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# **Data is not the new oil, but could be water or sunlight? From ethical to moral pathways for urban data management**

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## 1. Introduction

In 2017, The Economist published a story titled, "The world's most valuable resource is no longer oil, but data." Since this publication "Data is the new oil" has become a common expression. Such thinking has also propagated into the field of urban data management. Thus, as we are witnessing the wide-scale digitalization in high income countries, as well as production of big data, we are also witnessing the change in the nature of urban data itself (Kitchin & Lauriault, 2018). Previous research has pointed out the general ethical challenges regarding privacy, datafication, dataveillance, and data uses, such as social sorting and negative differential discrimination (Bonneton et al., 2020; Kitchin, 2016; Pangbourne et al., 2020). Moreover, there is an ongoing discussion in the domain of AI regulation, where strong levels of quality control are encouraged through robust data-sharing agreements, access rights for different stakeholders, and even audits (Cath et al., 2018; Johal and Urban, 2017; Kerber and Frank, 2017). Specifically in the urban domain, we have seen a critique of the neoliberal smart city agenda (Cardullo & Kitchin, 2019). However, there is still a further need to understand the ongoing transition processes and the undesired implications, along with identifying corresponding responsible governance mechanisms. The research focuses on Finland, as the country with significant digitalization initiatives in the urban domain that might still be under a threat of unreflective technological determinism (Mladenović et al., 2020). This paper aims to contribute to the ongoing discussion around the relation between the data and the city (Lauriault et al., 2018), by bringing in additional perspectives from philosophy of (urban) technology (Nagenborg et al., 2021; van de Poel, 2020). Thus, we aim to advance the discussion beyond the field of ethics and management, to the domain of morality and governance, and especially morality in a complex governance environment that city is (Van Wezemael, 2010).

## 2. Methodology

The methodology requires an integration of anticipation and ethical reflection, if we are to deal with uncertain implications and underlying value conflict (Brey, 2017). Thus, we rely on qualitative approach, following the template of Anticipatory Ethical Reasoning (York & Conley, 2020). The first component of the methodological framework is an exploratory scenario planning exercise, as a foresight-oriented approach where alternative scenarios are developed for a desired time horizon from the present situation

(Sustar et al., 2020). Based on the ideas from the ‘Intuitive Logics School’ (Bradfield et al. 2005), focus of scenario planning is on the insights and learning that arise from the process, centered on discussions. The resulting four scenarios are qualitative narratives of possible futures from the Otaniemi neighborhood in the Helsinki Capital Region (HCR), Finland. These narratives are purposefully built to highlight policy dilemmas and potential societal tensions. These developed scenarios were presented and discussed in two focus groups with HCR urban and transport planners. HCR has experienced a growth in the number of various urban technology pilots, such as service Kutsuplus (Haglund et al., 2019). This focus group discussion was used to validate the scenario design, as well as to reflect about potential governance and policy responses, and raise ethical and moral questions around data from emerging mobility technologies. More information about the scenario methodology can be found in (Mladenović & Stead, 2021).

### **3. Findings**

The focus group discussion first verified the four scenarios as diverse enough to represent the rich plurality of possible futures in HCR. In addition to the existing plethora of conventional urban policy measures that are already implemented or evaluated in HCR, focus group discussion has highlighted several aspects to consider about governance of data and algorithms as an emerging policy lever in the urban context. One aspect is specifying data collection practices, following the informed consent principle from GDPR, which includes describing to the user what is being collected and how it will be used. In addition, discussion brought up a need to evolve consent agreements, including summaries and searching capability, while specifying the level of aggregation and anonymization. The second aspect brought up during the discussion includes the development of data sharing specifications, both from and to technology providers, by developing data-for-data principle. For example, public sector organizations could share data on the infrastructural condition or operations. In return, technology providers could share data on their own operations. However, there was a warning to recognize different types of data (e.g., privy, official, collective), which should have different sharing principles. Furthermore, discussions pointed out the need for development of specifications for access control rules over time, level of aggregation and responsibilities for actors involved in second-hand data use, as well as options for data removal or even return to the residents. In addition to the set of questions relating to privacy protection, discussion also highlighted the need for developing new governance levers for steering algorithm development processes. Moreover, governance should

respond to technological development by expanding the design criteria that could be publicly evaluated, such as those that would be contrasted to efficiency (e.g., carbon emissions, health effects). For expanding the set of design criteria, a conclusion was that it is essential to place users at the center of this development, by actively involving them in open innovation processes. Discussion continued with a point about a wider set of ownership, financing, and taxation models that should be evaluated for new data regime. Finally, practitioners have identified that such governance development is mostly out of their reach, and that such issues should be handled at the level of national or EU regulatory bodies, as soon as possible.

#### **4. Conclusion**

The results show that urban data management is not solely a question of ethics, such as that covered by GDPR. In fact, practitioners recognize underlying moral questions, such as those of human well-being, and trade-offs with climate crisis challenges. However, the findings also point towards the institutional void in multi-level governance networks. This institutional void goes together with the changing nature of data, as the object of governance, and not solely an object of management. On the one hand, as one of the remarks made during the discussion with practitioners shows - "*Data is not the new oil, but could be water or sunlight?*" - we need to move away from conceptualizing data as solely a resource to be used. In fact, it could be considered an important good for socially-just urban development, and even assigned anti-rival properties. On the other hand, due to the evolving nature of the data good, we should not rush into establishing many-to-many data markets. Due to their inherent moral limitations, such markets could not only lead to direct harms, but to the degradation of the city as the good in itself, as well as long-term undesired changes in social values (e.g., sense of community and trust in institutions). Looking forward, we certainly need to continue deepening our understanding of relations between urban lifeworld and urban data-driven technologies (Mladenović et al., 2019; Nagenborg et al., 2021), if we are to develop more sophisticated approaches and processes for its governance.

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