CONCLUSIONS. POLICY MECHANISMS, CHALLENGES AND RECOMMENDATIONS IN URBAN AI

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L ocal governments worldwide are increasingly adopting algorithmic systems to improve the delivery of public services. However, growing evidence indicates that these systems can cause unintended harms and demonstrate a lack of transparency in their implementation. As a result, the adoption of algorithmic systems has often been accompanied by the development of guiding principles for the responsible use of AI technologies, primarily at the national, supranational or global levels. Notable examples include the OECD AI Principles (2019), the G20 AI principles (2019), the Council of Europe AI Convention drafting group (2022-2024), the Global Partnership on Artificial Intelligence Ministerial Declaration (2022), the G7 Ministers' Statement (2023), the Bletchley Declaration (2023), the Seoul Ministerial Declaration (2024), the EU AI Act (2024) or the UN Report "Governing AI for Humanity" (2024). Yet these frameworks generally provide only broad guidance on what constitutes responsible AI use, offering little practical direction on how these principles should be applied in real-world contexts.

In response to these challenges, many governments are turning to regulatory frameworks and policy tools to operationalise these principles. These efforts are fast emerging, but they vary significantly in scope and approach. Moreover, much of the existing analysis of public sector policy tools tend to focus on national-level perspectives (e.g. OECD, 2024), often overlooking the unique context and challenges faced by local governments.

This CIDOB Monograph has sought to fill this gap by identifying the main policy mechanisms and frameworks leveraged by local governments to ensure that their adoption of algorithmic systems aligns with core ethical principles such as transparency and accountability, fairness and non-discrimination, privacy protection and sustainability. This analysis is complemented by a series of case studies that illustrate how leading cities are implementing these policy mechanisms in practice, resulting in comprehensive local AI frameworks.

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In this concluding chapter, we provide a categorisation of the policy mechanisms identified throughout this publication, along with insights into which mechanisms are most commonly employed by local governments and how they align with the aforementioned ethical principles. We also discuss the challenges faced by local governments and offer recommendations for advancing towards a more responsible use of AI systems in urban environments.

1. Categorisation of policy mechanisms

Through a comprehensive review of the policy mechanisms presented across the chapters of this CIDOB Monograph, complemented by a literature review of relevant publications on policy mechanisms for local governments and/or public administrations (including reports from the Ada Lovelace Institute, AI Now Institute and Open Government Partnership, 2021; Ben Dhaou et al., 2024; Jordan et al., 2024; United 4 Smart Sustainable Cities, 2024), we have identified 14 distinct categories of policies currently being implemented by local governments worldwide (see Table 1)[1].

The criteria used to establish this categorisation were based on the primary function and objectives of the policy mechanisms. These include providing normative guidance for the development and use of AI systems, assessing the potential risks of algorithms, ensuring public access to information about algorithmic systems and holding these systems accountable.

Other possible criteria could have focused on whether the mechanisms are oriented towards internal administrative processes (e.g. guidelines for municipal staff or the creation of municipal AI commissions) or external-facing actions, such as the publication of public algorithmic registers or the imposition of bans on controversial AI applications. Additionally, our categorisation does not distinguish between AI-specific mechanisms (e.g. an AI strategy) and indirect mechanisms that contribute to ethical AI governance (e.g. data governance strategies, which, while broader in scope, are critical to AI governance due to the importance of data in AI systems).

[1].   It is important to note that the limited literature on this topic employs a range of names and terms for the various policy mechanisms, and there is no common vocabulary for their core components.

Table 1. Categories of policy mechanisms for a responsible AI governance in cities

CATEGORY	DESCRIPTION AND PURPOSE	POLICY MECHANISMS
[1] Principles, strategies and guidelines	Policy documents that offer non-binding, normative guidance on ethical principles and values for local administrations, outlining general directions for developing and using AI while managing associated risks. Though the format varies, these documents typically identify high-level policy goals and their relevance to the use of algorithmic systems by public agencies. In some cases, they also provide practical guidance for implementing these principles in the design and deployment of such systems. Ultimately, these guidelines establish normative standards that allow agencies and the public to assess the ethical use of algorithmic systems.	• Ethical AI strategies, action plans, agendas, road maps, charters, handbooks, etc. • Definition of local AI ethical principles: declaration and/or endorsement • Guidelines, playbooks and manuals on how to deploy ethical AI • Internal protocols for AI use • Non-AI specific strategic frameworks that have an impact on AI governance (e.g. digitalisation or data governance frameworks)
[2] Local regulations and laws	Tools aimed at establishing standards, laws and regulations ensuring compliance and addressing societal impacts.	• Local regulation and laws (e.g. regulations to ensure the right to justification, etc.) • Legal compliance mechanisms: to ensure compliance with regional, national or supranational normative frameworks • Regulatory standards (e.g. green AI standards, transparency standards) • Adhering to international regulatory standards • Regulation of controversial AI application: bans, moratoria, etc.
[3] Transparency and explainability mechanisms	Mechanisms for establishing public access to information about algorithmic systems and processes. They are aimed at providing information about algorithmic systems to the general public (e.g. affected individuals, media or civil society) so that they can learn about the use of these systems and demand explanations and justifications related to such use. These mechanisms can function independently or as part of broader frameworks for algorithmic accountability. It is important to distinguish public transparency mechanisms from rights to hearing and explanation, which grant individuals the right to an explanation of specific algorithmic decisions made about them.	• Public algorithm registries • Municipal website disclosing all AI relevant information • Algorithmic transparency standards • Municipal directory of procured AI tools for internal use • Requirements for source code transparency • Explanations of algorithmic logics
[4] Algorithmic impact assessment	Policy instrument used by public agencies to evaluate the potential risks and harms of algorithmic systems. These assessments aim to understand, categorise and address the possible negative effects of algorithms before or during their deployment. Algorithmic impact assessments (AIAs) build on established frameworks from other fields, such as environmental impact assessments, human rights and data protection impact assessments (DPIAs).	• Risk assessment and management procedures (including bias analysis) • Human rights impact assessments • Environment impact assessment mechanisms
[5] Audits and regulatory inspection	Audits encompass a range of practices aimed at examining how a specific algorithmic system functions. Their primary goal is to understand the system's operations and assess its performance against predefined normative standards. While audits share similarities with algorithmic impact assessments (AIAs), they have a distinct time context and are usually conducted either during or after the system's implementation. In contrast, AIAs are typically carried out before or during deployment. Audits can be performed by internal, external or third-party entities, depending on the scope and nature of the assessment. In a third-party audit, an external organisation evaluates the system based solely on its outputs. A second-party audit is conducted by an external assessor who is granted access to both the system's back end and its outputs. First-party audits are carried out by internal members of the organisation.	• Audits of algorithmic systems • Process evaluation • Self-assessment tools
[6] Human oversight, accountability, hearing and appeal procedures	Mechanisms for overseeing and holding AI systems accountable. More precisely, mechanisms that require that decisions made with the assistance of algorithmic systems follow specific procedures designed to safeguard fairness and provide avenues for individuals to seek redress in cases of biased or erroneous outcomes. These procedural safeguards create opportunities for affected individuals or groups to challenge or contest decisions that impact them.	• Internal monitoring and reporting • Human-in-the-loop requirements • Feedback and objection procedures accessible for citizens • Duties of notice of the decision and hearing to the affected parties • Duties to provide reasoned decisions and explanations of a decision • Mechanisms to ensure the right of affected parties to present evidence, appeal and challenge automated decisions

MARTA GALCERAN-VERCHER AND ALEXANDRA VIDAL D'OLEO

[7] Procurement conditions	Rules governing the acquisition of algorithmic systems by governments and public agencies are crucial for ensuring their accountable use. Many algorithmic systems used by governments are outsourced to private vendors, either through product purchases or service contracts. As a result, vendors play a significant role in the design and deployment of these systems. Terms of procurement contracts are vital in shaping the development and implementation of these systems. Specific procurement conditions, such as requirements for transparency and non-discrimination, can be applied to ensure that the systems acquired meet ethical standards and are used responsibly.	• Procurement clauses • Internal guidelines, frameworks and protocols for AI procurement
[8] Advisory and oversight bodies	Independent oversight bodies, which are intended to oversee and direct the use of algorithmic systems by public agencies. These independent oversight mechanisms are intended to ensure accountability by monitoring the actions of public bodies, and making recommendations, sanctions or decisions about their use of algorithmic systems.	• Advisory bodies: councils, committees, boards, networks, groups, etc.
[9] Alliances, communities of practice and learning groups	Mechanisms aimed at fostering cooperation and partnerships at local, national and international levels.	• Local/national/international learning communities of practice: city networks, working groups, etc. • Local/national/international multistakeholder AI collaborations: networks, platforms, coalitions, etc. • Public-private collaborations and partnership
[10] Capacity-building initiatives	Mechanisms to enhance knowledge and build skills around ethical artificial intelligence. These initiatives can target municipal staff involved – either directly or indirectly – in the design, deployment or use of algorithmic systems, as well as the general public, to promote informed citizenship and encourage broader understanding of AI ethics.	• Municipal staff training (socio-technical approach) • Municipal AI team creation • Municipal AI body: body or cross-cutting committee coordinating/overseeing municipal use of AI • Multidisciplinary approach: creation of diverse teams
[11] Promotion of local innovation, knowledge and experimentation	Mechanisms that provide space for experimentation, innovation and testing in real-world environments.	• Promotion and collaboration with local AI innovation centres, hubs and laboratories • Local AI observatories • Local AI regulatory sandboxes • Initiatives to promote and support local AI ecosystems
[12] Community engagement	Tools to involve citizens, communities and stakeholders in AI decision-making processes; fostering discussions, debates and ensuring that AI policies reflect public concerns and input.	• Public engagement: participatory processes, participatory government models, public listening sessions, promotion of spaces for reflection and debate, communication channels with the public, etc. • Public education (digital literacy) • Local AI ethics boards
[13] Data governance		• Data transparency measures such as open data portals • Data sharing mechanisms • Data rights • Data usage protocols • Data privacy: data privacy laws, synthetic data frameworks, etc. • Data governance systems
[14] Other policies and measures		• Testing frameworks and toolkits • Fiscal incentives such as tax credits, subsidies, etc. • Workforce reskilling programmes • Rating frameworks (e.g. AI star rating frameworks, green marks, etc.)

Source: Authors

2. Alignment of policy mechanisms with ethical principles

The analysis of the policy mechanisms identified throughout this publication[2] reveals that several typologies can be established regarding their alignment with specific ethical principles (see Table 2), which are discussed below.

a) **Policy mechanisms that serve to uphold particular ethical principles.** For instance, an environmental impact assessment primarily serves sustainability purposes, while a human-in-the-loop measure may uphold both the principle of accountability and fairness by guaranteeing someone oversees the correct functioning of an AI system, ultimately leaving the final decision to a human.

b) **Policy mechanisms that uphold all ethical principles.** Due to their cross-cutting nature or through customisation, some policy mechanisms can advance all ethical principles collectively. For example, policy mechanisms such as AI strategies can be customised to include all ethical principles. Similarly, an oversight committee can be tasked with overseeing privacy protection, accountability or the full range of ethical principles.

Despite their potential, not all are frequently applied by cities striving to establish ethical local AI frameworks. Some noteworthy examples among these mechanisms are:

- **Principles, strategies and guidelines**: one of the most frequently applied mechanisms by cities worldwide. Cities are consistently implementing these policy mechanisms from an ethical standpoint to provide them with a base and sense of direction. These mechanisms are particularly used by municipalities to demonstrate their willingness to commit to responsible AI deployment.
- **Procurement clauses**: since municipalities often lack the resources to develop their own in-house AI systems, another commonly applied policy mechanism are procurement clauses. They become essential and a practical go-to solution. They enable municipalities to leverage their purchasing power when acquiring AI systems while promoting ethical AI development by private sector providers.
- **Outward-facing mechanisms**: more and more cities are relying on **advisory and oversight bodies** consisting of external and independent experts who advise the municipality on ethical conundrums and oversee their use of algorithmic systems. Similarly, many municipalities are engaging in **alliances, communities of practices and learning groups** to jointly address challenges and identify ways in which to use AI safely.
- **Data governance**: while data governance may not be immediately perceived as a direct policy mechanism for AI, it lays the foundation for a correct management and safeguarding of citizens' data, and is crucial for non-discriminatory systems, making it a vital component of an ethical deployment of AI. Data governance serves as a building block, enabling data transparency, data rights protection, data privacy and the sustainable use of data for AI systems. Examples include protocols for the anonymisation of personal data, or the use of synthetic data to train AI systems, in order to solve privacy and fairness concerns.

The analysis of the policy mechanisms identified throughout this publication reveals that several typologies can be established regarding their alignment with specific ethical principles.

1. Extracted solely from the chapters (Part I) and case studies (Part II) of this monograph.

MARTA GALCERAN-VERCHER AND ALEXANDRA VIDAL D'OLEO

- **Audits**: in spite of being universally recognised by experts and civil servants as one of the most critical policy mechanisms for safeguarding ethics, audits remain underutilised. Their infrequent use is largely due to constraints imposed by private AI providers, and a lack of in-house technical capacity.

c) **Policy mechanisms not specifically associated to any ethical principle**. While not tied to any specific ethical principles, these policy mechanisms are considered key for an ethical AI deployment, nonetheless. They establish structured processes to be followed; coordinate its deployment; or provide the necessary expertise and knowledge for informed decision-making. Some noteworthy examples of these mechanisms are:

- **Internal protocols for AI use**: most cities develop internal protocols to guide their use of AI, providing step-by-step structures that facilitate its implementation by the municipality. Some cities, albeit a few, additionally complement them with comprehensive **protocols for AI procurement**. These protocols can then include mandatory impact assessments, bias analysis and other policy mechanisms to ensure respect for specific ethical principles.
- **Innovative AI centres, hubs and laboratories:** a significant number of cities collaborate, promote or have established innovative AI centres, hubs and laboratories to create practical knowledge and develop AI solutions. The research conducted by these institutions is oriented from an ethical standpoint.
- **Capacity-building initiatives:** one of the least commonly implemented mechanisms is the creation of dedicated **municipal AI teams** with the expertise to audit or develop in-house AI systems. This is primarily due to technical and financial constraints on the part of municipalities. In contrast, many have established **municipal AI bodies** tasked with coordinating AI use across departments. These bodies play a critical role in facilitating the cross-cutting monitoring of AI deployment within the municipality, ensuring a more organised and accountable approach to AI governance.

Table 2. Policy mechanisms alignment with ethical principles

POLICY MECHANISMS (PM)		Accountability and transparency	Privacy and data governance	Fairness and non-discrimination	Sustainability
[1]	AI strategies	x	x	x	x
	Local AI ethical principles	x	x	x	x
	Guidelines, playbooks and manuals	x	x	x	x
	Internal protocol for AI use				
[2]	Local regulations and laws	x	x	x	x
	Legal compliance mechanisms	x	x	x	x
	Regulatory standards	x	x	x	x
	International regulatory standards	x	x	x	x
	Regulation of controversial AI application		x	x	
[3]	Public algorithm register	x	x	x	
	Municipal website disclosing all AI relevant information	x			
	Municipal directory of procured AI tools for internal use	x			
[4]	Risk assessment and management	x	x	x	x
	Human rights impact assessments	x	x	x	x
	Environmental impact assessment				x
[5]	Audits	x	x	x	x
	Self-assessment tools	x	x	x	x
	Internal monitoring and reporting				
[6]	Human-in-the-loop	x		x	
	Feedback and objection procedures accessible for citizens	x		x	
[7]	Procurement clauses	x	x	x	x
	Internal protocols for AI procurement				
[8]	Advisory and oversight bodies	x	x	x	x
[9]	Alliances, communities of practice and learning groups	x	x	x	x
[10]	Municipal staff training	x	x	x	x
	Municipal AI team				
	Municipal AI body				
	Multidisciplinary approach			x	
[11]	Innovative AI centres, hubs and laboratories				
	Local AI observatories				
	Regulatory sandboxes		x		
[12]	Public engagement	x		x	x
	Public education (digital literacy)		x	x	x
	Local AI ethics boards	x	x	x	x
[13]	Data governance	x	x	x	x
[14]	Testing frameworks and toolkits	x	x	x	x
	Fiscal incentives (tax credits, subsidies, etc)				x
	Workforce reskilling programmes				x
	Rating frameworks	x	x	x	x

Source: Authors

Table legend: Yellow (PM aligned with a specific ethical principle or several simultaneously); Blue (cross-cutting or customisable PM that serves all ethical principles); Green (PM not associated to a specific ethical principle but relevant for a responsible deployment of algorithmic systems in general). Dark grey (PM explicitly mentioned in the chapters of Part I, see Annex I); Light grey (PM not mentioned in the chapters of Part I).

MARTA GALCERAN-VERCHER AND ALEXANDRA VIDAL D'OLEO

Regardless of their level of specificity, scope or effectiveness, policy mechanisms are not applied evenly by cities, varying in frequency due to resource constraints, technical limitations or differing local priorities. Table 3 offers a comparison of the cities included in the case studies, highlighting how frequently certain policy mechanisms are applied, which ones are most commonly employed, and which ones are rarely called upon. While we thought it relevant to offer a comparison of the cities analysed in Part II of this publication, it should be acknowledged that the conclusions drawn from the selected case studies are limited by the small size of the sample.

Table 3. Case studies comparison/most used policy mechanisms

POLICY MECHANISM		CITIES					
		BCN	AMS	NYC	SJO	DUB	SIN
[1]	AI strategies, agendas, action plans, handbooks, road maps, etc.	x	x	x	x	x	x
[1]	Local AI ethical principles	x	x	x	x	x	x
[3]	Municipal website disclosing all AI relevant information	x	x	x	x	x	x
[13]	Open data portal (data transparency)	x	x	x	x	x	x
[1]	Guidelines, playbooks and manuals		x	x	x	x	x
[8]	Advisory and oversight bodies	x	x	x	x		x
[9]	Community of practice member	x	x	x	x		x
[1]	Internal protocols for AI use	x	x	x			
[4]	Risk assessment and management	x	x	x	x		
[7]	Procurement clauses	x	x	x	x		
[12]	Public engagement	x	x	x	x		
[3]	Public algorithm register	x	x		x		
[4]	Human rights impact assessment	x	x		x		
[9]	Multistakeholder AI collaborations		x		x		x
[10]	Municipal staff training (municipal capacity-building)	x	x				x
[10]	Municipal AI body	x		x	x		
[11]	Innovative AI centres, hubs and laboratories		x			x	x
[13]	Other data governance policies (data rights, data sharing mechanisms, data protocols, etc.)	x			x	x	
[2]	Algorithm transparency standard	x	x				
[6]	Internal monitoring and reporting			x	x		
[6]	Feedback and objection procedures accessible for citizens		x		x		
[5]	Audits	x	x				
[2]	Regulation of controversial AI application			x			
[3]	Municipal directory of procured AI tools for internal use			x			
[10]	Municipal AI team creation (municipal capacity-building)		x				
[11]	Local AI observatory	x					
11]	Regulatory sandboxes						x
[14]	Testing frameworks and toolkits						x
[14]	Rating frameworks						x

Source: Authors.
Note: The list of policy mechanisms has been ordered first, by most to least frequent; second, by categorisation.

3. Challenges and recommendations

a. **There are few references on how to effectively operationalise ethical AI principles at the local level.** Most existing guidelines, studies and capacity-building programmes fail to account for the unique challenges faced by urban administrations, which are often disconnected from national strategies and policies. This gap is further compounded by the heterogeneous nature of local governments, which vary widely in terms of size, resources and capabilities.

Recommendations:

- Localise (i.e. attune to local context) regional, national or global ethical principles and AI governance policy mechanisms by creating local definitions of success and identifying local priorities.

b. **Local administrations face a significant shortage of talent and technical expertise**, a challenge that is further compounded by the global scarcity of AI professionals, making it difficult to attract qualified individuals at the local level. As a result, municipal governments often have limited understanding of the potential impacts and implications of algorithmic systems.

Recommendations:

- Prioritise capacity-building programmes as part of municipal strategies and policy frameworks for governing and regulating algorithmic systems. This should include allocating specific resources for municipal training programmes, investing in public awareness campaigns and promoting initiatives to build foundational knowledge and skills around ethical AI within public administration.
- To overcome the challenges of attracting local talent, local governments should invest in strategies that facilitate the exchange and adaptation of knowledge from local stakeholders. Additionally, establishing strong alliances and connections with knowledge-sharing networks can help bridge expertise gaps.
- Adopt a holistic approach to capacity-building by encouraging public debates and awareness-raising initiatives within local communities. These efforts should focus on educating citizens about the opportunities and risks associated with the use of algorithmic systems.

c. Ensuring the **transparency and accountability of algorithmic systems** used by local governments presents several challenges, including managing public perception and potential backlash regarding external-facing AI systems, adapting organisational culture and work practices for internal-facing AI systems, and fostering shared ownership across the public administration (i.e. AI should not be seen as the sole responsibility of the IT department).

Recommendations:

- Embed transparency as a core objective beyond just AI-specific policies. This includes fostering a culture of transparency and accountability throughout the entire AI life cycle.

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MARTA GALCERAN-VERCHER AND ALEXANDRA VIDAL D'OLEO

- Encourage the use of open-source code, which can enhance trust and allow for greater scrutiny and collaboration.
- Clarify responsibilities by designating a specific point of contact or "AI project lead" for all AI initiatives, ensuring accountability and streamlined communication.
- Create multiple feedback channels and integrate evaluations at key stages of the project to ensure continuous improvement and responsiveness.
- Allocate budget for comprehensive explanatory phases, ensuring that stakeholders, both internal and external, fully understand the AI systems and their implications.

d. Ensuring **privacy protection** presents specific challenges, including a complex regulatory landscape that local governments often struggle to navigate. Data-related issues are closely tied to policy mechanisms designed to safeguard data protection. Notably, there is a limited availability of high-quality data in urban environments, which can be attributed to several factors: inadequate data management practices, ethical concerns and risks surrounding the large-scale collection of data and poor data sharing between administrations due to the absence of unified standards and underdeveloped data governance frameworks.

Recommendations:

- Generate high-value public datasets by improving data collection and management practices to enhance data quality and utility.
- Promote interoperability and collaboration across agencies and sectors to facilitate seamless data exchange and sharing.
- Create secure and transparent frameworks for data sharing that ensure privacy protection while enabling innovation.
- Encourage innovation and experimentation within controlled environments, such as regulatory sandboxes, to test new data-driven solutions safely and responsibly.

e. Algorithmic systems may reinforce existing urban inequalities while creating new forms of discrimination, hence the importance of considering the **notion of fairness and non-discrimination** when local administration deploy AI systems. A specific challenge in this regard includes the fact that discrimination automated by AI is more abstract, opaque, difficult to detect (black boxes) and large-scale. Hence, it disrupts traditional legal remedies and procedures usually employed by local governments for detecting, preventing and correcting it.

Recommendations:

- Consider the multiple roles of public administrations – as developers, deployers and regulators – when designing initiatives to enhance the fairness and non-discrimination of algorithmic systems.
- Localise existing policy frameworks to address unintended discrimination in algorithmic systems, ensuring they are tailored to the unique challenges of urban environments.
- Embed a holistic approach to AI governance within local administrations, considering the socioeconomic impacts throughout the entire AI life cycle, from design to deployment.
- Ensure diversity among the teams involved in the design and

deployment of algorithmic systems to reduce the risk of biased outcomes and promote inclusive solutions.

f. The main challenge associated with the **environmental sustainability of AI** principle is related to the fact that AI for sustainability often clashes with the sustainability of AI. At the same time, there are few frameworks for the sustainability of AI with an urban focus.

Recommendations:

- Assess the full life cycle impact of AI systems to determine whether their benefits outweigh their environmental costs. Minimise the carbon footprint of city-wide AI deployments by prioritising energy-efficient systems, adopting green computing practices, utilising Tiny ML and powering data centres with renewable energy.
- Foster a circular economy around data centres by reducing electronic waste. Promote responsible sourcing, reusing and recycling of AI hardware. Encourage the reuse and recycling of AI technologies, data and infrastructure.
- Repurpose the energy and resources used by AI infrastructure and deploy AI systems that integrate seamlessly with existing urban infrastructure, optimising both energy use and system efficiency.

Finally, it is important to acknowledge the constraints of the research presented in this CIDOB Monograph. The study was limited by both its relatively short time frame and the challenges inherent in collecting information within the context of GOUAI (see Galceran-Vercher and Vidal, 2024). As a result, we recognise that some key examples of algorithmic policy mechanisms and governance frameworks may not be included. Furthermore, most of our evidence is drawn from policies promoted by the Global North, primarily through interventions led by local governments in the United States and Europe. This geographic focus is another limitation that future research within the GOUAI context will aim to address. We acknowledge that a more systematic analysis of governance policies and practices from the Global South could provide new insights, revealing different policy approaches, priorities and implementation challenges.

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ANNEX 1. List of policy mechanisms mentioned in the ethical principles chapters (Part I)

Ethical Principle	Policy mechanisms
Accountability and transparency	• Impact assessments [4] • Procurement clauses [7] • External algorithmic audits [5] • Algorithm registers [3] • Transparency standards [3] • Interdisciplinary governance oversight committees [8] • Participatory processes (throughout the AI life cycle) [12] • Human-in-the-loop design [6] • Civil servants' education [10] • Connect with knowledge-sharing networks [9] • Local stakeholder collaboration [9]
Privacy and data governance	• Legal compliance [2] • Risk management systems [4] • Data governance systems [13] • Impact assessments [4] • Auditing [5] • Algorithm repositories and AI registers [3] • Regulatory sandboxes [11]a • Urban AI strategies [1] • Multistakeholder collaboration [9]
Fairness and non-discrimination	• AI strategies [1] • Risk analysis and protective mechanisms [4] • Impact assessments [4] • Local AI standards for fair AI [2] • Procurement standards for fair AI [7] • Urban laws for the right to justification [2] • Multidisciplinary advisory bodies [8] • Diverse and interdisciplinary teams • Audits [5] • Mitigation techniques in AI life cycle [14] • Knowledge sharing networks [9] • Municipal training [10] • Public education [12] • Ethical principles [1] • Bias analysis [4] • Digital rights protection [14]
Sustainability	• Environmental, social and governance standards (e.g. green AI standards) [2] • Impact assessments [4] • Monitoring and auditing [5] • AI for sustainable cities consortiums [9] • Fiscal incentives: tax credits or subsidies [14] • Local AI ethics boards [12] • Urban data privacy laws [13] • Public engagement [12] • Participatory government models [12] • Digital literacy campaigns [12] • Workforce reskilling programmes [14] • AI energy star rating frameworks [14] • International collaboration [9] • International sustainability standards [2]

Source: Authors

Note: The policy mechanisms described here preserve the original wording from the ethical principles articles (Part I) and have been categorised according to the authors' categorisation provided in the concluding chapter of the Monograph. The mechanisms may not be listed under the "policy mechanism section" of the articles but may be found throughout the article itself.

MARTA GALCERAN-VERCHER AND ALEXANDRA VIDAL D'OLEO