1 ABSTRACT
This paper aims to synthesise the research findings from the implementation of an Urban Living Lab in Liesing, a fast growing suburban-type area in the City of Vienna. The aim of this paper is to contribute to an understanding of the Urban Living Lab approach in the negotiation of conflicting local development goals and citizen inclusion in the area of transport and mobility. To this end, the analysis intends to illustrate how the different elements of the ULL approach are addressed in existing strategies and projects in the area. This will be exemplified by a comparison of 5 different strategies, policies or research projects. The results of this analysis will be compared to local, interactive methods developed by the researchers in view of setting up a local example for inclusive governance in the area of mobility and transport. By summarizing the activities and experiences of the Urban Living Lab, we will be able to better understand the theoretical implications/potentials of the Urban Living Lab concept as applied in this context.

2 CHARACTERISTICS OF THE URBAN LIVING LAB APPROACH
Cities are laboratories that allow us to experience changes to a situation, which may instigate new roles of conduct that are markedly different from existing conditions.

The roots of the urban living lab approach can be found in the Chicago School, which viewed cities as both: places for urban experiments and places that allow us to test our observations of changes in society generally. The grounding hypothesis of urban laboratories is that urban problems are sets of relations that can be infinitely re-calibrated in order to enhance or simply alter the experience of the people that are part of it (Cutchin 2008: pp. 1565).

The Urban Living Lab approach is constituted by a set of characteristics, of which co-creation, exploration and experimentation are the most prevalent. Co-creation relates to the objective that Urban Living Labs offer a place for co-production and experimentation above and beyond business as usual instruments, methods and processes and incorporates high standards of actor inclusion. Exploration and experimentation promote the idea of a grounding openness towards new perspectives and views without positing a predefined outcome. Furthermore the Urban Living Lab approach follows three normative principles, which can be utilized as evaluation criteria of an intervention: the situatedness of a particular intervention in a local context; the change orientation of the process; and finally the contingency of the process and the results it produces. The challenge of experimentation is to “go beyond the existing constellation of actors and develop more participatory agendas that can imagine significantly different urban futures” (Karvonen et al. 2014: 147).

3 DELINEATING THE LABORATORY BOUNDARIES
As a federal province and municipality, Vienna can look back on a long history of quasi-autonomous policy making in the regulation of the built environment. Liesing is a functionally heterogenous urban area on the southern periphery of Vienna, characterized by the coexistence of historically emerged individual parts (the former villages) providing identification and the absence of a determining urban centre. Since the 1960s, the area has seen an increasing tendency for industrial agglomeration. A major challenge for the area concerns the theme of transport and mobility; Liesing has an over proportionately high percentage of motorized traffic and the road network and transport infrastructure are at capacity limits because of cross-boundary traffic to suburban areas outside the city.

On the interstice between the historically emerged parts of Liesing there are many empty spaces, reservoirs of past and future spatial development potentials for construction of the City of Vienna, that define the area as a prominent suburban intervention field of city-wide planning experiments. Liesing as a preferential territory for urban development was further highlighted in Vienna’s urban development strategy where parts of Liesing were selected as a target area in 2005. Its focus lies on the restructuring of the industrial site and the provision of new housing for about 28.000 new residents, a significant increase over the current 90.000. The planned increase in density and fears of a traffic desaster have sparked a set of conflicts between...
the municipal apparatus, existing residents and the local borough authority; about the image of Liesing as largely green suburban and rural territory and its likely transition; conflicts about the impact of future developments on the quality of life in the area and the necessity for improvements in infrastructure; and finally about the capacity of a transport system at capacity limits to keep pace with the demands for the wider expansion of housing and living functions in the near future. The rationale for focusing on sustainable mobility behaviour has been driven by the particular local context in which mobility behaviour is an important facet but has yet been ignored as an issue.

4 METHODS
In our project the Urban Living Lab approach was applied twofold: First, as an analytical tool for the understanding of policies applied in a particular area. In that sense policies are conceived as hypotheses about particular change effect of an intervention in a defined territory. For this purpose five policies were selected, that represent a diversiy of policy approaches as for what concerns interventions in urban mobility, temporal and spatial scope of intervention and diversity of actors represented. We conducted expert interviews and desk research of relevant documents in order to find answers to our research questions: What are the spatio-temporal boundary settings, actor-networks, contrasting forms of public engagement and demonstration exercises of different policies? How open to experimentation and co-creation is the existing policy context? How inclusive is the existing policy framework in Liesing?

Second, the ULL approach was deployed as policy instrument – as a way of creating a case where experimentation of urban development issues takes place; as an intervention by the researches supposed to feature elements of co-creation, experimentation, knowledge creation and learning. Its guiding question was how existing and incoming residents can be motivated to change towards sustainable mobility patterns, to guarantee long-term life quality in the neighbourhoods. In order to achieve this, a three part process was designed which started with a telephone survey with 400 residents of Liesing on mobility lifestyles and behaviour. The results of this survey formed the backbone of a second step, the utilization of so-called communal probes that allowed for co-creation and the qualitative enhancement of quantitative survey results. The combined results from step one and two were then transformed into a public exhibition that was shown in a former factory in the development area. The process was given the name ‘Mobile in Liesing-experimenting lifestyles and mobility’ and concluded with the public exhibition in September 2015, approximately one year after the process had started. In addition, the research team conducted expert interviews and organised a workshop with local neighbourhood managements (from other districts) in Vienna to identify best practices in the local governance of mobility lifestyles.

Due to the limited space, this paper will put more emphasis on conveying the results of using ULL approach as policy instrument (section 6, below).

5 URBAN LIVING LAB AS ANALYTICAL TOOL: CRITICAL INVESTIGATION INTO EXISTING AND ONGOING PROCESSES
The five policy experiments investigated, the Local Agenda 21 (non-governemenntal organization fostering civic participation), ‘Perspektive Liesing’ (city driven process leading to a strategic development plan for Liesing), ‘Transform+’ (research project guiding smart city transformation), ‘Standpunkt Liesing’ (neighbourhood management for the industrial area) and the ‘Target Area Management’ (a municipal coordination unit of urban development in Liesing Mitte), display contrasting territorial coverage within Liesing and time horizon - ranging from 10 years (Local Agenda ) to 6 months (Perspektive Liesing). All five processes show moderate to high degree of risk taking and experimentation. The widely differing ability to provide respectively incorporate feedback curbs the processes’ capability to adapt to the requirements. They also show diversity in the type of stakeholders participating. Indeed, citizens as participants of a process are only really constitutive of the activities of the Local Agenda 21, whereas most other strategies are confined to municipal and expert stakeholders, keeping the population merely informed. If they were

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1 Communal Probes are a creative approach to capture citizens’ perceptions and opinions about pre-defined topics. The tool was designed and used with 20 citizens in spring 2015. The study’s aim was to involve citizens in creative self-reporting activities to collect insights about citizens’ opinions and perceptions of Liesing’s mobility system, and to identify particular problem areas and suggestions for improvements. For this purpose, the tool incorporates a number of (open) questions that participants’ are expected to answer creatively using the ‘Probes Package’.
integrated, such as in the case of Perspektive Liesing, the time intensity was too low to create the conditions for a laboratory situation. In these regards it is notable, that the target area management, whose objective and role it is to coordinate development efforts with all relevant actors on the ground in Liesing, proceeds without the inclusion of both the local borough as political entity and citizens as current residents on the territory. The fragmented character of engagement efforts translates different political goals and objectives. Overall there is a certain degree of dissatisfaction with the current organizational set-up.

6 URBAN LIVING LAB AS POLICY INSTRUMENT: EXPERIMENT ‘MOBILE IN LIESING’

The intervention through the experiment was mainly driven by the following hypotheses about change and transformation in the area: (1) Lifestyle and mobility patterns play an important role in transformation of future mobility behaviour of Liesing’s residents. (2) Knowledge on mobility behaviour can be co-created with local residents. (3) Co-creation can have a learning effect on individuals and involved policymakers, and contribute to the institutionalization of participatory processes.

The change effects were to be experimented on different levels; by showing residents how they could benefit from reflecting on their own mobility behaviour; by showing municipality and local politics the utility of ex-periments and risk-taking by involving local residents; and finally, by illustrating to transport planners the utility of moving from production to more consumption oriented views of the local transport system.

The following paragraphs depict the experiment ‘Mobile in Liesing’, having the Urban Living Lab characteristics in mind.

6.1 Inclusion and Exclusion – actors and topics

The experiment involved actors from the Municipal administration; neighbourhood management entities; local organizations; as well as the local borough authority. In operational terms, the project team benefitted from the support of the new cultural venue in Atzgersdorf, which integrated the exhibition in their opening days. The former coffin factory had been used for events of other projects such as ‘Perspektive Liesing’, so that using it was an opportunity to position the intervention in a lineage with the former. The combination of these particular actor-networks proved to be efficient and effective in setting up the intervention.

The experiment was driven by the research team supported by letters of intent of two municipal departments, but with no political support from the local borough. The support from the municipality however was weakened by the stalemate between municipality and local borough council. The research team compensated by putting effort into keeping the local borough council informed and involved in the project.

In contrast to other strategic processes, the intervention was driven by the idea to integrate residents in the production of knowledge. The participation of local residents was a constitutive aspect in the preparation and implementation of all steps necessary to conduct the experiment on the ground. If engagement efforts have achieved their objective by involving the population in the process above and beyond the level of information, less care was given to the diversity or representativeness of participants. Quantitatively, the engagement efforts have achieved their target. However, the expectation of drawing in actors that go beyond the existing actor constellations through cooperation with the cultural centre have been frustrated by the little interest in the venue’s opening. Moreover, while contact with residents was continuous through survey and communal probes, the fact that the exhibition was only opened for three days reduced the possibilities for attracting new publics considerably.

Thematically, the dimension of mobility behaviour has never been part of strategic thinking on the local level before, except for some aspects treated in self-organized citizen groups in the context of LA 21. The thematic focus was nevertheless welcomed by local politics and municipality, as well as by visitors of the exhibition. For to some extent, the integrated process, given its focus on infrastructure and places and Liesing, went above and beyond the dimension of mobility alone. As such, one could argue, rather than being thought of as a thematic constraint, the focus on behaviour and lifestyles opened up a novel perspective in apprehending planning processes in the area, of which mobility was only an exemplary case.

The question of how to organize this process in terms of governance has also been an important feature, but functioned mostly in the background and was never directly avowed in the process towards making the exhibition. Being of highly political nature, the question of establishing a local neighbourhood management could not be overtly discussed by certain representatives of the municipality.
The experiment operated indeed in a conflicting political environment, not only between the municipality and the borough, but also between different instances of the municipal apparatus itself. This restricted to some extent the ability of experiment stakeholders to go above and beyond existing issue constellations and actors. A further restriction was the limited time frame and resources within the context of a research project.

6.2 Learning and co-creation of knowledge

By co-creation, the research team understood the act of partnering with non-scientific actors and the local population in the creation of knowledge and scientific facts about the mobility in Liesing.

The analysis shows that we can differentiate between three different types of methods in the experiment ‘Mobile in Liesing’; those that were closed to co-creation (analysis of existing strategies; survey and impact analysis; secondly those that allowed only limited opportunities for co-creation of scientific results with stakeholders and experts (best-practices catalogue, discussion with scientific community and policy experts); and finally those that were highly performative in allowing the local population to co-create scientific facts in the process (communal probes and exhibition). Hence, one can argue that co-creation has not been a permanent feature of the process, but has been reserved to neatly planned instances and events that were specifically designed to allow so. Compared to the other examined strategies, the experiment has indeed exhibited dimension of partnership and tokenism that went above and beyond what has been done before except for the process of LA21.

When it comes to learning, ‘Mobile in Liesing’ is an attempt to routinize engagement with urban development issues on a certain level of investigation, that is between the bottom-up and top-down level of city planning. At the point of writing, there is no evidence of institutional learning other than in terms of feedback that has been received by policy makers in the course of the experiment. This feedback points into two directions; on one side the need for a certain dimension of citizen engagement has been recognized through the process, but the questions remain how such participatory processes could concretely look like, what resources could be mobilized to foster them and on what levels these processes could be situated. On the other hand, conflicting relationships between city and local borough council have not been set aside since they are dependent on decisions outside the scope of power of the actors themselves. These conflicts are revelatory of political and even cultural frameworks that are beyond the laboratory situation created in the concrete case Liesing.

There is evidence of individual learning in the feedback of participants of the communal probes. Interviews with participants indicate that communal probes stimulated active perception of one’s own mobility behaviour and promoted reflection and analysis of this behaviour and possible options to change it. Further they helped to animate to perceive the transport system more holistically hence promoted a better understanding of the problems. Finally it allowed them to start discussion in the participant’s family, circle of friends and acquaintances. Another check came with the transport planner of the area: From the professional view, a great deal of the participants’ local observations and also of the ideas created seemed plausible and relevant as input for the design of measures to improve the district’s transport system.

Lastly, learning effects are to be found on the side of the research team too. Importantly, while the aspect of mobility behaviour has opened up new perspectives on the transport issue in Liesing, it became evident that questions related to the built environment and the sheer supply of infrastructure are very relevant in the context of high population growth and the capacity limits on transport infrastructure in the area. To some extent, the experiment provided thus an opportunity to reframe existing issues from another vantage point, and thereby confirmed some results of the ‘Perspektive Liesing’ process as well as others. Apart from this content-driven perspective, the researches personally entered new grounds by experimenting with methods they had not mastered before: designing and analysing communal probes as well as implementing an exhibition was a first for the team. Team intern discussion about the process, the design and the outcomes multiplied not only within the team but also in the entire firm. It became apparent that working with these participatory and active methods adds a more detailed but at the same time a more holistic view on the challenges of the area.
7 CONCLUSION

In the course of this paper we have reviewed different policy approaches towards experimentation in the Viennese neighbourhood Liesing and critically evaluated them from the vantage point of existing literature on Urban Living Labs. This investigation has been performed with two research perspectives in mind:

- The Urban Living Lab as an analytical concept: as a way to understand, compare and critically evaluate existing (municipal) strategies, policies and projects.
- The Urban Living Lab as constructivist approach: as a way of creating a case where experimentation of urban development issues takes place (in the context of a research project).

Our analysis of different policy strategies and instruments and the analysis of our own experiment ‘Mobile in Liesing’ revealed the following Liesing specific and general observations about urban experimentation:

Certain urban areas are more prone to experimentation than others. As a fast growing district, Liesing is a privileged site of experimenting a new vision for the city. But the analysis of the different processes applied in the area illustrates the lack of guidance in which projects were embedded in, ultimately to the detriment of the achievement of the different sectoral strategies. Strategic level discussion around future development scenarios did not immediately lead to a stable and secure set of strategic and operational targets for the area. The exception is provided by the functionally independent Standpunkt Liesing management, where political backing for a strategy autonomous from the wider development perspective of the area was achieved since its very inception. In the case of ‘Transform+’ notably, the absence of a clear target framework made the calculation of energy scenarios for the area complex if not to say impossible. The shaky and contingent nature of the strategic context may thus be the very precondition for the experimentation to take place, but it also created added insecurity among actors where some security was needed.

Urban Living Labs temporally conflate strategy and implementation. To some extent the environment embodies a planning situation where strategy and implementation temporally coexist, where situatedness, contingency and change orientation as the main normative characteristics of the Urban Living Lab approach formed part and parcel of the process.

A crucial question as to what concerns the effectiveness of laboratory situations in urban development contexts relates to their ability to exist without a meta-governance that would be able to monitor, compare and guide the different experiments on the ground, and eventually translate them back on the city-wide level. For in principle, the municipal target area management is supposed to be such a guidance and monitoring entity, but, as the process has shown, it could not deliver upon its main objective to create consensus among the main actors around an accepted development vision for the area. The question is thus in how far governance issues can be addressed within the parameters of a given experiment or whether certain conditions need to be in place to guarantee the effectiveness and utility of policy experimentation in a particular area.

The positive effects of laboratization such as inclusion are difficult to achieve in otherwise conflicting political environments. The (municipality-driven) ‘Perspektive Liesing’ process for the first time made an coordinated effort to bring together local politics and municipality around an agreeable set of local development goals. However, this ‘Perspektive’-process intervened only after the fact: It was neither targeted at the local population directly nor accompanied by a sufficient time-effort to allow for co-creation and/or major changes in attitudes to happen.

The lack of inclusion in the Urban Living Lab Liesing may as a consequence be explained by several factors: the first relates to the absence of the topic as a normative principle of urban development processes, the second relates to the belief in capacity of existing policies, projects and instruments to already harness the potential of citizens, finally, to the lack of a framework on which any debate around future development goals could be based on.

We have tested the applicability of the Urban Living Lab approach in areas where there is a priori no willingness to exchange in experimentation and where there is great conflict about development goals. Formally, a number of desired effects characteristic of the Living Lab approach were achieved, such as opening the space for co-creation and allowing for learning on individual mobility behaviour. Summarizing the results of this process, the intervention has certainly written a part of the local development narrative, but has not rewritten it. Limited by the research-project approach, ‘Mobile in Liesing’ could not change the
given actor constellations. At the same time it was the first strategic process of its kind, other than LA21, where inclusion of the local population featured as a prominent intervention principle. Indeed, this may well lead us to the conclusion that such experiments never completely alter situations or strategically re-orient them. But as such they are setting an example and by harnessing existing potentials open up possibilities for systematic change.

At the same time, the existence of secure, agreed upon framework conditions by the most important policy stakeholders as well as by the population is an essential pre-condition for experiments to meaningfully contribute to the policy arena. For in the absence of a concrete urban development policy, such as in the case of Liesing, the Urban experiment can only partially substitute it. There may be need of a new organizational layer, a new institution or a set of rules beyond the laboratory situation. While the experiment allowed us to define this need, probably in a way that we could not have addressed through other means, it could not contribute from within the laboratory boundaries to the institutionalization of new rules.

8 REFERENCES
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