

## INTRODUCTION: ETHICAL URBAN AI IN PRACTICE

---

**Tanya Álvarez**

*Researcher, Mobile World Capital Foundation Observatory*

**Marta Galceran-Vercher**

*Senior Research Fellow, Global Cities Programme, CIDOB*

**Alexandra Vidal D'oleo**

*Research Fellow and Project Manager, Global Cities Programme, CIDOB*

Artificial intelligence (AI) is one of the most revolutionary technologies of our time and promises to completely transform society. This transformation is multilayered and ongoing in many spheres, the urban space being no exception. Furthermore, since the conception of the “smart city” paradigm, urban planners, tech companies and municipal policymakers are increasingly looking to technological advancements to solve the most pressing urban challenges our societies face. In this process, the deployment of algorithmic systems by local governments is widespread and shapes the process of city-making as we understand it.

“Urban AI” can be understood as the relationship between AI systems and the urban landscape. These systems, coupled with other technologies, are being embedded into all types of urban contexts: households, workplaces, public spaces and infrastructures. Moreover, the digitalisation of these urban experiences creates a hybrid environment where digital technologies play a role in mediating and augmenting the urban experience (Aurigi and De Cindio, 2008). City dwellers are only starting to see how AI as an integrated element of urban environments has a profound effect on the lived experience of cities and city-making itself.

When it comes to AI systems and automation, cities are an ideal testing ground for the deployment of these technologies. AI development and implementation requires a variety of resources which can be easily found in urban settings: a physical environment to act upon; access to a diversity of activities; copious amounts of high-quality data; and infrastructure and facilities (Cugurullo et al., 2023). In the past decade, there has been a surge of data-driven technologies that address urban challenges including infrastructure maintenance, personalised public services, health, transportation improvement, urban planning and efficient resource usage (Galceran-Vercher and Vidal, 2024).

City dwellers are only starting to see how AI as an integrated element of urban environments has a profound effect on the lived experience of cities and city-making itself.

As algorithmic technologies become increasingly commonplace, there is an urgent need for local administrations to be mindful of the responsible and ethical use of these systems.

Responsible and ethical AI emphasises the importance of ethics throughout the life cycle of a system, ensuring that algorithmic tools are aligned with democratic values and safeguard people's digital rights.

Recent research by the Global Observatory on Urban AI (GOUAI) shows that cities worldwide routinely promote other policy mechanisms to incentivise responsible AI systems.

An increasing number of municipal governments are aware of the benefits that AI brings to administration and delivery. AI systems are adopted in the hope that they alleviate the burden of routine, by automating bureaucratic tasks and thus allowing local governments to run more efficiently. They also seek to be more cost-effective by making smarter, data-driven decisions and freeing up local governments to better respond to the needs of their residents.

However, as algorithmic technologies become increasingly commonplace, there is an urgent need for local administrations to be mindful of the responsible and ethical use of these systems. Importantly, the growing weight that local governments carry in the global political arena, along with their potential impact on millions of lives, requires AI governance to consider the impact on individuals, communities and the environment.

With the advent of AI regulation, AI governance in cities has become of special concern for rights defenders, civil society organisations and minority urban populations as they have witnessed the potential pitfalls of the deployment of AI systems. For example, while AI enabled surveillance offers cities solutions regarding safety and security, traffic management or monitoring environmental factors, it has proven to be invasive and discriminatory towards certain sections of the population. This particular example, and others, raise the alarm on how efficiency gains from automation can come at great cost. Municipal administrations must therefore be aware of the ethical implications of the AI systems they seek to implement.

### **The challenge of operationalising ethical principles in urban AI**

While cities may be concerned about the operational and technical benefits that AI promises, experts have argued that as sociotechnical systems, the impact of AI transcends the technical accuracy of the system itself. Consequently, local policymakers and administrators who only focus on the technical accuracy or fairness of a system fail to fully address the wider implications these systems may have when ensuring they are deployed responsibly and ethically. Implementing responsible AI goes beyond developing systems whose results are correct or reliable. Responsible and ethical AI emphasises the importance of ethics throughout the life cycle of a system, ensuring that algorithmic tools are aligned with democratic values and safeguard people's digital rights.

It is laudable that many cities have already started to implement and develop responsible AI policy mechanisms. New York City, for example, has introduced mandatory audits for hiring tools. In Finland, three cities have come together to promote AI transparency through algorithmic registers, making information accessible to residents. In another example, Toronto's police department has established a procurement policy for AI technologies. Furthermore, recent research by the [Global Observatory on Urban AI \(GOUAI\)](#) shows that cities worldwide routinely promote other policy mechanisms to incentivise responsible AI systems, such as the development of specific principles and guidelines; bans or

moratoria on specific high-risk algorithmic systems (e.g. real-time facial recognition systems); public algorithmic registries; impact assessments and audits; the establishment of external independent oversight bodies; or public procurement clauses that ensure compliance with human rights. These experiences can serve as a roadmap for other public sector players to understand what type of policy mechanisms work to develop responsible AI systems.

Still, while there are cities taking first steps to develop responsible AI practices, there is a growing need for city administrators and municipal policymakers to understand how urban AI is being developed and what best practices to put in place. The GOUAI, mentioned above, addresses this need. This is a joint project led by CIDOB, with the support of the cities of Barcelona, Amsterdam and London, the [Cities Coalition for Digital Rights](#) and UN-Habitat. To this end, the GOUAI's Atlas of Urban AI gathers cases of urban AI globally that adhere to six ethical principles: transparency and openness; privacy protection; fairness and non-discrimination; safety and cybersecurity; accountability; and sustainability. A recent publication based on the Atlas analysis (Galceran-Vercher and Vidal, 2024) revealed that with the growing trend of urban AI, there is a mismatch between cities that have adopted AI tools and those that have established policies or strategies to ensure that AI aligns with ethical principles.

This CIDOB Monograph explores existing governance frameworks and specific policy mechanisms to operationalise concrete ethical principles and promote responsible urban AI on the ground. The aim is to create a useful document that inspires action and serves as a roadmap for other public sector players.

## Structure of the publication

The first part of this publication comprises four chapters and examines how key ethical principles – accountability and transparency; privacy and data governance; fairness and non-discrimination; and sustainability – can be practically applied in urban settings through targeted policy mechanisms. **Shazade Jameson** argues that local governments lack clear guidance on advancing ethical urban AI in their jurisdictions and introduces two practical definitions of accountability and transparency that incorporate both technical and broader sociopolitical perspectives. Jameson argues that in order to foster accountability and transparency in urban AI implementation, two deceptively simple yet essential questions should guide the design phase: “Should AI be used?” and “How should AI be used?”.

In the following chapter, **Leandry Junior Jieutsa** examines the factors that contribute to fair and non-discriminatory AI. He identifies two primary drivers of discrimination in AI systems: algorithmic biases and the use of AI technologies. Jieutsa offers policy recommendations aimed at creating fairer AI-powered cities, emphasising the need for local governments to adapt to their diverse roles as developers, deployers and regulators. He argues that cities must draw on participatory processes, localised approaches, sociotechnical innovation and cross-sector collaboration to ensure AI is deployed responsibly and equitably.

Next, **Josuan Eguiluz Castañeira** and **Carlos Fernández Hernández** review mechanisms for a robust privacy and data management in AI deployment. They analyse the legal and ethical frameworks governing the processing of personal data by AI systems, with a particular focus on the European AI Act. They outline key mechanisms for implementing the principle of privacy in urban settings and explore the challenges associated with such data processing practices, offering a set of actionable recommendations. The authors emphasise that data governance must be central to urban AI strategies, prioritising the quality, relevance and protection of data sets used in AI systems. This includes conducting impact assessments to safeguard both personal data and fundamental rights, ensuring that citizens' privacy and security are not compromised.

Finally, **María Pérez-Ortiz's** chapter explores the potential of AI to contribute to the development of sustainable cities, addressing the social, environmental and economic dimensions of sustainability. The author argues that while AI offers significant promise, its deployment also raises concerns about social equity, environmental impact and economic disruption. In this regard, the sustainable AI framework provides a valuable tool for aligning AI's development and application with sustainability goals. It ensures that AI operates within ecological limits, fosters inclusivity and supports equitable and circular economic growth.

The second part of the publication features six case studies offering examples of local AI governance frameworks that cities worldwide have established, adopting concrete policy mechanisms to implement ethical urban AI in practice. Specifically, in this section **Alexandra Vidal D'oleo** explores the AI governance of the cities of Barcelona, Amsterdam, New York, San José, Singapore and Dubai.

The CIDOB Monograph wraps up with a concluding chapter in which **Marta Galceran-Vercher** and **Alexandra Vidal D'oleo** present a categorisation of policy mechanisms derived from the chapters, case studies and a literature review. This analysis examines the most widely used policy mechanisms and explores how they align with the different ethical principles. The authors also identify common trends and challenges cities encounter when trying to implement these ethical principles in practice, offering a set of general recommendations to address them.

## References

Aurigi, A. and De Cindio, F. "Augmented Urban Spaces: Articulating the Physical and Electronic City". Farnham: Ashgate Publishing, 2008

Cugurullo F. *et al.* "Artificial Intelligence and the City. Urbanistic perspectives on AI". London: Routledge, 2023

Galceran-Vercher, M. and Vidal, A. "Mapping urban artificial intelligence: first report of GOUAI's Atlas of Urban AI". *CIDOB Briefings*, no. 56, 2024.