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Normalizing Artificial Intelligence Research in Urban Planning: Pathways Toward Sustainable Cities

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Abstract

Formulating policies for the adoption of AI in urban planning must reconcile this transformative potential with widely held misconceptions and ethical challenges which hinder the responsible adoption of this important technology (Xu et al., 2018). This paper addresses the most common myths and stereotypes associated with AI in urban planning — namely, skepticism about AI being unsustainable, opaque, biased, unregulated, and discriminatory. These worries tap into larger fears about using AI as a system of control and domination over urban populations (Santiago 2025a; Santiago 2024a). Using secondary data from planning literature, AI governance frameworks in multiple jurisdictions, and a landmark 2025 global survey of 1,645 researchers across 111 countries (Frontiers, 2025), this paper employs an expository research design to analyze pathways toward the normalization of AI Research in urban planning and contextualizes these pathways to futures thinking on sustainable cities. This paper pursue five interrelated objectives: (1) conceptualize the incorporation of AI Research into urban planning as a trajectory with purposely designed governance, (2) reveal the value for AI to alter existing power relations and compel emerging modes of participatory governance, (3) elaborate on how AI Research ethics and governance related to specific countries influence these interactions, (4) advocate ways for rationalizing AI Research into more context-responsive, (5) address particular gaps in adoption of AI Research in developing nations. To conclude the study, a framework is encouraged for implementation through its integration with urban planning within the context of social-ecological futures, and an appeal for normalization in the research of AI as a useful analytical and modelling instrument toward effectively addressing some of the great societal and environmental questions of our time.

Keywords: artificial intelligence, urban planning, AI governance, participatory planning, futures thinking, developing countries, smart cities, sustainability

Vol. 11, No. 02; 2026

ISSN: 2456-3676

1. Introduction

1.1 Artificial Intelligence for Urban Governance: Opportunities and Risks

Urban planning has long been a field defined at the crossroads of science, politics and social imagination. Artificial intelligence today, therefore, represents simultaneously the most potent analytical toolkit ever made available to the planning profession and its greatest governance challenge. AI-powered tools are being used by municipalities for traffic optimization, zoning analysis, land use modelling, and disaster risk mapping, as well as citizen engagement platforms throughout Asia, Latin America, Africa and the Global North. Examples from China (e.g., social credit systems), Singapore (e.g., Smart Nation), South Korea (e.g., smart city pilots in the new city of Sejong), and India (e.g., Smart Cities Mission) recognize the scale and aspiration behind AI-enabled urban governance (Xu et al., 2018).

The kicker — and something that both corroborates and complicates the appeal to normalize AI in urban planning — is the revolution also taking place in academic research itself. An unprecedented 2025 global survey of 1,645 active researchers in 111 countries by Frontiers Media (2025) showed over half of all peer reviewers (53%) now use AI, with one in four reviewers reporting their personal use of it in peer review had increased in the prior twelve months (Frontiers, 2025). This is not just a fringe or experimental development, it is a structural change to the very epistemology — to the knowledge production, curation, and validation — that urban planning has relied upon. The implications of AI for evidence-based urban planning are correspondingly profound, as the very way science is assessed is changing.

However, this quick spread largely has happened in the absence of strong normative structures. The result has been an ever-widening gulf between the rhetorical promise of smart cities and the lived realities of communities subjected to algorithmic governance systems of unproven design and uncertain accountability, which they cannot interrogate or scarcely challenge. This gap is particularly critical in developing countries where rapid urbanization continually outstrips institutional capacity, the professional practice of urban planning is still in its infancy, and the technical infrastructure necessary for effective deployment of AI for urban planning often does not exist (Santiago, 2025a). That governance gap is not special to planning, as the Frontiers (2025) survey confirms: worldwide, 20 percent of researchers (free-text responses) point to lack of guidance or murky rules as their leading barrier to responsible AI use.

1.2 Purpose and Scope

In response, this paper proposes a framework for normalizing AI Research in urban planning — for the integration of its research use into planning practice in a way that is principled, sensitive to context, and accountable to the democratic body politic. Based on earlier work in governance integrity, participatory planning, e-governance, and land use management — both theoretically (Santiago, 2018; 2024a; 2024b; 2024c; 2025a) and empirically (Frontiers, 2025) — this paper makes an interdisciplinary case study for AI governance frameworks that are both technically sound, and humanistically-informed.

Vol. 11, No. 02; 2026

ISSN: 2456-3676

2. Literature Review

2.1 The Landscape of Misconception

Discourse around AI in urban planning often fall into two equally problematic extremes — uncritical techno-utopianism, which portrays AI simply as a neutral optimization engine and solution to the intractable wicked problems of the city, and technophobia, which frames AI as an inherently evil technology that inevitably reinforces existing oppressive power structures. Neither position is sufficiently coherent, and each obstructs reasoned statecraft.

The first misconception to dispel is that AI is a single and deterministic technology. Instead, AI represents a family of varied approaches to computation — machine learning, natural language processing, computer vision, agent-based modelling, neural networks — each exercising different strengths and limitations and producing different effects when applied in planning environments. Among researchers who reported use of AI in peer review in a recent survey (Frontiers (2025)), 59% relied on it primarily for report drafting, 29% for findings summarization, and 28% for mis-conduct detection— but only 19% utilized it for the more analytical roles of methodological evaluation and statistical soundness assessment. This surface-use-versus-deep-potential dynamic is directly reflected in urban planning practice, where AI is primarily applied for presentation and communication tasks instead of the complex analytical modelling and equity assessment tasks where the transformative impact of AI would be maximal.

Second misconception is that this is the first time AI is used in planning. Database management, logical programming, and algorithmic decision-support principles have been embedded in planning information systems for decades (Santiago 2024a). Geographic info of systems, traffic simulation models, and land suitability analysis tools are forerunners of present-day planning AI. What makes modern AI novel is not the fact that computation can aid in planning, but rather the scale of data it can process, and the complexity of the patterns it is able to detect.

Third — and most dangerous — misconception is that AI is unbiased. The values, assumptions, and historical patterns of the designers and training data are encoded in algorithms. And if the data that planning is based on is decades of housing policy that have discriminated, exclusionary zoning or public investment that has been biased, then AI systems trained on that data will replicate and potentially compound those inequities. A survey from Frontiers (2025) captures this unease among researchers — 71 percent were concerned about AI tool misuse by researchers; 53 percent had personally observed what they believe to be AI misuse by peers and 45 percent were worried about misuse by publishers. The underlying issues — unbounded algorithmic prejudice, inadequate oversight, and intentional disinformation — map directly to urban planning scenarios where AI tools can replicate past biases through redlining, replace site engagement, or justify development choices made in advance with no valid analytic purpose.

Vol. 11, No. 02; 2026

ISSN: 2456-3676

2.2 AI Research Overview as a Planning Technique

It is vital to draw a line between AI as a tool for governance in our cities which is wielded by the city administrations and AI Research as a methodologic resource for planners and researchers. Natural language processing enables us to extract information and trends from large corpora of planning documents; machine learning assists in finding patterns in demographic, environmental, and mobility data; agent-based modelling allows us to simulate urban system dynamics under various policy scenarios; and computer vision enables the automatic extraction of information from satellite and street-level imagery. These represent the methodological arsenal, which will lower the expertise bar for planning practitioners in low-resourced settings, who can be more disadvantaged in the access of truly sophisticated analysis of urban space.

An insightful research insight from Frontiers (2025) that 70 percent of researchers using AI to co-author a paper use AI solely for writing quality control — grammar, clarity, formatting — and under 25 percent use AI for conceptual design, analysis or methodology identifies precisely what must change regarding AI normalization in urban planning. Frontiers (2025) also point out that AI is most powerful not in ubiquity but in smart, analytical application. For urban planning, this means transitioning from AI as a visualization tool to AI as a co-conspirator in land use scenario modelling, equity impact analysis, participatory data analysis, and climate adaptation planning.

3. Findings and Discussion

3.1 AI as an Instrument of Governance Control

When critics of AI in urban planning object to the use of AI for mass surveillance, they are not entirely wrong. In turn, smart city discourse has been widely criticized for emphasizing efficiency above equity, technical optimization above democratic deliberation, and the interests of corporate tech vendors above those of cities (Hollands, 2008; Kitchin, 2014). AI systems are increasingly used to monitor public space, including by tracking where informal vendors work, or whether social services are allocated using an opaque scoring system, which enables technologies of governance to extend the arm of state power over urban populations.

The trust dynamics recorded in Frontiers (2025) unveil a structural issue with direct implications for urban planning. Although researchers view AI as improving the quality of their manuscripts (63 percent reported improved manuscript quality), researchers are also questioning the integrity of AI (52 percent said they doubted the integrity of the work due to AI use). Even where AI usage was of no negative consequence, the opacity of its use nurtured distrust, with 76 per cent of researchers unaware or unsure of having been subjected to publisher-deployed AI. However, a similar dynamic occurs with urban planning: when communities are faced with AI-generated or AI-assisted zoning recommendations or development impact assessments that they cannot understand, distrust ensues. Corruption as well as algorithmic black boxes create opacity in governance systems that diminishes the democratic legitimacy of planning decisions (Santiago, 2018; Santiago, 2024b).

Vol. 11, No. 02; 2026

ISSN: 2456-3676

3.2 AI for More Participatory Governance

But to limit the frame of investigation or public discourse to AI as a tool of the state would be to miss its potential as a tool for expanding participatory democracy in planning. Recent metrics reported in Frontiers (2025) reveal informative patterns: it appears that the adoption of AI is highest in peer review among China (77 percent) and Africa (66 percent); with researchers portraying AI as a leveller — to write, translate and report at higher accuracy — enabling non-native English speakers to lower barriers to participating in global science. Such an equalizer dynamic presents relevance for urban planning participation — from AI-based translation tools enabling participation from smaller linguistic minority groups, AI analysing social media data revealing issues of communities typically underrepresented within formal consultation settings, or visualizations produced by AI making complex planning scenarios accessible to non-tech savvy community members.

Santiago (2025a) argues for participatory planning intersecting the technical analytical layer with community agency — slicing through complex urban data and rendering urban conditions into formats that communities can interrogate, critique, and operationalize. The conclusion that AI serves to equalize opportunities for researchers with lower English language capacity implies a similar route for urban planning: the provision of AI tools to aid participatory planning initiatives with linguistic and cultural accessibility baked into their key principles could vastly extend the demographic reach of such participatory planning processes within multilingual cities such as Metro Manila, Toronto, or Nairobi.

The nature of AI — as a governance control tool or participatory governance tool — is not given by technology, it is a function of power relations, design choices and governance arrangements. Thus, the normalization of AI Research in urban planning must come with a political promise that these tools will be conducive to equity and participation — and that reliable mechanisms for accountability are in place to give life to that promise.

4. AI Governance Frameworks

4.1 Each Level of AI Governance Architecture

In the last ten years, an exponential rise in the number of AI ethics frameworks at the international, national and sectoral levels. UNESCO's Recommendation on the Ethics of Artificial Intelligence (UNESCO, 2021), the OECD Principles on AI (OECD, 2019), the European Union's EU Artificial Intelligence Act (European Parliament & Council of the EU, 2024), the Model AI Governance Framework of Singapore (PDPC & IMDA, 2020) and China's New Generation Artificial Intelligence Development Plan (State Council of the People's Republic of China, 2017) come in different architectural forms — embodying divergent political philosophies, institutional traditions and developmental priorities.

These various frameworks point to similar overarching themes: transparency and explainability; fairness and non-discrimination; privacy and data governance; accountability and redress; safety;

Vol. 11, No. 02; 2026

ISSN: 2456-3676

and human oversight. In a survey published in Frontiers (2025), only 21 percent of researchers said that AI used by publishers increased their confidence in the publication process, and 66 percent (is from n=317 subsample) not all researchers accepted that AI works well on speeding up the publication. The main takeaway is that trust follows transparency — AI enhances science and planning practice only when it is seen, accountable, and held to explicit standards (Frontiers, 2025; Santiago, 2024b).

This has been formalized as Six AI Governance Pillars for research and publishing by Frontiers (2025): (1) Transparency and Accountability; (2) AI Literacy and Capacity Building; (3) Ethics and Integrity Guardrails; (4) Equity and Access Governance; (5) Community Engagement and Researcher Feedback; and (6) Advocacy and Policy Leadership. Based on OECD, UNESCO, NIST, ISO, and EU AI standards, these pillars offer a framework that urban planning governance systems could adopt.

4.2 The Philippines: A Case of Emerging AI Governance

The Data Privacy Act of 2012 (Republic Act 10173) provides a legal framework for the protection of personal data in the Philippines but the implementation of this law in the context of AI-powered urban planning systems remains mostly uncharted. Urban governance is listed as a top AI solution area in the AI Roadmap of the Philippines (2021) but the document provides little specific direction on the use of AI from ethical and accountability perspectives. Philippine AI governance frameworks also still do not meet the standard of an integrated approach to land-use governance, which emphasizes sustainability, social equity, and technological advancement in a chosen local context (Santiago, 2024c).

The training gap data from Frontiers (2025) speak to the urban planning context in the Philippines, where 35 percent of researchers are completely self-taught in AI, 18 percent do nothing to guarantee best practice at all, and simply 16 percent receive training through publishers. Philippine local government planning officers encounter a similarly fractured environment — no uniform training on AI literacy among environmental planners, no regulatory board indicating standards on AI applications in comprehensive land use planning, nor institutional design to hold accountable local planners for AI-assisted planning choices.

4.3 Moving Towards Context-Sensitive AI Ethics

A context-sensitive perspective on AI ethics in urban planning starts with understanding that ethical frameworks are not neutral with respect to culture or institution. At the regional level, the Frontiers (2025) analysis is telling: adoption is highest when AI is cloaked in equalizer language (i.e. China and African nations) and lowest when the focus is on bias, misuse and transparency (i.e. Europe and North America). They embody culture-specific framings of particular dimensions of AI as they relate to issues of expertise, authority, and community — all things which the governance frameworks debate in urban planning must reckon with in non-Western contexts, instead of simply identifying them as deviations from a monoculture of practice.

Vol. 11, No. 02; 2026

ISSN: 2456-3676

The generational divides observed in Frontiers (2025) — with 87% of early-career researchers using AI compared with 67% of senior researchers, and senior reviewers representing the only group where a majority (55%) reported never having used AI in peer review — have direct parallels in planning practice. Successful normalization strategies will have to satisfy newly enthusiastic early adopters, who need governance guardrails, as well as seasoned practitioners, who need trust-inspiring proof points and structured exposure to the analytical capabilities of AI.

5. Challenges in Developing Country Contexts

5.1 The Technical Capacity Deficit

A primary limitation in the uptake of AI Research approaches to urban planning in developing countries is the divide between the technical capacities needed to truly leverage these tools and the capacities which truly exist within planning institutions. Most practicing urban planners in the Philippines do not possess computational skills to design, train, or validate a machine learning model or to validate an AI system not designed by them. Although the professional education system for environmental planners is deep and broad in land use law, physical planning, and environmental policy, it has yet to prepare environmental planners with the AI literacy needed to succeed in the 21st century.

Training gap data from the Frontiers (2025) project offers a compelling baseline across sectors. In fact, the global research community — which has far better access to AI training resources than most planning institutions — has only a 16 percent publisher-trained, 31 percent institution-guided, and 35 percent entirely self-trained population of researchers. The task facing resource-poor municipal planning departments in rapidly urbanizing cities is orders of magnitude more difficult. Frontiers (2025) describes this as a disconnected learning ecosystem without common frameworks or common standards — a description that applies to Philippine local planning. AI literacy needs to be a formal, board-tested competency for licensed environmental planners, rather than a certified professional competency built on self-teaching and ad hoc exploration.

5.2 The Data Deficit

AI systems are only as good as the data they are trained on and utilized against. Data are scarce everywhere, but the absence of reliable data is often more pronounced in developing countries than elsewhere, including in the context of urban planning. Demographic data is incomplete, stale, or coarse in space. Land use records are often not harmonized between agencies or levels of government. With a large segment of the urban population in Philippine municipalities situated in informal settlements, this inequitable grouping is also systemically sidelined from authoritative data systems.

These data gaps are not just a technical issue; they are a political one. Decisions around what data to collect, how to classify it, and how to make it available are decisions about which urban realities are legible and worth knowing. This concern about unchecked bias due to training data

Vol. 11, No. 02; 2026

ISSN: 2456-3676

(Frontiers, 2025) is particularly relevant in this context: when AI systems are trained on officially collected data that systematically leaves informal settlements, indigenous communities, or mobile populations out of account, the analyses they generate will reproduce and arguably exacerbate such exclusions. Therefore, the normalization of AI Research in urban planning must go along with large investment in participatory data gathering and community-based data — what some scholars have referred to as data justice (Taylor, 2017).

5.3 The Institutional and Governance Deficit

There is also a significant issue of whether the institutional and governance frameworks are sufficiently strong to ensure AI tools are deployed responsibly — representing perhaps the most basic limitation of AI Research uptake in developing country urban planning contexts. The governance gap findings from Frontiers (2025) have sobering implications across sectors: with 20 percent of responders (free-text responses) in the global scientific community citing lack of governance or unclear rules as their greatest top barrier to responsible AI use, the governance deficit in Philippine urban planning must be more acute still.

Frontiers (2025) also notes that some policies actively inhibit exploration — the very ambiguity and restrictive nature of some rules disincentivize responsible AI use in the first place instead of empowering it. A similar dynamic plays out in Philippine planning, where unclear regulations may deter the responsible application of AI in comprehensive land use planning. In the absence of institutional capacity, the stage is set for governance washing: the onboarding of AI solutions dressed as smart city innovation, with the safeguards necessary to ensure public interest use delegated elsewhere (Santiago 2024b).

6. A Framework for Normalizing AI Research in Urban Planning

6.1 What Normalization Means — and Does Not Mean

The idea of normalizing AI Research in urban planning needs careful explanation. Normalization is just the first step on the road to confident adoption (Frontiers 2025). For urban planning, normalization implies embedding AI Research into the ordinary methodological toolbox of planning practice — next to GIS, statistical analysis and participatory mapping — at a level that is conceptually rigorous, technically adequate, ethically reflective and democratically legitimized. It means deconstructing AI Research into a methodology that can be taught, learnt, assessed and refined: not a black box provided by technology firms, but a toolbox that planners can enter, reflect upon, adapt to their local and national contexts, and hold to the highest professional standards.

Importantly, Frontiers (2025) shows that normalization without governance leads to window-dressing adoption without impact. The historical experience of the research community — where the dual reality of widespread acceptance but low trust, little formal training, and fragmented governance exists — can serve as a cautionary model for urban planning AI integration. The

Vol. 11, No. 02; 2026

ISSN: 2456-3676

objective should be confident and purposeful adoption driven by strong governance, not just technical imitation.

6.2 Six Principles for Normalized AI Research in Urban Planning

Based on literature on governance integrity, participatory planning, the role of e-governance in planning and management of land uses (Santiago, 2018; 2024a; 2024b; 2024c; 2025a) and the empirical evidence provided by Frontiers (2025), this paper advances six principles that would facilitate the normalization of AI Research in urban planning.

Principle 1 — Transparency. Urban planning requires that AI Research methods are documented in enough detail for independent assessment, including the sources of the models, constructed model architecture, validation methodology, and the limitations and uncertainties of outputs. Finding from Frontiers (2025) showing 76 percent of researchers feel unsure if they have encountered publisher-deployed AI makes apparent the trust cost of opacity. For AI-informed urban planning, plain-language disclosure of how AI was used and what its outputs did and did not suggest must accompany zoning decisions, environmental impact assessments, or development approvals.

Principle 2 — Equity by Design. Equity should be a primary consideration at the design stage when architecting AI Research tools in the domain of urban planning, not bolted on later. Equity and Access Governance is the fourth of the governance pillars put forward in Frontiers (2025) — hence the call for embedding fairness at every level of AI uptake, upon equitable access across disciplines, regions, and institutions, and in support of linguistic and cultural inclusion in science. In urban planning, this translates to auditing outputs of AI for differential impacts by demographic group and providing timely and accessible redress to communities harmed by AI-informed urban planning decisions.

Principle 3 — Participation. AI Research needs to complement, rather than substitute, participatory planning processes. It is crucial for communities to participate in decision making about the types of AI tools, the questions those tools are answering, and how to interpret and act on the results. This resonates with the fifth pillar of governance set forth by Frontiers (2025) — Community Engagement and Researcher Feedback — which holds that AI policies should be collaboratively developed and iteratively updated through dialogue with stakeholders. Likewise, community AI literacy programs and participatory AI design methodologies are essential complements to any urban technology deployment strategy (Santiago, 2025a).

Principle 4 — Accountability. AI-informed planning decisions should have clear lines of accountability. If an AI system generates an output that is being used by a human planner, who then acts on that output in a way that affects a community, the planner is responsible for the outcomes — to that community, to oversight bodies, and to professional standards bodies. As Frontiers (2025) makes clear: the answer is not to avoid or fear AI; the answer is to safeguard the

Vol. 11, No. 02; 2026

ISSN: 2456-3676

systems that surround AI. This entails governance design — especially algorithmic transparency and institutional capacity building (Santiago, 2024b) — as much as algorithm design.

Principle 5 — Contextual Responsiveness. AI Research methods and governance instruments have to be context-specific depending on the institutional, cultural, and developmental context where the research is taking place. The Frontiers (2025) regional analysis — showing that the drivers and barriers to realization of AI adoption differ in magnitude and combination across China, Africa, Europe and North America — reaffirms the need to tailor governance as opposed to a one-size-fits-all approach. Philippine urban planning AI governance structures must be responsive to Philippines institutional realities including decentralized local government, an emergent professional AI literacy, fragmented data systems and a planning culture formed through the interface of formal law, political negotiation and community practice.

Principle 6 — Continuous Learning and Adaptation. Both AI systems and the governance frameworks that regulate them are works in progress that require constant observation, evaluation, and revision once the impacts of their effects. Frontiers (2025) suggests that living governance frameworks should evolve over time in response to continuous community feedback, calibration of effect and technological adaptation. Planning institutions will need to create the infrastructure to monitor the long-term effects of decisions made using AI-assisted planning and ensure there are channels for communities to raise issues and for planners to improve practice.

6.3 Flexible Governance Mechanisms

The stakeholder-specific recommendations from Frontiers (2025) provide an architecture that urban planning can adapt. It recommends educators and research institutions include AI literacy in core curricula, establish certified training frameworks, track training impact, and hold practitioners accountable for responsible AI use. Managing environmental change in the age of AI directly translates to planners and planning schools: AI literacy must be included in environmental planning board exams, in certified professional development programs, and as a requirement in continuing education for licensed environmental planners.

These recommendations require transparency on the use of AI among funders and policymakers (Frontiers, 2025), enhanced data provenance systems, and systems to align standards across institutions. For planning authorities and national government agencies, this entails mandating declaration of the use of AI in all features of formal planning outputs, creating shared data infrastructure for land use underpinned by AI analysis, and mainstreaming the harmonization of AI governance standards across the national planning system.

Frontiers (2025) calls for tool developers and providers to be transparent about how their tools work, what the limitations of their tools are, independent auditability, ethical and safety guardrails, and living transparency. This applies directly to the emerging distribution of AI planning tools — from satellite image interpretation tools to deep-learning-supported

Vol. 11, No. 02; 2026

ISSN: 2456-3676

comprehensive plan generators — with marketing claims that frequently exceed their proven performance in planning tasks.

7. Futures Thinking, Smart Cities, and the Long Arc of AI in Urban Planning

Urban planning has always been futures-related — as a practice dedicated not only to managing conditions unfolding in the present but bringing into reality the places that future generations will enjoy or escape. Incorporating AI Research into planning accelerates the potential and obligation of this futures lens. A critical complement to AI Research are futures thinking methodologies — scenario planning, backcasting, horizon scanning, participatory futures design. AI is great at recognizing the patterns in historical data and extrapolating them into short-term trend predictions, whereas futures thinking provides the enabling, imaginative, and normative frameworks for questioning what sorts of futures we would prefer, and how planning can facilitate this.

Just in time for urban planners, the conclusion of the Frontiers (2025) paper applies perfectly: the best way forward is not to hesitate, but to functionally and responsibly integrate AI as quickly as they can. The aim is to accelerate the transitional period characterized by disparate adoption and reach an advanced, normalized application of AI which enhances both integrity, accessibility, and impact to science, and — as much — urban planning practice. It calls for a scenario-based imagination to chart a path of planning futures ranging from business-as-usual trajectories of AI deployment to transformative visions that leverage AI to protect ecosystems, ensure equitable housing, and promote deliberative governance.

The smart city idea, despite its many shortcomings, offers a lean organizing framework. The smart city is, at its best, not a technocratic daydream of algorithmic governance, but an aspiration of cities that wield data and technology as tools to serve undeniably human ideals — equitable access to services, environmental sustainability, democratic participation, and social well-being. Delivering this outcome will demand governance frameworks as nuanced as the technologies they govern — and a planning profession that is simultaneously technically literate and politically committed to serving the communities that put their trust in them.

8. Conclusion

In sum, a multi-layered exposition regarding the normalization of AI Research in urban planning — from the level of urban planning theory, through governance ethics, to empirics from the global research community, and citation to prior scholarship around governance integrity, participatory planning, and land use governance (Santiago 2018, 2024a, 2024b, 2024c, 2025a).

This argument is largely based on the Frontiers (2025) global survey of 1,645 researchers — an invaluable cross-sectoral empirical foundation. The report's key takeaway — that AI adoption is moving fast, but that trust, training and governance gaps are holding back real impact — aligns perfectly with the realities of AI adoption in urban planning. These figures characterize a process

Vol. 11, No. 02; 2026

ISSN: 2456-3676

of normalization proceeding without sufficient governance, training, or accountability — and which is creating serious trust deficits as a consequence.

Several conclusions emerge especially strongly. First, the normalization of AI Research in urban planning is both necessary and possible — but only where closely matched by equally serious engagement with governance, accountability, and equity. Second, the challenges AI research adoption faces in developing nations are those linked with institutional and developmental context requiring context-specific solutions. Third, the planning profession has the knowledge and the moral imperative to take the lead in urban AI governance — shaping how AI tools are designed, developed and assessed in pursuit of central professional ideals. Fourth, by moving beyond the work of AI Research, futures thinking can point to a planning practice that achieves greater analytical power at the same time as democratizing its grounding. Fifth, AI in urban planning is first and foremost a political challenge that requires transparent, accountable, and inclusive AI governance frameworks to solve the democracy deficits in contemporary urban sustainability governance.

As concluded in its clarion call to the scientific community in Frontiers (2025) it does not demand caution, but leadership. This leadership, for the urban planning profession, means exercising the same governance over the role of AI in planning practice that the profession itself at its best exercises — rigorously, equity-aware and with democratic accountability — over the cities it serves.

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