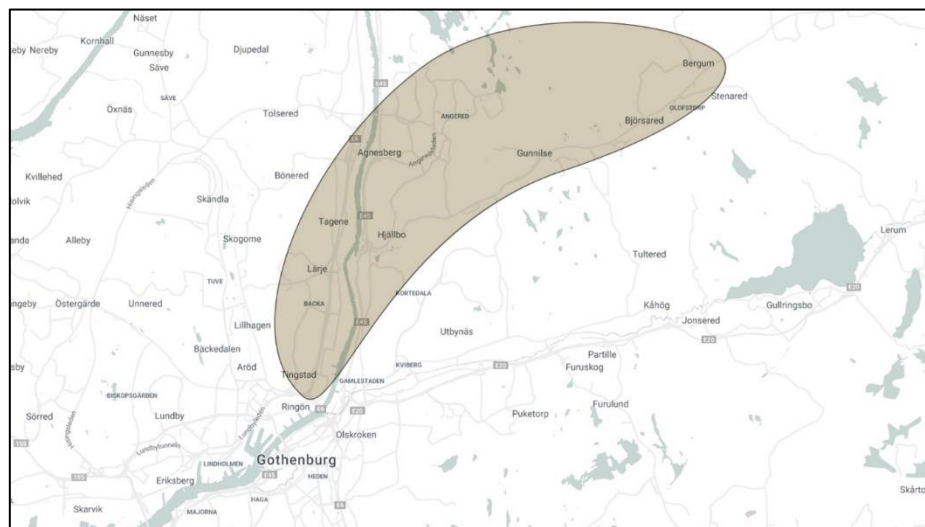


Figure 4.1 Map of the geographical scope of Stadslandet

### 4.3.2 Administrative Organisation

The project owner of Stadslandet is Business Region Göteborg (BRG), which is a municipal company within the City of Gothenburg. The civil servants that work in the Stadslandet are from BRG, and several district and specialist administrations. The represented organisations are referred to as “*project partners*”.

The structure of the organisation within Stadslandet is as follows: project management team, steering group, operational project team and other civil servants. The project management team facilitates both the strategic and the operative work within the project. The steering group consists of members from management groups in the project partner organisations, and they make the strategic decisions for the project. The operational project team gathers to support each other in the operational work within the project, and is led by the operational project manager for the project management team. There are reconciliation meetings with the project partner organisations three times a year, for members of the steering group, economists and operative participants.

## 4.4 Stadslandet as an Urban Living Lab

In this thesis, we aim to explore the opportunities for municipal organisations to transform from participating in Urban Living Labs (ULLs). Though Stadslandet is not communicated as an ULL, we argue that it meets the five characteristics of ULLs presented by Voytenko et al. (2016). Our motivations are presented below. Read more about ULLs in chapter 2.2.1.

<b>Stadslandet's Characteristics as an Urban Living Lab (ULL)</b>	
<b>Geographical embeddedness</b> ULLs are physically placed in a geographical area	Stadslandet is geographically embedded in the City of Gothenburg, mostly in the northern areas of the city. The local hubs have specific geographical placing, while the testbeds are city-wide.
<b>Experimentation and learning</b> ULLs test new solutions in a real-world setting	Stadslandet test new solutions and policies within the different testbeds and learning is included as one of the most important parts.
<b>Participation and user involvement</b> Stakeholder engagement and co-design processes are used in ULLs	Stadslandet engage with many different stakeholders and the project is based on multi-helix collaboration.
<b>Leadership and Ownership</b> It is crucial for an ULL to have a clear leader or owner	BRG has a clear ownership of the project, and the organisation has a clear leadership structure.
<b>Evaluation and refinement</b> Through evaluation, ULLs ability to facilitate learning and knowledge building is supported	Lastly, Stadslandet has frequently been evaluated towards pre-defined indicators, to make the progress and aims tangible. However, the final evaluation is to be made later on and the more intangible values gained have been experienced as more difficult to evaluate and also to visualise to external stakeholders.

Table 4.1 Stadslandet as an ULL

# 5 Methodology

Different tools and methods have been used within this thesis, to answer the research questions presented in chapter 1.1. The methodological approach used for the thesis is illustrated schematically in figure 5.1. At Challenge Lab, developing the research question is a central part of the thesis process and have accounted for roughly half of our thesis work, described in chapter 3.

In this chapter we present our research design, process and methods employed to answer the research questions, illustrated by the right, light green, box in figure 5.1.

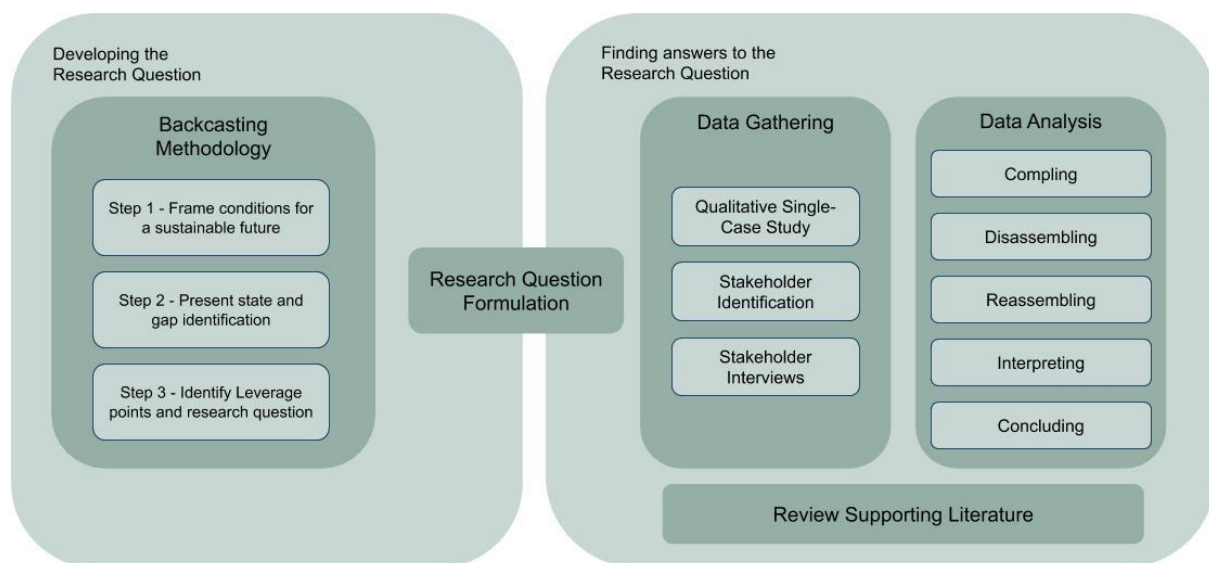


Figure 5.1 Visualisation of the methodology of the thesis

## 5.1 Research Design

We have applied a qualitative single-case study approach, to explore value generation within Urban Living Labs (ULLs) in Gothenburg and the barriers for embedding these in the ordinary thinking, activities and structures of the municipality. As Challenge Lab theses focus on the local context and sustainability transitions, a qualitative case study was used because of the possibilities it provides for studying complex phenomena within a specific context (Baxter & Jack, 2008).

The municipal sustainability project *Stadslandet* acts as our case, and the units of analysis are the values created within the project and the barriers for embedding the values into the municipal organisations. *Stadslandet* was chosen because it is a municipal project with the characteristics of an ULL and therefore could provide insights applicable to our research questions (chapter 1.1). Furthermore, there were engaged stakeholders with an expressed interest in the thesis work and we found the project personally interesting.

## 5.2 Data Collection

Semi-structured interviews were used as the main data source. During the analysis, they were complemented with documents from *Stadslandet* and workshops we conducted in parallel with the interviews. The workshops are discussed more in chapter 7.3.

### 5.2.1 Interviews

Interviews were conducted to find the values generated in Stadslandet and the barriers for embedding these values into the ordinary thinking, activities and structures of the participating municipal organisations.

We used interviews as our main data source to collect data about individuals' experiences, views and motivations within a specific topic. Interviews enables a deeper understanding of social phenomenon than using quantitative research (Gill et al., 2008). Semi-structured interviews consist of pre-defined topical areas and questions for the interview to explore. It allows the interviewer and interviewee to diverge from the questions to find out more about a response or idea, to create richer understanding or follow an interesting lead (Gill et al., 2008).

The interviewees for the study were chosen using snowball sampling (Yin, 2015) from an initial contact with a Stadslandet stakeholder. This stakeholder was encountered during the dialogues held during the initial phase of developing the research questions (chapter 3). The interview subjects were all working within Stadslandet, with various percentages of their employment dedicated for the project. The subjects were chosen to obtain perspectives from different organisations, from both strategic and operational positions. The reasons for using snowball sampling were the time constraint for the thesis work, and mainly because we wanted to find where the energy and engagement existed.

We conducted 12 interviews, four long-format in-person and eight shorter phone interviews.

The in-person interviews were 45-90 minutes, held in conference rooms at the interviewees' workplaces. Both authors were present during the interviews, where one led the conversation and the other was responsible for note taking and involved in asking follow-up question. The questions related to the organisation of Stadslandet as well as scaling and more specifically embedding, in the sense of retaining the value created in Stadslandet within the municipality. This, in order to get a contextual background of Stadslandet for the data analysis and to get an overview of the existing processes for embedding. See Appendix A for the interview guide.

The eight short phone interviews were ~15 minute and were more structured. They were still semi-structured, since we asked follow-up question in order to get richer data to the answers given. The questions were designed to give us an understanding of the role and position of each participant within the project, and their reasoning around what was needed to achieve embedding of the values from Stadslandet into the municipal organisations. The participants received the questions via email before the call, to allow for shorter phone interviews, and to enable the interviewees to reflect on their answers and thereby keep their answers concise and thought through. See Appendix B for the interview guide.

## 5.3 Data Analysis

The data analysis structure was inspired by the five-phased cycle for analysing qualitative data (Yin, 2015). The five phases are: 1) compiling, 2) disassembling, 3) reassembling, 4) interpreting and 5) concluding. This section presents how we performed the analysis.

As a first step, we transcribed and *compiled* the conducted interviews. These transcriptions were the qualitative data used for the analysis. Step two was then to identify statements within the compiled data that were connected to the topic and could help answer our research questions. This was done using an open-coding approach, supported by the coding software



*NVivo*. The data from the interviews were *disassembled* into stand-alone statements which were coded with descriptive code-words. Each interview was analysed separately, where we split the interviews between us. During this phase we met up and discussed the coding in order to decrease the risk of biasing the coding. During the third step, *reassembling*, we clustered the codes to find similarities between them, and patterns in the disassembled data. (See Appendix C for the clustered data) By the end of this step we were able to identify recurring themes, which also initiated the fourth step, *interpreting*. The clusters were analysed in relation to the research questions. During this step we identified different values created within Stadslandet and barriers for organisational transformation for the municipal organisations involved in Stadslandet. The identified values and barriers are presented in chapter 6. The fifth and final step of the analysis is *concluding*, where conclusions are made from the entire study. Our conclusions are found in chapter 8.

## 6 Results and Discussion

This chapter presents the data and analysis from the interviews, and relates the results to the literature from the theoretical background. It begins with presenting the perceived values created within Stadslandet, followed by the barriers for embedding these values in the ordinary thinking, activities and structures of the municipal organisations.

### 6.1 Values Created in Stadslandet

In the introduction we presented our definition of values created in an Urban Living Lab (ULL) as the learnings created within the lab in the form of new ways of thinking, doing and organising. This chapter will present values created in Stadslandet in order to answer our first research question: *What values are created in municipal Urban Living Labs?*

#### 6.1.1 Multi-Stakeholder Networks

Stadslandet is a huge project that involves many different stakeholders from different parts of society. As the project brought the stakeholders together, large multi-stakeholder networks have been established. The networks, and subsequent collaborations, are referred to as *multi-helix* within the project. It was emphasised that Stadslandet goes beyond the *triple-helix* of solely the public sector, the private sector and academia, to also include civil society, and other organisations. A few of our interviewees have had as part of their roles in the project to build networks in their respective areas, and another to facilitate a network and coordinate meetings.



One example of a network is the steering group of Stadslandet, described in chapter 4.3.2, where there are members from different city district administrations, specialist administrations, the research centre *Mistra Urban Future*, the municipal company *Business Region Göteborg* and the economic association *Coompanion*.

The networks and contacts that have been established through Stadslandet were mentioned in most of our interviews. A couple of our interviewees talked about specific networks. However, most of the interviewees talked in about networks in a general sense, without specifying which networks they were referring to. They highlight how valuable the networks are, and the trust that has been fostered between actors and organisations through the networks. As one of the interviewees mentioned, the networks enable understanding for other stakeholders, which is said to be rather unique to this project.

*“Most importantly, we build trust with a large number of stakeholders, so that we can get better conditions for understanding different stakeholders’ needs and capabilities to act in a change process towards the desired outcomes. And that, is the opportunity that Stadslandet has provided.” [i12]*

These large networks have enabled collaboration between stakeholders that had not been happening outside of Stadslandet, such as in the work of developing a city-wide food strategy. Naber et al. (2018) writes that networks are important to “facilitate interaction between stakeholders and provide necessary resources” (p. 343). They go on to say that networks with a diversity of stakeholders is the most important factor when it comes to supporting niche development (which we argued applies to Stadslandet in chapter 2.2).

One of our interviewees highlighted the importance of networks to make it possible to go outside of the regular bureaucracy and give civil servants the courage to work with experiments for sustainability transitions. Having the contacts and networks to be able to get the right people, the right participants and stakeholders is important. Another interviewee pointed out that networks are enablers, where people with different competences come together and share their knowledge and perspectives. They continued to make the distinction between networks, as a set of connections, and project, such as Stadslandet, which are oriented around working together to achieve specific goals.

Coordinating the networks after the project ends could facilitate increased future collaboration. The interviewees repeatedly mentioned how valuable it is to sustain the networks after the project is over. It takes time and effort to establish trust and build networks. As one interviewee said, it also “*demands quite a lot of resources*” to sustain networks and the trust that has been created. Hence, to keep the value of these networks, and capitalise on the resources they provide, there needs to be investments into their maintenance.

As the aims of Stadslandet centres around creating conditions and strengthening capabilities, and one of the long-term expected outcomes is better communication pathways, we would argue that maintaining the networks built during the project is a vital part (Tillväxtverket, 2016).

### 6.1.2 Collaboration

One of the most prominent themes in the interviews was the value the interviewees experience in the cooperation and collaboration within the project.

*“Collaboration is vital for success. If you don’t collaborate you create substantial inefficiencies in the change process and you lower productivity.” [i5]*

*“We are fully in agreement that through collaboration we can reach a lot of good goals and things.” [i10]*



Involving relevant stakeholders to create shared understanding and co-creating ways forward is one of the influences of embedding named by Van Doren et al. (2018).

According to our interviewees, the municipal organisations have traditionally been good at creating collaborations with industry and academia. However, the municipality itself was described as a “silo organisation”, with poor communication and collaboration between the different municipal organisations. The different administrations and companies within the municipality are almost exclusively focused on their specific area of operation.

*“It’s not so much the specific issues that I think are most important in Stadslandet, that is something that we can do in our ordinary work. The value of Stadslandet is more the transboundary collaboration and cooperation in a change process. Because we are generally quite bad at that in Gothenburg, and I think that we are generally bad at working across functions and administrations in the municipal sphere.” [i5]*

The complex challenges that society faces, such as Agenda 2030 and the Sustainable Development Goals, requires involvement and collaboration between stakeholders across

society, and across the municipality. The silo organisation and lack of mandate (see chapter 6.2.4 and 6.2.2, respectively) results in complex challenges being neglected.

*“We have huge challenges solving goods transportation from different perspectives and therefore we need to collaborate, collaborate a lot more with specifically the different stakeholders within the municipality, among others BRG [Business Region Göteborg], the Environmental Administration, and the Property Management Administration. And the city districts of course. We have terrible collaboration.” [i5]*

Stadslandet on the other hand, has provided a platform for collaboration, where actors from all sectors, organisations and functions within the city districts are invited to co-create solutions for shared complex challenges. A couple of the interviewees explicitly states that their collaboration with some specific other municipal organisations are due to Stadslandet, and without it, the collaboration would have suffered.

*“The idea is that we are going to work together, with others, as much as possible. That we don't work by ourselves, because that is something we have done before. Here [in Stadslandet], collaboration is such a central concept that we always try to ask ourselves, how can we achieve more through collaboration with others in the city?” [i1]*

An example of collaboration in Stadslandet is *Angereds Gård*, which is described as a model farm, a knowledge building centre and a meeting place, with the aim to find solutions for sustainable farming businesses (City of Gothenburg, 2018). Angereds Gård was initiated through Stadslandet by the property management administration in collaboration with numerous stakeholders within Region Västra Götaland.

Many of the participants in our workshops explicitly mentioned, often quite emphatically, how excited they were about the collaboration, and that they saw the workshops as a possibility to come together with other stakeholders to co-create a way forward where they could keep on collaboration and share in each other's knowledge and perspectives to create better ways forward.

There are eight outcomes expected to be realised by the end of the project, two of which explicitly mention collaboration (Tillväxtverket, 2016). The first expected result is to have established collaboration between the city, the private sector, citizens, club activities and academia. The second expected result is regarding developing collaboration and business models for organic, locally produced food.

### ***The Research Forum: Collaboration Between Academia and Practitioners***

The Stadslandet research forum has enabled a rare collaboration between academia and practitioners.

*“And that is the nice thing with Stadslandet too, that it opens up for collaborations around research projects. So that the research projects can be aimed at what the municipality needs. The allure with academia is the large degrees of freedom. You don't have that as a municipal actor.” [i12]*

Other interviewees mentioned the positive feedback loops of practitioners learning from academia, and academia learning from practice. Something that is perceived as incredibly valuable. The research forum was also highlighted as a key process in the workshops.

*“How can we manage to achieve this collaboration between academia and practitioners in the future?” [i6]*

As the collaborations with the research forum was experienced to be incredibly valuable, interviewees expressed concern about how to be able to retain and achieve these kinds of collaborations between practice and academia after the end of the Stadslandet project.

### 6.1.3 New Perspectives

Stadslandet has encouraged new perspectives in a few different ways, through the definition of the project itself, as well as through the collaborations and networking that the project has enabled.



#### ***The Potential of the Peri-Urban City Districts***

The first, and perhaps most notable, is the perspective on the northern peri-urban areas of the city where the activities and projects within Stadslandet has been located (with a few exceptions). These city districts are commonly seen for their poor socio-economic standing and the large number of immigrants. This was exacerbated, adding an association with the “refugee problem”, following the major influx of refugees in the crisis 2013-2017, where nearly half of the refugees coming to Gothenburg ended up in these city districts (Dymitrow & Halfacree, 2018). According to Dymitrow & Halfacree, Stadslandet has had a “strikingly different agenda” when it comes to the perspective on these parts of the city and their population. In Stadslandet, the multi-cultural immigrant communities are lifted for their potential, and the valuable knowledge, skills and human potential that people from other countries bring into our society.

*“We try to be very oriented around potential, what are the potential in this geography? It is the good infrastructure, it is the greenery, it is the people, the multi-cultural society and the young population. And working a lot with potential then, to promote sustainable city development. Then one of the potentials is the greenery, the urban-rural perspective in that. ... And the political leadership was very interested in this, it was new, thinking in new perspectives. To turn around and think about the connection to the rural instead of the city.” [i2]*

As the interviewee notes in the quote above, these peri-urban areas are commonly also seen from the perspectives of being at the outskirts of the city. This is portrayed as a shortcoming, focusing on how far it is from the city centre, or even as separate from the city altogether. As one interviewee notes, coming from the northern parts of the city the “Välkommen till Göteborg” [Welcome to Gothenburg] sign, appears when you have already driven 5 km toward the centre. Stadslandet takes a different perspective, and highlights the value of the geographical location, where these peri-urban areas connect the urban and the rural. The project focuses on the green business opportunities that is connected to this geography.

Stadslandet promote the northern peri-urban areas for their sustainability potential for these city districts themselves, and more notably, for their importance for the city as a whole when

it comes to creating a sustainable future. As a whole, Stadslandet is attempting to shift the perspective of the peri-urban city district from problem to potential.

#### 6.1.4 Space for Experimentation

A prominent theme in the interviews, was that Stadslandet is a project where complex challenges in the city can be explored within and between organisations, and where space is given for exploration and experimentation. Projects such as the development of the local food strategy, and low-carbon city logistics have been initiated without knowing the outcome, ideas and hypotheses have been tested and the projects have been rerouted over time.



*“There is absolutely an ambition in this project to contribute to a change in some direction through showing the possibilities and testing things in a smaller scale. That is very much what we are doing. With the hope that we are going to find things there that are so good that we'll feel 'This is something that we need to scale up' ... it is definitely an ambition in the project, since we are out on an expedition, that it will lead to changes and that we'll find new ways, both ways to work, but also issues to work with, and solutions for the challenges in this.” [i2]*

There is “a lot of action” in the testbed for public kitchens, where preschools in the city district administrations of Angered and Östra Göteborg and the city executive office are involved, as well as other administrations e.g. the Property Management Administration. Among other things, they are testing purchasing food outside of the general agreement, and are purchasing both vegetables and meat from local producers.

Stadslandet allows the participating civil servants to step outside of the rigid bureaucracy of the ordinary structures of their municipal organisations, to explore, collaborate and try new ways for thinking, working and organising. Fuenfschilling et al. (2018), write that experimentation provides a safe space where new thinking, new practices and new actors can be established. They continue to say that the experimental spaces provide legitimacy for stepping outside of the strict institutional realm, such as municipal bureaucracy, to take risks and try new things, thus legitimising innovation and change.

The interviewees stressed the great need for this kind of space within the municipal organisations, where the different organisations can come together and explore complex challenges together without being bound by the ordinary structures and business as usual. Unfortunately, they are not given the opportunity to work this way in their ordinary work, as it does not fit within the confines of their organisations’ responsibilities. Within the ordinary work, there is no mandate to work with these complex challenges, or to work collaboratively in this experimental way.

Another aspect of experimentation that came up in a couple of interviews, was that in these kinds of project there is no certainty in the outcomes. The results cannot be predetermined, even if goals can be set and a direction can be followed. As one interviewee said that the experiment itself has value even if it does not reach the proverbial finish line.

*“There are a lot what we want to test and influence, but that we won't be able to take all the way with finished solutions, rather to be able to talk about the expedition.” [i2]*



Another interviewee talked extensively about how the initial plan for the part of the project they were working with had to be rerouted as they encountered unexpected challenges. Therefore, the results from that part of the project became different than planned, and instead of ending up with a plan and a solution, they gained knowledge about the system.

### 6.1.5 Knowledge Production

As mentioned in chapter 4, knowledge building is one of the main objectives of Stadslandet, “*developing knowledge that strengthens the ability to transition to a low-carbon city*” [i1]. As Bulkeley et al. (2015) points out, ULLs are about learning in an experimental setting, and Holmberg says that the aim of an expedition is exploring and learning, not creating predetermined results (J. Holmberg, personal communication, October 24, 2018).



All the interviewees express that new knowledge has been gained by participating in Stadslandet, through the experiences from being engaged in the different initiatives and collaborations within the project. The knowledge produced in Stadslandet was mostly referred to in general terms by the interviewees, with little to no specifics about what kind of knowledge they were referring to.

*“There are a lot of common denominators and a lot of collective knowledge that has been built now, that we have built together, that is worth bringing with us in the future.” [i9]*

Nevens et al. (2013) writes “Whenever cities engage in this innovative, ambitious and responsible task of change for integrated sustainability, an undoubtedly major amount of learning emerges; and vice versa, sound knowledge/best practices on how to proceed with local sustainability oriented change processes could be a firm support for local actors in their quest for effective and efficient action.” (p. 111).

One of our interviewees worked with the climate friendly local logistics, a testbed with the goals to find logistics solutions for connecting peri-urban farmers with customers in the city. The testbed has not produced a large amount of traditional knowledge, rather it has provided insights into the system and better defined the challenges. The logistical system of the testbed has three parts. First, collecting the produce and foods from the farmers, which was described as a smaller circuit. Second, the comparatively longer transportation from the peri-urban areas into the city centre. Third, the delivery of the produce to the customers and markets in the city, also described as a smaller circuit. Going into the project, it was believed that the smaller circuits would be the challenging part of the logistics chain. However, the longer transport between the two circuits turned out to be vital and the real challenge in making the whole chain work. In the beginning of the project, this part was believed to be a non-issue. The climate friendly local logistics testbed produced surprising knowledge about the properties of the system, and the interviewee said that a substantial number of critical factors have been uncovered through the project.

*“The knowledge we bring with us is that it is pretty difficult, and that a few things are required to make something like this work. So, I think we’ve gotten a little wiser. ... Maybe you can’t demand that every part [of the project] is going to produce a massive amount of useful experiences. Maybe*

*it is that [the distribution] is the enabler for [the cultivation]. And maybe that's good enough.” [i3]*

There were a few examples of the knowledge production. There was empirical knowledge gained connected to the different testbeds. For example, calculations made from peri-urban farming of entrepreneurs in Gothenburg connected to Stadslandet, suggesting proper amount of agricultural land and crops to grow for it to be economically sustainable. New methods and processes have been used through the project, which can be applied outside of Stadslandet as well. For example, the *Local Economic Analysis* (LEA), that is a method used within the project to develop sustainable city districts. LEA is seen as useful and transferrable to other parts of the municipality.

### **The Research Forum**

The research forum is seen as a key component for knowledge building in Stadslandet. In addition, the research forum ensures the participation and involvement of academia in the project (Tillväxtverket, 2016). It aims to achieve a joint knowledge building between researchers and practitioners.

*“[The research forum] aims to build knowledge production in the processes that Stadslandet encompass. So that you build knowledge production between practice and theory, in parallel with operations.” [i1]*

One of the indicators is that 20 of the 80 companies receiving support from the project will be collaborating with research institutions

Stadslandet has indicators, which are tangible measurables, that are required to be fulfilled for the eligibility of the project financing from EU through Tillväxtverket. One of the tangible goals of Stadslandet is to support 80 companies (Tillväxtverket, 2016). In addition, out of the 80 companies, 20 are required to collaborate in the knowledge production with academia. This is done through the research forum, which is hosted by Mistra Urban Futures. Additionally, there is a research coordinator who works with creating the conditions for knowledge production in the processes of Stadslandet, e.g. through research grant applications, to build networks, and to spread the work being done in Stadslandet.

### **6.1.6 Other Contributions**

Stadslandet produced contributions to sustainability transitions that fall outside of our definition of values in the context of this thesis, i.e. that are not new ways of thinking, doing or organising. These other contributions were more tangible, e.g. new innovations and policies, with two examples being a new local food strategy for the City of Gothenburg and a pre-study for multi-functional neighbourhood green houses. Since these contributions fall outside of our definition of values, and since the scaling of these contributions fall under other mechanisms than embedding, they have not been explored within the scope of this thesis.



## **6.2 Barriers for Embedding the Values from Stadslandet**

This chapter presents the identified barriers for embedding the values created in Stadslandet into the municipal organisations' ordinary work, in order to answer the second research



question: *What are the barriers for embedding the learnings and experiences from Urban Living Lab participation for organisational transformation within the municipality of Gothenburg?*

The embedding of the values created in Stadslandet is a shared concern among the interviewees, with the open question of how to make the work from Stadslandet a part of ordinary activities and integrate the learnings, practices, and collaborations into the participating organisations.

*“It is also important that we can weave [the values from Stadslandet] into the ordinary structures, because I think that is crucial for it to be sustainable over time.” [i11]*

The Stadslandet participants that we interacted with, expressed that they are looking to each other, acknowledging that they have a lot to learn from one another and that the way forward is co-created. This was emphasised in the workshops, which are discussed in chapter 7.3.1.

### 6.2.1 Wicked System

Complex, wicked systems require multi-stakeholder collaborations and experimentation (as explained in chapter 2).

Our data show that interviewees experience embedding values from Stadslandet as difficult. Reasons found for this include: the size of Stadslandet in terms of scope and numbers of participants, the variety of stakeholders, the complexity of the challenges, and that solutions do not fit straight into the existing organisational structure.

*“[The critical factors for successfully embedding and sustaining the values from Stadslandet] lies in understanding the collaboration between the different political decisions and the organisations within the city. ... You don't have the same goal within the city, and that becomes goal conflicts. They are the greatest criticism to convey. That there is no [systems perspective] for the city. ... There is more criticism against this, but also incredible possibilities if a [systems perspective] is used instead.” [i10]*

The interviewees, and workshop participants, emphasise the need for systems perspective and viewing the municipality as a whole.

#### ***Non-linear and Unpredictable***

In complex systems it is difficult to demonstrate the effects of specific interventions.

*“When it comes to contributing to the low-carbon and the carbon smart [aim of Stadslandet], we don't measure that really. And Tillväxtverket [the Swedish Agency for Economic and Regional Growth] hasn't required that of us. It is very hard to demonstrate.” [i2]*

The project has expected results at the end of the project, and a separate set of expected effects for the long-term. There are no requirements to their achievement, which we believe is in line with the explorative nature of experiments like this. The follow-up comes in the form of indicators for the activities and results. The activity indicators are tracked within the project, and are communicated by the interviewees as requirements from Tillväxtverket. These are: the number of companies that has received support (80), the number of

collaborating organisations from different sectors in society (5), the number of companies collaborating with academia (20), and the number of companies that has received support that is not economic in nature (80). There are no specific aims for the results indicators, i.e. SME revenues and CO<sub>2</sub>-emissions (excluding agriculture, international maritime shipping and aviation). These are calculated from regional statistics.

*“It’s been difficult in a lot of ways, because what we believed, hasn’t worked that way. So, problems have cropped up along the way.” [i3]*

This interviewee explicitly communicated their surprise over the nature of the challenges they faced during the project. Their initial expectations and assumptions turned out to be far removed from the reality they faced. This is especially interesting, as they are one of two prominent experts in this field in the city. It underscores that wicked systems cannot be predicted, even by experts.

### ***The Magnitude of Scope and Diversity of Organisations***

One of the challenges in Stadslandet is that the project itself is difficult to understand. This was evidently a challenge in the project, and in the work to embed and sustain the values from the project into the different organisations’ ordinary activities and structures.

*“It’s taken it’s time to get to the momentum that we have now. At the same time, there is a lot that is open and it’s a fairly complex project to understand. We are going across. And people are used to think in other structures.” [i2]*

This interviewee talked extensively, in all our communication with them, about the special characteristic of Stadslandet as working across functions and organisations, thus breaking out of the status quo of the silo organisation within the municipality. This is a notable transition from the ordinary way of working, and thinking about the work and structures.

Another challenge is the number and diversity of municipal organisations within the city of Gothenburg.

*“Then the fact that Gothenburg is so big, so many administrations and city districts, and different committees and so on. I’m wondering if smaller cities make it work better.” [i4]*

The different stakeholders tend to emphasise the importance of the issues that they personally and their organisation are involved in and their perspective, while at times also downplaying the perceived importance of other perspectives, their issues and the challenges they face. For example, Property Management Administration focusing on land issues and their own collaboration with BRG, the person working to support horse entrepreneurs focuses on land and resource issues in relation to horses, and the person working closely with the research forum highlighting the importance of that work. The interviewees expressed awareness of their biases toward their own knowledge and perspective.

*“[It is important] that we talk about what’s possible to do, so that we have a shared view. So there aren’t diverging hopes, that ‘this is what we are going to do’ and then we can’t do that from the city district’s side or for some other reason. Economy, reorganisation, people quit. We have to find something that is sustainable and use the ordinary structures within the*

*organisations and see how we can solve it if things would change. First and foremost, we need to find a common platform so that we all feel that this is possible. We work under very different circumstances depending on where we are, and sometimes we have difficulties understanding each other. What's possible, why it's slow. It has a lot to do with what kind of mandate you have in your role in a group.” [i11]*

One of our interviewees said that there is one crucial factor for the success of sustaining the values created around their specific area of expertise, and that is there is a lack of knowledge around their area of expertise in the multi-stakeholder collaborations, e.g. the steering committee of Stadslandet.

*“I think [the lack of knowledge and understanding] is a critical factor, that you don't understand what to do in my case, and I notice that in e.g. the steering committee when I'm there, that the knowledge is very poor regarding goods transportation. Since it is very low in the Traffic and Public Transport Authority, when we are the people working with traffic, it is no wonder that it is extremely low outside [of the administration] too. The only people in the entire city that know goods transportation is me and [another person].” [i5]*

This lack of knowledge within the municipal organisations regarding a specific issue is echoed by another one of our interviewees (from a different organisation, regarding different issues). This interviewee emphasised the importance of having a holistic perspective for the longevity and scaling of the values created. In one example they talked about engaging stakeholders in the whole value chain, “...working with these issues, and where you keep the big picture is very important. So that you work with it all the way, from the land to the business side.” [i9]. To create the desired collaboration over the long-term, they said would require support from the top management in the respective organisations and potentially political endorsement. Unlike one of our other interviewees who did not know how to work with embedding and asked us to please return with an answer, this interviewee had clear views in what they thought needed to be done.

*“It's a fairly straightforward process for how this could be established and secured. It's something that we've started to, that kind of discussion. ... formulating what that kind of collaboration could look like.” [i9]*

They say that from experiences and knowledge gained from Stadslandet and other projects, they know what is needed and ways to design this function.

### ***Conflict of Interests and Conflicting Goals***

Complex systems, and challenges within those systems, lead to goal conflicts and conflicts of interest concerning certain issues, since different stakeholders often have different agendas due to the responsibilities of their respective organisations. For this challenge it is important for all the stakeholders to see the bigger picture instead of competing.

*“It is important to always remember that what one organisation does might affect another negatively and that in the end it doesn't really turn out the way you expect, rather you have to include several stakeholders from the beginning and highlight possibilities and challenges.” [i10]*

The interviewee talked about how the different municipal organisations usually are singularly focused on their own goals and agendas that they don't consider the potential effects on other organisations and their respective goals.

*"The Property Management Administration has decided that all land in Gothenburg should, primarily be used for farming. This creates a conflict of interest within the project, when we should also try to help horse entrepreneurs with land issues." [i10]*

Even within the Stadslandet project, there have been goal conflicts, such as the one mentioned above. Though Stadslandet has contributed with greater collaboration and understanding for other organisations within the municipality, there is still a need for specifically addressing conflicts of interest and conflicting goals.

### **Human Resources**

One aspect mentioned repeatedly, is the sustainable embedding of something new require something else to be removed or more resources added. It seems to be common that more work and responsibility is added onto the already heavy workload of civil servants, thus creating resistance and an unsustainable situation from a human resources point of view.

*"Everyone you're going to meet is going to say 'I have so much to do, all the time.' I don't work with one thing, I have a lot of different things, different meetings..." [i4]*

Even then this interviewee was presented with an opportunity they would have liked to have been a part of, they had to decline.

*"[Another civil servant] has been on me about collaborating, but we don't have the energy to, we have too many other things. We can't start something new, nothing big. But sometime, maybe next year." [i4]*

An interviewee talked about the overwhelm that the magnitude of the challenges sometimes causes.

*"Sometimes it can feel like, 'Shit! There is so much that needs to be solved, both big and small...' It takes time to get people to know what they are supposed to do, and to create space." [i2]*

They continued by referring to the Desmond Tutu saying, "There is only one way to eat an elephant, one bite at a time". Even when the challenges seem insurmountable, the only way forward is doing one thing after the other.

### **6.2.2 Lack of Mandate, Organisational and Political Leadership**

Within the municipality we found lack of mandate, lack organisational leadership (from top management to immediate superiors), and lack of political leadership, to be barriers to embedding the values from Stadslandet. This barrier represents these three interrelated challenges for integrating the learnings from Stadslandet into the ordinary work of the municipality. The reason for presenting these separate barriers as one, is their close connection to each other, and that they are often mentioned together both in literature and in our interviews. Even though we attempted to process mandate and leadership separately, there will be cross-referencing.

*“This is a huge project, so you've got to be careful to include all parameters, and then it is important that there is someone who points out the direction and that has the mandate to point out the direction, I think. That is the first step. Otherwise we could spin around in our administrations and think a lot of things. We can do that, but it doesn't go anywhere, I think. So it's about [collaborations between the private sector, municipal businesses and municipal administrations]. ... And again, there needs to be a political direction. Then we can come together from the professions that are needed.” [i12]*

*“I think we need to involve politicians more. Yeah, they have to see that it is important, that it's something that we need to work with, to raise that with the politicians. From the administrative management, we definitely need support from the administrative management, and from politicians. ... We need resources, mandate, time and money.” [i4]*

As noted by Van Doren et al. (2018) “*factors related to the operational arrangements and local political leadership are important for promoting vertical pathways [i.e. embedding] to scaling-up*” (p. 189). Within leadership in operational arrangements they note that a leader has the power to put things on the political agenda, and to “*challenge old and initiative new institutions*” (p. 181) to promote scaling of the initiative. As we understand it, organisational leadership are leading activities and scaling, including challenging change within the organisation and the socio-technical system. Their note on political leadership is similar, in learning from the initiative and influencing change in the informal and formal institutions in the “policy network” to favour the initiative.

### ***Lack of Mandate***

Lack of mandate is closely connected to leadership, since leadership within organisations provide mandate for civil servants in their work, and political leadership provide mandate for municipal organisations.

Interviewees do not consider themselves, or sometimes their organisations, to have the mandate to make the desired changes within their organisations according to the learnings and experiences from Stadslandet. This is echoed by the majority of the interviewees.

*“[More collaboration with other specialist administrations] is something I've requested. But I don't know how to go about it, because I'm not the person that says, 'Now you are going to work with goods [transportation]'. It's the city.” [i4]*

The lack of mandate is closely connected to lack of resources such as money and time, which were raised as barriers to transforming the organisations due to lack of leadership. One example mentioned by an interviewee was the networks built and how there is no one responsible for coordinate and nurture them after Stadslandet ends.

*“[Sustaining the networks and working to coordinate the contacts, including retaining the trust and the established channels] demand quite a lot of resources and that is, according to me, a question that is up in the air: Who should do that? It is not really included in the ordinary municipal missions. ... We can determine that there are no degrees of freedom to work*

*with coordinating and cultivating network, instead that is something you have to do on your own volition and use your own time to do.” [i12]*

The interviewee thought that maybe it would be an idea to leave the responsibility of sustaining the networks to academia, “*as it’s one of the three legs academia stands on*”. That would also facilitate a closer connection between decision-makers and research, as is something the interviewee claims is desired from both sides. Another interviewee talked about participants in Stadslandet already applying for research grants to be able to move forward with the research collaborations, and to bring forward parts of Stadslandet and build upon that. One interviewee refers EU funds specifically as a way to create new experiments following the learnings from Stadslandet.

*“Thanks to EU projects we could test and do a data collection. Now we have the results that if we use c/o addresses we can lower the number of trucks going to Nordstan [shopping centre] with 500 [trucks] a day. So now we have the results to show that it works.” [i4]*

One interviewee noted that different projects have provided mandate to work with the challenges from different perspectives, and thus stepping outside of the confine of the ordinary structures and activities of the municipal organisation. Stadslandet has, for example, allowed the Property Management Administration to work with business models and entrepreneurship in ways that are not part of the organisations ordinary mandate. Other interviewees similarly mentioned that projects provide mandate to work in ways that are not possible within the ordinary organisations.

### ***Lack of Organisational and Political Leadership***

The organisational leadership of this barrier refers to leadership in the ordinary work within municipal organisations, referred to as the “*cruise*” in chapter 2.2, and not the work within the Stadslandet project, referred to as the “*expedition*”. This barrier should not be confused with the characteristic of Leadership and Ownership within the Urban Living Lab (ULL), as presented in chapter 4.4, which refers to leadership and ownership within the ULL itself, i.e. the project.

Interviewees talk about the need for political leadership as well as clear leadership and decisions made at the highest levels within the municipal organisations. This, to enable change by providing direction and prioritising resources, as well as giving the civil servants the mandate they now lack. As mentioned above, both the political leadership and the leadership within the organisations are recognised in literature as important for embedding (Van Doren et al., 2018).

*“[For the collaboration to become a reality outside of Stadslandet] someone has to take the leadership role, somebody has to take command, that’s just the way it is. And it has to be someone at a very strategic level, and not in the specific issues. ... It means that the senior management has to get involved in this. ... Management, especially the ones in the administrations, that is where they have to have someone to take the leadership role, for us to be able to collaborate across organisations.” [i5]*

One interviewee spoke about the need for political incentives and political direction, that it always comes back to that when talking about creating change on a larger scale. They said:

*“It is important that there is someone who has the mandate to point out where we are heading, because I feel that there is no one within Stadslandet who has that today.” [i8]*

They continued to speak about the importance of having a dialogue with the political establishment. The interviewee suggests presenting Stadslandet, the ideas behind the project and the work that has been done, and asking how these fit in the political context. They emphasised the importance of engaging all political parties, and communication between them to create a shared view of how the city is going to move forward with these issues.

*“There are many stakeholders that, there needs to be a further collaboration around these issues, that is a [critical] factor [for scaling and spreading the values from Stadslandet in Gothenburg]. And then I'm thinking from the political sphere, it has to be very clear what their vision is moving forward. That is vital. ... We have to have a vision moving forward, how the city thinks, how the politicians think. And that can't be just one party, it has to be that the [different parties] talk and share a vision. That is my dream anyways.” [i12]*

Aside from creating direction and facilitating mandates within organisations, political leadership is brought up as a way to enforce a holistic approach to addressing sustainability challenges within the municipality, and as a way of prioritising goals to solve, or even avoid, certain kinds of conflicts.

*“I think that it needs to come from higher up as an incentive that in Gothenburg we have to work together toward Agenda 2030 and that the sustainable development goals, to manage to create circular models and then everybody needs to do what it damn takes. Then you can't sit and say that 'Well, now we are going to cultivate this land that could become a resource for something else'. So that there needs to be all-encompassing goals that trump some smaller goals. Because otherwise we are never going to have lift off, instead it's going to be smaller interventions here and there, but no greater whole.” [i10]*

One interviewee stated that embedding the value from Stadslandet hinges on what the different organisations want to keep working with, within their organisations as well as together with others. They said that, for things to actually happen there needs to be leadership within the organisations and the explicit aim of creating movement.

*“I think it is very important when moving forward in this, that we need someone at the level of vice president [in the organisations] to be able to move forward. Because if it's placed at a lower managerial level, it's not going to go anywhere. And it can't be placed in the lap of us specialists either, because that will not result in anything either, because we don't have the mandate to work in these ways, across functions and organisations. We have the mandate to work with our specific issues, but not to work as we do in Stadslandet.” [i5]*

From our interviews we have learned that the work that the municipal organisations and their civil servants are able to do are dependent on the mandate given to them. They simply do not have the right to choose freely what to work with, or how. The political leadership gives the

municipal organisations their missions and mandate. The mandate given within organisations, from the top leadership and down through the organisations' management to immediate superiors, enable or confine the work of their civil servants. Leadership and mandate are thus crucial for creating space for transforming organisations through the new ways of thinking, practices and structures.

### 6.2.3 Changing Circumstances

Circumstances for the municipal organisations are continually changing due to one-year budgets, reorganisations, turnover of people and more.

*"Maybe it worked well when you applied, but since then a lot of things have happened, managers change, coworkers change, and then it's hard to come and say that 'This is what we said we were going to do'. 'We said this two years ago', and then it's not possible." [i11]*

Interviewees describing the changing circumstances brought up a couple of prominent examples. First, since the one-year budgets are set by municipal politicians the budgets change depending on decisions made by them. If the politicians are replaced, or if areas such as experimentation and innovation are reprioritised, it may become impossible to execute project plans from previous years.

*"What is critical, as I see it, is that things happen in the organisations, things happen every year with the budget that creates conditions where we only can focus on the core activities, and the other things... yeah, there's not resources for everything." [i11]*

Second, many of the people working in Stadslandet are hired specifically for the project and their employment ends when Stadslandet ends, and in many cases the employment was solely for the first two years of the three-year project. This results in employees applying for other jobs during their employment, and leaving the project before it ends, leaving open positions that puts the project back. It takes time to fill the positions with new people, and for them to get familiar with their work and responsibilities, as well as the project as a whole.

*"...the managers that were involved with shaping the project. They're not there anymore. Instead, the new managers come along and wonder, 'What is this?'. We've had to deal with that kind of issues, that things happen in the ordinary structures. They are not static." [i2]*

As this is the last year of the project, many positions will probably not be filled, thus leaving a gap in the resources available within the project. This makes it difficult to focus on other things than the core activities. Since experimentation is often not seen as being part of core activities, it is not being prioritised.

An example of dramatic changes in the organisations is the Traffic and Public Transport Authority. They've had major changes the past few years, going from 100 people in 2013 to 550 people now (in 2019). It has changed the dynamics of the organisation itself, and it is harder to create changes and pursue projects.

*"It's very difficult to get anything passed through, now it feels like we're stuck. What do we do? What are the processes to get anything done? ... It is*



*difficult to get the work with goods transportation innovation to become a part of the systematic work.” [i4]*

The municipal organisations and the civil servants working within them, as well as the collaborations around specific issues, have to periodically adjust to the new politicians elected into office. The challenges mentioned by the interviewees are mainly in two categories, first lack of knowledge about the project Stadslandet and the work that is being done, and second the new political priorities that may follow a shift in leadership.

*“Collaboration ... is strategically important. With new politics, how we organise ourselves and how we formulate ourselves, and how we strategically connect our organisations, so that it responds to possible new assignments and new ways of looking at city development.” [i9]*

From our interviews it seems that working in organisations that are directed by an everchanging political landscape is a major challenge. The changes within organisational structures and priorities are determined by political directives, and seemingly unpredictable. As the last quote indicates, there is an opportunity for the municipal organisations to come together and collaborate in both navigating the political landscape and lobbying their shared interests, such as embedding the values produced in Stadslandet.

#### 6.2.4 Current System not Supportive of Experimental Activities

One of the values of Stadslandet is the space for experimentation, to use exploration as a means to find new ways of working that are in line with Agenda 2030 and creating a sustainable future for Gothenburg City. Our results show that interviewees experience that ordinary structures around Stadslandet are not supportive of experimentation, and this includes the political system, the municipal organisations and their processes.

*“It’s inherently challenging to do new things. To meet in new contexts, that’s a challenge in itself. You have a hierarchical organisation, and now, collaboration across organisations and functions is required to be able to solve complex problems. It’s because every stakeholder has their history and their culture, to take into new contexts. It is very challenging to do, for everyone. Because, you have one culture that you have to lean against, because you have everyday lives that has to work, at the same time that you are going into something new, this expedition that you do.” [i1]*

Turnheim et al. (2018) writes “Effective governance of transitions needs to be appreciative of complexity, uncertainty, emergence and asymmetries of power, it needs to mobilise deep analysis and timely data, and involve a broad variety of actors in processes of learning, experimentation and adaptive adjustment as new facts and perspectives become available.” (p. 240).

This barrier goes beyond the importance of the experimentation itself. In a couple of our interviews, anchoring the project came up as an important way to create legitimacy for the project, and the longevity of the results and the willingness for the organisations and their people to adopt the learnings from the experiments themselves.

*“There’s a lot of talk about the great importance of using the initial time for anchoring and getting everybody onboard, to talk about the project and create understanding of the project before it starts.” [i2]*

Besides creating legitimacy, anchoring was talked about as a means to have create efficiency in the project. It was also linked to ownership, which was expressed as critical for commitment and engagement.

### ***Experiments Not A Priority***

As mentioned with the previous barrier, activities within Stadslandet, the experiment, are not seen as core activities for the municipal organisations and therefore they are not prioritised. This becomes exacerbated when resources are scarce and when there is turnover of people in the organisations, especially as lack of knowledge of Stadslandet already is a challenge.

*“A big part [of the problem with managerial turnover] is that [Stadslandet] is viewed as something separate from core projects... resources are limited and then there is no space or engagement, no real economic space to work with these extra things” [i11]*

*“But then there are coworkers in every organisation that don't know about Stadslandet, they have poor knowledge, and they don't prioritise it.” [i10]*

It is understandable that experiments are not prioritised when having too much to do with too little time and resources seem to be the rule rather than the exception.

Kronsell & Mukhtar-Landgren (2018) write about the challenges of municipal priorities as it relates to the activities of Urban Living Labs. “European municipalities are often associated with certain core policy areas” and working with issues outside of those can cause parts of the local administrations as well as citizens to question whether those activities are desirable, necessary and relevant. We found the questioning of the activities of Stadslandet from civil servants through stories in our interviews, and brief mentions of criticism from the media and citizens.

### ***Unsupportive Culture***

The unsupportive culture is indicated in a number of ways, a couple of examples that we were told in our interviews were: the support of managers or lack thereof, and the fear within the municipality to be vilified in the media.

One interviewee let us know that the freedom you have as a civil servant to drive change processes depend a lot on what kind of manager you have.

*“I agree [that leadership is important], it's thanks to me having a very good manager [that I have the opportunity to work with these things]. But I know others that struggle.” [i4]*

The interviewee clearly expressed that they believed themselves to be lucky to have a supportive manager, and that they considered that to be out of the ordinary.

Another interviewee talked about the fear of being vilified and defamed in the media as a persistent problem that drives civil servants to stay far within the boundaries of their mandates. Besides affecting individuals, this fear is perpetuated and enforced through the hierarchy of the municipal organisations.

*“It’s trying to keep a clean house, and a clean house, yeah, that’s through  
‘We don’t allow anything that is on the [gränsen], it has to be far within to  
be allowed.’ And it’s not just receipts, it’s the way of thinking also.” [i2]*

Media rightfully investigates the municipal organisations. The problem is that sometimes the facts are wrong, and the narratives perverted. This creates fear within the municipality to be slandered unjustly, and seeds this culture of playing well within the lines.

### ***Resistance to Experimentation***

One interviewee expressed frustration of the lack of measuring, and the uncertainty concerning what the project was, its objectives and structure etc. They were explicitly uncomfortable with the messy and unpredictable nature of the work.

*“I think there are a lot of people, myself included, that find it very difficult  
to work in this way, and that are not used to working this way... It becomes  
very ineffective, in my opinion.” [i3]*

The interviewee talked zealously about the need for measurements and knowing what to do, and when to do those things, about having clarity and a comprehensive project plan. This might not be possible in an experiment where the focus is moved from efficiency and results, to exploration and learning (see chapter 2.2). Transitions are messy and unpredictable. “Experimentation is about de-risking new solutions or approaches by learning about and with them in an open and safe space. Hence, experimentation is open-ended, uncertain for outcome generation and requires trust in both the people who are collaborating in the experimentation as well as in the experimentation process itself” (Fuenfschilling, Frantzeskaki & Coenen, 2018). This can be a challenge for participants that subscribe strongly to the logic of ordinary activities.

Learning is at the centre of experiments, finding new ways forward means trying and exploring different things, some of which will be effective and some of which will fail to deliver the desired results (whether that is a new way of thinking, doing or organising). Either way, it is part of the learning experience and failure is a natural part of experimental processes (Fuenfschilling, Frantzeskaki & Coenen, 2018). “Experimentation, importantly, allows more explicitly for acceptance of failure and learning-by-failing.” (p. 7). As Naber et al. (2018) states that “a good learning process is reflexive (second-order learning) which means that there is willingness to change direction if the technology does not match the underlying assumptions”. Failure is thus not necessarily a failure, as the object is learning and not delivering predetermined results. The value of which is explained extensively in chapter 2.2.

### ***The Municipal Silo Organisation***

The silo organisation in the municipality is an issue for embedding, where the civil servants don’t have the mandate to work across organisational boundaries. The poor communication and collaboration are especially evident between the administrative organisations in the municipality. The experiences of the interviewees with the problems of the silo organisation is presented further in chapter 6.1.2 on the value of collaboration.

Gorissen et al. (2018) in their study in Genk, Holland, found that the acceleration dynamics of urban sustainability transitions, including embedding, were “mostly fuelled via multi-actor collaboration”. This, to the point where “[p]artnering appears to be a requisite for instrumentalization and embedding”. Ehnert et al. (2018) note that “[i]n particular, the

collaboration across sectors has been an important entry point for embedding”. They write that “[t]he compartmentalization of local public administrations is described as a severe obstacle across the city-regions ... They struggle to move beyond organizational boundaries and develop a more integrative, holistic perspective on sustainability. This can create a situation of insecurity and unclear mandates.”

The silo organisation of the municipality of Gothenburg is thus a barrier to embedding the values and learnings from Stadslandet, and to effectively meet sustainability challenges.

### ***Experiments Within the System, Outside of Ordinary Activities***

An opening in the current system to work with experiments was mentioned in the interviews. It was clearly stated that there was no space for experimentation in the ordinary activities, through there are openings in the system to work outside of ordinary activities. This can be achieved through e.g. working within EU-projects. The project, being outside of ordinary activities, then provide the legitimacy needed for experimentation and different ways for working.

*“So that can be a way, to start with an EU-project on the side, not in the administrations’ activities. Because it’s something that we want to try and work with, but we don’t have the ways of working or structures to do that in the administration right now. But if we do it on the side and try it out. ... to explore what is needed, what process we need in place, what strategy, what ways of working. Then when we are there, maybe we can get in into the administration. Because I don’t know how to get it in right away. ... Yes, exactly, to start at a smaller scale, test and then see what happens after that.” [i4]*

The space for experimentation was one of the values created in Stadslandet, and is brought up as important to create in other contexts when the project is over (see chapter 6.1.4). It is worth noting that the experimentation does not need to be conducted within ordinary activities- Though, to have impact beyond the context of the project or experiment it needs to be scaled, e.g. through being embedded into ordinary activities. This could be argued as a requirement to fulfil the goals of Stadslandet.

# 7 Discussion

This thesis report aimed to explore the opportunities within municipal organisations in Gothenburg to transform from the learning and experiences of participating in Urban Living Labs. To do this, the thesis aimed to answer the following research questions:

1. *What values are created in municipal Urban Living Labs?*
2. *What are the barriers for embedding the learnings and experiences from Urban Living Lab participation for organisational transformation within the municipality of Gothenburg?*

The chapter will discuss the contributions of this thesis, the methodology used, and the implications for practice and politics within the municipality, and the implications for research.

## 7.1 Contributions

### 7.1.1 Main Contributions

#### ***Identification of Values and Barriers for Embedding***

We consider our main contribution to be the values and barriers that we have identified for embedding from Stadslandet into the ordinary work of the municipal organisations in Gothenburg. To be able to have conversations about the value of experiments in general, and Stadslandet in particular, the ability to exemplify and have clarity about what those values are (or might be) is helpful, if no necessary. As the barriers we have identified pose real challenges for embedding values from Stadslandet, it stands to reason that embedding would require substantial proactive work. Thus, being aware of both the values themselves and the barriers to their embedding lays out the foundation for this work.

It was our hope to be able to provide our stakeholders with knowledge and insights into *how* to effectively embed the values from Stadslandet, and we believe that the value and barrier identification is an important step toward that end. In this way it was possible to have a clear contribution to the local context, which was part of the purpose of the thesis. Our work provides substance and clarity for both Stadslandet to work with embedding, and as a starting point for other experimental projects and Urban Living Labs as well.

#### ***Workshop Facilitation***

We were given the opportunity to design and facilitate two workshops with representatives from different municipal organisations working with Stadslandet. The aim of the workshops was to develop material and understanding for their planning and work with embedding. Specifically, the aim was to prepare for a steering committee conference on the issue of embedding, as a foundation for making decisions as to how Stadslandet will work with embedding during this last year of the project. The workshops were organised by the project management team, who scheduled the workshops and selected the participants.

As much as our work with this report may be helpful and useful for the practitioners, we believe that our work with the workshops may be our main contribution to the Stadslandet stakeholders.

Through the workshops, the participants explored the values and possible ways forward. We developed the themes with representatives of the project management team, both of them centred around a separate call-in question.

- Workshop 1: What values have been created within Stadslandet that are worth preserving?
- Workshop 2: How can these values be preserved and embedded into existing structures within the municipality?

Our facilitation enabled the organisers to participate in the workshops and contribute with their substantial knowledge and insights, instead of having to focus on the facilitation themselves. We believe that having external facilitators, and having the workshops in our space (that was unfamiliar to the participants), provided additional value in having a setting that carries no other associations. Furthermore, we as students could provide neutral facilitation, potentially leading to a more open environment where everyone felt safe to express thoughts and ideas.

It was also valuable for us both personally to develop facilitation and workshop skills, and it provided us with insights concerning our thesis.

### 7.1.2 Interesting Findings

#### *No Process in the Municipality for Embedding*

One of our initial sub-research questions asked for success stories of embedding previous projects within the different municipal organisations, with the aim of exploring existing methods and processes of embedding experiments. Going into this research, we had the assumption that there would be intentional practices to retain the value from projects in participating organisations. It was surprising to us when none of our interviewees knew about any such process, method or guidelines. With no such practice, the work with embedding is impromptu and relies solely on the experience of the participants.

Several of our interviewees were thrilled that our work might support them in taking the results of this project and carry it forward to change the way that the municipality works, in order to serve the city in a greater way. We wanted to be able to provide the municipal stakeholders we encountered with a roadmap of “how” to embed the values and transform the municipal organisations through the learnings and experiences of Stadslandet. Unfortunately, the scope of our work did not get us that far. This would be interesting and relevant for future research.

We believe that the identification of the need for a process, method or guidelines for embedding of values from experiments is an important contribution.

#### *Engagement*

We were pleasantly surprised, from encountering the engagement of all stakeholders we interacted with in our interviews and workshops. It was clear that the values created within Stadslandet, and the explorative platform it provides, are seen as highly important to make use of and transform the way that the municipality works.

The participants recognised how the values from Stadslandet can improve the city if they are implemented on a grander scale. It was clear to see their engagement through the passion with which they talk about Stadslandet, the valuable parts that they themselves have experienced

and the potential they recognise. It comes through *how* they talk about Stadslandet, and through *what* they say. It was especially evident during our workshops, where the participants were exciting each other and the collaborative nature of Stadslandet was exhibited. In the phone interviews preceding the workshops, several participants explicitly told us how engaged they were and how much they were willing to “fight” for the longevity of the values they experienced in Stadslandet.

For most of the interviewees, the valuable ways of working within Stadslandet was seen not as a “nice to have”, but as critical for the future. It was expressed that it is a more efficient use of resources to work together, and more effective. All of our participants, except one (who was more reserved), can be seen as true champions for Stadslandet and the values this thesis have presented.

As the research institute Gallup reports, engagement results in higher productivity and profitability (Gallup, Inc., 2017). 14% of Swedish employees were engaged in their work in 2017, with 75% being disengaged and 11% being actively disengaged. “That low percentage of engaged employees is a barrier to creating high-performing cultures. It implies a stunning amount of wasted potential” (Gallup, Inc., 2017, p. 5). Their research has found organisational resistance to change as an underlying theme for low engagement.

Engagement was the only prominent driver for embedding found in the collected data, and considering how strongly it was expressed there is potential to achieve transformational change in the organisations. We think this illuminates a real need for these kinds of collaborative and experimental arenas where it is possible to come together around these complex societal challenges.

## 7.2 Methodology

To answer the research questions, we followed the methodology described in chapter 5. In this section the reliability and limitations of the methodology will be discussed in further detail.

The main data source used in the thesis was semi-structured interviews. As described in chapter 5.2.1, Snowball sampling was used as the method for constructing our interviewee sample. This led to all interviewees being actively participating in Stadslandet in one way or another. They represented several of the main actors within the project, which provided an overview of perceived values created within Stadslandet, and barriers for these values to be embedded in their organisations, from the perspective of participants. However, we did not include stakeholders within the organisations that are not directly involved in Stadslandet. We recognise that such stakeholders could have an important role in the desired embedding and organisational transformation. These perspectives are therefore recommended to be studied further in future research, as well as the interaction between them, to get a more comprehensive understanding of both barriers and drivers for organisational transformation within the municipality.

Additionally, shorter phone interviews were held before the first workshop, as described in detail in chapter 5.2.1. The workshops themselves also provided us with valuable insights and data, since they were focused on the same questions as our thesis. It provided us with a richer understanding of Stadslandet and gave more perspectives for us when analysing the data. However, because of our method and the limited opportunities to record data from the workshops, it was not included in our results. We prioritised the value this gave for the

stakeholders, and we see this as one of the main contributions for them with this thesis, as described in chapter 6.4.1.

When analysing the data, we used a process inspired by the five-phased cycle for analysing qualitative data (Yin, 2015) as described in chapter 5.3. Qualitative research will always be affected by researcher biases (Yin, 2015; Tracy, 2010), yet it is still important to minimize the amount of it in different ways. Therefore, it is important to use multiple data sources, researchers, theoretical frameworks etc. (Tracy, 2010). Efforts were taken to triangulate data using different sources, including Stadslandet documents and workshop insights (discussed further in chapter 7.3). Time and resource constraints limited the corroboration between sources. If there would be more time spent on analysis this could be done in a more rigorous way, including another iteration of coding knowing the emerging themes from the first iteration, as well as a completed data triangulation.

Understanding the societal systems affecting the chosen thesis topic is a large part of writing a master's thesis at Challenge lab. As this allows us to take a systems perspective, and find a leverage point where there is an opportunity to make a change that may contribute to a sustainability transition. This is a time consuming and complex task, which results in less time left to investigate the formulated research questions. However, through the initial problem framing phase we got a deeper understanding of the interrelatedness and wickedness of these kinds of problem and made it possible to find synergies with other theses within Challenge Lab.

## 7.3 Implications

### 7.3.1 Implications for Practice and Politics

Since this thesis has focused on embedding in a case study, we have had a practical perspective. For Stadslandet, there are implications for new ways of *thinking*, in the form of new perspectives, new ways of *doing*, in the form of experimentation and knowledge production, and new ways of *organising*, in the form of collaboration and networks. There are also implications for practitioners and politicians to overcome the identified barriers to embedding the values of Stadslandet into municipal organisations.

The work of Stadslandet has demonstrated the value and potential of the values described in this report, as a way to work more effectively with complex challenges and address the sustainability challenges described in Agenda 2030. As mentioned in our main contributions, embedding requires proactive work, especially in the face of substantial barriers.

In the results of this study, political leadership was highlighted as a large tension in Stadslandet. Furthermore, the interviewees expressed this as a general challenge with working within the municipal organisations in Gothenburg. The lack of leadership was found to be a prominent barrier that resulted in a lack of mandate and resources for the participants to do the work necessary to embed the values from Stadslandet. Connections were drawn between leadership abilities and the municipality not providing enough space for experimentation. This was expressed to be a result of politicians not valuing these kinds of activities enough, and because of the continually changing circumstances for the municipal organisations due to the nature of political shifts. As it was outside the scope of this thesis, it is suggested that future research investigate the role of politics for achieving organisational transformation within the municipality in greater detail.



Lastly, there is a clear implication from the uncovered need to develop some kind of process, method or guidelines to support civil servants who want to work with embedding. We experienced this need first-hand as our interviewees and workshop participants expressed their desires to embed the values from Stadslandet into their organisations, and asked us outright how to do it.

### 7.3.2 Implications for Research

Potential areas for future research have been highlighted throughout the discussion of methodology, contributions and implications. This section gathers these areas of future research and refers to where, in the report, they can be found.

In section 6.3 Methodology discussion, we point to the fact that this thesis is limited to stakeholders working within Stadslandet. Future research could include perspectives from stakeholders outside of Stadslandet, as well as the interaction between them.

At the beginning of this study, we wanted to provide municipal stakeholders with a roadmap of “how” to embed the values and transform organisations through the learnings and experiences from Stadslandet. Since this was found to be too large of a scope for this thesis, as identified in section 6.4.2 Interesting findings, this is a possible area for future research.

Finally, in the section above, 6.4.3 Implications for Practice and Politics, the role of politics for achieving organisational transformation within the municipality is identified as an area which could be explored and researched.

## 8 Conclusion

To meet the grand sustainability challenges facing humanity it is necessary to transition out of the unsustainable systems that govern our world today. This thesis aimed to explore the opportunities for municipal organisations to embed the learnings and experiences from their Urban Living Lab (ULL) participation into their ways of working, and thus transform their organisations. The results of this thesis present the perceived values emerged within Stadslandet; i) Multi-stakeholder networks, ii) Collaboration, iii) New perspectives, iv) Space for experimentation, v) Knowledge production and vi) Other contributions. Furthermore, barriers for embedding these values in the ordinary structures of the municipality and through that transform the organisations. The barriers found were; i) Wicked system, ii) Lack of mandate, organisational and political leadership, iii) Changing circumstances and iv) Municipal system not supportive of experimental activities. The findings in this thesis could be used for presenting the values of Stadslandet and to argue for the importance of ULLs, such as Stadslandet, to achieve the societal sustainable transitions needed to reach the desired sustainable future.

Identification of values within Stadslandet and the barriers for embedding these is an important first step in order to achieve organisational transformation. A possible next step is to find out in what way these values can be embedded. This work is already initiated and for the continuation of this process, it is important to consider the presented barriers when creating strategies. Future research could focus on exploring processes for embedding within the municipality, the importance of politics for organisational transformation in the municipality, and how stakeholders not participating in Stadslandet can affect barriers as well as drivers.

To conclude, Stadslandet has, as the ULL we suggest it is, created a space for experimentation, where participants have got the opportunity to build new knowledge together with others, leading to a large network built on trust. There is a great engagement amongst participants to embed the values that have emerged in Stadslandet, but barriers are still to be overcome to achieve the desired transformation. However, if these barriers are overcome, the values from Stadslandet have the potential to have large implications and, as an interviewee expressed, fulfilled the promises of an experimental arena.

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# Appendix

# Appendix A – Interview Guide I

- What is your role within Stadslandet?
- What was the background for initiating Stadslandet
- What, according to you, is the purpose with Stadslandet?
- What are the values created within Stadslandet? Long and short term.
- Is there an existing work with preserving these values after the project ends?
- What are the critical factors for the values to be lasting?
- Are there barriers for this change to happen?
- What drivers are there?
- Is there anything you think should change in the work of preserving the values?
- What is the role of municipal administrations in creating the desired change?
- [Describe the difference between Expeditions (experimentation) and Cruise (business as usual)] Are these aspects considered in the municipality today?
- How important is the engagement of individuals (champions) for the preserving of values?
- Who else should we talk to?
- Is there anything else you would like to discuss within the topic?



# Appendix B – Interview Guide II

- What is your role within Stadslandet?
- How does Stadslandet and you work within the project relate to your ordinary work?
- What are your expectations on the workshops?
- What do you want to get out of it? What would be valuable for you and your organisation?
- What are the possibilities and critical factors for successfully embedding these values?

# Appendix C – Codes from Data Analysis

01 Values created at SL		1	1
New perspectives		0	0
Empower the local society		1	1
Cooperation		0	0
Collaboration incl. Multihelix		6	14
Bridge building between academia and practioners		1	1
Different roles,activities work together		1	1
Interaction with stakeholders		1	1
Entrepreneurship		1	1
Building Networks		0	0
Networks		1	2
Trust building		1	2
Knowledge and Experience Building		0	0
Knowledge and experience building		4	8
Better understanding of needs and possibilities to act		2	2
New ways of working		2	4
Self-sustainance		1	1
Experimentation		0	0
SL fuelled existing processes		3	3
Gives space for expeditions		1	1
New Innovations and Policies		0	0
Prestudy		1	1
Results from testbeds		1	1
Work opportunities		1	1

<input checked="" type="radio"/> Barriers		2	2
<input checked="" type="radio"/> Circumstances changes over time		2	4
<input checked="" type="radio"/> People leave or move		3	4
<input checked="" type="radio"/> Reorganisations		1	2
<input checked="" type="radio"/> future uncertainties		1	1
<input checked="" type="radio"/> Budgets changes		1	1
<input checked="" type="radio"/> High complexity (wicked)		2	4
<input checked="" type="radio"/> Different possibilities and circumstances		2	2
<input checked="" type="radio"/> SL project huge and undefined		2	9
<input checked="" type="radio"/> Large organisation		1	2
<input checked="" type="radio"/> Many things need to change		1	4
<input checked="" type="radio"/> Takes time for people to understand the project & find their pl		1	3
<input checked="" type="radio"/> Change takes time		1	1
<input checked="" type="radio"/> Goal conflict		1	5
<input checked="" type="radio"/> Lack of Leadership - Mandate		0	0
<input checked="" type="radio"/> No existing methods or processes		5	9
<input checked="" type="radio"/> Depend on political decisions		2	2
<input checked="" type="radio"/> Lack of resources		2	7
<input checked="" type="radio"/> Future funding		1	1
<input checked="" type="radio"/> Competing work tasks		1	2
<input checked="" type="radio"/> System not designed for expeditions		0	0
<input checked="" type="radio"/> No holistic view		3	3
<input checked="" type="radio"/> Knowledge gap operating expeditions		2	6
<input checked="" type="radio"/> Expeditions are not valued high enough		1	3
<input checked="" type="radio"/> External investigations and media		1	1
<input checked="" type="radio"/> Lack communication, collaboration between stakeholder (multih		1	1
<input checked="" type="radio"/> Drivers		0	0
<input checked="" type="radio"/> Engagement		5	7
<input checked="" type="radio"/> Existing projects		1	1
<input checked="" type="radio"/> Concrete results		1	1
<input checked="" type="radio"/> Existing processes		1	1