Title: Responsible Mobility Governance at the Regional Level – An Empirically Grounded Framework on Mobility Innovation in Munich

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Problem statement

Mobility innovations do not emerge in a vacuum and involve new products, services, and interventions in public spaces that fundamentally impact our lives - from the individual to the global level. Public debates about, for example, AV accidents, failed business models, socioeconomic inequality, or the legitimate distribution of public spaces regularly highlight the sensitive ethical, legal, and social issues that mobility innovations raise. They provide insights into processes where innovation, despite best efforts, does not always lead to success, with possible unintended negative side effects or rejection by the public.

Considering these challenges, the question of how to innovate in a way that is consistent with societal values is becoming increasingly important and is a topic of discussion among policymakers, innovators, and the public alike. One way to address this need that has been discussed in academia and policy is through the framework of *responsible innovation* as a soft-law oriented approach to innovation governance and the governance of emerging technologies. However, while the framework of responsible innovation has gained more and more traction within the last decade and has been conceptually applied to different areas of innovation - such as smart agriculture or neurotechnology - no such effort has been made for the innovation context of mobility.

Research goals and questions

The goal of our paper is to provide an empirically grounded framework for responsible mobility innovation (RMI). The main research questions we consider include: What potential problems and challenges arise in the specific innovation context of (urban) mobility? What can and should "responsibility" mean in this context, and how does this relate to the conceptualization of one's role as an innovator? In what regulatory context is mobility innovation embedded? And what should an approach to responsible innovation look like that is of practical use to mobility innovators?

In responsible innovation scholarship, we can see a shift away from a one-size-fits-all approach toward situated applications of the framework. Importantly, the ideas we develop are not merely theoretically derived from the literature on responsible innovation and applied to the context of mobility; rather, we base our work on empirical data and develop our framework for responsible

mobility innovation from the bottom up. In this way, we fill two research gaps: first, we apply the responsible innovation framework to the context of mobility; second, we apply the responsible innovation framework at the regional level, using the governance of a regional innovation cluster as an example.

Methodological approach

Our methodological approach is based on grounded theory and follows a qualitative, constructivist, and interpretive approach. We approach our research interest through a case study of the Munich Cluster for the Future of Mobility in Metropolitan Regions, an innovation cluster funded by the German Federal Ministry of Education and Research that brings together different trends in mobility, from AVs and electromobility to living labs and active mobility. We conducted extensive research within the cluster, combining semi-structured interviews, workshops, document analysis, and ethnographic fieldwork.

Results and Perspectives on Implementation

The results of our presentation are twofold. First, we will present our findings from the analysis of the MCube cluster and provide insight into selected topics such as stakeholder perceptions of issues and challenges, enabling and hindering regulatory conditions, modes of communication about the research projects, participation, the configuration of the public, and existing resources that can be associated with responsible innovation. Second, we will present our framework for responsible mobility innovation based on the preceding analysis as well as on scholarship on responsible innovation, particularly on the four dimensions of anticipation, reflexivity, inclusion, and responsiveness. In doing so, we hope to provide practical input for mobility innovators as well as a contribution to the current debate on mobility governance based on a local, empirically grounded approach that can potentially be transferred to other regions or innovation contexts.