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INSTITUTIONAL CAPACITY AND DATA GAPS IN U.S. URBAN PLANNING RESEARCH: A SYSTEMATIC REVIEW OF BARRIERS TO EVIDENCE-BASED HOUSING AND LAND-USE POLICY IN DIVERSE COMMUNITIES

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ABSTRACT

The shift toward evidence-based policymaking in U.S. urban planning has underscored the need for robust institutional frameworks and reliable data systems to inform housing and land-use decisions. Yet, despite decades of reform, significant disparities persist in how local governments generate, interpret, and apply evidence to urban policy, particularly in diverse and underrepresented communities. This systematic review, conducted in alignment with PRISMA 2020 guidelines, examines the institutional and data-related barriers that constrain evidence-based urban planning in the United States. Literature searches were performed across five major databases, Scopus, Web of Science, Urban Studies Abstracts, Google Scholar, and PubMed, covering the period 2003–2026. A total of 30 studies meeting the inclusion criteria were reviewed, encompassing empirical, theoretical, and policy analyses. Data extraction and thematic synthesis focused on institutional capacity, data governance, and policy translation. Four major themes emerged: (1) institutional fragmentation and weak coordination across planning agencies that limit policy coherence; (2) persistent data gaps and poor interoperability of geospatial and administrative data systems; (3) inequitable representation of diverse communities in both datasets and decision-making structures; and (4) limited translation of research evidence into actionable policy due to inconsistent quality assessment and knowledge integration mechanisms. The findings highlight that institutional reform, open data infrastructure, and equity-centered governance are essential for advancing evidence-based urban planning. Strengthening interagency collaboration, standardizing urban data frameworks, and embedding inclusive data practices can enhance planning transparency and policy responsiveness across U.S. municipalities.

KEYWORDS: *Institutional Capacity, Data Gaps, Evidence-Based Policy, Urban Planning, Housing, Land Use.*

1. INTRODUCTION

Over the past two decades, urban planning in the United States has undergone a gradual shift toward evidence-based policymaking, an approach that prioritizes empirical research, data analytics, and systematic evaluation as foundations for decision-making in housing and land-use policy (Krizek et al., 2009). This shift is motivated by the increasing complexity of urban challenges: housing shortages, spatial inequities, climate risks, and uneven local governance capacities. Planners and policymakers are under pressure to justify policy interventions with measurable evidence rather than intuition or political ideology (Schwartz, 2021). However, the capacity of U.S. institutions to operationalize evidence-based planning remains constrained by fragmented governance structures, inconsistent data infrastructures, and inequitable access to reliable information (Schwartz, 2021). In the U.S. context, institutional capacity is a key factor in determining whether local and regional planning agencies can effectively translate research into practice (Head & Alford, 2015). This capacity includes administrative resources, professional expertise, interagency coordination, and the ability to interpret and apply research evidence to complex, localized issues (Sanderson, 2002). Schwartz (2021) highlights how the decentralized nature of American housing governance, spread across federal, state, and municipal jurisdictions, often results in duplicated responsibilities, inconsistent regulatory frameworks, and gaps in accountability (Davoudi, 2006; Oliver et al, 2014). This fragmentation undermines the systematic integration of empirical evidence into zoning, land use, and housing supply decisions. Similarly, Greene and Ellen (2020) demonstrate that local governments face structural barriers in implementing inclusive zoning and equitable housing reforms, as entrenched political and institutional arrangements often favor exclusionary practices over data-informed adaptations.

Data availability and quality are central to effective evidence-based urban planning, yet many U.S. cities continue to face major infrastructure and capacity gaps. Reliable, interoperable, and disaggregated datasets are essential for informed decision-making, but fragmented systems impede coordination across land use, housing, and transportation (Attah et al., 2024). Rosero et al. (2025) highlight how inconsistent data infrastructures undermine resilience planning, while Ye et al. (2021) show that poor data interoperability limits the potential of GIS and AI applications in urban design. These deficiencies are institutional as much as technical; weak governance and

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poor coordination perpetuate inadequate data generation and sharing (Johnson et al., 2015; Ravensbergen & El-Geneidy, 2023), and the absence of methodological rigor and standardized evidence assessments further limits institutional learning and policy innovation.

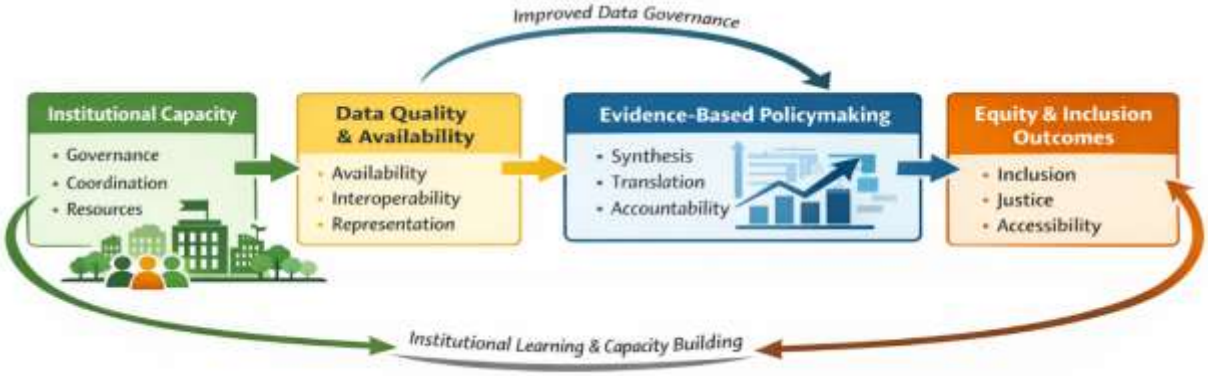
These systemic weaknesses also have deep equity implications. Historical zoning, lending, and infrastructure biases continue to marginalize low-income and racialized communities (Greene & Ellen, 2020). Incomplete or non-disaggregated data often exclude community perspectives, reinforcing invisibility in planning (Schilling et al., 2022). Wealthier jurisdictions benefit from advanced data tools, while under-resourced municipalities, especially those in marginalized areas, and struggle to sustain basic planning capacities (Scott, 2026; Curran-Groome et al., 2022). Consequently, data-driven governance remains uneven, reinforcing rather than reducing inequality.

This systematic review situates these challenges within the broader discourse on institutional capacity and data governance in urban planning. By synthesizing evidence from 2003 to 2026, the review identifies how institutional and data-related barriers jointly constrain the transition toward evidence-based housing and land-use policymaking in the United States. The analysis draws on a diverse corpus of scholarship encompassing decision science, public administration, GIS, and AI in urban systems, and planning for resilience and equity. In doing so, it contributes to a growing recognition that data quality and institutional readiness are foundational, not peripheral, to achieving equitable and evidence-driven urban development.

2. CONCEPTUAL FRAMEWORK

This review adopts an integrative conceptual framework linking institutional capacity, data gaps, evidence-based policymaking, and equity outcomes. Each concept is interdependent and collectively shapes the quality of urban planning and governance in U.S. cities (Head, 2010).

Figure 1. Conceptual Framework Linking Institutional Capacity, Data Quality, Evidence-Based Policymaking, and Equity Outcomes



Source: Author's Construct, 2026

Institutional capacity encompasses the organizational structures, resources, technical expertise, and coordination mechanisms that enable effective policy design and implementation. High-capacity institutions are characterized by adaptive learning, interdepartmental communication, and data-informed decision-making. Conversely, fragmented institutions with limited technical resources struggle to evaluate and act on empirical evidence (Schwartz, 2021; Galego et al., 2024; Rydin, 2007). Data gaps include missing, incomplete, or non-interoperable datasets that limit the ability to analyze housing, land use, and environmental conditions accurately. These gaps arise from both technical limitations (lack of data infrastructure, outdated systems) and institutional factors (poor coordination, restricted data sharing). Attah et al. (2024) and Rosero et al. (2025) demonstrate that weak data governance undermines resilience planning, while Drici and Carpio-Pinedo (2025) highlight the need for AI-ready, standardized urban data systems. Evidence-based policy refers to the systematic integration of empirical data, research, and evaluation into policymaking. In urban planning, this entails using quantitative and qualitative evidence to guide zoning, development, and housing decisions. However, Ravensbergen and El-Geneidy (2023) note that planning often lacks standardized methodological quality controls compared to other policy sectors, leading to inconsistent application of evidence. Equity refers to the fair distribution of opportunities, resources, and outcomes across diverse communities. Inclusion emphasizes meaningful participation and representation in planning processes. Equity is not only a normative principle but also a practical outcome of how data and institutional systems are structured. When marginalized groups are excluded from data

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collection or planning processes, evidence-based policy risks reinforcing existing inequities (Greene & Ellen, 2020; Schilling et al., 2022; Pawson, 2006).

3. METHODOLOGY

3.1 Protocol and Reporting Standard

This review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021). PRISMA 2020 ensures transparency, reproducibility, and methodological rigor by standardizing each stage of the review process from search strategy and screening to synthesis and reporting. The review protocol defines eligibility criteria, search procedures, quality appraisal methods, and data synthesis techniques in advance to minimize bias. The protocol was designed in accordance with the Open Science Framework (OSF) standards for systematic review registration. If applicable, the review will be registered with OSF before submission for peer review to ensure public transparency and traceability of procedural decisions. The study focuses on peer-reviewed literature and institutional reports examining institutional capacity, data gaps, and evidence-based policymaking within the context of U.S. urban planning, housing, and land-use governance from 2003 to 2026. The starting year corresponds with Dannenberg et al. (2003), a seminal paper that linked urban planning, land use, and public health through evidence-based frameworks (Braun & Clarke, 2006).

3.2 Search Strategy

To ensure comprehensive coverage of relevant literature, searches were conducted across five interdisciplinary and planning-relevant databases. Scopus was used to capture multidisciplinary studies on planning, policy, and governance, while the Web of Science Core Collection provided broad citation-based coverage across related disciplines. Urban Studies Abstracts was included to identify domain-specific research focused on urban policy, housing, and land-use planning. To incorporate non-traditional yet influential sources, Google Scholar was used to retrieve grey literature, policy reports, and institutional working papers from organizations such as the Urban Institute. Finally, PubMed was searched to include health-linked urban planning literature, particularly studies emphasizing evidence-based practice, public health integration, and data governance. Together, these databases ensured both depth and breadth in identifying peer-reviewed and policy-relevant sources.

The primary Boolean search string (adapted for each database's syntax) was:

("institutional capacity" OR "institutional readiness" OR "governance")
AND ("data gaps" OR "data infrastructure" OR "information systems")
AND ("urban planning" OR "housing policy" OR "land use")
AND ("evidence-based" OR "evidence-informed")
AND ("United States" OR "U.S. cities" OR "American municipalities")

The 2003–2026 window captures the evolution of evidence-based planning following the early 2000s integration of health and planning research (Dannenberg et al., 2003), up to recent developments in AI-driven data frameworks (Drici & Carpio-Pinedo, 2025; Marshall, 2000). The inclusion of both academic and policy sources allows for triangulation between theoretical and applied insights, ensuring a well-rounded synthesis.

Table 1. Inclusion and Exclusion Criteria for Study Selection

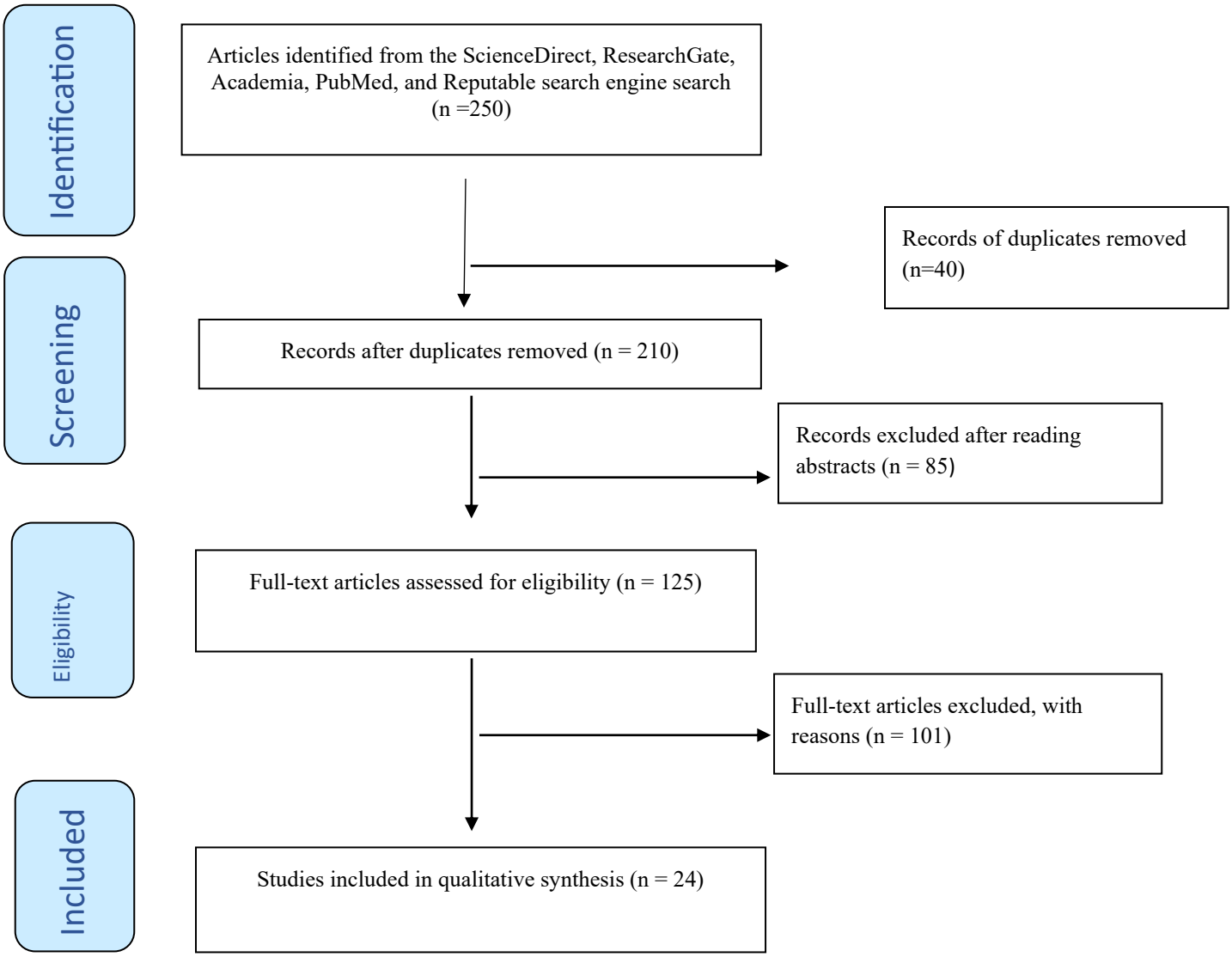
Criterion Type	Criteria Description
Inclusion Criteria	
1. Geographic Focus	Studies situated in the United States or with explicit comparative relevance to U.S. urban planning systems.
2. Topical Focus	Articles addressing institutional capacity, data infrastructure, governance systems, evidence-based policy, or urban planning methodologies.
3. Type of Publication	Peer-reviewed journal articles, book chapters, doctoral dissertations, or policy reports from reputable institutions (e.g., Urban Institute, IGI Global, Routledge, Oxford Academic).
4. Methodological Quality	Studies providing empirical evidence, theoretical models, or systematic review findings relevant to planning and policymaking.
5. Relevance	Papers explicitly discussing the connection between data/institutional structures and evidence-based planning or decision-making.
Exclusion Criteria	
1. Non-U.S. Focus	Studies exclusively addressing non-U.S. contexts without comparative value.
2. Publication Type	Editorials, opinion pieces, commentaries, or non-scholarly articles that lack methodological rigor.
3. Scope	Research not addressing planning, land use, housing, or governance structures.
4. Temporal Exclusion	Studies published before 2003, unless historically significant for theoretical framing.
5. Data Insufficiency	Papers without accessible full texts or with unclear methodological information.

Source: Author's Construct, 2026

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3.4 Screening and Selection

Figure 2: PRISMA Flow diagram showing the article selection process in the study.



Sources; Author's Construct 2026.

3.5 Data Extraction and Coding

A structured data extraction framework was applied to all included studies. Extraction was conducted using standardized spreadsheets developed in Microsoft Excel and verified through cross-checking among reviewers. The data extraction and coding process ensured consistency and analytical rigor in synthesizing findings across studies. A standardized extraction table captured key information, including study details, methodology, data gap types, institutional barriers, relevance to evidence-based planning, and evidence level. Coding occurred in three stages: initial abstract screening, focused full-text classification into four analytic categories: institutional fragmentation, data infrastructure, equity barriers, and evidence translation and reliability testing using Cohen's kappa ($\kappa > 0.80$) for strong inter-coder agreement. This structured process combined quantitative categorization with qualitative synthesis, providing a robust foundation for identifying interdependencies between institutional capacity, data systems, and evidence-based policymaking effectiveness.

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3.6 Quality Appraisal

Each included study was evaluated for methodological rigor and transparency using an adapted appraisal checklist developed from the framework proposed by Ravensbergen and El-Geneidy (2023), who introduced standardized quality assessment criteria for evidence-based urban planning reviews. The appraisal examined five key dimensions: (1) clarity of research design, assessing whether the study design was appropriate and explicitly articulated; (2) data reliability, determining whether data sources were verifiable, representative, and reproducible; (3) analytical rigor, evaluating the consistency of analytical methods with the stated research objectives; (4) transparency and replicability, verifying whether datasets, methods, and instruments were clearly documented and accessible; and (5) relevance to evidence-based practice, judging whether the study provided actionable insights for planning policy, governance, or institutional reform. Each dimension was scored on a three-point scale (High, Moderate, or Low) to ensure a standardized and comparable assessment across studies. Only those studies receiving an overall rating of moderate or high in methodological quality were retained for inclusion in the final synthesis, ensuring that the evidence base was both credible and robust.

3.7 Synthesis Approach

This review employed a thematic synthesis approach, combining qualitative coding with matrix-based analysis to integrate diverse sources of evidence. Thematic synthesis is well-suited to interdisciplinary fields like urban planning, where empirical studies, conceptual frameworks, and institutional reports coexist.

4. RESULTS

4.1 Overview of Included Studies

Following the PRISMA 2020 protocol, a total of 24 studies were included in the final synthesis after rigorous screening for relevance, methodological quality, and conceptual alignment with the research objectives. The reviewed literature spans 23 years (2003–2026), capturing the evolution of evidence-based planning discourse from early public health–linked studies to contemporary analyses of data-driven urban governance.

Among the selected works, 14 were empirical studies employing mixed or quantitative methods (e.g., GIS-based analysis, survey research, and modeling), 6 were theoretical or conceptual papers, and 4 were policy-oriented institutional reports or book chapters that provided frameworks for evidence-based housing and land-use reform. Together, these sources represent a diverse body of scholarship addressing institutional, technical, and equity-oriented barriers within U.S. urban planning systems.

The studies were analyzed across four thematic categories corresponding to the review objectives:

1. Institutional capacity deficits
2. Data gaps and infrastructure challenges
3. Equity and representation in planning for diverse communities
4. Evidence translation and methodological rigor

The table below summarizes the 24 included studies, highlighting their year of publication, methodological orientation, and principal contributions to understanding barriers to evidence-based planning.

Table 2. Summary of Included Studies and Core Contributions (2003 - 2026)

Author(s) & Year	Type	Focus Area	Core Contribution
Dannenberg et al. (2003)	Theoretical	Urban health & design	Linked planning and public health as a foundation for evidence-based urban design.
Heath et al. (2006)	Systematic review	Built environment & activity	Established early use of systematic review in planning.
Johnson et al. (2015)	Empirical	Decision science & housing	Developed localized evidence frameworks for community redevelopment.
Conway et al. (2017)	Empirical	Land use & transit planning	Introduced interactive accessibility methods for evidence-based planning.
Gabbe (2018)	Empirical	Zoning & development	Analyzed developer behavior under regulatory constraints.
Nidam (2019)	Dissertation	Retrofitting for resilience	Examined institutional adaptation for climate resilience.
Lowe et al. (2019)	Conceptual	Research translation	Proposed pathways for integrating health-based evidence into planning frameworks.

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Greene & Ellen (2020)	Policy report	Zoning & equity	Exposed systemic exclusion in local zoning and policy responses.
Lo et al. (2020)	Policy report	Land use reform	Identified institutional barriers to increasing housing supply.
Einstein et al. (2020)	Empirical	Governance & leadership	Explored mayors' institutional role in climate-related urban leadership.
Fitzgerald (2022)	Policy	Land use & climate adaptation	Highlighted governance gaps in adaptive land-use planning.
Curran-Groome et al. (2022)	Empirical	Floodplain management	Documented cost and coordination barriers in buyout programs.
Schilling et al. (2022)	Policy	Community engagement	Proposed transformative community land-use education frameworks.
Freemark (2022)	Empirical	Housing supply	Quantified barriers to residential development in U.S. municipalities.
Galego et al. (2024)	Review	Institutional barriers	Synthesized global evidence on governance and administrative constraints.
Attah et al. (2024)	Empirical	GIS & decision analytics	Demonstrated data infrastructure gaps in urban planning systems.
Praharaj (2026)	Empirical	Data resilience	Analyzed U.S. urban data deficiencies affecting resilience planning.
Sanusi (2024)	Conceptual	Nature-based policy	Examined institutional and policy frameworks for urban sustainability.
Drici & Carpio-Pinedo (2025)	Review	AI & urban data	Identified data standardization challenges in AI-based planning.
Scott (2026)	Policy	Local governance	Illustrated ethical and governance practices in U.S. municipalities.
Frantzeskaki et al. (2019)	Conceptual	Nature-based solutions	Connected science-policy-practice through institutional collaboration.
Schwartz (2021)	Book	Housing policy	Mapped the fragmented institutional landscape of U.S. housing governance.
Ravensbergen & El-Geneidy (2023)	Review	Evidence-based planning	Proposed methodological quality assessment standards (QAT).
Ye et al. (2021)	Empirical	AI & resilience design	Developed an AI-driven framework for flood resilience planning.

Source: Author's Construct, 2026

4.2 Thematic Findings

The analysis revealed four interrelated thematic domains representing the principal barriers to evidence-based housing and land-use policymaking in U.S. urban planning.

4.2.1 Theme 1: Institutional Capacity Deficits

A consistent theme across the literature is the fragmentation of institutional capacity manifested in overlapping mandates, insufficient coordination among agencies, and resource limitations that constrain policy implementation. Galego et al. (2024) identified persistent governance fragmentation in public administration that impedes coherent policy delivery, while Schwartz (2021) traced this to the decentralized nature of the U.S. housing system, where federal, state, and local responsibilities often overlap without effective data sharing mechanisms. Scott (2026) reinforced this perspective by highlighting ethical and procedural inconsistencies in local government decision-making, which weaken institutional accountability and limit evidence-informed reform (Kar, 2023). Across studies, limited staffing capacity, inconsistent technical expertise, and the absence of shared standards emerge as recurrent institutional barriers, underscoring the need for cross-agency data coordination and institutional learning frameworks (Sanderson, 2002).

4.2.2 Theme 2: Data Gaps and Infrastructure Challenges

Data governance issues form the technical counterpart to institutional limitations. Multiple studies emphasize that fragmented or outdated data infrastructures undermine the feasibility of evidence-based planning. Ye et al. (2021) demonstrated how the absence of interoperable, multi-scale data systems constrains the adoption of AI-driven planning tools, while Attah et al. (2024) showed that many

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U.S. municipalities lack the GIS and analytical infrastructure needed for real-time urban decision-making. Similarly, Rosero et al. (2025) found that inconsistent data collection and sharing practices compromise the reliability of resilience assessments and adaptive planning. These findings suggest that technical and institutional deficits are mutually reinforcing: insufficient capacity limits investment in data infrastructure, while inadequate data systems impede institutional decision quality.

4.2.3 Theme 3: Equity and Diverse Communities

Equity emerged as a critical dimension linking institutional and data-related deficiencies. Greene and Ellen (2020) provided clear evidence that exclusionary zoning and restrictive land-use policies continue to limit housing access for marginalized groups, perpetuating spatial inequities. Schilling et al. (2022) further emphasized that the underrepresentation of diverse communities in planning processes and data collection perpetuates unequal access to urban benefits. These studies collectively demonstrate that data inequities mirror social inequities: when datasets fail to capture the needs, demographics, and spatial realities of underrepresented populations, policies risk reproducing rather than redressing systemic disparities. The lack of community-generated data and participatory data governance frameworks remains a significant blind spot in evidence-based planning.

4.2.4 Theme 4: Research Translation and Evidence Uptake

Finally, a substantial body of literature highlights the limited translation of empirical research into policy practice, largely due to methodological inconsistencies and weak institutional learning systems. Lowe et al. (2019) emphasized that, despite the growing availability of research evidence, the lack of structured frameworks for research translation hinders its uptake by planning practitioners. Ravensbergen and El-Geneidy (2023) identified a lack of Quality Assessment Tools (QATs) and standardized evaluation criteria as major methodological barriers preventing systematic integration of evidence into planning decisions. This disconnect between academic research and policy implementation suggests that institutional culture, not only technical capacity, constrains evidence-based reform. Without formal mechanisms for evidence validation and policy feedback, even high-quality research struggles to influence decision-making processes.

4.3 Cross-Theme Relationships

The synthesis of findings reveals a dynamic interplay between institutional capacity, data governance, and equity outcomes. Institutional fragmentation exacerbates data silos, as uncoordinated agencies manage independent data systems with minimal interoperability (Braun & Clarke, 2006). These silos, in turn, impede the generation of comprehensive datasets necessary for evidence-based policymaking, leading to fragmented or biased policy responses (Oliver et al., 2014). Moreover, the interaction between weak institutions and data gaps directly affects equity in urban planning. When under-resourced municipalities lack the capacity to collect disaggregated, community-level data, policies fail to capture the lived realities of diverse populations. As a result, inequities become embedded in both datasets and decision structures. This cyclical relationship creates what several authors describe as a "feedback trap": institutional weaknesses constrain data governance, poor data weakens institutional learning, and both reinforce inequitable planning outcomes. Conversely, studies such as Attah et al. (2024) and Frantzeskaki et al. (2019) show that when data infrastructure and institutional coordination improve, cross-sectoral collaboration and community inclusion also increase, leading to more transparent, accountable, and equitable planning outcomes. The results underscore those overcoming barriers to evidence-based housing and land-use policy requires an integrated approach that strengthens both institutional readiness and data quality while embedding equity considerations at every stage of urban planning (Kar, 2023).

5. DISCUSSION

5.1 Interpretation of Key Findings

This systematic review revealed a deeply interwoven relationship between institutional capacity, data infrastructure, and equity outcomes in U.S. urban planning. Across the 24 reviewed studies, these dimensions collectively shape the degree to which housing and land-use policies can be grounded in credible evidence and effectively address disparities in urban development. At the core of these findings is the recognition that institutional fragmentation and data deficiencies are mutually reinforcing barriers. Studies such as Galego et al. (2024) and Schwartz (2021) emphasize how governance fragmentation, distributed responsibilities among federal, state, and local agencies without coherent coordination mechanisms, creates inefficiencies in policy formulation. This fragmentation is not only administrative but epistemic: it undermines shared definitions of evidence, reduces interoperability across systems, and limits institutional learning. The result is an uneven landscape of policy readiness where data capacity and evidence utilization vary dramatically across jurisdictions.

These institutional weaknesses are compounded by technical and infrastructural constraints. As Ye et al. (2021) and Attah et al. (2024) demonstrate, limited integration of advanced data tools such as GIS, AI, and predictive analytics reduces the ability of planners to link evidence generation with real-time policy application. Rosero et al. (2025) further reveal that the absence of standardized data protocols, ranging from metadata governance to interdepartmental data-sharing agreements, prevents cities from synthesizing information across

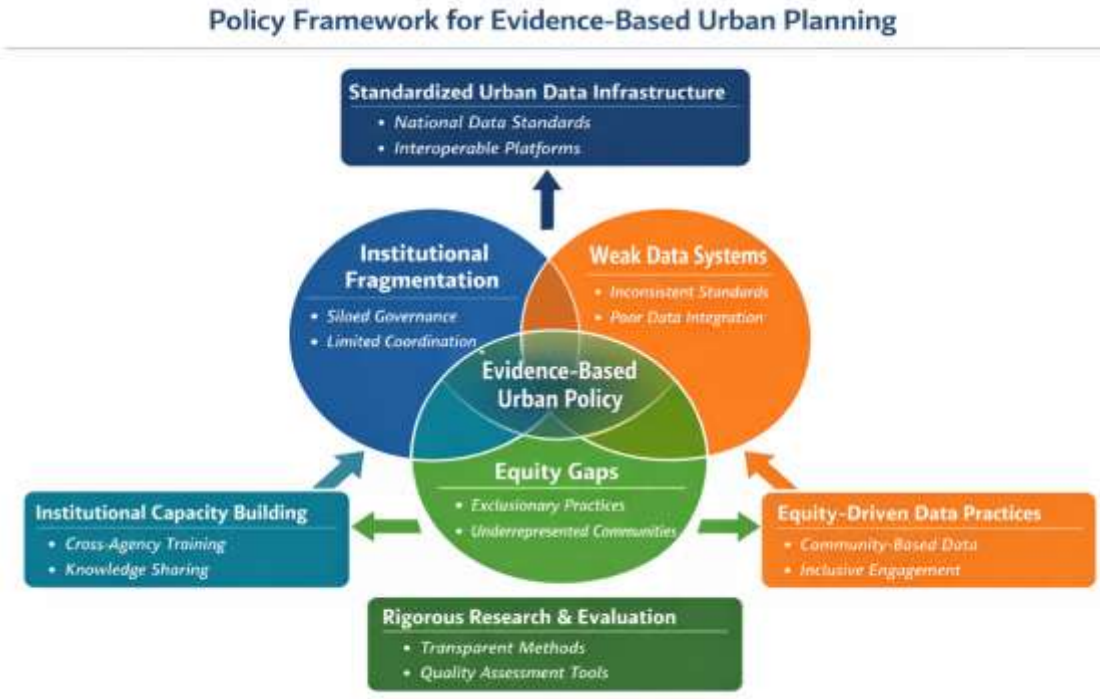
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environmental, social, and economic domains. Such technical deficits reflect not just resource scarcity, but also the lack of institutional frameworks that prioritize data stewardship as a public good. Beyond institutional and data challenges lies the dimension of equity, which functions both as a cause and consequence of these systemic shortcomings. Greene and Ellen (2020) and Schilling et al. (2022) show that exclusionary zoning, limited community participation, and inequitable data representation reinforce one another in ways that marginalize historically underrepresented groups. Weak institutional capacity translates into planning decisions that rely on incomplete or biased datasets, resulting in policies that perpetuate spatial segregation and limit access to affordable housing. Conversely, the lack of inclusive data collection processes, such as community-driven mapping or participatory GIS, further limits institutional understanding of local realities.

These interconnections point to a systemic feedback loop: poor data quality constrains evidence-based policymaking; weak institutional coordination prevents data integration; and inequitable data practices sustain governance structures that fail to represent marginalized voices. This loop aligns with theories of evidence-based governance, which posit that institutional readiness (including technical, human, and procedural resources) determines how effectively evidence can inform decision-making (Nutley et al., 2007; adapted through Ravensbergen & El-Geneidy, 2023). In this sense, the review's findings extend theoretical models of evidence-based governance into the urban planning domain, emphasizing that data and institutional infrastructures must co-evolve to enable policy translation. Ravensbergen and El-Geneidy (2023) underscore that without standardized quality assessment tools and transparent methodological reporting, the evidence base for planning remains fragmented. Thus, the path to evidence-based urban policymaking in the U.S. depends as much on organizational reform as on technical innovation.

5.2 Policy Implications

The synthesis highlights several policy priorities for enhancing institutional capacity, improving data infrastructure, and embedding equity within evidence-based urban planning.



Source: Author's Construct, 2026.

5.2.1. Establish a Standardized National Urban Data Infrastructure

The most pressing implication is the need for a nationally coordinated urban data infrastructure, akin to those developed in other policy sectors such as public health and environmental management. The fragmented data environment identified in Attah et al. (2024) and Rosero et. al. (2025) suggests that many U.S. cities lack standardized protocols for data collection, interoperability, and quality control. A national framework could provide shared standards for spatial, demographic, and policy-related data, ensuring comparability across jurisdictions. Such infrastructure would not only support local evidence generation but also facilitate longitudinal tracking of housing

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and land-use outcomes. Mandating open data principles and interoperability requirements, it could bridge existing silos between local, regional, and federal databases. This would advance the vision articulated by Ye et al. (2021) of integrating AI-driven and geospatial analytics into policy design, while maintaining equity safeguards through transparent governance mechanisms.

5.2.2. Strengthen Inter-Agency Collaboration and Data Governance Frameworks

Effective evidence-based planning also requires strengthening institutional coordination at multiple levels of governance. As Galego et al. (2024) and Schwartz (2021) observe, fragmented authority structures and limited inter-agency communication hinder both data sharing and evidence translation. Federal agencies such as HUD, EPA, and DOT operate extensive datasets relevant to housing, environment, and transportation, yet cross-sectoral integration remains weak.

Adopting inter-agency data governance frameworks could address this gap by clarifying data ownership, establishing accountability mechanisms, and incentivizing shared innovation. Scott (2026) further emphasizes that ethical data management and transparent decision processes can help build public trust, an essential prerequisite for evidence-based governance. Coordinated governance would also enhance capacity-building through standardized training and shared data literacy programs, helping local planners translate complex datasets into actionable insights.

5.2.3. Promote Equity-Driven, Community-Based Data Practices

Equity considerations must be embedded in both institutional reform and data infrastructure development. Greene and Ellen (2020) and Schilling et al. (2022) illustrate that exclusionary data practices, where marginalized communities are underrepresented or omitted, lead to policies that fail to meet diverse local needs. Addressing this requires a shift from top-down data collection toward participatory, community-driven approaches. Participatory data practices, such as citizen observatories, community mapping, and co-produced spatial datasets, can diversify the evidence base and ensure that planning reflects lived experience. Frantzeskaki et al. (2019) argue that cross-sectoral collaboration between science, policy, and practice communities enhances not only data legitimacy but also policy uptake. Embedding these practices into planning agencies' workflows would democratize knowledge production, reduce data bias, and improve social accountability. In practice, this implies expanding funding for community data hubs, supporting local nonprofits engaged in participatory mapping, and institutionalizing processes where community data inform municipal planning decisions. Such approaches bridge the gap between technical capacity and social inclusion, ensuring that evidence-based policy is not only efficient but also equitable.

5.3 Comparison with Existing Frameworks

To contextualize these findings, it is instructive to compare the urban planning domain with other evidence-based policy frameworks, particularly in public health and environmental governance, where structured data systems and institutional learning mechanisms are more mature.

In public health, evidence-based frameworks emphasize standardized data protocols, iterative evaluation, and cross-sectoral collaboration, principles reflected in the Evidence-Based Public Health (EBPH) model. As Lowe et al. (2019) noted, EBPH integrates research translation, stakeholder engagement, and adaptive learning, enabling health agencies to align data systems with decision-making. These mechanisms ensure continuous feedback loops between evidence generation and policy adaptation, features largely absent in U.S. urban planning practice. Similarly, the environmental governance literature, exemplified by Frantzeskaki et al. (2019), promotes nature-based solutions (NBS) frameworks that integrate science, policy, and practice communities through the co-production of knowledge. NBS initiatives in Europe and parts of North America operationalize multi-level governance structures that encourage institutional collaboration, shared datasets, and adaptive management.

Comparatively, the U.S. urban planning field remains less formalized in its use of evidence standards. While Ravensbergen & El-Geneidy (2023) provide a methodological foundation for quality assessment in planning research, implementation mechanisms within policy institutions are still evolving. Adopting elements from EBPH and NBS frameworks, such as cross-sectoral advisory boards, routine data audits, and open access repositories, could substantially improve the translation of research into practice. Thus, the review positions U.S. urban planning at a transitional juncture: while awareness of evidence-based methods is growing, institutional and technical infrastructures have yet to reach the maturity observed in other policy fields. Learning from these adjacent domains can inform the creation of a "Planning Evidence Cycle," a structured model that continuously links data collection, evidence synthesis, and policy feedback within planning institutions.

5.4 Limitations of the Review

Despite its methodological rigor, this systematic review is subject to several limitations that should inform the interpretation of its findings. By focusing primarily on peer-reviewed and institutionally published sources, the review may underrepresent practice-based

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or community-generated evidence. While Google Scholar was used to capture grey literature, much local-level or informal documentation of planning data challenges remains inaccessible through standard academic databases.

Also, the review was limited to English-language publications, which may exclude relevant comparative insights from multilingual or international contexts. Although studies were confined to the U.S. or those offering direct U.S. relevance, comparative perspectives could enrich understanding of alternative governance and data models. Moreover, there is variability in methodological quality among included studies. As noted in Section 3.6, despite applying the Ravensbergen & El-Geneidy (2023) quality framework, some studies provided limited methodological transparency or inconsistent empirical depth. This variability reflects broader disciplinary trends in urban planning, where mixed methods and conceptual papers often lack standardized evaluation criteria. While this review provides a comprehensive synthesis of institutional and data-related barriers, it does not quantify their relative impact. Future meta-analytical studies could build on this work by developing metrics to assess institutional readiness and data infrastructure maturity across municipalities, thereby moving toward comparative benchmarking of evidence-based planning capacity.

6. CONCLUSION

This systematic review demonstrates that institutional fragmentation and weak data infrastructures are the central barriers impeding the adoption of evidence-based housing and land-use policymaking in the United States. Fragmented governance structures, inconsistent data standards, and limited inter-agency coordination collectively undermine the reliability and applicability of evidence in urban decision-making. Equally critical is the recognition that equity and inclusion must be embedded within data reform. The underrepresentation of diverse communities in both institutional processes and datasets perpetuates planning outcomes that reinforce, rather than redress, existing spatial and social inequalities. Building inclusive, community-driven data systems is therefore essential for achieving just and representative urban policy. To advance evidence-based urban planning, U.S. municipalities must invest in institutional learning, open data ecosystems, and methodological rigor that bridge research, practice, and policy. Establishing standardized national data frameworks and fostering intergovernmental collaboration will enable consistent evidence generation and policy evaluation across cities. The call to action is clear: building resilient, equitable, and data-informed urban futures requires collaborative governance and unified data standards. Only through shared institutional capacity and transparent, interoperable data systems can urban planning in the U.S. fully embody the principles of evidence-based and socially responsive policymaking.

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