ORIGINAL ARTICLE

Tensions in transparent urban AI: designing a smart electric vehicle charge point

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Abstract

The increasing use of artificial intelligence (AI) by public actors has led to a push for more transparency. Previous research has conceptualized AI transparency as knowledge that empowers citizens and experts to make informed choices about the use and governance of AI. Conversely, in this paper, we critically examine if transparency-as-knowledge is an appropriate concept for a public realm where private interests intersect with democratic concerns. We conduct a practice-based design research study in which we prototype and evaluate a transparent smart electric vehicle charge point, and investigate experts' and citizens' understanding of AI transparency. We find that citizens experience transparency as burdensome; experts hope transparency ensures acceptance, while citizens are mostly indifferent to AI; and with absent means of control, citizens question transparency's relevance. The tensions we identify suggest transparency cannot be reduced to a product feature, but should be seen as a mediator of debate between experts and citizens.

Keywords Urban AI · Artificial intelligence · Transparency · Electric vehicles

1 Introduction

Digital technologies such as big data, sensor networks and artificial intelligence (AI) are becoming increasingly important in the control of urban infrastructure, and public administration more broadly (Chiusi et al. 2020; Crawford et al. 2019). However, it is now widely recognized such AI systems may lead to unfair outcomes, even if they have been designed with the best intentions (Eubanks 2018; Ranchordás 2020). These concerns have prompted researchers,

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governments and civil society groups to formulate ethical principles for deployment and use of AI, emphasizing values such as transparency, fairness and accountability (Jobin et al. 2019; Mittelstadt et al. 2016; Tsamados et al. 2021). Likewise, some cities have started to embrace a digital rights agenda and are formulating principles and policies to govern public AI systems [e.g., (The Cities Coalition for Digital Rights 2021)].

Many ethical and policy frameworks see *transparency* as an important prerequisite for ensuring fairness and public acceptance (Brauneis and Goodman 2018; Stoyanovich and Howe 2018). Empirical research in human–computer interaction (HCI) has focused on identifying which forms of user interface-level transparency are most effective for increasing user understanding and trust (Abdul et al. 2018). In this HCI-research, transparency is typically framed as a form of objective knowledge that empowers people to make informed choices about how best to use and govern AI systems. However, researchers have started to point out theoretical and practical limitations of the transparency ideal (Ananny and Crawford 2018), and the importance of considering the human experience of AI transparency (Alvarado and Waern 2018; Vakarelov and Rogerson 2020). What is more, in case of *public* AI systems, such as those controlling urban infrastructure, i.e., "urban AI", the relationship