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Experimental governance: the role of municipalities in urban living labs

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ABSTRACT

Innovations in urban governance such as Urban Living Labs (ULL) are expected to accelerate the transition towards more sustainable and climate-resilient cities. This article reviews different ULL across Europe and explores the role and potential capacity of municipalities in the development of and/or facilitation of ULL as a form of experimental governance. It focuses on the role of the public sector in the multi-actor collaborations that often characterize experimental governance. The article draws on literature on cities in sustainability, climate and environmental governance, and bridges this with political science literature on governance. Based on institutional theory that emphasizes roles, identities, and perceived and actual acting space, three functional roles for the municipality are singled out – promoter, enabler and partner – in a framework with a set of indicators that are used to analyse 50 case studies of ULL (<http://www.urbanlivinglabs.net>). The aim is to advance knowledge on how municipalities can facilitate urban sustainability through experimental governance.

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Introduction

This article explores experimental governance through the role of urban governments and administrations (municipalities) in the development of and/or facilitation of Urban Living Labs (ULL). Previous research has indicated that cities can be innovative sites for climate politics (Bulkeley & Betsill, 2013; Bulkeley & Castán Broto, 2013; Bulkeley, Castán Broto, Mike, & Simon, 2011; Hoppe, Graf, Warbroek, Lammers, & Lepping, 2015; Kivimaa, Hildén, Huitema, Jordan, & Newig, 2015; Lundqvist & Kasa, 2016; Wejs, 2014) and for sustainability and environmental transitions (Frantzeskaki, Wittmayer, & Loorbach, 2014; van der Heijden, 2015a, 2015b; Wittmayer, van Steenberg, Rok, & Corda, 2016) and that city-based experiments can be scaled up and transferred to other contexts and eventually generate a broader system change (Geels, 2011; Hodson & Marvin, 2010; Sassen, 2015; van der Heijden, 2016).

ULL have an explicit focus on the urban site and in a broad sense their purpose is to initiate activities that may become future initiatives to address sustainability problems (Bulkeley et al., 2015, p. 3). Thus, ULL exemplify ‘a form of experimental governance whereby urban stakeholders develop new technologies and ways of living [...]’ (Voytenko,

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McCormick, Evans, & Schliwa, 2016). They are distinct forms of experimental governance that strongly support knowledge and innovation through open and engaged learning (Evans & Karvonen, 2014; Warbroek & Hoppe, 2017). Although each single ULL has unique characteristics, they are to be considered part of a wider politics of experimentation in local sustainability governance (Bulkeley et al., 2015; Castán Broto & Bulkeley, 2014; Evans, 2016; Frantzeskaki & Loorbach, 2010; McCormick, Neij, Anderberg, & Coenen, 2013). Although, the sustainable transition literature recognizes the importance of collaboration in experimental governance, and the importance of urban regions, this literature tends to underplay the importance of formal decision-making institutions. Here, we argue in tandem with the literature that highlights the importance of municipalities in experimental governance (Warbroek & Hoppe, 2017, p. 25). Bulkeley and Castán Broto assembled a database with 627 urban climate change experiments in 100 global cities and found that municipalities were by far the most prominent actors in experiments and innovations across most sectors (2013, p. 372). Also, van der Heijden (2015a) showed that municipalities were involved in 95% of the 40 voluntary environmental programmes that he studied and that the municipal's involvement proved crucial and made 'the difference between good performance and poor performance' (van der Heijden, 2015b, p. 304). We have also noted how municipalities engage in experimental governance in the majority of the 50 ULL across Europe that we reviewed for this article.

Hence, in the multi-actor collaborations that characterize ULL governance we single out municipalities and focus on their specific role in experimental governance. Our interest is in exploring 'how' municipalities act to facilitate ULL. For this we draw on literature on cities in sustainability and climate governance and bridge this with political science literature on governance and collaboration, which is particularly helpful for understanding municipalities' action space. Three roles for the municipality are singled out and used as a theoretical lens in the empirical analysis: promoter, enabler and partner. These are analytical distinctions, or constructed roles, even ideal types that accentuate aspects that we propose as particularly relevant for municipalities in experimental governance. They approximate empirical reality because they are based on previous research, but their validity for experimental governance needs to be elaborated empirically as we do here using empirical material gathered within the GUST project on ULL.

The article is organized as follows: it begins by presenting the framework on the potential municipal roles as ideal types and develops indicators for each role. Then it describes the method and the material analysed. The remainder of the article discusses our empirical findings on how local governments and administrations are engaged in ULL in Europe in relation to the different roles. The empirical findings are used to offer a broad categorization of the 50 ULL studied, and to explore the indicators in specific ULL. The article continues by arguing for the need to nuance the analysis by recognizing that municipalities are not unitary actors and that their roles shift over time and concludes by discussing what the findings reveal about the prospect for municipalities to facilitate governance through experimentation with ULL.

Municipal roles in experimental governance

Municipalities are embedded in, and thus both constrained and enabled by, a relatively stable collection of formal rules, informal practices and structures of resources (March

& Olsen, 1989; cf. Wittmayer, Avelino, van Steenberg, & Loorbach, 2016, p. 3). Firstly, municipalities are positioned in institutional contexts that vary between regions and countries. Yet, despite national differences, municipalities are in an overall sense – and to an increasing extent – characterized by their participation in local networks and collaborations, a development that can partly be attributed to an increasing necessity to draw on resources, funding opportunities and expertise of a range of public, private and not-for-profit organizations in order to both organize, fund and implement local policies (cf. Fenwick, Johnston Miller, & McTavish, 2012). Of particular interest here is how municipalities are placed in-between a ‘horizontal logic’ described in terms of collaboration and network governance and a ‘hierarchical logic’ characterized by the formal/legal democratic framework of local government. ULL are examples of activities that are located in the intersection between the more ‘temporary’ – with its multiple and shifting actors – on the one hand, and the ‘permanent’ organization – on the other (cf. Bulkeley & Betsill, 2013; Godenhjelm, Lundin, & Sjöblom, 2015; Kern & Alber, 2008). In this context, the tendency has been to downplay the formal or traditional logic and focus more on informal aspects. Regarding the horizontal logic, it is important to recognize that different actors do not participate on equal terms within collaborations, instead, relations between actors in networks are often asymmetric (Pollitt & Bouckaert, 2011). We side with the growing literature that is critical towards the claims that the role of government – or in this case the municipality – is diminishing, and join efforts to explore the diverse roles of municipalities in processes of urban development.

Secondly, the municipality does have a specific, possibly also a more influential role than other actors because of its legitimacy as a formal decision-making body. This also entails a necessity to recognize the need to scrutinize the roles of municipalities from a democratic perspective, as their function raises certain requirements from the perspective of legitimacy. In terms of democratic government, the legitimacy of municipalities, such as other governmental actors, rests on two functions, the formal regulatory function and the democratic or representative function (cf. Dyrberg, 1997, p. 189). This dual function emphasizes municipalities as providing both input-legitimacy (e.g. democratic accountability) and out-put legitimacy (e.g. the capacity to implement) (cf. Kronsell, 2013). These features are likely challenged with growing demands on cost-efficiency in the public sector. Finally, regarding the institutional context, we are dealing with ULL across European countries, and there are differences between municipalities when it comes to formal or legislative features, including size and the division of tasks between governmental levels. Accordingly, the degree of local independence and autonomy varies considerably between different countries in Europe (CEMR, 2016; Loughlin, 2000) and from this institutional perspective, we expect variations in the role of municipalities in ULL across the countries studied.

Although we rely on the literature within political science in developing the roles, we also draw on the role-concept as it has been developed within sustainability transition studies. Wittmayer, van Steenberg et al. (2016; Wittmayer, Avelino, et al., 2016) study the roles that different actors adopt in sustainability transitions projects, including municipalities as one actor of many. Our understanding is in line with Wittmayer, Avelino, et al (2016, p. 5), who define roles as ‘recognizable activities and attitudes used by an actor to address recurring situations’. They argue that ‘the concept of roles allows for a more systematic description and analysis of the interaction and relations between

actors' (Wittmayer, Avelino, et al., 2016, p. 6). Although inspired by their work, our study looks only to one of the actors of the collaboration – the municipality – but as the ideal types presented below are generic, they could be applied more generally.

In the following, we suggest that local government can take on three potential roles as a (1) promoter, (2) enabler and (3) partner. The roles are not exhaustive, as a municipality could potentially have other roles, but we explore the roles deemed relevant for experimental governance, where multi-actor collaborations, informal elements, public–private interactions are common (cf. Evans, 2016; Karvonen & Van Heur, 2014). Although the roles are ideal types that may only be clearly separable in an analytical sense, we argue that analytic distinctions between the roles can help illuminate not only experimental governance processes in the sustainability context but also pinpoint key challenges in regard to the success of urban innovations. Below we outline each role in turn.

Three ideal typical roles in experimental governance

The point of departure for our mapping of the roles of municipalities is the intrinsic collaborative organization of experimental governance. In an ideal-typical understanding, collaboration is a partnership between different actors that cooperate out of necessity and/or with common goals or interests. Here theories on governance and collaboration have indicated a spectrum of roles, ranging from discussions on different forms of collaboration, to debates of meta-governance and broader debates on the roles of cities in sustainability issues. Below, the three roles are described. Further, the empirical indicators are presented (in italics) and summarized in Table 1. These indicators will be used to identify the roles in the empirical material.

In a broad sense, Vangen, Hayes and Cornforth distinguish between collaborative governance and governing collaboration (2015), where collaborative governance refers to the process whereby different (parts of) organizations are 'brought together to govern society, contribute to public value, implement public policy or manage public programmes or assets in a collaboration arrangement' (2015, p. 1239). This top-down approach to governance can be contrasted against a more network-centred definition of governance (Qvist, 2012, p. 30), where the municipality acts as merely one of several

Table 1. Indicators for roles.

Indicators for promoter:	Indicator for partner:
i. Initiation, calling upon other actors to participate	i. Participating in partnership on fairly equal terms
ii. Allocation of economic resources/taking active participation in raising funding	ii. Shared leadership
iii. Municipal leadership	iii. The importance of collaboration is emphasized
iv. Related to perceived urban affairs or commitments (urban planning, education)	iv. Municipality has a specific and explicit function that is unique for municipalities
	v. Partners are named
Indicators for enabler:	Indicator for non-role:
i. Opens up acting space for other actors	i. No relation to municipal space, responsibilities or jurisdiction.
ii. Opens up opportunities for collaboration	ii. Strong non-governmental actor, including citizen groups and or business venture
iii. Municipalities participate but do not have an explicit leading role	iii. Strong other government actor (region/federal or academia/research)
iv. Support via indirect provision of e.g. buildings	iv. Recipient rather than participant

actors. The municipal role of a ‘promoter’ can be understood within the frame of collaborative governance, a role that emphasizes the governing capacity and ambition of municipalities in collaborations (cf. Fenwick et al., 2012, p. 414). In this regard, collaboration can be seen as a policy instrument applied by municipalities, and the role of promoter can – in its most extensive conceptualization – be understood within the hierarchical logic described above, as strictly top-down with municipal actors who initiate, finance and implement ULL on their own. As the analysis will show, this is rarely the case. Instead promotion in this collaborative context resembles what in the literature is described as state-centred or meta-governance processes where policies are entirely or in part (i) ‘initiated’ by the municipality yet still encompassing ‘governing mechanisms [that do] not rest solely on the authority and sanctions of government’ (Milward & Provan, 2000, p. 360; cf. Qvist, 2012, p. 30).

Municipalities govern within governance structures in different ways (see e.g. Agranoff & McGuire, 2001; Bell & Hindmoor, 2009; Fenwick et al., 2012; Klijn, 2008; Whitehead, 2007), including taking organizational responsibility, applying forms of information- or knowledge management and/or (ii) ‘allocating economic resources alternatively taking active participation in raising funding’. In this regard, processes include some form of direct or indirect (iii) ‘municipal leadership’. There are a number of ways to understand the variation within this role, including the degree of commitment to climate issues, support from the local community, but also the presence of national or regional funding programmes (Kern & Alber, 2008). In addition, the function of (local) government is also related to its legitimacy and credibility (Jacobsson & Sundström, 2006), even when collaborations are held together by common problem formulations or economic contributions. In this context, the dominating role of municipalities can be attributed to their formal role in the hierarchical framework (e.g. Fenwick et al., 2012). Here, municipalities can be expected to take on a promoter role in policy areas that are (iv) ‘related to perceived urban affairs or commitments’. This indicator can be related to the jurisdiction of local government, but it can also be understood within the frame of a process of engaging in overt political practices of strategic urbanism in which climate, environment and sustainability issues become integral parts of the urban agenda (Bulkeley & Betsill, 2013, p. 140).

From the argument above follows that an active role of a municipality can entail not only promoting but also inhibiting the development of ULL. Municipalities can inhibit a process in an active way, e.g. as a result of political priorities, but they may well act as inhibitors in an indirect sense, e.g. in the instances where administrative routines and other institutional obstacles render processes ‘sticky’ and thus create obstacles to innovations (Bulkeley et al., 2015; Mukhtar-Landgren et al., 2016). Finally, it is important to emphasize that even though municipalities are to an increasing extent implementing policies through collaborative structures, ‘there is little evidence that governments [...] know much about how to govern or manage networks’ (Milward & Provan, 2000, p. 361), suggesting that promoting and actually impacting policy outcomes can be two very different things.

The enabler role has been emphasized both in the literature on sustainability (e.g. Bulkeley & Kern, 2006; Frantzeskaki et al., 2014) and in the literature of meta-governance (e.g. Wanna, 2008, p. 8; Qvist, 2012). In a more overarching sense, the ‘enabler’, just like the promoter, has a degree of municipal autonomy vis-à-vis other actors. In both cases, the

municipality perceives it has an interest in facilitating a ULL. The difference between the two roles lies primarily in how active the administration is in leadership and implementation, and which tools are employed. Given a certain acting-space, municipalities can choose to implement strategies themselves, but they can also choose to (i) 'open up acting space for other actors', this may include measures such as providing arenas for voluntary organizations, or providing financial incentives for private actors to provide services (cf. Bulkeley & Kern, 2006, p. 2242; Frantzeskaki et al., 2014, p. 414). Another example of enabling relates to (ii) 'opening up opportunities for collaboration' within a specific field, i.e. 'governance through the formation of inter-organizational collaborations' (Vangen, Hayes, & Cornforth, 2015, p. 1238), where the management of inter-organizational relationships is seen as a tool to achieve collaborative advantage, and attain 'goals beyond the capabilities of organizations acting alone' (Vangen et al., 2015, p. 1240). This can include measures such as creating a meeting place, a collaborative platform, or a framework as a point of departure. In the words of Bulkeley and Kern 'governing through enabling' [...] 'refer[s] to the role of local government in facilitating, co-ordinating and encouraging action through partnership with private- and voluntary-sector agencies, and to various forms of community engagement' (2006, p. 2242). For Kern and Alber, who in similarity to Bulkeley and Kern, see enabling as a mode of governing, rather than a role, highlight how enabling differs from governing through 'self-governing'; 'regulation' or 'provision' in that the main tools are 'persuasion and (positive) incentives' (Kern & Alber, 2008, p. 174). For enabling as a mode of governance, Bulkeley and Betsill (2013, p. 141) argue that it is characterized by a growing reliance on various partnerships, where (iii) 'municipalities participate but do not have an explicit leading role'. In this regard, the role of the democratically elected bodies, including e.g. local politicians', may be reduced to simply initiating the overall process, for example by formulating long-term visions (cf. Sundström & Pierre, 2009). Again, the role as enabler presents new challenges to local governments not least in terms of attracting or persuading others to act, e.g. by creating financial incentives (cf. Bulkeley & Kern, 2006, p. 2551), (iv) 'including the provision of facilities, buildings, expertise' or simply providing access to network opportunities or markets. As in the case of the promoter-role above, challenges will arise in these processes of change.

In a simplified sense, the role of the municipality as promoter and, to a lesser extent, enabler can be seen as a top-down process. In contrast, the municipality as a 'partner' is not associated with formal steering or authority but related to engaging or (i) 'participating in partnership on fairly equal terms'. In terms of governance, this entails a conceptual shift from authority-centred governance processes mentioned above, towards a network-centred definition of governance in a more horizontal logic (Qvist, 2012, p. 30), emphasizing 'self-organizing interorganizational networks characterized by interdependence, resource exchange, rules of the game and significant autonomy from the state' (Rhodes, 1997, p. 15; as cited in Qvist, 2012, p. 30). ULL are often temporary organizations, and as funding varies between different state and non-state actors, projects can be lead and financed by a different organization than the municipality, thus rendering the municipality just one of many collaborative partners in a more formal sense, including (ii) 'shared leadership'. Often the importance of (iii) 'collaboration is emphasized', with named partners having complementary roles that are all considered necessary for success. In this regard, the municipality has a (iv) 'specific and explicit function that is unique for municipalities', e.g. in its capacity as democratically elected, as responsible for public services (e.g. education, urban planning)

or as owner of public facilities or land (e.g. parks, play-grounds or schools). But the role of partner does not necessarily include shared leadership, and it can be very weak, such as acting as a client in relation to a private or not-for-profit organization that provides the services at hand. In these cases, project managers or leading municipal actors may be more or less in tune with a formal bureaucratic logic and organizational culture. One example in this context is civil servants acting in the capacity of what Hysing and Olsson (2011) have called green inside activists, i.e. civil servants motivated primarily by a strong concern for environmental policy. The three roles and their respective indicators are presented in Table 1 and will be applied in the analysis in order to categorize the 50 ULL cases and expand understanding of the roles.

On methodology and material

This article builds on empirical material generated in the research project Governance of Urban Sustainability Transitions (GUST),¹ which was funded by the Joint Programming Initiative (JPI) Urban Europe 2015–2017. The GUST project examined the connections between the design of ULL, the practices through which they were managed and implemented, and the processes by which they affect urban systems and governance of sustainability transitions. The GUST research team started their work by conducting a general inventory of ULL across Europe based on their type, actors involved, financing, timeline and relevance for urban sustainability, which served as the primary foundation for the selection of 50 brief descriptions of ULL across Europe, named snapshots² as well as 16 in-depth case studies selected from the snapshots. The case studies provide deeper insights into the complexity of experimental governance in the four GUST partner countries: the UK, the Netherlands, Austria and Sweden. The selection of snapshots as well as cases was guided by the project's theoretical framework (Bulkeley et al., 2015) and inspired by five on-going European research projects that employed or analysed the ULL concept to identify key ULL characteristics (Voytenko et al., 2016). These include geographical embeddedness, experimentation and learning, participation and user involvement, leadership and ownership, and evaluation and refinement. These were characteristics investigated by the research team and they served as key headings in the snapshot templates.

The snapshots portray a diversity of ULL across Europe in terms of their stage of development, the number, type and role of actors involved, and the sectors included. The project has focused particularly on ULL from the building, energy and transport sectors due to their environmental, climate and sustainability impacts. The data for snapshots were gathered using a combination of desk research and interviews. The 50 snapshots provide the main empirical material for this article but we have also consulted three of the case studies available in the project: 'UbiGo', 'Malmö Innovation Platform' and 'STPLN'. The in-depth case studies are richer in information, collected via desk research, participant observation, site-visits, multiple semi-structured interviews and, in some cases, through an infra-lab.³ Since we have assembled all the data collectively by all partners in the GUST project, a way to test and assure the accuracy of our interpretation of the snapshots has been by involving the other researchers who have extensively commented and discussed our categorization of the snapshots and our analysis in the article, prior to finalizing it. Their suggestions and reflections led to a second and a third reading of the snapshot material and we adjusted the categorizations and analysis accordingly.⁴

Analysis

Our 50 snapshot cases are spread across Europe and exemplify different traditions of local government found in the EU-countries. Austria belongs to a ‘Germanic tradition’ where decentralization is characterized as ‘cooperative federalism’ where different government levels generally cooperate to collectively solve problems (Loughlin, 2000, p. 5). This can be contrasted against the UK as an example of the Anglo-Saxon tradition, which is characterized by pluralistic state-society relations and decentralization through the devolution of power to local government (Loughlin, 2000). Due to institutional and other differences between countries that may constrain municipal agency, we expected variations regarding which roles municipalities would adopt in experimental governance. The hierarchical logic has some impact on the funding of ULL. In the Austrian example, there is a clear connection with the federal and national level in funding, contrasted against the UK-cases which all included municipalities as partners, yet less so in terms of financing. Sweden and the Netherlands both belong to a decentralized state tradition, which is characterized by a relatively strong local autonomy (Loughlin, 2000, chapter 1), something that is also indicated in the strong role of the municipalities in the selected cases, where Swedish municipalities are members of almost all ULL, and appear in all three capacities, promoter, partner or enabler. However, there were no significant differences between the countries in terms of what roles municipalities assumed in ULL and in experimental governance. Municipalities were spread fairly evenly across the categories and formal institutions and policy structures seem to matter less in experimental governance. (Table 2)

Table 2. Categorization of municipal roles in ULL across Europe.

Promoter	Partner
Smart City Hartberg (Austria)	Vision step 1 Villach (Austria)
Smart City Project Graz Mitte (Austria)	Renewable Wilhelmsburg (Germany)
Smart District Gnigl (Austria)	T-city Friedrichshafen (Germany)
Medialand Living Lab (France)	Acqua Dock Rotterdam (NL)
Circulair Buiksloterham (NL)	Urban-Gro.Lab (NL)
Maastricht-LAB (NL)	Concept House Heijplaat Rotterdam (NL)
Luchtsingel (NL)	UbiGo (Swe)
New Light on Alby Hill (Swe)	Living Lab Uddevalla (Swe)
Stapeln Open Maker Space/STPLN (Swe)	Norrby innovation platform (Swe)
Future City Glasgow (UK)	Sum Studios (UK)
Newcastle City Deal (UK)	The Community Energy Lab (UK)
	Greening Wingrove (UK)
	Living Don (UK)
	Newcastle Science Centre (UK)
	Manor House PACT (UK)
Enabler	Non-role
Aspern – Vienna’s urban lakeside (Austria)	Vienna Shares (Austria)
ERnteLaa (Austria)	Urban farm (Austria)
E-mobility graz (Austria)	Interethnic co-existence in European cities (Austria)
Feijenoord Proeftuin (NL)	Insero Live Lab (DK)
Open Lab Ebbinghe (NL)	Danish Outdoor LightingLab(DK)
ZoHo district (NL)	Design Research Lab(Germany)
Shape your world (Swe)	Nexthamburg (Germany)
Hållbarheten (Swe)	Apulian ICT Living Labs (Italy)
Future by Lund (Swe)	Marconia (NL)
Malmö Innovation Platform (Swe)	Evomobile (Spain)
MK: smart (UK)	HSB Living Lab (Swe)
Muswell Hill (UK)	City of the Future Living Lab, COTFLL (UK)

ULL are multi-actor collaborative⁵ experiments with municipalities being only one out of several partners involved. Through the following in-depth analysis of the remaining ULL with significant municipal involvement, we develop the empirical understanding of the three respective roles (1) promoter, (2) enabler and (3) partner. First, we turn to the category of non-role. We found that in 12 of the ULL, the municipal role was not captured by the three roles outlined above. In the category non-role, we find measures that are (i) not clearly municipal in their nature, but related to technical innovations in the urban setting such as within Telecom ('Design Research Lab') or Intelligent Lightning ('Danish Outdoor Lighting Lab'), and we also find ULL with strong other actors, as either (ii) private or (iii) other public institutions (regional and/or state), were involved in ULL in place of municipalities, such as in the 'Apulian ICT'. In addition, we found cases where the municipality was not involved but nevertheless envisioned as a potential (iv) recipient of future ULL results such as 'Marconia', 'Nexthamburg' and 'Danish Outdoor Lighting Lab', or where the municipal space was important, as in the grassroots initiatives: 'Urban Farm' and 'Vienna Shares', or in the research collaboration in the 'City of the Future Living Lab' primarily operating from a research site at the hospital. Hence, although these ULL did not satisfy any role description, most had some relationship to the urban context.

Promoter

The municipality took on the role of promoter in 11 of the 50 investigated ULL. In the ULL, the promoter role varies from owning and leading the ULL to initiating it by applying for funding and calling on other actors to implement policies. An indicator of the promoter role is when municipalities enact leadership in the ULL, i.e. uses its authority and capacity to govern the collaboration, including the presence of some form of municipal leadership, even if it is only in the initiation phase e.g. as applicant for state funding. This role also relates to the degree to which ULL tie into the core competencies of the municipality, be they regulated, i.e. when the municipality is expected to step in and take an active role, or perceived, i.e. when it is related to specific and unregulated municipal interests such as urban branding, place marketing or specific local challenges.

In the cases where municipalities take on the role as promoter, the ULL are generally closely related to perceived or actual core municipal operations such as urban planning, including instances where the city owns or manages the buildings and/or the infrastructure involved. We know from previous studies on municipal planning that the conceptualization of urban planning has evolved and that municipal endeavours are increasingly centred around discussions on urban attractiveness, where growth and competitiveness are increasingly promoted as 'common-sense policy objectives' of urban planning (Olesen, 2013, p. 289). The role of promoter is thus often related to larger processes of urban regeneration. One example is 'Maastricht-LAB', where the ULL was established by the municipality to 'give an impulse to urban (re-)development of the city of Maastricht'. Urban (re-)development is central in most of the ULL where the municipality is a promoter. This does not mean that it orchestrates every activity, rather, the ULL normally gives space to new and innovative ways of implementing such goals. One example is The 'Medialand Living Lab', which promotes the 'digital city' through a proactive ambition to build a local information society. Other examples include three snapshots in which the ULL is part of a greater municipal endeavour of promoting and branding the

city as a ‘smart city’; ‘Smart city Hartberg’, ‘Smart district Gnißl’ and ‘Smart city project Graz Mitte’ (all three in Austria). In ‘Smart district Gnißl’, the ULL was ‘based on the Smart City Master Plan of the City of Salzburg’ and related to ‘the planned renovation of the Gnißl kindergarten’, where the city carried out the general project lead as well as had the main ownership of the targeted building. Yet municipalities do not always take a promoter role in ULL on issues close-to-heart. In the example of ‘Vision Step 1’, which was the first step of implementing ‘Smart City Villach’, the municipality took on the role as partner instead.

Funding is an important promoter tool, and municipalities govern ULL by providing direct fiscal support to actors. An example in this regard is ‘Stapeln Open Maker Space STPLN’, where Malmö municipality ‘provides the premises [...] and basic financial support to cover its operations and salaries of several employees’. Municipalities can also use external funding to initiate ULL – implementing it themselves or leaving implementation to other actors with varying degrees of influence and autonomy. Examples of this are ‘Future City Glasgow’, where the municipality competed (and won) over 29 other cities in a context for Future City Demonstrations run by the UK Government’s innovation agency and as such could launch a city data hub owned and operated mainly by the City Council, ‘Newcastle City Deal’, which was financed by a national strategic programme to create jobs and growth, and finally ‘New Light on Alby Hill’, where the municipality received funding from JPI Urban Europe and ‘ownership is dispersed but leadership is provided by Botkyrka Municipality’. The fact that municipalities often apply for funding to finance ULL does not automatically imply that municipalities take on an active role in implementation but it does provide space for municipalities to govern and influence implementation. Funding can thus be used not only to promote a ULL but also to enable them.

Enabler

The municipality took on the role of enabler in 12 of the 50 investigated ULL. The role of enabler is indicated in instances where the municipality creates conditions or action space by facilitating either collaboration or support. In the ULL, the enabling role varies from creating discretion and autonomy for other actors (via e.g. funding or access to facilities and/or infrastructure owned by the municipality) to creating networks (by connecting new actors to each other) or facilitating collaborations. The discussion above indicates that funding constitutes a key governing tool for the municipality in the role as promoter. Yet, the Swedish case indicates that funding isn’t necessarily a decisive factor; the municipality is for instance an enabler in some externally financed projects and a promoter in others.

Two examples where funding was associated with enabling was ‘ERnteLAA’ and ‘Shape your World’. ‘ERnteLAA’ is described as one of the largest urban gardening projects in Europe, and was realized in one single housing complex in Vienna. This ULL was financed by the City of Vienna but ‘with no central management, the building was designed by an architectural stakeholder and will be built and managed by a private property developer’. The ULL ‘Shape your World’ has a similar institutional design, but it was instead externally funded by JPI Urban Europe with the municipality of Botkyrka as the lead partner – yet implementation was again outsourced to another actor. This project also

concerns urban gardening, and here the process was coordinated by the municipality in tandem with IVL, a Swedish research institute. Implementation was devised by a social entrepreneur (Boodla) who created the ‘gardens in the urban environment’ together with local children and young people. Yet, the overall municipal ambition of enabling this ULL was to ‘set up collaborative initiatives as a means to develop new forms of involving residents and stakeholders in an urban context’. The ambition to enable by facilitating collaboration is recurrent in the ULL in this category, and will be specified below.

Enabling through facilitating collaboration is recurrent in ULL and evidence of meta-governance, which brings actors together to generate new ideas, projects or experiments. The complexities inherent in these processes are perhaps best exemplified by ‘Malmö Innovation Platform’. In this ULL the leadership and planners of the City of Malmö generated the ideas, and while the other partners involved may have shared the broader vision, they had different objectives in relation to the platform. The municipality enabled the ULL through its authority to acquire financing as it launched the project by responding to a call for innovation platforms from the Swedish Innovation Agency (VINNOVA). The platform responded to two general aspirations of the city: to systemize and consolidate work on sustainable city development and to increase collaboration between relevant actors, thus it was in line with the overall political agenda. The initiative was funded for two years, 2013–2015 and involved co-funding by participating actors. The main benefit or impact of the platform was that it provided a meeting space for different kinds of urban stakeholders to share challenges and develop solutions together (Case study ‘The Malmö Innovation Platform’). In this process, the City of Malmö took on an enabler role by encouraging stakeholders involved to collaborate with each other in new and innovative ways. In this capacity, the role of promoter and of enabler (or of creator of and manager of collaborations) can overlap.

Partner

The municipality took on the role of partner in 15 of the 50 investigated ULL and this was also the most common role. In accordance with the theoretical conceptualization of this role, partnerships are characterized as processes where collaboration is horizontal across actors in the urban context. This does not mean that there is a lack of leadership in the cases where the municipality is a partner. The role of partner is characterized by shared leadership and participation on equal terms, where each partner, including the municipality, has an explicit function. In some of the examples, such as ‘Renewable Wilhelmsburg Climate Protection Concept’, the leader simply comes from outside the municipality, e.g. from business. In other cases, such as ‘Newcastle Science Centre’, the municipality has a joint leadership, where Newcastle City Council is ‘lead partner’ together with Newcastle University. In other words, the role of partner can entail a joint leadership, or merely acting as one of many actors in a joint venture. Another way to conceptualise the nuances in this role is by describing the variation in terms of strong/silent partners. Strong partners include instances of joint leadership/participation on equal terms and the collaboration includes a distinct (albeit not leading) function for municipalities. A silent municipal partner is included but not actively participating in efforts. One example of a silent partnership is Swedish ULL ‘UbiGo’, a real live experiment of an integrated transport service conducted in Gothenburg 2013–2014 (UbiGo case study). UbiGo was a part of

the project Go:Smart, a platform for collaboration on transport efficiency involving partners from academia, the private and the public sector. Go: Smart's goal was to create better conditions for sustainable mobility by developing simple solutions that would make everyday life easier for households in cities. The project developed and tested the app UbiGo, a solution that provided integrated mobility services (IMS) in the city of Gothenburg. The business organization 'Closer' managed the project and the municipality was involved along with a number of other private and public actors. The City of Gothenburg was just one actor of many involved in the project and performed the role as partner. How financial burdens are shared is of particular relevance to the partner role and this was the case in UbiGo. The municipality did not have extensive financial ties or burdens.

One example of a more active partnership is the ULL 'Vision Step I'. The aim of this project was to 'develop a comprehensive and integrated Smart City concept in a specific district of Villach', where this ULL aims to 'increase the overall energy efficiency in the test area [...]'. Even though the 'central management' of the project was carried out by the municipality, the technological measures were at the centre of the project and they were realized by industrial and academic partners. Furthermore, civil participants were encouraged to become stakeholders and ownership is described as 'a shared enterprise including small households, energy and infrastructure suppliers, and the public authority', entailing that the municipality is an equal partner, with funding provided by the Climate and Energy Fund ('Smart Energy Demo - FIT for SET').

In contrast, a ULL from Germany is an example of a silent partnership. In 'T-City Friedrichshafen', funding and leadership is provided by Deutsche Telekom, with local government, academia and business as partners. The aim of this ULL is to demonstrate 'how a smart city can combine innovative information and communication technologies, together with a smart energy grid and services, to help improve the quality of life of citizens', and the idea of the Deutsche Telekom was to turn its vision of a 'connected life and work' into practice in an urban setting through 'a test-bed in a real city environment'. As in the case of 'Future City Glasgow', categorized as a promoter, the city Friedrichshafen competed with 50 other cities of becoming the 'T-city', but the municipality did not participate in further development or implementation of the ULL.

Shifting municipal roles

The municipality is not a unitary actor; it consists of several sub-administrations with diverging interests, resources and priorities. Thus, municipalities may take on many different roles, and their roles may well shift over time. Different municipal departments can act as promoters, while others take on the role as inhibitors. The plurality of interest can in itself also be an inhibiting feature, as it may lead to time-consuming debates, including negotiations over municipal priorities. This may also be accentuated when there are imbalances in the distribution of power and resources, or problems with conflicting goals and priorities (cf. Kern & Alber, 2008). In the case of 'Malmö Innovation Platform', the local environmental administration managed the project, and was in this capacity met with resistance within the overall city administration, which would not allow time for municipal employees to engage in the platform. Such resistance might be expected, as the idea of

the platform was to break with business-as-usual (Case study ‘Malmö Innovation Platform’) and thus, potentially challenge path dependence.

Temporary organizations designed as projects, i.e. ULL, can have problems gaining legitimacy, although having access to external funding is probably a strong push for support. The ambition in the ‘Malmö Innovation Platform’ was to re-structure and re-organize relationships in the city in order ‘to make people who would otherwise not meet actually meet’ and while the city of Malmö and particularly the environmental administration took on an enabling role initially, this objective posed a challenge to the rest of the city administration. This demonstrates some limitations of municipal engagement in innovation. European municipalities are often associated with certain core policy areas such as education, care of elderly, and urban planning. When municipalities are enablers of ULL and they focus on issues such as urban gardening, energy solutions and new technologies, this goes beyond the core concerns of municipalities – leaving (parts of) local administrations, and sometimes even citizens, in doubt whether these investments are desirable or necessary and may not consider them relevant.

The role of municipalities can also vary over time. ‘STPLN’ is a case in point; initial municipal support was crucial for the ULL, but the lack of continuous support and funding from the municipality led to insecurity about the future of ‘STPLN’ but at the same time, stimulated those involved to look for resources elsewhere. Another challenge is the ability of municipalities to actually govern collaborations and thus gain expected results. In this context, the enabler may apply a strategy to phase out engagement over time, as in the ‘Muswell Hill Low Carbon Zone’. To shift roles may be an explicit objective such as in ‘Feijenoord Proeftuin’, where the City of Rotterdam would go from enabler to non-role, by ensuring a self-sustaining ULL.

Another example where the role of the municipality shifted over time is UbiGo. When the successful trial period of UbiGo ended, the intention was to turn it into a commercial solution. Due to various difficulties with the business model, access to financial capital and collaborative challenges (particularly with the public transport actors), the company did not take off. The public sector became an inhibitor in relation to the further development and business prospects of UbiGo. Public transport is publicly owned with subsidies and regulations (including rules of procurement). These regulations affected the possibility to develop UbiGo into a more permanent and broadly used transport feature, thus preventing upscaling of this particular experiment. The relation with the public transport authorities and the City of Gothenburg proved particularly challenging. Hence, the city and the region went from being a partner in the experimental phase to an inhibitor in the implementation phase.

Conclusions

The aim of this article was to shed light on the role of municipalities in experimental governance by focusing on ULL as examples. It did this through a framework that highlighted three possible roles for municipalities, as promoter, enabler or partner. The indicators for the three roles were developed with the help of literature from political science and sustainability studies in combination, and applied to the empirical material in order to illustrate the different functions and activities that municipalities can take in experimental

governance. Even though we expected that the results on municipal roles would reflect the formal constitutional difference between municipalities, we did not detect any specific pattern or evidence of this in our cases. All the roles were represented in each of the countries where ULL were based.

Our study verified previous studies, as it indicated not only that municipalities were deeply involved in ULL but also that there is much variation in what roles municipalities take, diverging from opening up and creating space for the ideas of other actors, to promoting and funding the development of specific ULL. In addition, our analysis indicates that roles differ not only between different ULL, but also within ULL – both over time, and between parts of the municipal organization. This can be understood in light of municipalities not being unitary actors. Even though our analysis shows that roles vary within municipalities and over time, further studies using a more in-depth case study approach is needed to deepen our understanding of these dynamics.

What have we learned about the capacity of municipalities in the governance of experimentation in Urban Living Labs? In our interpretation, two capacities stand out. First, the capacity and will to organize funding and second, the capacity and will to initiate and occasionally govern collaborations. The analysis showed that these two tools or opportunities are approached by municipalities in very varying ways – suggesting that municipalities can have many different roles in experimental governance. This will be discussed below.

In several of the analysed ULL, municipalities participated by applying for external funding (from the regional, state or EU-level). These funds were utilized to promote, enable or act as a partner in ULL. These resources were used in different ways, and in different parts of the processes, ranging from merely enabling processes by applying for initial funding to in-house funding throughout the entire ULL and where municipalities could also become inhibitors over time when they withdrew funding. This means that a commitment to funding does not necessarily entail that the municipality takes an active part in setting the agenda or in implementation. In some cases, the municipality's role is primarily to legitimize the ULL, as partner or applicant in externally funded ULL-projects and this may be one of its most important functions in experimental governance.

Another role is the promotion and facilitation of collaboration. Here, we found the distinction by Vangen et al. (2015) between collaborative governance and governing collaboration to be particularly useful as a way to conceptualise the different means of governance that municipalities can use. Our material shows that a municipality's collaborative function ranges from merely participating as a silent partner to using collaboration as a policy instrument to actively promote change. The distinction between participating in a collaboration as a partner, and actually promoting or enabling collaboration is not always easy to make, also because that role can vary over time. What our research does not tell us is to which extent the different roles that municipalities take in ULL are chosen and strategic and to which extent are they coincidental, situation specific or even assigned. Whatever the role, our findings point to ample possibilities for municipalities to actively engage in experimental governance to accelerate the transition towards more sustainable and climate-resilient cities and raises the demands on municipalities to do so.

Summing up, experimental governance in the form of ULL often relates to the municipality in some sense, even when they take a non-role. Yet, the scope for municipalities to

engage in experimentation on sustainability, climate and environmental issues varies between municipalities. This variation can be understood in different ways, i.e. in terms of the formal scope of local government, the prevalence of local green activists pushing policies and placing them on the agenda, or path-dependency as certain cities have a stronger tradition of working with these policy areas – or just marketing themselves in terms of sustainable, green cities or environmental capitals. In other words, a possible barrier (or enabler) for experimental governance to emerge may be related to both formal and informal understandings of which type of policies are considered to fall under the municipal area of responsibility and jurisdiction. This also relates to the democratic function of municipalities. Here, further studies on the roles of municipalities in experimental governance is needed in order to elaborate democratic aspects on how the diverse roles of municipalities in experimental governance relate to democratic concerns for inclusion, legitimacy, power and transparency.

Notes

1. The GUST projects homepage is: <http://www.urbanlivinglabs.net>
2. The snapshots are available under their respective names (in italics in this article) and accessed online at <http://www.urbanlivinglabs.net/p/snap-shots.html>. They are also listed in the [Appendix](#) to this article.
3. An infra-lab is a collaborative process of conducting in-situ analysis by collecting primary and secondary data of an urban ecosystem (e.g. urban infrastructure, urban living lab) from those involved and those affected by it.
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5. ULL consists of multi-actor constellations most typically with representatives from public, scientific and business actors, in many cases members of civil society, and non-profit organizations are also involved. This goes across all the ULL regardless of which countries or what role the municipality has. Variations regarding which specific public, scientific, business or civil society actor is engaged are due to the topic and objectives of the ULL, for example, a ULL with focus on sustainable housing will typically involve municipal housing departments, housing companies, residents of the dwelling and researchers interested in the specific technology to be used.

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Appendix 1. Overview ULL.

	ULL-name	Focus areas	Country	Role
1	Smart City Hartberg	Mobility, energy, participation	Austria	Promoter
2	Smart City Project Graz Mitte	Urban technologies for the use of renewable energy sources	Austria	Promoter
3	Smart District Gnigl	Optimization of the planned new building 'Education Campus Gnigl' and re-development of city.	Austria	Promoter
4	New Light on Alby Hill	Lighting measures to make an area more secure and attractive	Sweden	Promoter
5	Stapeln Open Maker Space/STPLN	Building owned by the municipality that provides space for arts, entertainment, recreation, sustainable consumption and production.	Sweden	Promoter
6	Medialand Living Lab	Urban digital strategy, ambition to build local information society that is open for all	France	Promoter
7	Future City Glasgow	Programme aimed at demonstrating how technology can make life in the city smarter, safer and more sustainable.	UK	Promoter
8	Newcastle City Deal	Regional economic growth, low carbon transition, urban regeneration and re-development.	UK	Promoter
9	Circular Buikslotherham	Circular city district	Netherlands	Promoter
10	Maastricht-LAB	Platform for searching and testing of new ways of urban are development	Netherlands	Promoter
11	Vision step 1 Villach	Smart Grid Technology: Installation of smart meters; storage systems and intelligent transformers in the low-voltage grid	Austria	Partner

(Continued)

Appendix 1. Continued.

	ULL-name	Focus areas	Country	Role
12	Renewable Wilhelmsburg	Urban planning and energy	Germany	Partner
13	Acqua Dock Rotterdam	Water innovation for floating urbanization, climate resilience and smart green port.	Netherlands	Partner
14	Urban-Gro.Lab	City planning	Netherlands	Partner
15	Norby innovation platform	Energy efficient housing, job opportunities, meeting places and integration.	Sweden	Partner
16	Living Don	Enhancing ecological networks, ecosystem services and green infrastructure and community engagement	UK	Partner
17	Newcastle Science Centre	Urban quarter regeneration, innovation business support, buildings as labs and smart grids	UK	Partner
18	Manor House PACT	Energy efficiency, climate change awareness and preparedness, training and access to green jobs, eating sustainably, green space, inclusion and community connections, health and well-being.	UK	Partner
19	T-City Friedrichshafen	Energy, ICT and mobility	Germany	Partner
20	Concept House Heijplaat Rotterdam	Energy efficient houses and supporting technology	Netherlands	Partner
22	Sum Studios	Heritage preservation, community-led regeneration, sustainable building technologies and practices, and community economic development.	UK	Partner
23	The Community Energy Lab	energy efficiency and retrofitting	UK	Partner
24	Greening Wingrove	food growing, recycling and energy saving, sustainable living	UK	Partner
25	UbiGo	An integrated mobility service for public transport, car-sharing, rental car service taxi and bicycle system	Sweden	Partner
26	Living Lab Uddevalla	Processes of collaboration between actors involved in increasing public transportation use.	Sweden	Partner
27	Shape your world	Youth and urban gardening; modernization and social uplifting of suburbs	Sweden	Enabler
28	Hållbarheten (Swe)	Smart metering, energy efficiency and renewable energy in a building/housing sector, sustainable transportation	Sweden	Enabler
29	Future by Lund (Swe)	Lighting, mobility, smart energy systems and internet of things	Sweden	Enabler
30	Malmö Innovation Platform (Swe)	Energy efficiency in existing buildings	Sweden	Enabler
31	Aspern – Vienna's urban lakeside (Austria)	Providing a state-of-the-art working environment for enterprises and research-oriented institutions within sustainable technologies.	Austria	Enabler
32	ERnteLaa (Austria)	Building, urban gardening	Austria	Enabler
33	MK: smart (UK)	Data hub, Cloud-enabled transport demand system, energy mapping and demand management, water resources information system and water strategy for sustainable supply, consumption and recycling; enterprises and citizens engagement, education	UK	Enabler
34	Muswell Hill (UK)	Energy: energy saving advice and subsidies for households; Creating exemplar sustainable buildings; Promoting sustainable lifestyles; School education	UK	Enabler
35	Feijenoord Proeftuin (NL)	Experimental Garden to empower community and social creativity for continued renewal of a socio-economic vulnerable neighbourhood	Netherlands	Enabler
36	Open Lab Ebbinge (NL)	Physical re-development of a problematic/neglected area (Ebbingekwartier)	Netherlands	Enabler
37	ZoHo district (NL)	Alternative area development, citizen participation and governance innovation	Netherlands	Enabler
38	E-mobility graz (Austria)	Mobility, connecting ICT systems with the management of cars, batteries, systems for billing of energy and leasing costs. Connection to smart grids. Telemetric systems, intelligent information management.	Austria	Enabler
39	Vienna Shares	Interaction, sharing economy	Austria	Non-role
40	Urban farm	Interaction, culture, communication	Austria	Non-role

(Continued)

Appendix 1. Continued.

	ULL-name	Focus areas	Country	Role
41	Interethnic co-existence in European cities	Social interaction, integration	Austria	Non-role
42	City of the Future Living Lab, COTFLL (UK),	Social innovation and participation, design and technology	Italy	Non-role
43	Apulian ICT Living Labs	ICT	Italy	Non-role
44	Nexthamburg	Urban development, e.g. mobility, electricity, buildings, transport, recycling and energy	Germany	Non-role
45	Evomobile	Mobility/accessibility between university areas	Spain	Non-role
46	Insero Live Lab	Energy and ICT	Denmark	Non-role
47	Danish Outdoor LightingLab	Energy and intelligent lightning	Denmark	Non-role
48	Design Research Lab	Social innovation and participation, design and technology	Germany	Non-role
49	Marconia	Business-led renewal of harbour area, test-bed for social and technological innovation	Netherlands	Non-role
50	HSB Living Lab (Swe)	Sustainable living and building	Sweden	Non-role