

The dark side of urban artificial intelligence: addressing the environmental and social impact of the algorithms

19 June, 16:00h-19:00h

CIDOB, Sala Maragall, Elisabets 12, 08001 Barcelona

Organised by: CIDOB's Global Cities Programme with the support of Barcelona City Council

Translation Catalan-English will be provided.

Background

Artificial Intelligence has become one of the biggest hype topics of the year, also in the urban world. And not without good reason: AI is widely perceived as a valuable tool to address the most important challenges of our societies, including dealing with the climate emergency. The potential uses of AI applications are extensive and varied, ranging from enhancing resource usage efficiency, improving transportation and urban planning effectiveness, or providing more personalized urban services. AI is also the driving force behind the green and digital transition promoted by cities worldwide. Yet, while we tend to imagine the digital as something ethereal, limitless, dematerialised and neutral, there are significant social and environmental costs associated with the growing reliance of our societies on AI systems.

To start with, the computing capacity needed to develop and deploy AI systems requires large data infrastructures, especially data centers that consume vast amounts of energy and water. To put it in numbers: data centers account for [1,5% of global electricity use](#), and training just one AI model can emit more carbon dioxide than the lifetime emissions of an average car. As these energy-hungry infrastructures [quietly move into urban centers](#), it becomes imperative to make them more green and efficient if cities are to meet their climate commitments. In turn, AI hardware (chips and circuit boards) depends to a large extent on rare metals and rare earth, whose extraction entails important environmental, social and geopolitical costs. Finally, the need for regular hardware replacement can lead to increased material requirements and large amounts of electronic waste.

On the social front, many of the algorithmic systems used by local governments to support decision-making are prone to incorporating and reinforcing our existing societal biases. Addressing them requires adopting a digital-rights perspective and ensuring that its deployment considers basic ethical principles such as non-discrimination, transparency, privacy protection, or accountability. A related fundamental question is how algorithmic curation may influence the character and quality of our democracy. Lastly, from a global justice perspective, much of the AI innovation used by cities worldwide is powered by underpaid [workers in the global south](#).

The seminar methodology

CIDOB's Global Cities Programme, in collaboration with Barcelona City Council, organises an international seminar to reflect on the dark side of the extensive use of artificial intelligence from an urban perspective. Specifically, it seeks to improve our understanding of the environmental and social negative externalities that the development of AI systems entails and to discuss how to mitigate or overcome them through specific local initiatives.

The programme consists of two blocs. Each bloc opens with a 10-minute intervention by two keynote speakers, followed by a moderated session around a set of core questions that will be circulated in advance. To foster a dynamic debate and new insights, the moderator may call on individual participants to intervene at a relevant point of the discussion. The seminar's conclusions will contribute to the research of the [Global Observatory on Urban Artificial Intelligence](#), and inform a policy paper to be published by CIDOB in the coming months.

Programme

- 16:00 – 16:10 **Welcome remarks**
Pol Morillas, Director, CIDOB (Barcelona Centre for International Affairs)
- 16:10 – 16:20 **Introduction: the social and environmental impact of urban AI**
Marta Galceran Vercher, Research Fellow, Global Cities Programme, CIDOB (Barcelona Centre for International Affairs)
- 16:20 – 17:20 **How to develop AI urban systems within our planetary boundaries?**
Anne Mollen, Senior Research Associate, Algorithm Watch
Kaisa Sibelius, AI4CITIES Project Coordinator, Forum Virium Helsinki
- Chair:* **Ricardo Martínez**, Senior Research Fellow, Global Cities Programme, CIDOB (Barcelona Centre for International Affairs)

Guiding questions

- Many AI applications hold the potential of combating climate change. Yet, at the same time, the material needs for hardware, their immense energy consumption and their associated emissions are an obstacle to the road to environmental sustainability of AI systems. How can we ensure that AI systems do not consume more resources than are saved through their use? How can we move beyond “AI for sustainability” and address the sustainability of developing and using AI systems?
- Reduction of carbon emissions and computing power are fundamental to improving the sustainability of AI. What other elements need to be taken into consideration in the lifecycle of AI products to improve their ecological integrity?
- To what extent (and how) can local governments contribute to the development of AI systems that are compatible with sustainable development goals? What specific measures can local governments put in place to ensure that the AI systems they use are environmentally sustainable? For instance: greening urban data centers, promoting green procurement of software.
- Many local governments have a longstanding record of measuring and reporting their greenhouse gas emissions. Yet, the digital carbon footprint is usually left outside these measurement efforts. To what extent can local governments effectively measure its digital carbon footprint as part of their climate change strategies?
- How can cities reduce, compensate, or mitigate the negative environmental impacts of the digital transition they promote?
- Big tech companies seem to benefit from the discourse of “AI for sustainability”, but are not held accountable when it comes to acknowledging the hidden ecological costs of AI systems. How can this problem be tackled? What role does regulation play here?

- 17:20 – 17:50 **Coffee break**
- 17:50 – 18:50 **The implications of the algorithms for our societies and democracy**
Manel Sanromà, Founder of CIVICAI and professor of Applied Mathematics at Universitat Rovira i Virgili
Shazade Jameson, Independent consultant, working on AI Governance with MILA Quebec AI Institute, and author of UN-Habitat’s “AI and cities: risks, applications and governance”
- Chair:* **Agustí Fernández de Losada**, Director and Senior Research Fellow, Global Cities Programme, CIDOB (Barcelona Centre for International Affairs)

Guiding questions

- Should we set any limits in developing AI systems? To what extent measures such as moratoriums on “dangerous AI” development are feasible and useful? Shouldn’t we be looking into ways to improve transparency and accountability around the deployment of AI systems instead of halting research?
- What can (local) policymakers do to address the risks from advanced AI systems? For instance, creating guiding principles for ethical AI is nice, but to what extent is this a useful measure if we lack a globally-agreed common framework for “ethical AI” and some of these principles are difficult to operationalize?
- How do we put AI ethics into action? We can discuss that for specific ethical principles such as: (1) Fairness and non-discrimination; (2) Transparency and openness; (3) Safety & cybersecurity; (4) Privacy protection; (5) Sustainability; (6) Accountability.
- How should (local) governments work with the private sector and with civil society organizations to ensure that AI solutions allow for auditability and traceability?
- How can local governments be involved in national, supranational (i.e., EU) and global efforts to regulate AI? What is their added value in the global/European efforts to regulate AI? What is the expected impact of the EU AI Act on European cities?
- How can current public procurement processes and standards be innovated to address the potential risks and harms of the AI systems to citizens? Should there be any limits for the private sector in developing AI for (local) governments?

18:50 – 19:00 **Concluding remarks**

Marta Galceran Vercher, Research Fellow, Global Cities Programme, CIDOB (Barcelona Centre for International Affairs)

List of participants

- **Adrià Rodríguez-Perez**, Public Policy Researcher and Data Protection Officer, Scytll; Adjunct professor of International Relations, Universitat Pompeu Fabra
- **Agustí Fernández de Losada**, Director and Senior Research Fellow, Global Cities Programme, CIDOB (Barcelona Centre for International Affairs)
- **Alexandra Vidal**, Researcher, CIDOB (Barcelona Center for International Affairs)
- **Anne Mollen**, Senior Research Associate, Algorithm Watch
- **Arnau Monterde**, Director of Digital Innovation, Barcelona City Council, and coordinator of Canòdrom – Digital and Democratic Innovation Centre
- **Bru Aguiló**, journalist, Canòdrom – Digital and Democratic Innovation Centre
- **Esteve Almirall**, Associate Professor at Esade and Director of the Center for Innovation in Cities
- **Guillem Ramírez Chico**, advisor, Eurocities
- **Kaisa Sibelius**, AI4CITIES Project Coordinator, Forum Virium Helsinki
- **Laura Valdés**, Head of Policy, Secretariat General Team, Metropolis
- **Manel Sanromà**, Founder of CIVICAi and professor of Applied Mathematics at Universitat Rovira i Virgili
- **Mar Santamaría**, Co-founder, 300.000Km/s
- **Marc Realp**, Solutions Executive Public Sector, Capgemini
- **Marta Galceran**, Research Fellow, Global Cities Programme, CIDOB (Barcelona Centre for International Affairs)
- **Mons Badía**, President of the College of Environmental Scientists of Catalonia
- **Octavi de la Varga**, Strategic International Projects Advisor, Barcelona Provincial Council
- **Olivia Blanchard**, Senior Researcher, Digital Future Society Think Tank
- **Oscar Chamat**, Policy Officer, Metropolis
- **Pablo Martínez**, Co-founder, 300.000Km/s

- **Paula Boet**, Project Manager in digital rights, digital inclusion & AI Ethics projects, Barcelona City Council
- **Pilar Conesa**, CEO Anteverti, Curator Smart City Expo World Congress
- **Pol Morillas**, Director, CIDOB (Barcelona Center for International Affairs)
- **Ricardo Martínez**, Senior Research Fellow, Global Cities Programme, CIDOB (Barcelona Centre for International Affairs)
- **Sergi Delgado**, Municipal technician, Ecology, Urban Planning and Mobility Area, Barcelona City Council
- **Shazade Jameson**, Independent consultant, working on AI Governance with MILA Quebec AI Institute, and author of UN-Habitat's "AI and cities: risks, applications and governance"
- **Silvia Llorente**, Policy Officer, Secretariat General Team, Metropolis
- **Simona Levi**, Founder, Xnet
- **Tanya Álvarez**, Researcher, Digital Future Society Think Tank
- **Thais Ruiz de Alda**, Founder and CEO, DigitalFems
- **Xavier Tiana**, Head of International Relations, Barcelona Metropolitan Area (AMB)