

# What happens when optimisation defines urban life?

Who gets counted in the city of tomorrow?

Urban Digital Twins (UDTs) are digital replicas of the physical city, built from real-time data. They promise efficiency, prediction, and responsiveness and help planners and policymakers act fast and allocate resources smartly. Yet **behind this promise lies a set of assumptions about what can be measured, who is visible, and which behaviours count in such a system.** This project explores what happens when urban systems begin to govern not just space and infrastructure, but also **legibility and inclusion.**

The Behavioural Mirror is part of a speculative design inquiry into the optimisation logics embedded in smart urban systems. With academic grounding drawing from **algorithmic governance, data feminism, and ambiguity in design** theories, this work examines how seemingly neutral categories (for example “demand” or “activity”) can shape structural outcomes and influence the lives of citizens. The binaries behind this system (eg, high vs low demand) reduce complexity, turning diverse lives into predictable patterns. What falls outside these patterns often disappears from view.

This speculative artefact does not aim to fix the system, or to provide policy recommendations; Instead, it creates a space to confront the everyday consequences of being misrepresented, flattened, or left out by data-driven decision-making. Through the fictional scenario of Sem (a nurse whose care work and behavioural unpredictability render her invisible to a city’s optimisation algorithm) the mirror surfaces a broader question: **What does inclusion mean, when shaped by prediction?**

Rather than providing a didactic message, the artefact relies on ambiguity to open critical reflection. While interacting with the mirror, it asks viewers to reflect on how they participate in, benefit from, or resist such systems. By exposing the friction between **efficiency and inclusivity**, it invites doubt, not only about future cities, but about the systems already shaping our present.

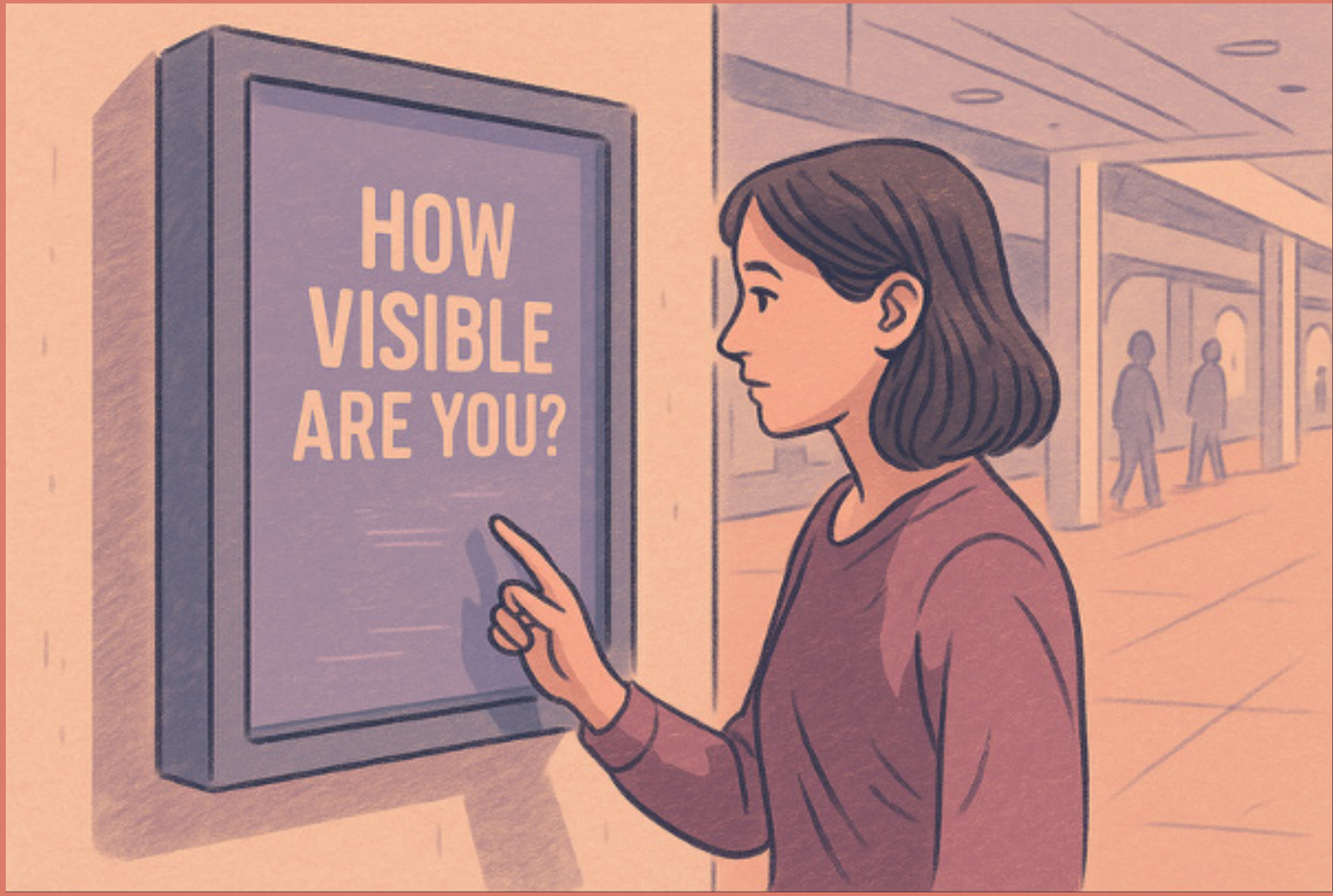
*“What gets counted gets cared about”*

D’Ignazio & Klein, Data Feminism

## Rethinking Binaries in Urban Digital Twins

A Speculative Design Approach

### The Behavioural Mirror



The Behavioural Mirror invites viewers to reflect on their own data visibility within a fictional smart city.

This speculative artefact imagines a system in which algorithmic optimisation governs access to urban services. Visibility is not based on who you are, but on how legible your behaviour appears to the system.

Behaviours that are regular, measurable, and efficient are rewarded; those that are informal, care-based, or irregular often fall outside the frame. Over time, these omissions do not only result in exclusion, but in a quiet disappearance from the city’s logic.

What Questions Does This Raise?	
Visibility Bias	Who gets seen, and who stays invisible in data systems?
Legibility	What kinds of lives are readable to optimisation models?
Care & Exclusion	Why are irregular or care-based routines often overlooked?
Autonomy	Is opting out of digital systems still a real choice?
Ambiguity	Can design invite doubt instead of offering clear answers?