Discover Cities

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Digital inclusion and Urban AI: strategic roadmapping and policy challenges

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1 (Re)Discovering Cities? From Smart Cities to Urban AI

In the early decades of the twenty-first century, the lexicon of urban studies was reconfigured by the pervasive invocation of the "*Smart City*" [32–35, 64]. Proponents of this vision—often anchored in technocentric imaginaries—heralded a future in which digital technologies, data analytics, and networked infrastructures would solve the intractable challenges of urban governance, service delivery, and citizen engagement [8, 36, 37, 42–45, 72, 87, 88, 113–117]. Yet, as David Harvey (2008) reminds us, urbanism is never a neutral process: it is entangled with political economy [10, 93], the exercise of power [2], and the contestation of space [39]. The so-called "Smart City" era, while promising efficiency and innovation, often obscured the asymmetries it reproduced—deepening digital divides, privileging corporate control over urban data, and underplaying the nuanced realities of human and planetary wellbeing [17].

Building on Richard R. Nelson's seminal metaphor in *The Moon and the Ghetto* (1977) and his later reflection (*The Moon and the Ghetto revisited*, 2011), the persistent question—why societies can land humans on the moon but fail to resolve entrenched urban inequalities—resonates strongly in the age of *Urban AI*. As Fountain [54] argues, this dilemma now extends to the algorithmic domain, where the promises of AI risk reproducing structural biases unless governance frameworks explicitly target systemic inequities [51]. The CIDOB report on Urban AI underscores this tension [56], warning that technological capabilities alone cannot bridge the socio-political gaps embedded in urban systems. Instead, innovation must be mission-oriented, context-aware, and equity-driven—principles that also underpinned the 2025 UIK Summer School on *Digital Inclusion & Generative AI* [24–26] held on 15–16 July 2025 in Donostia- St Sebastian, Basque Country (Spain,https://www.uik.eus/en/activity/digital-inclusion-generative-artificial-intelligence-gipuzkoa-socially-cohesive-digitally). There, municipal leaders, civic technologists, and community organisations reframed "smartness" as a means to empower marginalised populations, safeguard digital rights, and strengthen democratic resilience [19]. Reinterpreting Nelson's challenge in this light, *Urban AI* becomes not

just a frontier for technical advancement but a test of our collective will to align innovation trajectories with social justice and planetary wellbeing [67].

Today, we stand at a new turning point [20, 38, 40, 66, 68, 70, 74]. AI—particularly in its generative and urban governance applications—is reshaping the urban condition in ways that both echo and transcend the smart city discourse. This editorial introduction calls for a (re)discovery of the city, one that moves beyond instrumentalist narratives and towards what Patrick Geddes [61] might have described as a "conservative surgery" of the urban organism: a careful, participatory, and context-sensitive engagement with the evolving technological fabric of place. In this endeavour, *Urban AI* emerges not as a monolithic technological solution but as a socio-technical project—one that demands a reorientation towards digital inclusion, diversity, and human rights as foundational pillars of governance.

The transition from the "smart" to the "urban AI" paradigm is not simply a matter of upgrading the technological toolkit; it represents a deeper epistemological shift in how we conceptualise the role of technology in the city. Jane Jacobs [69], in her defence of "eyes on the street" and the organic complexity of urban life, warned against top-down interventions that disregard local knowledge and lived experience. Her critique resonates powerfully in the age of AI, where algorithmic decision-making threatens to abstract the citizen from the civic, privileging data models over democratic deliberation [105].

Richard Sennett [100], likewise, invites us to re-imagine the city as an open system—porous, adaptable, and enriched by diversity. In *Building and Dwelling*, Sennett contrasts the "closed" logics of master-planned urbanism with the generative potential of the "open city." Urban AI, if it is to be genuinely inclusive, must lean towards the latter: it must be iterative, reflexive, and attentive to the contingencies of place [25]. In other words, it must learn from the failures of the smart city, where proprietary platforms and opaque procurement processes often foreclosed civic agency [98].

2 Smart Cities, Urban AI & Digital Inclusion

While the smart city often focused on the deployment of technology *in* cities, Urban AI invites us to explore how AI systems *relate* to the multiple scales and actors that constitute the urban [5, 6, 55]. This relational perspective aligns with Manuel Castells' [39] concept of the "space of flows," where urban spaces are embedded in global networks of information, capital, and governance. In an age where AI models are trained on global datasets yet deployed in hyperlocal contexts, the tension between universality and specificity becomes a central concern. Urban AI thus raises profound questions about sovereignty, localisation, and the politics of scale—questions that Neil Brenner's [10] work on planetary urbanisation urges us to confront.

Here, digital inclusion becomes both a normative and a practical imperative [2, 15, 16, 51, 57–60]. As new forms of AI-driven governance emerge—shaping housing allocation, mobility systems, climate resilience planning, and public service delivery—the risk of algorithmic bias and the automation of inequalities looms large [108, 109, 111, 117, 118]. The challenge, then, is to embed principles of fairness, transparency, and accountability into the very architectures of Urban AI, ensuring that no community is rendered invisible or expendable in the datafied city.

The critical reassessment of the smart city agenda over the past decade has been well-documented [97, 103, 106]. Scholars and practitioners alike have highlighted its proclivity for "technological solutionism" [90], the capture of urban data by corporate actors, and the reduction of complex socio-spatial dynamics to dashboards and key performance indicators [9, 41, 63, 65, 73, 95]. In this light, the move towards Urban AI represents both an opportunity and a risk: an opportunity to integrate AI into urban governance in ways that genuinely enhance equity, and a risk that without deliberate intervention, the patterns of exclusion entrenched by the smart city will be replicated—albeit in more sophisticated algorithmic form [1, 3, 71].

Florida's [53] much-debated thesis on the "creative class" offers an instructive parallel. While the creative city policies of the 2000s sought to attract talent and foster innovation, they also precipitated processes of gentrification and socio-spatial polarisation. Similarly, Urban AI initiatives, if driven primarily by competitiveness metrics and innovation-led growth strategies, may exacerbate existing divides. To avoid this, we must ground Urban AI in a politics of care—an urban ethic that prioritises the needs and rights of the most vulnerable [50, 92].

3 Urban AI in the Context of Global Cities

Urban AI, in this context, must not be seen as an end in itself. It is better understood as a *means* to advance sustainable, inclusive, and resilient urban futures. The shift from smart cities to Urban AI offers the possibility of a more democratic and people-centred technological transition—yet, without deliberate governance design, the historical path dependencies of technocratic planning and corporate capture risk being reproduced in algorithmic form.

This is where *AI localism* becomes essential [62]. AI localism calls for embedding AI governance in the specific institutional, political, and cultural contexts of place. Rather than importing generic, one-size-fits-all AI solutions—often designed for radically different environments—cities and regions should devolve decision-making authority and foster community-centred innovation. As CIDOB (Barcelona Centre for International Affairs) has been recently reporting [56], the diversity of urban governance models for AI is well illustrated by six emblematic global city cases:

Barcelona has positioned itself as a normative counter-model, embedding *technopolitical sovereignty* into its digital strategy. Initiatives such as *Decidim,* the Municipal Data Office, and algorithmic transparency policies seek to reclaim public control over AI infrastructures. Trust here is cultivated relationally—through deliberation, citizen participation, and open-source civic technology. Yet, even in this model, the advent of GenAI poses a risk: if scaled without safeguards, it could recentralise power in technocratic governance, undermining the very participatory ethos it was built upon.

Amsterdam anchors its AI governance in public value orientation and collaborative design. Through the *Tada Manifesto* and *Algorithm Register*, developed with civil society and academic partners, it aims to operationalise transparency and equity. Its challenge lies in translating normative principles into enforceable accountability mechanisms, while remaining resilient to regulatory capture by dominant technology firms—a constant risk even in value-driven ecosystems.

New York adopts a more regulatory, audit-driven approach. With tools like the *Automated Decision Systems Task Force* and the *AI Action Plan,* the city targets high-stakes

areas such as predictive policing, housing allocation, and social services. While these mechanisms signal a commitment to oversight, they often operate as compliance frameworks rather than participatory processes, raising the question of whether institutional transparency alone can ensure genuine algorithmic accountability.

San José, situated in the heart of Silicon Valley, offers a technocratic governance model shaped by deep public–private entanglement. Here, AI experimentation is embedded in smart city infrastructures co-developed with technology corporations. While this accelerates innovation, it risks asymmetrical knowledge power, where public institutions depend heavily on corporate expertise and platforms. The absence of robust civic deliberation frameworks means that public trust is vested primarily in technical competence rather than democratic legitimacy.

Dubai represents a hypermodern, state-led approach, with AI as a central instrument in its national branding strategy. The *Smart Dubai Office* and *Dubai AI Lab* exemplify a model where trust is derived from state authority and technological spectacle, rather than participatory governance. The opacity of this model, combined with minimal civic oversight, raises concerns over the consolidation of algorithmic authoritarianism [2, 4].

Singapore integrates AI within its disciplined bureaucratic governance framework, applying predictive analytics to healthcare, mobility, and education. This *bureaucratic techno-solutionism* rests on a paternalistic social contract in which trust is institutional rather than deliberative. While the city-state's strategic foresight and operational efficiency are globally recognised, this model risks reinforcing existing asymmetries and leaving limited room for dissent or pluralism.

Taken together, these six cases show that *trustworthy AI is not a technical property—it is a political achievement* [28]. Governance models vary widely—from Barcelona's participatory infrastructures to Dubai's state-led vision—but all confront intensified tensions in the era of GenAI: opacity, centralisation, and representational inequality.

As this Special Issue underscores (https://link.springer.com/collections/bhgeijbhib), the cities and regions best positioned to thrive in the AI-driven transformation will be those that institutionalise contestability, reclaim and steward public digital infrastructures, and embed pluralism at the heart of AI governance. Urban AI—when grounded in local contexts, attentive to diverse civic voices, and resistant to purely technocratic logics—can become not only a driver of technological progress but a catalyst for renewing the urban social contract, reshaping digital inclusion, and countering the automation of inequality. This Collection examines the interplay between digital inclusion, diversity, and human rights in the rapidly evolving field of Urban AI. As AI technologies permeate urban, rural, and city-regional ecosystems, they reshape governance, reconfigure digital infrastructures, and redefine citizenship. Against this backdrop, a geopolitical question emerges in the spirit of Polanyi [93] and Schumpeter [99]: will the "great transformation" of the AI era serve to embed markets and technologies within social needs and democratic institutions [83, 96], or will it unleash a wave of creative destruction that deepens global asymmetries and digital enclosures [71]?

We particularly welcome contributions that critically assess, compare, and propose actionable strategies to bridge digital and data divides, mitigate algorithmic bias, and resist the automation of inequalities. Case studies highlighting the experiences of vulnerable populations—including migrants—and exploring policy interventions or governance frameworks for algorithmic accountability are especially encouraged. We also

invite engagement with initiatives from global city and regional networks—such as the Cities Coalition for Digital Rights, Eurocities, UCLG, and other alliances—that advance digital sustainability, AI for the public interest, data justice, and inclusive data governance. Contributions that situate these challenges within the UN's digital rights frameworks and Sustainable Development Goals (SDGs) are of particular interest.

By integrating interdisciplinary perspectives, technical insights, and policy analysis, this Collection seeks to enrich global discourse on the ethical, social, and governance implications of AI in urban, rural, and city-regional spaces. In doing so, it aims to contribute to a more inclusive, just, and geopolitically aware digital transformation that is as attentive to global power dynamics as it is to local innovation.

4 Bridging Digital Inclusion & Urban AI

The Special Issue *Digital Inclusion & Urban AI* emerges precisely at this juncture. It seeks to foreground the intersections of digital inclusion, diversity, and human rights in the evolving AI-urban nexus. Digital inclusion here is not merely about access to infrastructure or connectivity; it encompasses the ability to participate meaningfully in digital governance, to shape the rules and norms that govern data use, and to have recourse when algorithmic systems cause harm. As Dickinson [46] argued in his post-war reflections on urban reconstruction, the health of the city depends not only on its physical infrastructure but on the social contract that underpins it. In the AI era, that contract must be re-negotiated to account for the asymmetries of power embedded in digital systems [86, 101].

Ultimately, (re)discovering the city in the era of Urban AI is a collective endeavour. It requires us to question the default settings of technological progress, to resist narratives that conflate innovation with inevitability, and to insist on governance arrangements that place equity at the centre. It also demands an interdisciplinary dialogue—between computer scientists, urban planners, sociologists, lawyers, technologists, policymakers, political theorists, and the communities themselves—that can surface the trade-offs, values, and visions at stake.

5 Digital Inclusion: Between *the Moon and the Ghetto*?

In *The Moon and the Ghetto* [78], Richard R. Nelson posed a deceptively simple question: why can a society capable of sending astronauts to the moon fail to resolve persistent social problems in its own cities? This paradox remains as pressing today as it was then. We might now restate it as: why can we deploy advanced generative AI models that compose poetry, diagnose diseases, or optimise logistics in milliseconds, yet still fail to ensure equitable digital access, algorithmic accountability, and meaningful participation for the most vulnerable urban residents?

In Nelson's metaphor, the Moon symbolises spectacular, high-visibility technical achievements—projects that project national prestige and corporate dominance [52]. In our time, the Moon is colonised not by rockets but by the dazzling capacities of large language models, computer vision systems, and predictive analytics powering Urban AI [52]. The Ghetto—Nelson's term for the entrenched systemic exclusion of marginalised communities—remains, however, a space where structural inequalities are reproduced, often mediated and amplified by opaque algorithmic systems [80, 81].

This is no mere rhetorical device; it is a lived governance gap. Predictive policing technologies have reinforced racial profiling. Automated welfare eligibility assessments have deepened bureaucratic opacity. GenAI deployments in public services risk embedding exclusionary patterns into the infrastructure of everyday life. The distance between the Moon and the Ghetto has become an algorithmic gulf, underpinned by disparities in who designs, governs, and benefits from AI systems.

Bridging this gap requires more than technical optimisation—it demands rethinking the political economy of innovation and the governance of digital transformation. As Lundvall [77] and Lundvall, Joseph, Chaminade, and Vang [76] demonstrate, innovation is not an isolated act but is embedded within national and regional systems shaped by institutions, learning dynamics, and interactive networks. Porter [94] underscores that competitive advantage stems from strategically orchestrated capabilities, infrastructure, and policy. Breznitz [11] shows how political choices determine whether innovation-led growth benefits the broader public or consolidates elite advantage, while Breznitz and Zysman [13] warn that the "third globalization" challenges wealthy nations to maintain prosperity amid shifting technological geographies. Breznitz [12] reinforces that innovation must occur "in real places" if it is to generate distributed and durable benefits.

Mazzucato [84] reframes Nelson's Moon metaphor in terms of mission-oriented policy, arguing that states should actively shape markets to achieve public purpose, while in *Mission Economy* (2022) she calls for "moonshots" aimed not only at technological frontiers but at grand societal challenges—from climate resilience to health equity. Levi [75] extends this imperative to the digital realm, advocating for *democratic digitalization* to align technological infrastructures with democratic values and to institutionalise citizen control over digital futures.

Revisiting Nelson's paradox in light of Urban AI raises a fundamental question: can we reconfigure our innovation systems—national [77], regional [94], and place-based [12]—to collapse the distance between the Moon and the Ghetto? Or will the spectacular achievements of generative AI and Urban AI remain distant orbits—visible to all, accessible to few, and governed without the democratic safeguards that inclusive digital futures demand?

6 From the Moon to the Neighbourhood: Findings from the International Summer School *Digital Inclusion & GenAI* in July 2025

At the International Summer School on *Digital Inclusion & GenAI* (15–16 July 2025, San Sebastián), we confronted the central paradox of our time: GenAI's technical success can easily become governance's failure [29–31]. As Zeynep Engin stressed, without intentional design, robust governance infrastructures, and enforceable accountability, GenAI will not bridge the digital divide—it will automate and deepen it [47–49].

Keynotes and workshops—gathering municipal leaders,[1] civil society actors,[2] technologists, and scholars—framed Urban AI not as a neutral toolkit to be deployed over

[1] *Elkar Bizi*, Network of Municipalities in the province of Gipuzkoa.

[2] Six Civil Society Organizations (CSO) of the Diversity Network/*Aniztasunaren Sarea* (Migrant Communities) took the floor and the lead in the Action Research Workshop on the 16th July 2025. Particularly, the authors of this introductory extended editorial would like to acknowledge the participation of Mr Mikel Malkorra (*Elkartu*), Mr Rafa Jimenez (*Agifugi*), Ms Irati Azpirotz (*Jatorkin*), Ms Patricia Ponce (*Haurralde*), Mr Victor Torres (*Emigrados sin Fronteras*), and Ms Katia Reimberg (*Bidez Bide*). Available at: https://www.uik.eus/sites/default/files/programa/2583-en-09-julio-programa-4-3-.pdf (Accessed 1 st August 2025).

city-regions, but as a contested governance space to be negotiated with diverse publics [22, 23, 26]. Case studies from Barcelona,[3] Rotterdam,[4] and the regional governance digital inclusion framework of Wales[5] underscored that the challenge is not merely one of AI adoption, but of embedding AI within democratic, place-sensitive systems [102, 107].

Drawing on the deliberations of the *International Summer School on Digital Inclusion & GenAI* (15–16 July 2025, San Sebastián, Basque Country, Spain), three interdependent pillars emerge as critical for advancing Urban AI in ways that promote digital inclusion, equity, and democratic legitimacy.

1. **Territorial innovation governance** – AI must be embedded within place-based innovation systems that respect local democratic cultures, institutional capacities, and socio-economic realities [12]. This aligns with Engin's *Symbiotic Public Systems (SPS)* approach, in which human agents, institutions, and AI agents co-govern, combining values and dissent, structural legitimacy, and operational capacity [48, 49]. Within this framework, *data cooperatives* can serve as institutional anchors for locally owned and democratically managed data infrastructures, ensuring that data flows directly benefit communities rather than external corporate actors [14, 18, 27, 82].
2. **Algorithmic accountability as public infrastructure –** Governance mechanisms such as audits, registries, and algorithmic impact assessments must evolve into continuous, institutionalised oversight systems—akin to utilities like water or electricity—ensuring sustained public trust [25]. Engin's *Human–AI Governance (HAIG)* framework highlights the importance of dynamically managing delegation thresholds, trust boundaries, and accountability configurations as AI systems mature. Embedding data cooperatives within this infrastructure would create community-controlled data repositories, enabling more transparent algorithmic auditing and reducing the asymmetries of *data-opolies* [27, 82].
3. **Participatory design and contestability –** AI deployment, particularly in marginalised communities, must include institutionalised avenues for co-production, contestation, and the ability to shape or reject algorithmic systems. Without these safeguards, as Engin warns, AI risks becoming an instrument of surveillance and assimilation rather than empowerment and cultural preservation. Data cooperatives can operationalise this participatory ethos by granting citizens collective bargaining power over how their data is accessed, processed, and monetised, transforming residents from passive data subjects into active data stakeholders [14, 82].

This reframing resonates with Nelson's classic distinction between "Moon shots" and "Ghetto problems." Moon shots—bounded, engineering-driven projects—tend to succeed because they operate with clear objectives, concentrated resources, and political consensus. In contrast, Ghetto problems—structural inequalities, entrenched biases, and contested values—are diffuse, politically fraught, and resistant to purely technical solutions.

In the Urban AI era, bridging the gap between the Moon and the neighborhood demands governance architectures that can function at *AI speed* while remaining firmly

[3] https://ajuntament.barcelona.cat/digital/en/technology-accessible-everyone/safeguarding-digital-rights/safeguarding-digital-rights/cities

[4] https://citiesfordigitalrights.org/city/rotterdam

[5] https://www.digitalcommunities.gov.wales/digital-inclusion-alliance-wales/

anchored in democratic legitimacy. This is not simply a question of technology deployment but of designing governance models that integrate social cohesion, institutional capacity, and civic trust into every stage of AI development and application.

In this regard, in the near geographic context of the Summer School in the Basque Country, the province of Gipuzkoa (equipped with full tax-devolved powers) holds a unique opportunity to coin a novel territorial Urban AI approach, given its top-ranked position as a socially cohesive premium territory according to the European Innovation Scoreboard 2025 [7, 25, 26, 89, 91, 110].

The recent opening of the *City Science Lab Gipuzkoa*—a partnership between the MUBIL mobility center and the MIT Media Lab—positions the province as a living laboratory for the co-design of AI-enabled urban mobility systems, data governance frameworks, and participatory innovation strategies (https://www.media.mit.edu/events/city-science-lab-gipuzkoa-opening/; [104]). This collaboration can move beyond conventional smart city paradigms, embedding Urban AI within the province's rich tradition of cooperative governance, social innovation, and territorial solidarity. At present, the University of Navarre TECNUN provides the big data capabilities. It should be required to complete this knowledge cycle by embedding digital inclusion and data cooperatives with an entrepreneurial spirit [85] and reaching out to the Moon with the neighborhood by integrating embedded public policy formulations and innovation systems and institutions for equitable Urban AI that ensure digital inclusion [18].

To seize this opportunity, the Province Council of Gipuzkoa must embrace a vision of *socially cohesive digital sustainability* that actively breaks down silos between departments—including Economic Promotion and Strategic Projects, Human Rights and Democratic Culture, Strategy, and Administrative Modernization [21]. By aligning cross-departmental agendas, MUBIL's applied research capacities, and the City Science Lab's participatory modeling tools, Gipuzkoa could become a global reference point for Urban AI that is both technologically advanced and socially inclusive.

Here, urban mobility is not merely an engineering problem to be optimized but a lens for reimagining the governance of AI in the public interest—connecting the "Moon" of technological ambition with the "neighborhood" of everyday democratic life.

Consequently, data cooperatives offer a tangible pathway to achieve this—ensuring that data sovereignty, innovation, and equity are not abstract aspirations but embedded features of urban governance. The call to action is clear: without democratized data governance, Urban AI will deepen exclusion; with it, we have a chance to build digital commons that sustain both technological progress and social justice [82].

7 Strategic Roadmapping and Policy Challenges: Innovation Systems and Institutions for Urban AI

Urban AI will not fulfil its transformative potential through isolated pilot projects or fragmented technological deployments. Its governance must be rooted in robust *innovation systems*—place-based, collaborative frameworks that integrate R&D, policy, civic engagement, and market actors into a shared agenda. Drawing from Lundvall's [77] *national systems of innovation*, [84, 85] mission-oriented policy, and Porter's [94] competitive advantage framework, we argue for *territorial innovation governance* that aligns Urban AI initiatives with long-term societal missions such as digital inclusion, climate resilience, and social equity.

For Gipuzkoa, this requires *institutional interoperability*—breaking silos between the Province Council's departments of Economic Promotion and Strategic Projects, Human Rights and Democratic Culture, Strategy, and Administrative Modernization. The MUBIL–MIT Media Lab *City Science Lab Gipuzkoa* can serve as a catalytic hub, combining advanced simulation and participatory modelling to test AI applications in mobility, energy, and civic services while embedding *data cooperatives* [14, 82] as foundational infrastructures for equitable data governance.

8 A Call for Contributions that Connect the Moon with the Ghetto (and Viceversa)

In the spirit of [78, 79] challenge—why societies can achieve "Moon shots" but fail to solve "Ghetto problems"—this Special Issue seeks contributions that confront the deep governance, equity, and legitimacy challenges of Urban AI. The aim is not to merely celebrate technical milestones, but to interrogate their societal impacts, institutional contexts, and political consequences.

This Collection explores the *intersection of digital inclusion, diversity, and human rights* within the evolving landscape of Urban AI. As AI technologies—particularly UrbanAI and GenAI—become deeply embedded in urban, rural, and city-regional ecosystems, their impact on governance, digital infrastructures, and citizenship demands urgent and critical examination. Ensuring equity, inclusivity, and the protection of digital rights is more crucial than ever in the face of AI-driven decision-making that risks deepening the automation of inequality.

We invite contributions that critically assess, compare, and propose strategies to bridge digital divides, mitigate algorithmic bias, and foster algorithmic accountability. We particularly welcome *case studies* that highlight the lived experiences of vulnerable and marginalised communities, including migrants, as well as policy interventions and governance frameworks designed to address systemic bias. We encourage submissions engaging with initiatives from *global city and regional networks*—such as the Cities Coalition for Digital Rights, Eurocities, and UCLG—that align with principles of digital sustainability, AI for the public interest, data justice, and inclusive data governance.

By bringing together *interdisciplinary perspectives, technical insights, and policy analyses,* this Collection aims to advance discourse on the ethical, social, and governance implications of AI across diverse territorial contexts. It seeks to contribute to a *more inclusive and just digital transformation* of cities and regions worldwide—one that moves beyond the high-visibility "Moon shots" to grapple with the stubborn, messy, and politically charged "Ghetto problems."

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9 Key Topics include

- Digital inclusion strategies for marginalised, vulnerable, and migrant communities
- Digital rights strategies and policy formulations
- Digital/data divide and AI localism
- Innovation Systems and Institutions

- Applied economics for rural and urban communities
- Public policy and strategic change in cities and villages
- GenAI in the public sector
- Global AI challenges and dynamic threats
- Algorithmic bias, accountability, and fairness in AI governance
- AI-driven urban policies and their impact on human rights
- Ethical frameworks for GenAI in urban ecosystems
- Comparative studies on people-centred smart cities [112]
- Local, regional, and global policies on digital rights and Urban AI
- Prototypes for Urban AI for the public interest
- Regional data sovereignty stacks
- Web3 decentralised technologies: Data Cooperatives, DAOs, and Blockchain
- Digital diversity and the risks of automating inequalities
- Data justice and fair AI systems in urban governance
- Urban sustainability and the role of AI in resilient cities
- Urban, rural, and city-regional analysis
- Action research and participatory approaches to Urban AI implementation

10 Towards an Urban AI Social Contract

The transition from *smart cities* to *Urban AI* is not merely a technical upgrade—it is a reconfiguration of the political, economic, and cultural foundations of urban life. It requires a renewed *social contract* in which governments, communities, and AI systems are bound by mutual rights, responsibilities, and reciprocal obligations.

At its core, this Urban AI social contract should articulate:

- **Rights** – Digital rights, privacy, and algorithmic transparency must be upheld as *fundamental civic guarantees*, protected in law and anchored in public trust.
- **Responsibilities** – Public and private actors bear the duty to ensure that AI deployments advance equity, fairness, and environmental sustainability, avoiding the reproduction of systemic injustices.
- **Reciprocity** – Mechanisms such as *data cooperatives* and community-governed digital commons must ensure that the value generated from data returns to the people and places that produce it.

This is not an isolated regional agenda. From *Barcelona* to *Boston, Kigali* to *Kyoto,* the governance of Urban AI is emerging as a decisive arena for democratic renewal—or decline [69]. The institutional designs chosen today will determine whether AI expands civic capacity and territorial resilience or accelerates surveillance capitalism and exclusion [59].

In *Gipuzkoa,* the synergy between the *City Science Lab*'s applied research capacities and the *AI4SI* programme's territorial innovation governance agenda (led by Public Policy and Economic History department at the University of the Basque Country through the Basque Foundation for Science) offers a model for operationalising this contract. Embedding AI in place-based strategies that respect local democratic cultures, and institutionalising *symbiotic public systems* [48] in which human and AI agents co-govern, could allow Gipuzkoa to demonstrate how Urban AI can serve the public interest—not

as an extractive infrastructure, but as a generative, participatory, and democratically anchored system.

Globally, this vision resonates with Polanyi's insistence that economies must be re-embedded in social relations [93], Schumpeter's recognition that innovation's disruptive energies require institutional stewardship [99], Sennett's advocacy for cities as sites of cooperation and mutual learning [100], Castells' analysis of the network society's dual potential to empower and polarise, Brenner's planetary urbanisation framing that situates urban change within global flows of capital and governance [14], Geddes' century-old call for integrated, place-conscious urban planning [61], and Greenfield's warning that technology without democratic governance risks producing socially unintelligent systems [64]. To these, Arendt [2] adds a vital reminder (1966): techno-political life flourishes only where spaces for public action and deliberation are protected—without such spaces, technological systems risk eroding the very conditions for democratic agency.

An Urban AI social contract must therefore be about more than computational power and supercomputing centres [52]. It must be a commitment to *collective self-determination,* ensuring that technological capacity is anchored in the slow, negotiated, and deeply human work of governing cities, villages, and city-regions in the twenty-first century [23].

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Data availability
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Competing interests
The author has no conflicts of interest to declare.

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