Paradoxical promise or promising paradox?

Learning from practices of experimentation and their transformational potential in government institutions

by

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Final dissertation for the master's programme in Research in Public Administration and Organisational Science

13-10-2020

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Abstract: This research critically scrutinizes the promise of learning from experimentation. Both in practice and in theory learning from experimentation has been neglected. Particularly, learning from experimental programs through which an experimental governance is becoming institutionalized in governmental organizations has been largely neglected. By drawing on two distinct schools of experimental thought – sociotechnical transition experimentation and (urban) experimental governance, this research seeks to address the question how learning from experimental program can enable transformations to experimental governance in governmental institutions. Thereby, this research employs an abductive, embedded case study on a program for experimentation at the Province of Utrecht. The abductive approach enables the interaction between the empirical discovery and the distinct theoretical positions, while the embedded design contributes to an understanding of experimental programs through which an experimental governance is becoming institutionalized in governmental organizations. This research identifies three patterns of experimentation at the Province of Utrecht (1) experiments conducted as projects for innovation, (2) experimentation is facilitated as generative practices, and (3) experimentation is developed as mode of governance. These patterns are distinct in regard to how they deal with conditions of complexity, uncertainty and political ambiguity. A reduction of these conditions enables epistemic learning from experimentation, thereby contributing to improvement of efficiency and effectiveness of a stable environment. Experimental practices embracing political ambiguity enables political learning, which contributes to the transformation towards experimental governance. This mobilization of the experimental practice is enabled through processes of collective meta learning on experimentation and the embedding of a variety of experimental practices in a network of frontrunner. These finding contribute to a critical, in-depth understanding of the learning and transformative potential of experimentation in a government institution. Most importantly, it emphasises the necessity for a reflexive approach towards learning from experimentation in both theory and practice.

Points for practitioners:

- It is important to recognize the variety of experimental practices, particularly in regard to conditions of complexity, uncertainty and (political) ambiguity and the potential for learning they enable.
- Experimentation unfolds its 'catchy learning promise' through its multiplicity. Therefore, it is supportive to enable and connect a variety of experimental practices.
- Collective meta learning as reflexivity on the experimental learning objective, processes and outcomes themselves is crucial in order to mobilise experimental practices in a government institution.

Content

Introduction

Urban living labs, maker spaces, innovation labs, hackathons – experimental practices "mushroom" across the urban realm (Evans, Karavonen & Raven, 2016). Experimental practices are responses towards complex, uncertain and contested societal challenges, where rational planning approaches are perceived as inadequate – also referred to as "wicked problems" (Rittel & Webber, 1973). The COVID-19 pandemic and its socio-economic consequences are the latest example of governments resorting to practices of experimentation. Its catchy promise is that experimentation is always successful – even if it substantially fails, it serves as source for learning. Evans et a. (2016) argue that "this ethos of experimentation resonates with the broader emergence of reflexive governance and the importance of learning (…) seeking to reconcile 'the science of data and the science of experience' through real-world experiments." (p. 2). Thus, learning – generally – is a core promise of experimentation. However, this promise hides a challenge to the prevailing epistemology of governmental authorities. Learning from experimentation may require and foster a transformation in the underlying epistemology of a government authority. An inductive, learning-by-doing process replaces the deductive approach of analysis and instruction relying on silos of expertise, and a general principle makes ways for 'best practices,' 'pilots' and processes of 'up-scaling' (Evans, Karavonen & Raven, 2016). This paradoxical promise of learning from experimentation is underexplored, both in practice and in theory (Mierlo & Beers, 2020).

Two schools of thought have provided distinct contributions to understanding urban practices of experimentation – a socio-technical transition perspective and experimentation as mode of governance, both perspectives enable distinct reflections about this paradox. In a socio-technical transition perspective, an experiment is conceptualized in its broadest – and least applicable – definition a purposeful intervention bound in space and time that seeks to develop knowledge to contribute to a particular outcome (Turkheim, Kivimaa & Berkhout, 2016). Learning from experiments is central to enabling transitions beyond the protected niche. However, following this first wave of experimentation, there has been a growing recognition of the fragmentation of governance through experimentation (Bulkeley, 2019; Torrens & Von Wirth, under review). Scholars remark that local experiments largely remain "isolated, fragmented and weak" (Turnheim, Kivimaa & Berkhout, 2016: p. 234). Local governments turned into an enabling mode and focused on the subsequent institutionalization of previously bounded practices of experimentation (Bulkeley & Broto, 2013). The consequence may be a "case-by-case approach to the development of initiatives and measures" (p. 362) or "patchwork of responses" (p. 363). While individual experiments may generate learning, it remains questionable whether and how this contextual and experiential knowledge scales beyond the individual experiment to an environment from which it is initially removed and how it contributes to learning as an evolutionary process.

Urban governance scholars have criticized this overemphasis on scaling from an individual experiment and conceptualize experimentation as mode of governance (Bulkeley & Broto, 2013). Experimental governance scholars conceptualize experimental practices as new mode of governance. In contrast to a perception of experiments as isolated interventions, experimental practice opens-up for contradictions and conflicts as processes that are generative to structural transformation – potentiating radical shifts in power, authority and

institutional arrangements of the urban realm (Bulkeley, 2019). In contrast to an emphasis on scaling 'lessons-learned', experimental governance emphasizes learning-by-doing as a collective potentially transformative process. Governance is perceived as "an active, dynamic and provisional process […] that seeks to intervene in the existing social (and material) order" (Bulkeley, 2019: p. 24). This emphasises its provisional, adaptive and fragmented accomplishments, instead of a distinct teleological endpoint. Consequentially, the transformation of governance is both the outcome as well as the source of experimental governance. This relationship and the contribution of learning from experimentation and its transformative potential is underexplored and empirically neglected.

Despite this theoretical debate, empirical studies have tended to assume particular forms of experimentation. Much focus has been directed towards individual experiments or comparative studies across multiple cities as frontrunner for experimentation. There have been few studies concerned with the multiplicity of experiments in particular places (such as Torrens et al. 2019; van den Heiligenberg et al., 2017). There has been an overemphasise on the individual experiment and a lack of attention towards experimental programs through which an experimental governance is becoming institutionalized in governmental organizations. The process through which experimental practices transform institutions and governance processes, and the institutionalization of experimental governance has been neglected empirically.

In particular in regard to the transformative capacity of learning there have been few empirical studies, despite its widely recognized empirical importance, it has been "hardly investigated empirically" (Mierlo & Beers, 2020: p. 255). Armitage, Marschke & Plummer (2008) coin a 'learning paradox', according to which the normative value of learning is widely (over-) emphasized, however, "if, who, how, when and what type of learning actually occurs" (p. 87) is neglected. Wolfram et al. (2019) emphasize the need to perceive learning as an instrumental, rather than normative concept by "recognizing the ambiguities of learning effects" (p. 183). Learning as means of change is not neutral or value free, as it threatens the status quo it is inherently political (Armitage, Marschke & Plummer, 2007).

Therefore, this research aims to enable a critical, in-depth understanding of how experimentation is mobilised in practice, with attention to which learning processes and outcomes are enabled in and from practices of experimentation. For this reason, this research 1) adopted an abductive research approach (DuBois & Gadde, 2002, 2014), which enables the interaction between the empirical discovery and the presented theoretical positions, contributing to a critical, in-depth understanding of experimental practice and a successive development and refinement of theory; 2) conducts an embedded case study of three experiments as embedded units in the case of an experimentation program at a region authority to focus the practice of experimentation and its institutional environment through which experimental governance may be conducted. Thereby, this research is guided by the following research questions:

- What patterns of experimental practices are mobilised by governmental institutions, and how do they relate to these distinct theoretical orientations?

- Which drivers, barriers and mechanisms enable learning from experimental practice? How does learning from experimentation contribute to the embedding of experimental practice in the governmental institution?

- <mark>How does the embedding of experimental practices in governmental institutions engenders transformations to experimental governance?</mark>

In the following, I initially present and discuss the theoretical framework for experimentation based on the experimental schools of thought from socio-technical transitions and urban governance studies, as well as engage with the conceptualization and operationalization of learning from experimentation. After outlining the abductive research methodology and design, I will analyse the patterns of the practice of experimentation at the Province of Utrecht and their potential for learning. Building on this empirical analysis I discuss and conclude these findings in light of the elaborated theoretical debate and derive pathways for future research and final limitations.

Theory

In this abductive approach theory is applied as an evolving framework (DuBois & Gadde, 2002, 2014). To inform our analysis the research further elaborates on the concepts of experimentation as developed by the two schools initially outlined, as well as a conceptualization of learning from experimentation.

The theoretical framework for experimentation

Experimentation in the public sector goes back to the pragmatist philosophy of John Dewey. The fundamental idea of pragmatism, according to which "ideas have clear meanings only in operation, that is, in terms of their actions, effects, or consequences" (Snider, 2000: p. 331) guides experimentalism as a strategic approach to problem solving (Ansell & Bartenberger, 2019). Rather than describing and contrasting distinct types and developments of theoretical perspectives on experimentation, this theoretical inquiry seeks to enable and understanding on how these different perspectives may be combined to contribute to an enhanced understanding on the patterns of experimentation in practice.

In light of the considerable development of experimentalist theory particularly in the last decade, Bulkeley (2019) differentiates two distinct school of thought. On the one hand, in the tradition of (socio-technical) transitions, experiments are regarded "as spatially and temporally discrete [means] that provide the testing, breeding and learning grounds for widespread system change" (p. 29). Thereby, "acting 'at scale' is both necessary to achieve widespread urban change and desirable in terms of efficiency and effectiveness." (p. 29) On the other hand, experimental governance scholars conceptualize experimental practices as new mode of governance. In contrast to a perception of experiments as isolated interventions, experimental practice opens-up for contradictions and conflicts, as generative to structural transformation as radical shifts in power, authority and institutional arrangements. These two perceptions have distinct – and potentially conflicting – underlying epistemological assumptions.

The variety of conceptualizations of experimentation in transitions studies (for review see Sengers et al., 2019) are based on the core assumption that system transitions may be generated through path-breaking niche innovations that enable to break through the regime stability. These niche innovations may be generated through experiments conducted in niches – experimental spaces. Therefore, experiments are largely conceptualized as means to generate system innovation in niches. Core to this perspective is the conception of a niche or 'protective space', which assumes that path-breaking innovations through experimentation

require initial shielding against prevailing selection pressures of the incumbent socio-technical regimes (Smith & Raven, 2012: p. 1025). Strategic niche management has emphasized the management and steering of transitions through the strategic utilization of niches (Schot & Geels, 2007). Smith and Raven (2012) emphasize that effective protection and support of innovations through niches encompasses shielding, nurturing and empowerment as essential protective properties. Shielding may be perceived as passive process and generic space or as deliberative and strategic means to shield the experiment from regime selection pressures, such as institutional barriers. Building on the strategic niche management literature, nurturing processes support the development of the emerging innovation by building and sustaining social networks, articulating, negotiating and aligning expectations, as well as fostering social learning processes (Schot & Geels, 2008). These nurturing processes as means to foster support and minimize conflict have been criticized as overly consensual. While the negotiation and alignment of expectations has been recognized as an inherently political process, it has been portrayed as a rather deliberative and consensual process facilitated through methods of stakeholder participation and engagement (Raven et al., 2007). In seeking to address the structural dynamics of protective spaces in transitions, Smith & Raven (2012) emphasize processes of empowerment. Niche empowerment encompasses activities which empower niche innovations to either 'fit and conform' with the unchanged selection environment and are embedded to generate incremental change of existing socio-technical systems; or 'stretch and transform' by changing the selection environment to enable path-breaking innovation. At its core, scholars of the transition studies tradition regard experiments and the niche innovations they produce as steppingstone towards system change. A "major conceptual challenge" (Turnheim, Kivimaa & Berkhout, 2016: p. 22) remains how a niche experiment induces wider changes at regime level. Transition management generally distinguishes three mechanisms through which experiments contribute to transitions – deepening, broadening and scaling-up (Grin, Rotmans & Schot, 2010: p. 336; Van den Bosch & Rotmans, 2008). Deepening refers to learning as much as possible from an individual experiment in a distinct context, particularly restricting conditions. Broadening refers to linking and repeating an experiment in different contexts. Scaling up refers to the embedding of the experiment in the existing structures, practices and culture, thereby expanding the experiment in scope inducing changes in the incumbent regime. Transition management emphasizes the importance of frontrunners as critical to the successful upscaling, particularly achieving a delicate balance between protection from and engagement of regime-players and institutional pressures (Van den Bosch, 2010).

Governance scholars have criticized this socio-technical transitions approach for its overreliance on experiments as bounded and largely isolated interventions. The theoretical scepticism and empirical lack of successfully embedded experiments has been exemplary problematized as 'pilot paradox' – "pilots never fail, they (also) never scale" (Van Buuren, Vreugdenhil, Verkerk & Ellen, 2016: p. 5). Despite pilots successfully generating innovations, building networks and contributing to learning by participants, they seem to seldom generate structural or systemic change. This is presented as a paradox because, as Van Buuren et al. (2016) argue, the very conditions that provide an experimental space for successful generation of innovation serve as the main barriers to its broader uptake. Bulkeley (2016) criticizes the overreliance of socio-technical transitions on individual pathbreaking innovations as experimental outputs and the tentative neglect of the structural conditions which manifest system lock-in. Instead, Bulkeley et al. (2014) argue, perceiving

experimentation as new mode of governance – as mode of action – emphasizes experimentation as both political and socio-material process. As such, experiments are (hardly reversible) interventions in socio-material infrastructures and practices that reconfigure actors, entities and norms as well as new forms of agency and power (Bulkeley, 2016: p. 13). A such, the very process of establishing and maintaining these experiments requires new social and material relations (Broto & Bulkeley, 2013).

Learning in and from experimentation

Both schools of thought emphasize experimentation as source of learning[1]. However, when drawing on the distinct underlying epistemological and ontological assumptions on which both logics of experimentation are build, inherently different, and potentially conflictual, perspectives on learning emerge. This is expressed through Ansell & Bartenberger's (2016) learning conceptualization.

Ansell & Bartenberger (2016) differentiate epistemic and political learning as distinct learning facilitated through practices of experimentation. Epistemic learning is conceptualized as deductive knowledge production that "expands or refines our scientific knowledge of the world" (Ansell & Bartenberger, 2016: p. 70). This positivistic, rationalist learning perspective therefore conceptualizes the accumulation of factual knowledge to generate predictions about cause and effect in a stable environment – a stability which it both assumes and manifests. Epistemic learning therefore contributes to a factual understanding about how certain governance system work efficiently and effective. In contrast, political learning, is perceived as an open and contingent process unfolding in a real-life social context, leading "stakeholders to alter their preferences, goals, frames, and commitments" (Ansell & Bartenberger, 2016: p. 70). This constructionist approach to learning is based on the assumption that problems and their solutions are collectively constructed and learning therefore an interactive but inherently conflictual process. Political learning is a more collective and self-referential process.

This distinction between these types of learning does not draw a distinction between 'facts' and 'values'. Instead, Ansell & Bartenberger (2016) draw on the pragmatist foundation of experimentalism according to which meaning depends on purpose and situation, thus, means and ends as well as facts and values are inseparable. As such, political and epistemic learning can co-exist and be facilitated in the same experiment. The duality of these types of learning invites a reflexivity about the multiplicity of learning that experimentation may enable, in contrast to a narrow perception of experiments producing facts. However, there is tension between the underlying assumptions of the two types of learning. Experiments designed to facilitate epistemic learning may perceive politics as bias and barrier to the successful execution of the experiment. Thus, the experiment may be designed to reduce potential political conflict and instead emphasize a controlled or consensual environment. On the other hand, Ansell & Bartenberger (2016) argue that the very assumption of "authoritative knowledge claims" (p. 71) generated through practices of experimentation is an essentially political expression of power.

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[1] See Mierlo & Beers (2020) for a review on the contribution of different learning theories for a deeper understanding about learning beyond niches, such as collaborative learning (educational sciences), organisational learning (management studies), social learning in natural resource management (complex system thinking) and interactive learning in the learning economy (institutional economics).

While these both dimensions of learning have been recognized under various labels, it can be argued that the dimension of political learning from experimentation has been undertheorized (Ansell & Bartenberger, 2016). Bos and Brown (2012) argue that while the theoretical literature on transition management has recognized the importance of political learning processes, the empirical analysis largely focuses on technical experimentation and, in consequence, technical and epistemic learning outcomes. When emphasizing epistemic learning from experimentation, political dimensions are largely perceived as confounding factors and barriers to the conduct and scaling of experimentation (see e.g. Kivimaa et al. 2017 for review).

This emphasises the learning paradox raised above. Experiments as projects are removed from to its institutional and political environment. The socio-technical transition perspective particularly emphasises experiments as shielded (in niches, incubators, protective or experimental spaces) from incumbent institutional regimes, such as political, potentially conflicting 'preferences, goals, frames, and commitments'. Thus, the very foundation of political learning – as an open and contingent process leading "stakeholders to alter their preferences, goals, frames, and commitments" (Ansell & Bartenberger, 2016: p. 70). Therefore, while experiments as exceptional projects facilitate conditions for epistemic learning conducive to the generation of innovation, it may eliminate potential (political) conflict and inherent value ambiguity, and thus, the potential for political learning.

Thus, while rather instrumental than theoretical, this distinction between epistemic and political learning from experimentation enables greater reflexivity about the practice of experimentation and its transformative potential beyond the singular intervention.

This duality resonates with multiple other experimental learning frameworks – which are rather isolated from one-another. McFadgen and Huitema (2016), for example, argue that experiments, depending on their governance design, generate instrumental and generalizable knowledge about cause and effect, but may also facilitate deeper forms of social and self-referential learning, including changes in interests and perspectives. McFadgen and Huitema (2016) develop a framework for analysis of the learning potential of experimentation among participants by differentiating between, on the one hand, cognitive learning, defined as gaining new knowledge and improving structuring and utilization of existing knowledge; and, on the other hand, normative learning, in contrast defined as the generation of a deeper understanding that demands reflection on and eventually individual and collective changes in perspectives, goals and priorities.

While McFadgen and Huitema (2016) conceptualize learning by participants of experimentation, in their consequence, the duality of these types of learning from experimentation resonates with the distinction between "the exploitation of old certainties" and "the exploration of new possibilities" in organizational learning as influentially suggested by March (1991). Exploitation, the "refinement and extension of existing competencies, technologies, and paradigms" (p. 85), similarly to epistemic learning assumes and manifests a stable environment, which is to be refined and managed more effectively and efficiently. Exploration, in line with political learning, seeks for the development of new alternatives instead of the refinement of existing ones. The returns of the latter are both more distant and uncertain as opposed to the proximate and predictable outcomes of exploitation of existing practices. While March (1991) argues that there is tension between both processes as they compete for scarce resources at both individual and organizational level, organizations at

large need to balance this tension. Gieske, van Buuren and Bekkers (2016) conceptualize this balance for both exploitation and exploration as ambidextrous capacity essential to public innovative capacity.

This duality resonates with Argyris & Schön's (1978) influential theoretical distinction between single- and double-loop learning. Single loop learning encompasses the detection and correction of an error, while the underlying organizational policies and objectives are unchanged. In contrast, double-loop learning encompasses the modification of an organization's underlying norms, policies and objectives. Other authors, such as Bos & Brown (2012) have further extended this duality with "triple-loop learning", which can be perceived changes in governance norms and protocols following lower level learning processes.

However, this differentiation shall not be confused with a normative judgement of general superiority of 'higher-order' learning. Tosey, Visser and Saunders (2011) "caution against the uncritical preference for 'higher levels' of learning that is sometimes discernible in the literature and in practice." (p. 291). Pahl-Wostl (2016) further emphasizes that "the direction of progress might become haphazard if individuals or organizations would revisit and change basic values and beliefs all the time." although "there would be no innovation or evolution to higher adaptive capacity if individuals or organizations never revisited basic values and beliefs." (p. 381). Thus, elucidates the importance of an analytical differentiation of learning types and outcomes, rather than the inflationary use of learning-levels (Tosey et al., 2011).

Instead of referring to subsequent levels of learning, Argyris (2003: p. 1179) emphasizes deutero learning or "going meta" as reflexivity about processes of learning itself. "Meta learning" thus contributes to a reflection on and inquiry itself, about how and which kind of learning experimentation generates, as well as how learning conditions and processes can be improved. In practice, meta learning enables reflexivity on the potential for learning from experimentation, which is necessary for the mobilization of experimentation.

While multiple other experimental, governance or organizational learning frameworks could be elaborated on and employed to analyse the potential of learning from experimentation, this paper moves forward by drawing on a distinction between epistemic and political learning. This distinction resonates with the different underlying epistemological assumptions by the two schools of thought on experimentation elaborated previously. The conceptualization of two distinct types of learning enables reflexivity about the learning processes and outcomes generated through experimentation, without an implicit prioritization of one over the other. In practice, meta learning, as reflexivity on the potential for learning from experimentation is necessary to mobilize the transformative potential for experimentation in practice. While providing a research lens by elucidating the core assumptions of learning from experimentation, the conceptualization of epistemic and political learning is sufficiently comprehensive to embrace the empirical richness emerging from the abductive analysis of experimental patterns and their transformative potential at the Province. The preliminary conceptualizations are presented in Table 1.

Table 1 Preliminary conceptualization of learning from experimentation

Epistemic learning	Political learning	Meta learning
Epistemic learning is conceptualized as deductive knowledge production that "expands or refines our scientific knowledge of the world" (Ansell & Bartenberger, 2016: p. 70)	Political learning is conceptualized as an open, contingent and collectively self-referential process leading "stakeholders to alter their preferences, goals, frames, and commitments" (Ansell & Bartenberger, 2016: p. 70)	Meta learning is conceptualized as reflexivity on the process of learning itself (Argyris, 2003), contributing to the adaption and improvement of experimental practice to generate epistemic and/or political learning

Research design & methodology

Abductive methodology

This research conducts an embedded case study using an abductive approach. The abductive approach focuses on the development and successive refinement of theory, rather than its generation or testing (DuBois & Gadde, 2002, 2014). Thereby it seeks "to interpret and recontextualise individual phenomena within a conceptual framework or a set of ideas. To be able to understand something in a new way by observing and interpreting this something in a new conceptual framework." (Danermark et al., 2002: p. 80). With is roots in critical realism, abduction differs both "from induction in that we start from the rule describing a general pattern, and it differs from deduction in that the conclusion is not logically given in the premise. Abduction is neither a purely empirical generalization like induction, nor is it logically rigorous like deduction." (Danermark et al., 2019: p. 90). As such, there are no "fixed criteria" to assess the validity of the abductive conclusions indefinitely (Danermark et al., 2019: p. 81). Transferring positivist quality criteria originally developed for quantitative criteria, such as reliability, construct, internal or external validity (Yin, 1994) is inadequate (Dubois & Gadde, 2014). Instead, abductive researchers must "fight an uphill battle to persuade their readers" (Dubois & Gadde, 2014: p. 1282). For one, it is of particular relevance to present and reflect on methodological procedure through which these conclusions were derived. A reflexive research diary enabled the continuous and ex-post self-reflection. An in-depth description and reflection on the research process are provided in the Appendix A. More importantly, the abductive approach needs to elucidate the relation between the case study and the theoretical concepts, in which the theory serves as a tool for the evolving case and framework. Therefore, this research follows the approach of 'systematic combining'. This research process can be described as "a non-linear, path dependent process of combining efforts with the ultimate objective of matching theory and reality" (DuBois & Gadde, 2002: p. 556). Initially, this research was approached with distinct conceptualizations of experimentation and subsequent conceptualizations of learning from urban studies, (sustainability) transition studies and public policy and the broad research interest of 'learning from experimentation'. Throughout this iterative research process, going back and forth between the theoretical framework, the data sources and the analysis continuously redirected the research (following DuBois & Gadde, 2002). Particularly the interaction with the IFL leadership at the Province influenced the research process. Figure 1 illustrates the approach of 'systematic combining' following DuBois & Gadde (2002).
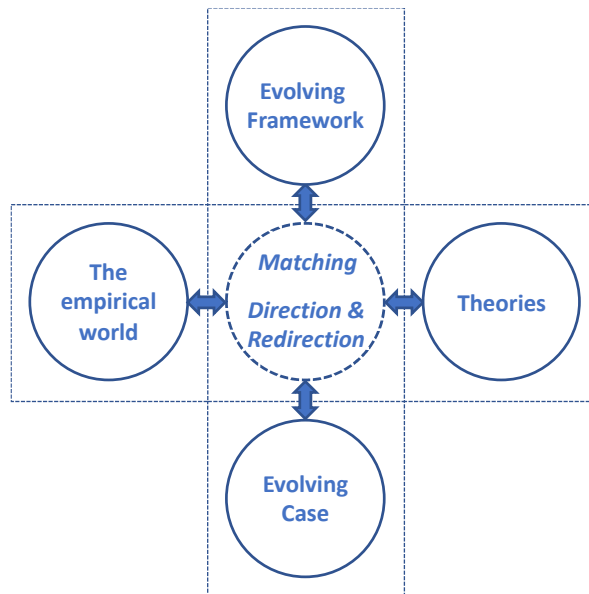
Figure 1 'Systematic combining' approach in abductive case study (Adapted from DuBois & Gadde, 2002: p. 555)

Data collection & analysis

The data collection consisted of multiple methods and sources on the embedded experiments, the experimental program and network at the Province of Utrecht. Multiple sources contribute to revelation of new dimensions of the research problem and, thus, the continued direction and redirection of the research (DuBois & Gadde, 2002). The empirical basis of this research consisted of the following:

- *Interviews* – 16 semi-structures interviews and several initial background interviews were conducted with individuals at the Province and external partners involved in practices of experimentation as well as individuals at the management level. The interviews were conducted in English and Dutch, depending on the preference of the interviewees. The subsequent quotes are translations carried out by me.

- *Documents* – 12 core documents, such as internal and external evaluations of the experiments and experimental program, program directives, political briefings, drafts and protocols.

- *Observations* – 12 virtual and in-person observations of experiment/project meetings and workshops, IFL team meetings, network meetings and workshops as well as site-visits.

- *Reflexive practitioner interventions* – Eight in-depth conversations with the IFL program leader over a period of four months. These interventions reflected the on-going work as experimentation program leader, particularly the progress of experiments and the experimental program at large as well as self-reflective and collective learning and meta learning processes. Part of these conversations was a reflection on preliminary research directions and findings. As such, these 'reflections-in-action' (Schön, 1983) served as a data source and tool for matching in the abductive research process, as well as in an intervention for meta learning.

This significant access was provided through an on-going engagement between Utrecht University and the Province as well as formal access through an internship with the IFL program by the author. The data collection took place between April and August 2020. The timing of the research was crucial, because the IFL program was in the process of restructuring following the concluded legislative period. This sparked individual and collective reflection and adjustments of the program, such as its embedding in a greater network. A detailed list of data sources can be found in Appendix B.

The data analysis of the interviews and documents was conducted through thematic and open coding using the NVIVO software. Based on the process of matching, the coding tree was continuously adapted. Its most recent version can be found in the Appendix. Following the abductive approach of systematic combining, the theoretical framework, data collection and analysis was not conducted in a linear process but were constantly matched and redirected with each other. For the sake of readability and conceptual clarity, this research is presented in a linear logic.

Embedded case study – method, selection & description

The research objective of this abductive study is a critical exploration of learning from and within experiments and learning generated through the experimental program in order to understand how experimental practice in governmental institutions engender governance transformation. Therefore, an embedded case study is conducted. As illustrated by Figure 2, the embedded cases study is set in the context of the Province of Utrecht and studies the case of the IFL and the experimental practice through three embedded experiments.
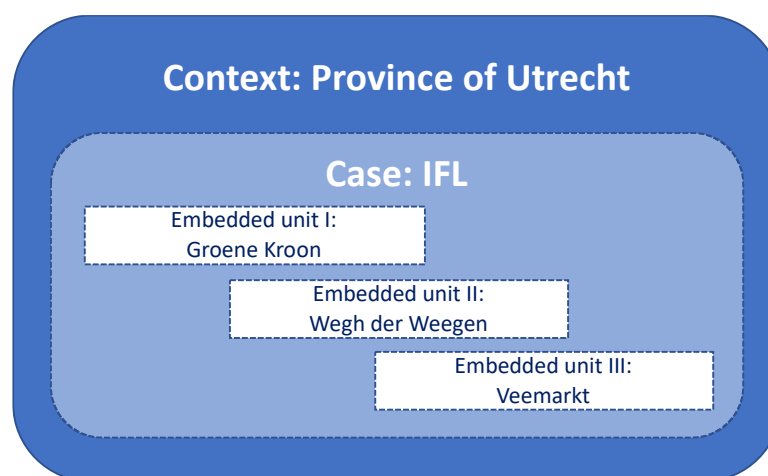
Figure 2 Embedded case study

Generally, a case study is most suitable to answer 'how' and 'why' questions, because it enables an in-depth, context-dependent examination of the case and causal processes through the combination of multiple forms of evidence (Yin, 2003). The embedded design further enables the analysis of learning and its institutional and transformative impact across multiple level of analysis. The in-depth investigation of the experiments allows for the understanding of tacit knowledge developed by experimental participants (Newton, 2003: p. 8) as well as the relation to the IFL and its provincial institutional context.

The Province is a relevant and exemplary context to study due to several regional-contextual success factors for experimentation and innovation (van den Heiligenberg et al., 2017). The Province has a strong and knowledge-intensive economy with a young and left-leaning electorate. There is a strong regional knowledge network between the Province and the university, research institutions as well as other local authorities. Past and current government coalitions have emphasized the continued need for innovation, transformation and knowledge creation at the Province. Therefore, several programs and projects for innovation, experimentation and knowledge creation have been established at the Province. These programs are both the result of and driver for the on-going structural transformation of the Province towards a more transdisciplinary and responsive governance approach by the regional authority. An important external driver for this development is the National Environmental Planning Act, which requires a place-based, transdisciplinary and participatory development of the physical environment.

The case – Innovatie Fysieke Leefomgeving (Innovation program in the physical environment)

The Innovation Program in the Physical Environment 2016-2019 (IFL) is an innovation programs at the Province with a focus on transforming provincial governance of the physical environment through practices of experimentation. As such, the IFL program is a highly relevant case, because it can be identified as an experimental program through which experimental governance is becoming institutionalized, and thus addresses the initially outlined research gap. Moreover, the IFL may be defined as 'frontrunner', or group thereof, for experimentation, whose motivation and ability to experiment makes it crucial agent in the initiating, sustaining and embedding the experimental practice at the Province, as "real go-getters with an overly amount of energy and enthusiasm to combat the many hurdles within the regime" (Loorbach & Rotmans, 2010: p. 243).

The IFL seeks to contribute to societal challenges, such as energy or mobility transitions, climate adaption and rural development by fostering the governance capacity to engage in a more responsive and transdisciplinary "new way of working", although the operationalization of the concept's changes throughout the program, while remaining relatively vague in the IFL program directive (D5).

The IFL has three explicit goals and ambitions as outlined in the politically mandated program directive:

(1) "*Providing an impulse to the governance of societal tasks by creating an experimental space in which cases and pilots are initiated and supported (so called 'living labs')*." (p. 11)
(2) "*The reflection and evaluation of on-going initiatives and experiments and the consolidation of insights and experiences*." (p. 18)
(3) "*Increasing the substantial and procedural knowledge and capabilities of civil servants. This should be done in a way which suits working according to the new National Environmental Planning Act and supported through tailored workshops and training*." (p. 19)

To achieve this goal multiplicity, the IFL team sought to initiate experiments in the 'primary processes', those civil servants engaged in the primary policy making and regulatory tasks of

the Province, and support existing projects, through budget and personal, as well as through expertise, its network and, particularly, a political mandate to experiment.

While these are the formal ambitions the program has substantially and procedurally changed. At the time of this research the IFL program for the legislature 2016-2019 was formally concluded. Based on a final report (D1) the IFL was assessed by the political leadership and a continuation legislature 2019-2023 was currently being drafted. At the same time, the program was increasingly embedded in the structure of the organization through forming a formal network and dynamic agenda (Support Network RO) for projects, programs and expertise engaged in innovative and experimental practices regarding the governance of the physical environment. This development was driven both by network participants themselves as well as by top-down consolidation of programs and their budgets. With its embedding in the network, the IFL will formally convert from a 'program' to an 'expertise'. Figure 1. in the Appendix provides an illustration of the IFL and its developing embedding in the organizational structures.

The embedded units – A variety of experimental practices

The selection of embedded units was done through purposive sampling. As first step of the data analysis the portfolio of experiments was analysed, and selection criteria were developed to reflect the variety of experimentation, while ensuring sufficient homogeneity in order to allow for internal comparability. A table of the experimental portfolio is provided in in Table 2 in Appendix A. Four selection criteria were applied, as outlined in Table 2:

(1) **Experimental approach** – The IFL conducts different experimental approaches, focused on instruments, practices or place-based approaches.
(2) **Control & intervention** – The degree of intervention and control of uncertainties by the IFL in the process of experimentation in the programs varies, from more deductive and to more generative and explorative processes.
(3) **Prescribed experimental objective** – The experiments display a variety of more or less predetermined objectives and intentions of scaling or embedding.
(4) **Progress** – As learning is an on-going, evolutionary process, the selection includes experiments from different stages of the IFL as well as different progress.

With this purposeful selection of experiments, this research seeks to cover the full variety of experimentation of the IFL. However, this research does not claim to cover a global variety of experimentation but bases the conceptualization of experimentation abductively in the experimental practice of the Province.

Groene Kroon (Green Crown)

The Groene Kroon aimed to identify and support private nature initiatives, thereby, address the question how provincial and private nature initiatives can strengthen each other to foster biodiversity in the Province. Open calls were organized in 2017 – regarding biodiversity – and 2018 – regarding nature around the built environment, to support private initiatives and connect such initiatives with each other as well as the work by the Province. The experiment was formally finalized and externally evaluated.

Wegh der Weegen (The Route of Routes) (I & II)

The Wegh der Weegen sought to foster the transdisciplinary development of cultural-historic routes in the Province. It comprised two iterations: The first engaged in setting-up a citizen-

foundation and engaging in a co-creation process to develop a shared vision. The second iteration focuses on developing the internal, transdisciplinary capacities to implement the vision. The second iteration of the experiment was on-going at the time of this research.

Veemarkt exploration

The Veemarkt is a bottom-up initiative by citizens reading the development of a recreational space in the neighbourhood of Veemarkt in Utrecht. It seeks the sustainable development of a natural recreation area with regulatory cultural-historic limitations on it. Thereby, it combines different administrative units and regional development goals, such as energy transition, sustainable business models for maintenance of cultural heritage, neighbourhood of the future as well as healthy living and recreation. The Veemarkt is not yet formally recognized as experiment in the IFL portfolio, but an exploration is on-going at the time of this research.

Table 2 Selection of the embedded cases, description and selection criteria

Embedded cases – experiments	Experimental objective	Experimental approach	Control & intervention	Experimental objective	Progress
Selection criteria & their relative assessment	*Experimental objective as defined by the IFL*	*Description of the experimental approach*	*Control of the intervention & steering by the IFL*	*Expected output &/or object of embedding*	*Progress of the experiment*
Groene Kroon	Connecting to governance of biodiversity by engaging with citizen-initiative	**Testing** Testing an innovative governance instrument (open call)	**High** Deductive, testing of a predefined instrument	**Innovation** (instrument) Institutionalization of innovative instrument	**Formally finalized and evaluated**
Wegh der Weegen (I)	Transdisciplinary & responsive development of cultural-historic route	**Process** (external) Setting-up a citizen foundation and developing a vision in co-creation	**Medium** Generative process evolving in the external collaboration with citizen	**Process** (pilot) External pilot to learn about how to engage in transdisciplinary development	**Formally finalized and evaluated**
Wegh der Weegen (II)	Generating organizational capacity to work transdisciplinary	**Process** (internal) Initiating a transdisciplinary cooperation to implement the vision	**Medium** Generative process evolving in the internal collaboration	**Process** (pilot) Internal pilot to learn about how to engage in transdisciplinary development	**On-going**, second iteration Subsequent Second iteration of the experiment
Veemarkt	Transdisciplinary and responsive place-making	**Place-making** Open-ended, facilitation of citizen-initiative	**Low** Explorative, co-creation process with citizen-initiative	**Uncertain** Bottom-up, co-production with societal stakeholders	**On-going**, explorative stage Early stages of process and goal definition

Findings – Emerging patterns of experimental practice

Three patterns of experimentation emerge in the analysis of the IFL experimental practice at the Province and the embedded experiment, in particular – experiments as innovation projects, experiments as practice and experimentation as new mode of governance. These distinct patterns entail different potential for epistemic or political learning – and reveal an underlying tension in their contribution to the transformative capacity of experimentation at the Province. The Groene Kroon is identified as experimentation as innovation project, while the Wegh der Weegen resonates with experiments as practice. Yet, experimentation as mode of governance is incrementally developing, to which the Veemarkt exploration contributes.

I.   Groene Kroon - Experiments as innovation projects

Initially, the IFL conducted experiments as innovation project based on three core assumptions: firstly, experiments are means to test and apply innovative instruments; secondly, in order to test and implement innovations efficiently and effectively they are conducted as exceptional projects removed from the primary process; and, thirdly, by scaling-up both the innovation output and the lessons-learned the experiment to facilitate "new ways of working".

This pattern of experimentation arises from the IFL as innovation program, which initially assembled a portfolio of experiments as singular interventions. Experiments were conducted as controlled and deductive means to test and apply innovative instruments, such as the open-call as well as ICT-innovations. The goal to innovate was so essential that there was largely no conceptual distinction between 'experimentation' and 'innovation' by the interviewees. Yet, the ambition to "try something new, from the mindset of let's see what we can do." (MH) was perceived as an inherently experimental embrace of uncertainty and openness.

Exemplary for this conception of *experiments as innovation project* is the *Groene Kroon* (GK), which aimed to test an open-call to award innovations by citizen-initiatives promoting biodiversity in the Province. Leading up the GK, the IFL was "running around with the idea of doing an open-call" (MH) with the intention to "challenge government" (MH) by reaching out to citizen-initiatives as potential sources of innovation, in this case for the governance of biodiversity. The open call was perceived as a novel tool to do so efficiently and effectively. The project team's objective was more conservative, namely "trying something new" (JB) in connecting and supporting previously overlooked citizen-initiatives for biodiversity. Despite this ambivalence, there was a shared conception about the experimental nature of this project based on the novelty of the instrument and the uncertainty of its application and potential outputs.

While initially innovation projects were managed by an IFL project leader, in subsequent projects, like the *GK*, the IFL assumed a more facilitating role, by contributing expertise, resources and an internal and external network. The IFL's core contribution appreciated by experimental participants was providing an "experimental space" (D5) or "safe space" (CvD) based on the IFLs "license to innovate" (CvD). While on the one hand, this political mandate was perceived as enabling condition to engage with novelty and uncertainty in an otherwise "operational maintenance organization" where the "whole system is based on doing things in a proper way and making sure that as few mistakes are made as possible" (CD). On the other hand, the perceived necessity to shield the experiment from its institutional environment

leads to the conceptualization of an exceptional project. As such, the GK was expected to operate as a project, thus, predefined by its ambition to test an innovation, expected outputs measured in the number of initiatives reached, and a tight process management of planning, execution, termination and external evaluation. The expectation that this experimental process should conform to standard project management practices removed the experiment from the very institutional environment it seeks to transform.

Beyond the individual experiment, the IFL seeks to generate organizational change towards "new ways of working" (D5) by scaling-up the innovation output in the organization at large. A formal criterion for the initial selection of experiments is that they are "'reproducible', which means they are applicable elsewhere" (D5) as well as novel "results and/or ways of working" themselves (D5). Thus, by selection and design the focus of experiments lies in deductive, generalizable knowledge production, that consequentially fosters a portfolio of experiments that makes existing "ways of working" more effective and efficient, rather than transforming them. In the case of the GK, the intention was to institutionalize the open call as an instrument in the organization. Following the GK, the instrument of the open call has been applied multiple times at the Province Utrecht. While it is difficult to isolate the GK as the exclusive cause, it has been the first to apply the open call as instrument in the organization and has sparked considerable internal communication about this instrument.

Learning in and from innovation projects

In its setup, the GK privileged epistemic learning – focusing on learning about how the open call could enable a more efficient and effective "way of working" in an unchanged institutional environment. The conditions facilitating epistemic learning, the reduction of complexity, uncertainty and ambiguity, limited the potential for political learning. These conditions lay in the selection and design of the experiment as deductive intervention, reducing complexity, controlling uncertainty and avoiding (political) ambiguity. Due to the prioritization of the efficient and effective conduct of the experiment, there was limited individual or collective reflection and learning during the process. In retrospective, participants report learning about process-management, external communication and generally "better planning" (RB). This focus was shared by the external ex-post evaluation, which also served as means of diffusing "lessons learned". Consequentially, changes were made in the second iteration of the experiment, such as limiting the interaction with the citizen-initiative to the awarding itself instead of further facilitating interaction in the organization.

While these conditions facilitated epistemic learning both at individual level as well as its diffusion in the organization, the very conditions of initial and on-going reduction of uncertainty and ambiguity that enabled successful epistemic learning functioned as barrier to political learning.

This is exemplified by the engagement with unexpectedly awarded initiatives. The GK intended for the open call to engage a variety of citizen-innovations for biodiversity and challenge the Province's approach to biodiversity with alternative approaches. An independent jury was enrolled to identify such innovations and award the citizen initiatives. As innovation inherently requires a challenge of the status quo, some initiatives were awarded and, thus, formally endorsed by the Province, that conflicted with the contemporary approach, norms and regulations in regard to biodiversity. For example, one award-winning initiative was based on a business case capitalizing on building material to foster biodiversity in cannel walls. While the selection of initiatives sparked criticism in the organization, there

was no broader reflection on and engagement with this conflict and, thus, no collective political learning. Throughout the process and in the subsequent iteration the uncertainty about the selection of citizen-initiatives was controlled. Particularly the second iteration of the experiment became an instrument for communication, without potential for political learning. Secondly, the GK's direct engagement with citizen-initiatives challenged the role which the Province normally takes in these situations, as a regulatory body. The Province usually engages with large public and private organizations of regional scope, leaving direct citizen engagement to its municipalities.

However, the subsequent tension was not perceived as collective learning opportunity, but as a barrier to the experiment itself. Therefore, the experiment was largely disconnected from the primary processes. This tension grew with the success of the experiment, indicated by the attention of political-administrative leadership, and external involvement and media coverage. Among the frontrunners, there was a perception of "a lot of conservative heels being dug in. If something feels threatening, you grab the first stick you can hit it with", which lead to "extremely intense discussions (…) about the amount of energy put in these initiatives" (MH). This was traced back to "a lot of resistance against innovation as a principle because innovation is nice, but not if you have to be involved, especially not if it's successful." (MH).

These tensions provided potential for ex-post reflection and political learning, though the realization remained limited both in depth and scope. Experimental participants reflected upon these substantial and procedural tensions individually and collectively. The project leader remarks that the experiment changed her perception in regard to "not the concept itself, the open call, but thinking differently about tasks. […] to give more room to do some things differently and to just go ahead and start. […] There was a lot of enthusiasm and support by the IFL to just do things differently" (JB). Triggered by the GK a group of experimental 'frontrunners' engaged in the reflection on questions about the role of the Province as government regarding citizen participation in the governance of biodiversity. In multiple work sessions the group reflected upon questions, such as "How do we find citizen participation now? What do we now think it? How do we need to deal with it? Are there something like guidelines we can make?" (JB). This evoked a change in perceptions insofar that citizen participation was no longer perceived as an end-in-itself. Instead, there is an increasing recognition that these dilemmas are "valid" (MH) and inherent. Instead the tension between different values and roles of government were collectively reflected. However, despite individual reflection and collective deliberation, political learning did not extend to the "conservative" (MH) institution.

This lack of political learning-in-doing and transformative potential of the experiment was reflected by the IFL leadership:

"The Groene Kroon was a very programmed innovation. […] This idea of getting people to experiment with instruments, I let go completely. That is one of the things I learned, it's great for people to experiment with instrument, but let people do that for themselves whenever they are ready to do that." (MH)

This meta learning was implemented through subsequent changes in the conceptualization and structuration of experimental practice by the IFL.

II.   Wegh der Weegen – Experiments as experimental practice

A second, more transitory pattern emerges – the conceptualization of experimentation as practice. Three core assumptions can be identified: experimentation is facilitated as an open-ended, bottom-up practice to generate "new ways of working"; experiments are perceived as exceptional practices, yet, building on each other and embedded in the primary process; and the assumption remains that experiments facilitate incremental institutional changes through generating scalable novel practices, such as pilots.

The Wegh der Weegen (WdW) experiments exemplify this form of experimental practice. The WdW can be perceived as two consecutive experiments with the objective of supporting the transdisciplinary and bottom-up development of a cultural-historic route in the Province. It illustrates the shift from testing innovations to generating "new ways of working" (MH). This conceptualization of experimentation embraces the generative process of a shared problem-definition and solution driven by both the external and internal institutional environment. From the WdW (I) a lack of organizational capacity by the Province to engage in processes of co-creation that require transdisciplinary, place-based governance approaches was identified. Therefore, the WdW (II) was initiated as pilot to generate an answer to the question "how-to" implement the vision developed.

The WdW illustrates an insistence, by the IFL, on framing experiments for generating epistemic learning, even in situations of an open-ended, generative and inclusive process, attentive to place specificity and substantial and procedural uncertainty. Considering the experiment as "pilot" assumes that the knowledge generated is both exemplary and generalizable and hopes to advance an ideal way of working that can be subsequently reproduced at scale. The intention of 'scaling' experimental outputs proves to be sticky even when the experiment is more firmly embedded in the external and internal institutional environment. Therefore, while experiments may have the potential to change organizational practices, they are limited to "fit and conform" instead of transforming their institutional and inherently political environment.

Learning in and from experimental practice

This pattern of experimentation entails the most explicitly stated, yet rather vague and ambiguous, learning ambition to contribute to the development of organizational capacity. Based on the WdW conceptualization as a 'pilot' to generate and scale an ideal way transdisciplinary co-creation, epistemic learning is prioritized. Though, this organizational change from "a silo structure of specialized knowledge" (MH) to a place-based, transdisciplinary and responsive collaboration eventually demands an adaption of underlying cultural-cognitive and normative frames enabled by political learning.

The WdW (II) set out to generate the internal processes through an initial exploration of roles, such as participation, stimulation, realization or regulation, and interests by internal stakeholders and the subsequent deliberation through multiple work sessions and tools. Although this deliberative approach enabled a consensual platform to generate epistemic learning, such as the appointment of a central coordinator (kwartiermaker), political learning through the collective scrutiny of underlying frames, values and assumptions was not facilitated.

This may be attributed to the continued reduction of complexity, uncertainty and ambiguity in the selection and design of the WdW. There was no shared perception by participants and

political-administrative leadership in regard to the relevance and urgency of the underlying problem. While the WdW as "nobodies land" provided a basis for consensual collaboration, because the case was not dominated by a singular stakeholder, it did not challenge the participants to adapt their preferences, goals, frames, and commitments" (Ansell & Bartenberger, 2016: p. 70). The potential for political learning was further reduced through the sharp separation between the administrative and substantial aspects of the WdW. The provincial participants were focusing exclusively on steering the process for the implementation of a vision largely developed by the citizen-foundation. Consequently, the participants did not deliberate about important political questions, such as *why* and *for whom* the Province should develop this road. This reduced the actual processes of co-creation, which was to be the source of political learning. Moreover, there was no shared perception about the experimental nature of the process, neither by the citizen-foundation in WdW (I), nor the internal participants in WdW (II). This prioritized the operational execution rather than an embrace of openness, uncertainty and ambiguity.

III. Veemarkt – Experimental governance

Lastly, a pattern of experimentation as mode of governance is emerging at the Province. Fundamental to this development is the conception of the experiment itself as source of governance. The experimental approach itself becomes the "new way of working" that generates (irreversible) changes in the socio-material environment. As such, experimental governance is both the driver and the outcome governance transformation. Indicative for this pattern is the development of a broader network of frontrunner, the Support Network RO, as well as the on-going Veemarkt exploration. While the IFL is enthusiastic about formalizing the experimental status, the participants themselves emphasize a more careful exploration ("verkenning") towards the possibility of subsequent experimentation.

Reason for this hesitation are substantial and procedural challenges. Firstly, the area of interest serves a complex multiplicity of various potentially conflicting goals and interests, such as the preservation of nature, biodiversity and cultural-historic heritage, agricultural exploitation and functions as recreational area. The neighbourhood-initiative seeks to further develop the ground as business-case to foster the multiple energy transition, such as solar panels, wind turbines or thermo technique. Moreover, the area is of different private and public usage and under the administration of the Province as well as the Municipality of Utrecht. As such, the area "that is one of the most busiest places in Utrecht […] you almost can't make it any more difficult" (MvD). Secondly, the Veemarkt illustrates the ambiguities inherent to the governance through experimentation by a government institution. Exemplary to the bottom-up co-creation, the question of *who* gets to experiment has caused discussion. The Veemarkt and previously the WdW both engage with relatively affluent socio-economic groups, who are capable to organize themselves and navigate administrative procedures. As such, the Veemarkt illustrates a political ambiguity that previous rather technocratic experiments did not have or avoided. The Veemarkt participants emphasize the exploratory "search" (SS) and an approach of "let's see how far we get" (SS), while ensuring "expectation management" (SS) towards external and internal stakeholders.

A frontrunner involved in the Veemarkt emphasizes the importance of distinguishing between administrative and political risk in experimentation:

"I think ‚making mistakes' applies primarily for administrative faults. But if something gets a political edge, then nobody wants to make fault. […] A political fault, that is a mortal sin. And seeing that difference… that is really difficult." (MvD).

As opposed to shielding experiments as exceptional projects from such risks and institutional barriers, experimentation becomes a mode of governance embedded in the institutional environment. At the Province, experimental governance is enabled through the development of network of frontrunners, based on informal and ad-hoc networks generated through previous experimental practice. For one, the network is a resource enabling the engagement with political ambiguity in experimental governance through collective "clout" towards incumbent institutional forces, shared expertise and budget. The IFL changes from a location and program for experimentation to an expertise contributing to experimental governance. For another, the network is source and outcome of the normalization and embedding of experimentation as mode of governance; not as exclusive project or distinct program, but as "new way of working".

Learning in experimental governance

Central to the development of experimental governance is the underlying epistemological change that learning is no longer perceived as process to generate generalizable knowledge to enable the scaling of experiments, but experimental practice itself is enabled through the collective process of 'doing-by-learning'.

Source of learning in the Veemarkt exploration is the substantial and political ambiguity participants need to balance. On the one hand, participants engage in a creative, co-creation process with the neighborhood initiative that generates uncertain and potentially disruptive outcomes. A participant remarks: "I am civil servant, thus, I like to think along with the society" (MvD). On the other hand, the experiment eventually enables irreversible changes in the socio-material environment – "for us it is an experiment, but for the people living there … it is their life." (CvD). Eventually, participants represent a regulatory government realizing public values such as lawfulness, equality and security. A Veemarkt participant describes the need to balance between a "stimulating role" and a "regulating role" as „difficult, to on the one hand, think along enthusiastically and on the other hand, clarify to the initiators how difficult it is to work in this area […]" (MvD).

Balancing these conflicting roles and values is a continuous learning process. On the one hand, this learning process can be conceptualized epistemically as individual and organizational skill. The participants as well as political-administrative leadership emphasize the necessity to "manage" (MM) this role conflict through "expectation management" (SS) and "transparent communication" (MvD). This explicit knowledge is diffused in the organization through learning brokers, such as the IFL. On the other hand, this experimental balance also raises awareness and self-reflection on the (changing) role as civil servant and, thus, political learning. A trainee engaged in the Veemarkt, comes to realize the inherent tension of these roles in the experiment and public activity in general. Instead of perceiving the political institution as barrier she describes "becoming more political" (SS).

Two core learning conditions enable this learning process: Firstly, there was a shared perception about the experimental status of the Veemarkt – both towards the external as well as the internal institutional environment. This enabled participants to "get a little bit more breathing space to really experiment, to see what's possible." (SS). Therefore, the explicit

articulation of the potential of failure, particularly towards the citizen-initiative, is necessary. This perception differs from the experimental or protective space of preceding experimental patterns, that in essence shielded the exceptional experimental project from the institutional environment. Secondly, the acceptance of potential failure enabled the embrace of experimental complexity, uncertainty and ambiguity instead of its avoidance or reduction.

While the Veemarkt is not yet formally embedded in the network, shared participation enables collective reflection and political learning form experimental practice. Thereby the ambition and deliberation of the network on a "new way of working" is enabled through collective experience – while not all participants share the explicit concept of 'experimentation'. Questions, such as, *who* gets to experiment? How does experimental governance ensure responsive while proper, politically accountable governance? How does experimental governance relate to overarching political agendas? Thereby, the network enables political learning and contributes to the continued provisional transformation towards experimental governance.

While initially the reflection on experimentation as source of learning and transformation a primarily individual learning process by the IFL as frontrunner and learning broker, through the network this process becomes increasingly collective and embedded in a network of frontrunner. However, meta learning about experimentation as source of learning and transformation has, yet, to be embedded in the institution and particularly involve political(-administrative) learnership. As the experimental practices have become increasingly political, so has the conceptualization of experimentation itself. This is highlighted by the persistent equitation of the concepts of innovation and experimentation by political-administrative leadership. Thus, the limitation of experimentation to innovation projects – consistent with the initial pattern of experimentation. An example of this are the "koploop deals" – innovation deals that are steering innovation and experimentation top-down and result-driven.

Table 3 provides an overview of the identified patterns at the Province.

Table 3 Emerging patterns of experimentation at the IFL program

Conceptualization of experimentation as …	Pattern I … innovation projects	Pattern II … shared practice	Pattern III … mode of governance
"New way of working" as overarching goal, perceived as…	New instruments making unchanged governance more effective and efficient → improvement	Generating new (transdisciplinary) institutional practices → incremental institutional change	Governance transformation through experimentation as mode of governance → governance transformation
Experimental objective	Testing and subsequent institutionalization of innovations (instruments)	Generation of innovative organisational practices (pilots, processes, roles)	Engaging in a new mode of governance (mode of governance)
Operationalization of the experiment			
Structure of experimentation	Experiment as exceptional project	Multiplicity of experiments	Institutional network and agenda for experimentation
Complexity, uncertainty & ambiguity	Cognitive complexity & procedural uncertainty	Transdisciplinary complexity, substantial and procedural uncertainty	Transdisciplinary complexity, substantial and procedural uncertainty and political ambiguity
Embedding in the institutional environment	Exceptional innovation project removed from primary process	Searching a balance between protection from & integration in the institutional environment	Irreversible changes in the socio-material environment

Means of facilitating "new way of working"	Scaling-up in an unchanged institutional environment (efficiency & effectiveness)	Scaling-up and broad learning diffusion (incremental change)	Source and outcome of governance transformation (transformation)
Exemplary experiment	e.g. Groene Kroon	e.g. Wegh der Weegen	e.g. Veemarkt exploration

While these patterns of experimentation are all aimed at facilitating "a new way of working" at the Province, yet, while initially rather vague and ambiguous, the perception and process of what constitutes these new ways of working develops and is increasingly embedded in the institution. Consequentially, the conceptualization of learning changes throughout the patterns as well as the conditions – drivers, barriers and mechanisms contributing to its realization. Table 4 provides an overview of the different learning processes.

Table 4 Learning conditions, processes and outcomes

	Pattern I Experiments as *innovation projects*	Pattern II *Experimentation as shared practice*	Pattern III Experimentation as mode of governance
Exemplary experiment	**Groene Kroon**	**Wegh der Weegen**	**Veemarkt exploration**
Realized learning outcomes	**Epistemic learning** towards the application of governance instruments	Learning goal ambiguity, yet **limited** realization of **epistemic and political learning** at individual level.	**Political learning** at experimental level and embedded in the network
Learning process	Deductive, generalizable and explicit knowledge production → explicit knowledge	Collective deliberation and generation of exemplary and instrumental knowledge → treating tacit knowledge as explicit knowledge	Generation of tacit knowledge at individual level, that is shared and reflected in greater network → tacit knowledge
Conditions for learning…	**Control**	**Deliberation**	**Ambiguity**
Drivers & barriers for learning	Shared perception of exceptional innovation project Preceding reduction of uncertainty, complexity and ambiguity Controlled process, avoiding complexity, uncertainty & ambiguity in both selection & experimental process	Lack of shared perception of experimental logic Preceding reduction of ambiguities (pre-defined vision, "nobodies-land" & low stakes). Dealing with complexity and uncertainty through inclusive, deliberative and consensual processes	Shared perception of experimental approach "Let's see how far we get"-embrace of uncertainty, complexity and ambiguity
Mechanisms for learning	Efficient process management, ex-post external evaluation with identification of "lessons-learned"	Inclusive, deliberative forums (e.g. PRIP), as well as ex-post external evaluation	Engaging in practice itself & embedding in network
Embedding of learning…	**Scaling-up**	**Diffusion & scaling-up**	**Embedding**
& transformative potential	Scaling-up of explicit learning through sharing "lessons-learned" through reports & tools	Diffusion & scaling-up of instrumental and exemplary learning (e.g. pilots)	Embedding through shared participation

Discussion & Conclusion

The analysis of experimentation at the Province reveals three patterns of experimental practice that are subsequentially mobilized in the Province – experiments as innovation projects, experiments as practice and the development of experimental governance. The experimental patterns are distinct in the scope and degree in which they deal with complexity, uncertainty and (political) ambiguity. While experiments as innovation project seek to reduce and avoid complexity, uncertainty and (political) ambiguity both through the selection and design of the experiment, ambiguity becomes the source of action in experimental governance. The potential for learning from experiments is bound by these conflicting conditions. Epistemic learning contributes to the understanding and improvement of existing institutions and, thus, assumes and manifests a stable environment. In contrast, political learning as the collective alteration of underlying preferences, goals, frames, and commitments evolves when these assumptions are challenged. In contrast to generalizable, epistemic knowledge, political learning does not scale or diffuse in the institution. The Veemarkt exploration indicates that political learning from experimental governance requires the embedding of shared experience in a broader network. Thereby, political learning from experimentation enables the continuous, but provisional transformation towards experimentation as mode of governance.
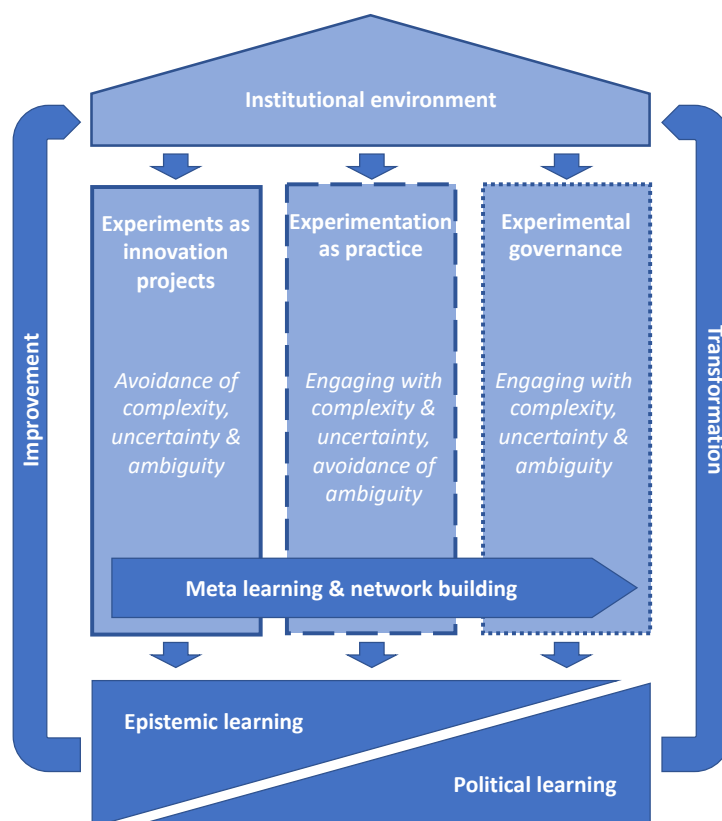

Figure 3 Experimental practice and its transformative potential.

However, as illustrated by Figure 3, the different experimental patterns are not mutually exclusive, which contrast with what is suggested by the divide in the literature between the two schools of thought (Bulkeley, 2016). Instead, they facilitate distinct institutional processes. Due to their distinct underlying assumptions the differently conceptualized experimental practices may learn from one another in their contribution to the governance of the very same societal challenge. This resonates with the concept of ambidextrous capacity by public organizations to balance both exploitative and explorative activities (March, 1991), which is emphasized by public innovation studies (Gieske et al., 2016).

However, as the evolution of experimental patterns at the Province highlights, the conscious balance and the strategic design of experimental practices is based on meta learning from previous experience and the embedding in a greater network. Thereby this research contributes an understanding of the importance of meta learning as the reflexivity on experimentation as source of epistemic and political learning. Unpacking the 'catchy promise' of experimentation and dealing with its inherent paradoxes requires the willingness and capacity to engage meta learning as critical (self-)reflection. The development of the entire spectrum of experimentation in governance as well as the strategic design of experimental practices requires this understanding of the underlying rationalities and patterns. Initially, the IFL frontrunner was a crucial agent for meta learning and, thereby, the development of experimental patterns. Reflecting on the lack of political learning and its institutional embedding in the initial experiments, the IFL became an essential driver for the formation of a broader network. Thus, it is meta learning that contributes to the embedding of experimental practice in the governmental institution. Through this network of frontrunner meta learning becomes an increasingly collective activity. The formative process of the network and its dynamic agenda enables a collective reflection and deliberation about the inherent political dimension of experimental practices. However, crucial to the realization of experimental governance will be the involvement of political-administrative leadership in meta learning processes in order to steer and organize an experimental practice of an increasingly political dimension. Moreover, as emphasized by the IFL frontrunner, the involvement of learning agents outside of the experimental practice, such as researchers, as well as the time and space for collective reflection are important enabling condition for meta learning.

Challenge-led experimentation

A stinking contrast between the experimental practices at the Province and the conception of experimentation across schools of though is the nature of the underlying societal challenge to be confronted. This perception of "challenge-led experimentation" (Sengers et al. 2019: p. 161) is most evident in the literature on urban climate change experimentation. (Urban) experimental governance scholars, such as Broto and Bulkeley (2013) suggest that experimentation is an (urban) response to complex societal challenges – or wicked problems –, such as the nitrogen crisis in the Province, as well as massive housing shortage, or most recently the COVID-19 related public health crisis, which established modes of governance seem less equipped to deal with (Bannick & Trommel, 2019). However, in contrast to this expectation, experimentation at the Province seems to primarily be focused on generating "new ways of working" as means to generate the governance capacity. Experimental governance as "new way of working" itself is still in its infancy and has, yet, to confront these challenges. This tentative development of the experimental patterns towards experimental

governance at the Province may itself expose a 'catchy promise' of experimentation made in academia – in order for experiments to transform from "some side show to the main business of (…) governance" to "critical means through which governing is accomplished" (Broto & Bulkeley, 2013: p. 372) government institutions are incrementally developing the capacity, through collective meta learning and network building, to confront such critical societal challenges through experimental governance.

The politics of experimental governance

Despite the nature of the substantial issues, experimentation as mode of governance raises inherently political questions. At the Province, the question that is discussed about *who* gets to experiment, is exemplary for this dimension. Evans (2011) employs a fitting imagery that "if sustainability comes down to letting 1000 experimental flowers bloom, then it matters *who* gets to experiment, and *how*" (p. 233). While this example refers to the political economy of experimental governance, this is related to a deeper challenge of socio-economic justice and public values. The importance of such reflections in both practice and theory is also emphasized by Bulkeley (2019), who argues „ the evidence base points to a […] worrying trend – of *systemic* change that may be taking place in a manner that serves to further embed and entrench existing interests and decision-making processes, exacerbating inequalities and – if the analyses above is correct – preventing the kinds of transformative change that are required to realize the kinds of environmental and energy transitions needed in cities to address climate, biodiversity and sustainability goals." (Bulkeley, 2019: p. 33). This sheds light on the "dark side of [experimentation][2]" (Meijer & Thaens, 2020: p. 3), referring to 'perverse effects' of experimental practices, such as a lack of democratic control, the waste of public money, a lack of stability or the manifestation of existing inequalities (Meijer & Thaens, 2020). The network and political-administrative leadership have, yet, to find a way to balance these competing roles and values in experimental governance.

Future research pathways

The recognition of the inherently political and conflictual nature of experimental governance is still in its infancy stage – both in practice and theory. The study of experimentation as source of political learning and transformational capacity should further engage with contributions made by the public value literature from public administration sciences (de Graaf et al., 2016; Crosby, t'Hart & Torfing, 2016; Meijer & De Jong, 2020; Thatcher & Rein, 2004). In order to highlight the valuable contribution that the public value literature can make to the reflexivity on and development of experimental practice in both theory and practice, this future research pathway will be concludingly presented. The analysis of experimentation at the Province has shown, that in order to enable political learning and the transformative capacity of experimentation, the experimental practice needs to embrace a greater degree of (potential) public value conflict. The public value literature has synthesized different strategies to deal with public value conflict. Thatcher & Rein (2004) propose six coping strategies – (1) firewalls, separating values and assigning different values to different parts of the organization; (2) bias, prioritizing certain values over others; (3) casuistry, making decisions on value conflicts per case based on experience of similar cases; (4) cycling, emphasizing certain values until resistance is met and a value conflict manifests; (5) hybridization, living with value ambiguity;

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[2] The authors refer to the "dark side of innovation", yet, the argumentation can be extended to and may be even more pressing in experimental governance.

and lastly (6) incrementalism, slow and step-wise steps towards a value shift[3]. Epistemic learning may be fostered through strategies one through four, political learning in experimental governance inherently deals with and requires the latter two strategies of hybridization and incrementalism. Thus, experimentation can be a means to learn about public value conflict. The experimental practice at the Province and the empirical literature on socio-technical and transitions experimentation emphasizes coping strategies one through four, thus, epistemic learning. For example, the very concept of a distinct innovation or experimentation program can be perceived as firewall strategy to avoid value conflict. The latter IFL conceptualization as expertise within a broader network is much more conducive to learning strategies. However, as the incremental development of the patterns of experimentation at the Province as well as the tentative exploration of the Veemarkt exploration has shown, is that multiple strategies can be combined. While an experiment can be a strategy for learning about (substantial) public value conflict, it can also be a strategy to cope with (procedural) public value conflict. A distinction between process and substantive public values may be of added conceptual clarity. Procedural public values "refer to the way the public sector should act and to standards that the process of government action should meet" (De Bruijn & Dicke, 2006: p. 719), such as "probity, impartiality, serving public interests, political accountability, regime stability, transparency, social cohesion, user orientation and efficiency" (Jorgensen & Bozeman, 2002: p. 64). While substantive values are output-related, such as the sustainability, security or prosperity. In order to learn about substantial public value conflicts in experimental spaces, certain procedural public values may be compromised. This logic particularly resonates with the conceptualization of strategic niches for innovation (Hoogma et al., 2002; Kemp et al., 1998) or protective spaces (Schot & Geels, 2008). Experimental spaces are created in which constraints of the incumbent regime are lowered. These constraints of the incumbent regime, however, may be traditional public administration strategies for balancing public value conflicts, such as hierarchical accountability, procedural rationality and predictable decision making (Du Gay, 2000) – also, the institutional logic of representative democracy (Crosby et al., 2017). By engaging in an experimental co-creation process with a distinct citizen-initiative this experiment prioritizes the public values of responsiveness toward a distinct citizen group over public values, such as equality, because not all citizen-initiatives get an equal opportunity to experiment, but the IFL makes a distinct choice. Within this experiment substantial value conflicts can be embraced through hybridization or incrementalism. Thus, the public value literature can provide a fruitful future perspective for both academia as well as reflexive lens for practitioners to consciously employ experimentation as strategy to cope with or learn about public value conflict.

Limitations

The findings and implication of this study have to be viewed in light of three limitations. Firstly, the conceptualization of experimentation as well as the selection of embedded experiments was developed abductively. Consequentially, one may criticize this approach as overly broad or lacking conceptual clarity. The analyzed experiments may lack a "challenge-led" approach, which to many scholars is a definition quality of experimentation (see e.g. Sengers et al, 2019

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[3] Meijer & De Jong (2020) propose another group of "learning" strategies (reconciliation, deliberation & experimentation), yet, we argue that while these learning strategies are means to consciously engage with value conflict, they will eventually arrive at and make an informed decision on one or multiple (subsequent) coping strategies as suggested by Thatcher & Rein (2004).

for review). Likewise, some experimental participants questioned the 'experimental nature' of their practice. Considering the abductive approach, the focus of the Province on "new ways of working" may itself be perceived as relevant finding and is, therefore, previously discussed. One may also argue, that therefore, the transformative potential of political learning from experimentation is under scrutinized, because this is an evolving pattern at the Province. Secondly, learning is introduced as an evolutionary process and particularly learning from an experimental program that spans multiple years. Therefore, a longitudinal research approach may have been more fitting. However, given the practical circumstances, this research was limited to a span of four months, although, this research aspired to retrace the learning process by analyzing embedded cases of different periods of time. Interviewees remarked to find it difficult at times to recall their reflection in action or how experimental practice provided them with certain insights. Lastly, this research has emphasized the methodological implications of the abductive approach. As such, the research findings are not (intended to be) generalizable, but inherently situated in the individual and collective experience and learning process. Afterall, the "force of the example" (Flyvbjerg, 2006: p. 228) of this abductive approach lies in the eyes of the beholder.

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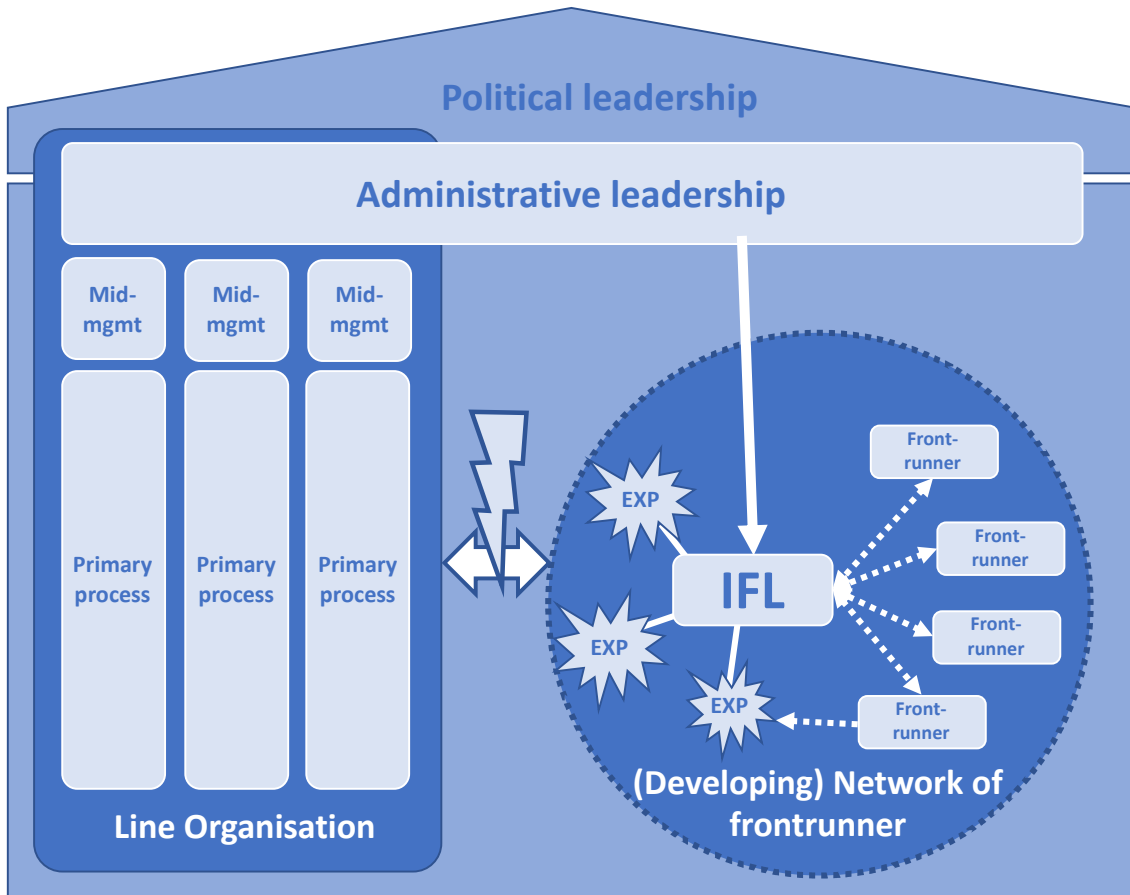
Appendix A.

Figure 4 The increased embedding of experimental practice in the structures of the Province.

Table 1. Overview of experimental practices in the IFL program

Experiment & topic	Experimental challenge	Experimental approach	Expected output &/or object of embedding	Control	Intervention	Progress
Legislative period 2016-2019						
Noorderpark-Ruigenhoek *(Groengebieden beter benutten)*	Recreational area little used & underdeveloped as well as financially not self-supporting	Process – Transdisciplinary & participatory co-creation	Experiment as pilot & stimulus for new practices – for transdisciplinary & participatory placemaking in other recreational areas	Procedural & substantial complexity – Multiple provincial, governmental & public stakeholders	Supportive – Province as project initiator & coordinator. IFL in supportive role	Formal completion. Institutionalization of recreational area
Participatie Windenergie *(Energietransitie faciliteren)*	Making processes more efficient & increasing acceptance and participation of locals in a new energy landscape	Instrument – Development & testing of digital tool to facilitate participation processes	Experiment as source of new technical configuration – Broader up-take of the tool to enable transition in energy landscapes	Technical complexities	Supportive – Province as supporter, no direct in the Province ownership	Formal completion. Up-scaling of instrument in the Province
Jongeren betrekken bij de Energietransitie – Swipocracy *(Energietransitie faciliteren)*	Under-representation of youth in participation-processes	Instrument – Testing digital tool to reach a new target group through multiple novel cannels	Experiment as source of new socio-technical configuration – Broadening the dialogue about energy transition	Procedural complexity - Little experience with youth target audience	Initial ownership of the project – Project initiation, coordination & financing by IFL	Formal completion. Up-scaling & replication of instrument within Province & municipalities
Nuffield Scholarship voor jonge agrariers *(Bodemdaling te lijf gaan)*	Soil subsidence in highly cultivated farmlands and a lack of knowledge and awareness by farmers	Instrument – Setting-up a scholarship program for young farmers to learn internationally about subsidence innovations	Experiment as network development – Bottom-up, peer-to-peer learning & support of a bottom-up network to support structural change in the ground cultivation through	Regulatory complexities	Initial ownership of the project by IFL – Project initiation, coordination & financing by IFL	Formel completion. Institutionalization of scholarship with the Province

Camping Onbestemd 2018 *(Bodemdaling te lijf gaan)*	Soil subsidence in highly cultivated farmlands	Instrument – A camping event as event to bring together different stakeholders to discuss the problematic & potential solutions to soil subsidence	Experiment as network development - Initiating a bottom-up, peer-to-peer network to develop innovations to combat soil subsidence	Technical & interest complexity on problems and solutions of soil subsidence	Initial ownership of the project by IFL – Project initiation, coordination & financing by IFL	Formel completion. Embedding processes uncertain
Merwedekanaalzone *(Klimaatadaptie omarmen)*	Cooperation between different governmental bodies in urban sustainability transition of cities	Process – Supporting a novel transdisciplinary planning process between multiple government bodies	Experiment as source of new socio-technical configuration & source of knowledge and learning – Learning about cooperation between governmental bodies in urban sustainability transition	Procedural complexity	Financing and support	Formel completion. Embedding processes uncertain
Digitaal klimaatportaal & Handreiking adaptive in de organisatie *(Klimaatadaptie omarmen)*	Regional information about climate change and adaption not online	Instrument – Developing a digital climate platform integrating regional knowledge about climate change and adaption	Experiment as a stimulus for new practices & source of new technical configuration – Enabling and fostering transdisciplinary way of working	Technical complexity	IFL in supportive & financing role.	Formel completion. Embedding of new practices uncertain. Technological solution institutionalized
Loket voor vrijkomende agrarische bedrijfsbebouwing *(Functies wijzigen in het landelijk gebied)*	Vacancy in rural areas	Instrument – Developing & testing a novel instrument (VAB-locket) to combat vacancies in rural areas	Experiment as network development, stimulus for new practices and source of new socio-technical configuration	Procedural complexity.	Initiation, coordination & initial financing by IFL.	Formel termination by IFL. No institutionalization of socio-technical configuration. But continued circulation of new practices
Vraaggestuurd OV op het Eiland van Schalkwijk	Ensuring livability in demarcated and scarcely populated areas	Instrument – Demand-based public transport through U-Flex and its	Experiment as pilot & source of new socio-technical configuration	New way of working	Co-financing and support by IFL	Formel completion. Institutionalization and scaling-up of new socio-technical configuration

(Kleine kernen blijven gezond)		integration in existing public transport				
Vliegwiel van gemeenschapskracht (Kleine kernen blijven gezond)	Ensuring livability in demarcated and scarcely populated areas	Co-creation, Support of bottom-up initiatives & network to develop demarcated and scarcely populated areas, developing innovative forms of co-creation between citizens and government	Experiment as network development, stimulus for new practices & political reordering	Lack of financial resources.	IFL as support, facilitator & financing	On-going
Knooppunkt NS-station Bunnik (Multimodale knooppunt-ontwikkeling)	Congestion of Utrecht Centraal	New role of Province in an open-alliance approach to the development of Bunnik as multimodal node	Experiment as stimulus for new practices, source of new socio-technical configurations & political reordering (Upscaling of approach from local to regional level)	Transdisciplinary	IFL as initiator and process steering	Formel completion. Institutionalization of intersection

Table 1. List of interview partners

Int. Nr.	Initials	Function/Program	Interview Focus	Date
List of interview partners				
1	MM	Mid-management	Leadership, Experiment – WdW	27.07.
2	JvL	Mid-management	Leadership, Experiment – WdW	17.07.
3	CR	Invoering Omgevingswet	Leadership	14.07.
4	CS	Innovatie ICT en informatie	Frontrunner	02.07.
5	SvA	Innovatie ICT en informatie	Frontrunner	13.07.
6	HvdH	Innovatie ICT en informatie	Frontrunner	22.04.
7	CD	Utrecht Lab	Frontrunner	07.05.
8	MH	Leader Innovatieprogramma Fysieke Leefomgeving (IFL)	Reflective practitioner	12.05., 19.05., 05.06., 09.06., 16.06., 23.06., 30.06., 07.07., 17.07.
9	CvD	Innovatieprogramma Fysieke Leefomgeving (IFL)	IFL, Support Network RO	22.07.
10	SvS	Integraal Gebieds-ontwikkelingsprogramma (IGP)	Support Network RO & Experiment – WdW	13.07.
11	MvD	Ruimtelijk Ontwerp (RO)	Support Network RO, Experiment – WdW, Veemarkt	13.07.
12	PK	Innovatieprogramma Fysieke Leefomgeving (IFL) & Researchproject Organizational Learning	Project on organizational learning	01.07.
15	JK	Projectleider Omgevingsvisie	Experiment – Groene Kroon	16.07.
16	RB	Communicatieadviseur & Innovatieprogramma Fysieke Leefomgeving	Experiment – Groene Kroon	03.07.
17	HK	Beleidsadviseur natuur en samenleving	Experiment – Groene Kroon	02.07.
18	SS	Trainee Duurzame Exploitatie en Toerisme	Experiment – Veemarkt	21.07.
19	EvT	Gebiedsmakelaar Stelling van Amsterdam en	Experiment – Veemarkt	26.07.

| 20 | PHS | External – Burgerinitiatief Veemarkt | Experiment – Veemarkt | 23.07. |
| 21 | LH | Projectmanager Swipocracy | IFL & Experiment Swipocracy | 24.07. |

Table 2. List of documents systematically analysed

List of documents systematically analysed				
Doc. Nr.	Document	Title	Date	Author
IFL				
D1	Final evaluation	De Eindrapportage	17.12.2019	IFL
D2	Third evaluation	De derde voortgangsbrief	15.01.2019	IFL
D3	Second evaluation	De tweede voortgangsbrief	20.03.2018	IFL
D4	First evaluation	De eerste voortgangsbrief	01.04.2017	IFL
D5	IFL Program directive	Programmaplan Innovatieprogramma Fysieke Leefomgeving 2016-2019	13.09.2016	IFL
D6	Results of IFL interactive worksessions	Alliantiekunde – 10 handreikingen	01.04.2017	IFL
Network Support RO				
D7	Draft Network directive	Opdracht Netwerk Support Ruimtelijke Ontwikkeling met een Dynamische Agenda (0.3)	06.05.2020	IFL
Experiment – Swipocracy				
D8	External evaluation	Aanbevelingen uit de pilot 'energiedialoog met jongeren'	01.06.2019	IFL
Experiment – Groene Kroon				
D9	External evaluation	Evaluatie Groene Kroon eindrapportage	12.03.2018	Common Eye (external)
Experiment – Wegh der Weegen				
D10	External evaluation	Evaluatie Wegh der Weegen	23.11.2018	Common Eye (external)
D11	Meeting protocol	Verslag overleg IFL en CER over aanpak Historische wegen d.d. 6 april 2020	06.04.2020	IFL
Experiment – Veemarkt				
D12	Dynamic process document	Processdocument	On-going	Experimental participants

Table 3. List of observations

Obs. Nr.	Program	Title	Date
	List of observations		
O1	Support Network RO	Introductory meeting with management	19.05.2020
O2	Support Network RO	IFL meeting regarding integration Support Network RO I	09.06.2020
O3	Support Network RO	IFL meeting regarding integration Support Network RO II	11.06.2020
O4	Support Network RO	Workshop with all (potentially) participating programs	16.06.2020
O5	Experiment – Wegh der Weegen	Project meeting with IFL	21.04.2020
O6	Experiment – Wegh der Weegen	Project meeting	28.05.2020
O7	Experiment – Wegh der Weegen	Preparation PRIP meeting	11.06.2020
O8	Experiment – Wegh der Weegen	PRIP workshop	13.07.2020
O9	Experiment – Veemarkt	Project meeting	18.05.2020
O10	Experiment – Veemarkt	Project meeting with IFL	19.05.2020
O11	Experiment – Veemarkt	Project meeting with IFL	09.06.2020
O12	Experiment – Veemarkt	Project meeting & site-visit	10.06.2020

Table 4. Reflective practitioner conversations

Conv. Nr.	Date	Themes & Notes
	Reflective Practitioner Conversations	
C1	#01 – 12.05.2020 (approx. 01:28h)	*Themes: Meta learning, WdW, Different roles of government, publicness of organization as barrier to experimentation.*
C2	#02 – 19.05.2020 (approx. 01:05h)	*Themes: Perception of Experimentalism, WdW, VM, GK, Responsibility for (organizational) learning, goal conflict.*
C3	#03 – 09.06.2020 (approx. 01:10h)	*Themes: Goal tension, Groene Kroon, How-to questions, Support Network.*
C4	#04 – 16.06.2020 (approx. 00:30h)	*Theme: Reflection on Veemarkt.*

	Email conversation	Themes: Dilemmas & trade-offs of experimentation as governance approach.
C5	#05 – 23.06.2020	Themes: Ambidexterity, tensions and trade-offs of the institutional logic of TPA and experimentation.
C6	#06 – 30.06.2020	Themes: Support Network RO, mid-/long-term planning.
C7	#07 – 07.07.2020 (approx. 01:00h, transcribed & analyzed)	Themes: Groene Kroon, Experimentation with instruments.
C8	#08 – 17.07.2020 (approx. 01:20h transcribed & analyzed)	Themes: Process management of experimentation, different types of innovation at the Province, Groene Kroon.

Table 5. Reflective practitioner conversations

Experiment & experimental practice *(What happens in experimental practice?)*	Experimental characteristics (individual experiment)	Experiment as a project („inherently bound in space, time & cognition")	Results oriented, deliverables
			Legislative timeline …
			Isolated event (small project team)
			"Stepping-out" of a project
		Experimentation as program (multiplicity of experiments)	Multiplicity
			Iteration
			Expertise
		Experiments as governance approach	Recognition of socio-material impact
		Protective Space	Making faults
			Exceptionality (Status)
			Recognizing the need to actively protect those experimenting
			Recognizing the need to "open" the protective space
		Inclusiveness	
		Objective of experiment (individual output)	Testing innovation (Experimenting with instruments)
			Generating innovation
			Explicit learning goal
			Trying something new
			Innovative ways to engage with citizen
		Complexity	Transdisciplinary
			Technical complexity
			Regulatory complexity
		Uncertainty	Avoiding/reduction of uncertainty
			Embracing of uncertainty as learning opportunity
			Issues of uncertainty
			Procedural uncertainty
			Outcome uncertainty
		Ambiguity	Dealing with ambiguity
			Neglecting potential ambiguity
	Absence/ rejection of experimental logic/status		
	Objective of embedding (beyond individual experiment, e.g. systemic or structural transformation)	Scaling	
		Relation to the primary process	Integration
			Exclusion
	Agents of experimentation	Frontrunner	
		Network	
		Political leadership	
Learning *(What is learned from experimental practice?)*	Political learning	Content of learning (What?)	
		Agent of learning (Who?)	
		Drivers of learning (How?)	
		Barriers of learning (Why not?)	
		Embedding	
	Epistemic (instrumental) learning	Content of learning (What?) Problem recognition & solution	Making experiments themselves more efficient — Importance of individual project leaders
			Making experiments themselves more efficient — Balancing "protective" environment

			Making experiments themselves more effective	
		Agent of learning (Who?)		
		Drivers of learning (How?)		
		Institutional barriers to diffusion of learning	Regulation	
			Normative	
			Cultural	
			Lack of resources	
		(Potential) drivers of learning diffusion		
	Meta learning	Explicitly designing experiments as sources of learning	Recognizing the lack of learning	
			Designing experiments as sources for learning	
		Agent of learning (Who?)	Individual frontrunner	
			Collective	
			Political-administrative leadership	
		Drivers of learning (How?)		
		Barriers of learning (Why not?)		
		Explicit impact on structure of experimental practice (Further?)		
	Learning tension & trade-off			
	Other types of learning, non-relatable			
Institutional context *(How is the experiment embedded in its institutional environment?)*	Role & value conflict inherent to government	Tension between different roles of government		
	Institutional pressures	Steering by results		
		Political sensitivity		
		Risk aversion		
		Legislative cycles		
		Hierarchical leadership		
		Political accountability		
		Public accountability		
		Specialization		
		Resistance to change		

Interview transcripts, field notes and notes of reflective practitioner conversations only available upon request due to issues of confidentiality and data protection.