

## IS SUMP A PANACEA FOR DYNAMIC CITIES? BRIDGING AMBITION AND REALITY: A CASE STUDY OF ISTANBUL

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### Abstract

Sustainable Urban Mobility Plans (SUMPs) aim to improve urban transport by integrating land use, public transit, and active mobility in an equitable and sustainable way. Initially designed for European cities, SUMPs face challenges in fast-developing urban contexts in the Global South. This paper reflects on Istanbul—a fast-growing, car-dependent developing megacity with complex governance structures. Istanbul's evolving landscape offers a lens to explore how SUMP strategies can adapt to rapid urban growth, institutional fragmentation, and shifts from flexible bus networks to fixed rail systems. The study emphasizes integrating land use, institutional capacity, and multimodal systems, while recognizing informal transport and expanding stakeholder engagement. Rather than critiquing SUMPs, it seeks to amend and localize them to better suit dynamic metropolitan realities in developing regions.

Keywords: SUMP; Istanbul; Sustainable Transport; Dynamic Cities; Mobility Planning

### Introduction

Sustainable Urban Mobility Plans (SUMPs) have emerged as a key framework for addressing transportation challenges in urban areas by emphasizing sustainability, inclusivity, and environmental responsibility. Developed within the European Commission's broader policy landscape, SUMPs aim to integrate public transport, active mobility options such as walking and cycling, and land-use planning into a unified strategy to reduce greenhouse gas emissions and ensure equitable access to urban opportunities (Rupprecht Consult, 2019; Werland, 2020). While adaptability is one of the core principles guiding SUMPs, their implementation in fast-growing and complex cities reveals notable deficiencies.

This shortcoming becomes especially visible in Istanbul, where the city's official SUMP highlights the struggle of a rigid planning framework to respond to the rapidly shifting urban landscape and fragmented institutional terrain. Istanbul's soaring car ownership, its spatial sprawl, and the disjointed expansion of its rail transit system all underscore the limited adaptability of a framework originally designed for more stable and regulated urban environments. SUMPs, when not meaningfully tailored to local dynamics, fail to keep pace with the urgency and scale of urban change in cities like Istanbul.

Although Istanbul's SUMP aspires to promote sustainable modes of transportation, it falls short in integrating land-use strategies and urban design principles. The city's disjointed pedestrian and cycling networks illustrate this disconnect, diminishing the effectiveness of active mobility initiatives. Furthermore, while the SUMP includes measures such as congestion pricing, low-emission zones, and parking constraints, their limited scope and weak enforcement significantly undermine their capacity to meaningfully curb private car use. This gap reveals a deeper contradiction: while SUMPs declare adaptability as a founding value, their real-world performance in cities like Istanbul illustrates how this principle remains underdeveloped in practice (Przybylowski, 2018; Spadaro and Pirlone, 2021).

Additionally, Istanbul's significant investments in rail transit expansion reveal a missed opportunity to integrate new infrastructure into a broader land-use and urban transformation strategy. Rather than aligning new metro and rail lines with transit-oriented development principles, the expansion has largely occurred in isolation from policies that could steer urban growth patterns, reshape spatial hierarchies, or prevent car-dependent sprawl. The inadequate integration between metro, tram, bus, and ferry systems further compounds inefficiencies, weakening the effectiveness of multimodal connectivity and undermining the return on infrastructure investment (Yaoundé SUMP Summary, 2019; Kiba-Janiak and Witkowski, 2019). These missed opportunities

highlight the urgent need for SUMPs to move beyond static infrastructure delivery and incorporate dynamic urban development considerations. Integrating real-time data analytics and scenario-based planning tools could better align mobility interventions with ongoing transformations in land use and demographic patterns, allowing policies to evolve alongside the city's rapid changes (Wołek, 2014; Rutka et al., 2024).

Central to overcoming these challenges is the need for institutional changes in Istanbul's administrative structure. The existing framework, characterized by fragmented and distributed decision-making across various agencies, compromises the coordination necessary for effective land use and transportation planning. This disjointedness hinders the alignment of transit infrastructure with evolving urban form, missing opportunities to guide urban transformation through strategic land-use policies. A restructured governance model that consolidates authority under a unified institutional body is therefore essential. This centralized body should not only oversee transportation planning but also ensure its integration with broader spatial development strategies. Without such institutional reforms, the successful implementation of SUMP initiatives will remain out of reach, and their transformative potential will be stifled by bureaucratic inefficiencies and contradictory policy agendas.

Urban mobility cannot be effectively addressed in isolation; it requires close collaboration with urban design and development strategies. Above all, the rail transit system should be recognized as a strategic driver of urban transformation, with station areas serving as focal points for transit-oriented development and densification. This targeted approach not only strengthens multimodal integration but also leverages infrastructure investment to reshape urban form in a more sustainable and efficient manner. Furthermore, aligning station-area development with disaster-resilient urban renewal initiatives offers an opportunity to meet immediate needs for safer and more adaptable urban environments. A governance framework that formalizes the relationship between these domains can enable more cohesive policies, facilitating the creation of mixed-use developments, resilient transit-oriented neighborhoods, and pedestrian-friendly public spaces. Such alignment would not only enhance the feasibility of sustainable mobility solutions but also strengthen urban resilience, support climate adaptation efforts, and contribute significantly to improving the overall quality of urban life.

This study proposes a reimagined SUMP framework for Istanbul, emphasizing land-use integration and transit-oriented development. Policies such as enhancing public spaces for pedestrians, expanding non-motorized transport networks, and introducing innovative car-use restrictions are essential to fostering a sustainable mobility culture. Moreover, effective stakeholder engagement, including citizens, policymakers, and private entities, is crucial for implementing inclusive and responsive strategies (Lindenau and Böhler-Baedeker, 2014; Andréi and Papuc, 2021). Istanbul's experience offers valuable lessons for cities facing similar challenges, underscoring the necessity of adapting SUMPs to local contexts. By aligning long-term urban development goals with flexible, innovative mobility strategies, and implementing critical institutional changes, SUMPs can transcend their current limitations, providing transformative solutions for the cities of tomorrow. This paper aims to contribute to propose a vision for advancing SUMPs in rapidly changing urban contexts, offering a roadmap for sustainable and inclusive mobility planning.

### **A Critical Look into Sustainable Urban Mobility Plans**

Sustainable Urban Mobility Plans (SUMPs) have emerged as a significant response to the persistent limitations of traditional transport planning, which historically emphasized vehicle flow and infrastructure over sustainability, equity, and multimodal integration (Banister, 2008; Rupprecht Consult, 2014). In contrast, SUMPs promote long-term, inclusive mobility strategies that center people over cars and support broader goals of urban development and climate responsibility (Rupprecht Consult, 2014, 2019). Originating from European policy shifts in the early 2000s, SUMPs developed through initiatives like the EU's Green Paper on Urban Mobility.<sup>1</sup> Grounded in sustainability, inclusivity, and systemic integration, SUMPs embrace systems thinking—addressing mobility not just as movement, but as embedded in social, spatial, and environmental systems (Curtis and Low, 2012; Bertolini et al., 2005).

A careful reading of SUMP documents reveals an institutionalized planning framework grounded in eight core principles: transparency, participation, integration, cooperation, comprehensiveness, evaluation, adaptability, and sustainability (Table 1). These principles were clearly outlined and operationalized in the first and second

<sup>1</sup> <https://eur-lex.europa.eu/EN/legal-content/summary/green-paper-towards-a-new-culture-for-urban-mobility.html?fromSummary=32> (Accessed on May 16, 2025)

editions of the SUMP Guidelines (Rupprecht Consult, 2014, 2019). SUMPs advocate participatory planning and emphasize goal-oriented evaluation, data-informed decisions, and resilience to shocks. What differentiates SUMPs from conventional transport plans is their redefinition of success through accessibility and urban equity (Curtis and Scheurer, 2016). They encourage integrated governance that aligns transport and land use, inclusive stakeholder involvement, and modal shifts from cars to public and active transport for better health, safety, and environmental outcomes (Werland, 2020; Spadaro and Pirlone, 2021).

**Tablo 1.** SUMP Principles and Their Basic Tenets

| SUMP Principle    | Basic Tenet                                                                                                                                                             |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Transparency      | Planning process should be open and accessible to all stakeholders, thereby fostering trust and legitimacy.                                                             |
| Participation     | the active involvement of citizens, local authorities, businesses, and civil society is critical for grounding decisions in lived experiences and building consensus.   |
| Integration       | Alignment of policies across sectors and transport modes should facilitate coordinated and cohesive planning.                                                           |
| Cooperation       | Planning process should extend beyond local actors to include regional, national, and international institutions, enabling multi-level governance and resource sharing. |
| Comprehensiveness | Planning process should address all aspects of urban mobility—such as public transport, walking, cycling, freight, and private vehicles—within one strategic framework. |
| Evaluation        | Planning process should include evidence-based planning by embedding monitoring tools and performance indicators throughout the planning cycle.                         |
| Adaptability      | Cities should be able to respond to changing circumstances, emerging challenges, and new opportunities, ensuring the plan remains relevant over time.                   |
| Sustainability    | The entire approach should focus on long-term environmental, social, and economic objectives, making SUMP a cornerstone of broader urban development strategies.        |

SUMPs follow a structured yet flexible process that unfolds through four key stages: (1) Preparation and analysis, (2) Vision development and strategy formulation, (3) Measure planning, and (4) Implementation accompanied by continuous monitoring and evaluation. Each phase is designed to foster collaboration, support evidence-based decision-making, and encourage local adaptation. Performance indicators, such as those tracking greenhouse gas emissions, modal shares, and accessibility, are central to evaluating progress and informing iterative improvement (Rutka et al., 2024).

Numerous case studies highlight the practical value of SUMPs. Gdynia, Poland, an early adopter, achieved success through strong political leadership, stakeholder involvement, and targeted initiatives like bus network reorganization and pedestrian-friendly infrastructure (Przybylowski, 2018). Similarly, cities such as Tallinn and Brno utilized SUMPs to drive institutional reform and build planning capacity. EU programs like CIVITAS have been instrumental in facilitating knowledge exchange and scaling best practices. However, SUMPs are not universally applicable in their standard form. Scholars such as Werland (2020) warn against overly rigid applications, emphasizing that rapidly evolving urban environments require adaptable strategies. In regions where governance is fragmented or coordination is weak, applying a one-size-fits-all model can undermine planning effectiveness and limit impact.

To succeed, SUMPs must genuinely reflect their core principle of adaptability by operating as flexible toolkits deeply grounded in local realities. However, current implementations often fall short in translating this principle into actionable strategies, particularly in complex and rapidly evolving contexts like Istanbul. The rigid application of SUMP frameworks risks overlooking informal transport modes, entrenched governance fragmentation, and distinct socio-cultural conditions. For SUMPs to be truly effective, they must be recalibrated to include adaptive

governance structures, integration of paratransit and informal systems, and planning processes that are continuously responsive to shifting urban dynamics. This requires more than inclusivity in principle—it demands context-sensitive approaches that prioritize local agency, political structures, and community-led insights. In cities like Istanbul, where transport challenges evolve rapidly, the transformative potential of SUMPs depends on this deeper institutional flexibility and operational responsiveness.

### **Transportation in the Developing World: A Misfit for SUMP?**

Urban mobility systems in the Global South operate within markedly different socio-political, economic, and spatial contexts than those in the Global North, where Sustainable Urban Mobility Plans (SUMPs) were initially conceived. As Vasconcellos (2001) explains, transportation in developing countries is deeply entangled with institutional fragility and social inequality. While cities in the Global North typically enjoy stable governance, robust land-use regulation, and established public services, many urban centers in the Global South contend with rapid population growth, informal settlement expansion or uncontrolled urban sprawl, and fragmented institutions.

In these settings, transportation reflects power hierarchies and socio-economic disparities. Infrastructure investments often prioritize central areas and affluent populations, reinforcing spatial inequities. Peripheral and informal neighborhoods remain underserved, and public transit, when available, is frequently unreliable and underfunded—conditions that primarily impact low-income residents. Despite low car ownership rates, urban development continues to favor automobile infrastructure, fueled by policy inertia, aspirational consumer behavior, and the symbolic appeal of modernity. The institutional landscape in many Global South cities complicates planning further. Fragmented responsibilities and weak coordination between agencies hinder coherent mobility strategies. This often results in transportation policies that perpetuate exclusion rather than mitigate it. SUMPs, though well-intentioned, tend to be based on assumptions that rarely align with local realities—such as readily available data, established participatory mechanisms, and effective multi-level governance (Spadaro and Pirlone, 2021).

Paratransit systems—minibuses, motorcycle taxis, shared vans—are central to urban mobility in many Global South cities, especially where formal transit falls short. These informal systems are adaptable, affordable, and responsive to demand. While SUMPs do acknowledge paratransit to some extent, it is often framed narrowly, typically relegated to a feeder role for formal networks like rail or BRT systems. This limited recognition, although a positive step, fails to account for the full potential of paratransit as a backbone of everyday mobility for millions. The omission reflects a formalist bias that equates modernity with regulation and informality with dysfunction (Vasconcellos, 2001; Schipper et al., 2020). Moreover, efforts to replace or formalize paratransit often lack transition strategies, leading to service disruptions and resistance from communities and operators. A more inclusive and pragmatic approach would acknowledge paratransit's broader function and integrate it meaningfully through supportive regulation, infrastructure investments, and participatory reform processes. Sustainable mobility in the Global South depends not on the elimination of informality but on recognizing and empowering systems that already serve vast segments of the population.

A critical and often overlooked reality is that urban transportation systems in these regions are in a state of continuous flux. Infrastructure investments, such as new rail lines, can rapidly alter demand patterns and land use, potentially leading to gentrification or displacement. Simultaneously, urban sprawl—largely driven by increased car ownership—further undermines long-term transport planning. In response, SUMPs must evolve into genuinely reflexive and adaptive frameworks that can respond to these unpredictable dynamics. Istanbul exemplifies these challenges acutely. The city's sprawling geography, uneven development, and income disparities contribute to profound mobility inequalities. Peripheral districts often lack reliable public transit options, while a surge in car ownership among the middle class intensifies congestion and emissions. Although the city adopted a formal SUMP in 2022, it continues to struggle with entrenched car dependency, fragmented multimodal integration, and institutional fragmentation. Between 2019 and 2024, while the population increased by only 1%, the number of private vehicles surged by 32%, underscoring the disconnect between policy ambitions and actual mobility outcomes. The SUMP's treatment of paratransit further reflects this misalignment. Although paratransit is acknowledged, it is limited to a feeder role for the rail network—a framing that, while a positive step, fails to capture the full potential of services like the minibüs/dolmuş system. These systems provide vital, flexible, and demand-responsive connectivity, particularly in underserved and peripheral areas. By reducing

them to a subordinate status, the plan overlooks their strategic role in addressing Istanbul's broader mobility challenges. A truly adaptive and inclusive SUMP would integrate paratransit more holistically into the city's transport ecosystem, leveraging its capacity to fill systemic gaps left by formal infrastructure.

Indeed, the cultural symbolism of car ownership adds another layer of complexity. As Gwilliam (2003) and Pojani and Stead (2015) observe, cars are often perceived as symbols of autonomy, modernity, and upward mobility—particularly in contexts where public transport is stigmatized or unreliable. Consequently, policies such as congestion pricing or vehicle quotas, effective in many European settings, often encounter resistance in cities of the Global South. These cultural and perceptual dynamics further expose the limitations of SUMP when transposed without critical adaptation. For SUMP to succeed in such contexts, they must go beyond rigid templates and evolve into genuinely flexible toolkits. This requires co-development with local actors and responsiveness to the institutional, cultural, and socio-economic specificities of each setting. Engaging informal operators, inclusively upgrading infrastructure, and investing in collaborative governance are all essential strategies. Only under such conditions can mobility planning transcend technocratic control and emerge as a catalyst for spatial justice and urban dignity. As Vasconcellos (2001) reminds us, mobility constitutes a core dimension of citizenship—integral not only to freedom of movement, but also to equitable access to public life. Sustainable mobility in the Global South will not emerge through replication of Northern models, but through the construction of grounded, pluralistic, and inclusive alternatives rooted in lived realities.

Compounding these challenges are the persistent issues of governance fragmentation and limited community engagement, which significantly undermine the effectiveness of mobility planning. In many Global South cities, decision-making remains highly centralized and technocratic, often excluding informal transport operators, residents of peripheral neighborhoods, and civil society organizations from meaningful participation. This top-down orientation reveals the difficulty of directly transplanting Northern planning models—rooted in stable governance and institutional coherence—into dynamic, diverse, and often politically fragmented Southern urban environments. As Cervero (2013) and Dimitriou (2013) argue, effective transport planning in such contexts must be deeply embedded within broader developmental agendas, encompassing poverty alleviation, livelihood support, and inclusive governance mechanisms. Mobility, in this perspective, is not merely a logistical or infrastructural issue but a fundamental right that connects people to opportunities in education, employment, healthcare, and civic life.

### **SUMP in Developing Cities: A Reflexive Proposal**

In order to transcend the limitations of conventional Sustainable Urban Mobility Plans (SUMP) when applied to complex, fast-growing cities in the Global South, a reflexive approach is required—one that does not merely adapt European practices to local contexts but reconfigures the planning paradigm itself. Drawing from the works of Vasconcellos (2001) and Dimitriou (2013), this proposal outlines the contours of a rearticulated SUMP framework that is responsive to the political, spatial, and institutional contingencies of cities such as Istanbul. Vasconcellos (2001) asserts that transport planning in developing countries must start not from abstract, imported objectives but from deeply situated understandings of structural inequality, pervasive informality, and unequal access to urban opportunities. Transportation in these contexts is not merely a logistical issue but a dynamic social contract—one that reflects and reinforces patterns of privilege, marginalization, and spatial exclusion. Planning must therefore be attentive to the lived realities of the majority, particularly those relegated to informal settlements or peripheral areas. Similarly, Dimitriou (2013) emphasizes the need for cultivating an “appropriate planning culture”—a concept that demands planners engage with the political economy of local institutions, recognize the historical trajectories of urban development, and co-create mobility strategies through inclusive and participatory mechanisms. Rather than treating planning as a one-way transfer of best practices, this approach calls for a dialogical, adaptive process grounded in stakeholder empowerment and cultural sensitivity.

Within this reframed paradigm, SUMP must reposition themselves as facilitators of socio-spatial justice. This means reorienting the planning process away from technocratic idealism and toward political and institutional realism. Horizontal integration of diverse actors—from municipal planners and informal operators to community leaders and transit users—must be treated as an essential design principle, not a peripheral engagement strategy. The goal is not to achieve universal best-fit models but to foster locally negotiated, collectively stewarded mobility systems that enhance equity, dignity, and sustainability. To achieve this, a reflexive SUMP must begin with a diagnostic phase that acknowledges the co-existence and interdependence of multiple mobility systems within a city—not only formal infrastructure like buses and rail lines but also paratransit services, informal

transport networks, non-motorized pathways, and even seasonal or event-driven mobility patterns. This stage must move beyond traditional planning assumptions that privilege measurable technical indicators to embrace methodologies that uncover the deeper socio-spatial dynamics of movement. Rather than relying exclusively on modal split, congestion metrics, or emissions data, the diagnostics should incorporate ethnographic observation, participatory mapping, and spatial storytelling to surface the textures of everyday mobility, especially among marginalized and underserved communities.

In practice, this could involve community-led audits of access barriers, mobile interviews with commuters across class and gender lines, and the use of digital tools to document experiential geographies such as zones of fear, waiting, or exclusion. Such approaches not only broaden the evidentiary base of planning but also reframe mobility as a lived and contested experience. This deeper diagnostic insight reveals where formal networks fail, how paratransit fills systemic voids, and why certain routes, modes, or practices persist despite being institutionally invisible. Ultimately, the goal is to generate a holistic and inclusive mobility portrait that identifies not only gaps in infrastructure but also structural exclusions and power asymmetries that shape how, where, and for whom the city moves.

From this basis, the visioning phase must foreground mobility as a human right and as a fundamental pillar of social citizenship, shaping not only how individuals move but how they participate in the economic, cultural, and political life of the city. This requires a deliberate and sustained inclusion of marginalized voices—particularly women, the urban poor, disabled individuals, informal transport workers, and users of non-motorized modes—who are often excluded from formal planning discourses despite their deep experiential knowledge of the mobility landscape. Vernacular expertise must be brought to the center of deliberative processes, with planning spaces structured to facilitate not just consultation but co-creation. This could involve neighborhood assemblies, mobile town halls, or storytelling workshops that draw out latent mobility aspirations, anxieties, and place-based knowledge. Through these engagements, the visioning phase becomes not a normative projection from planners but a shared construction of future mobility imaginaries.

Vision statements should thus emerge from iterative dialogue and collective deliberation that extend beyond technocratic or environmental benchmarks. These statements must reflect a pluralistic synthesis of values—articulating goals that transcend narrow, efficiency-based definitions of sustainability to embrace a deeper normative agenda of urban dignity, intergenerational equity, spatial inclusion, and collective belonging. In a context marked by institutional fragility and spatial inequality, such visioning must function not only as aspirational rhetoric but as a strategic, co-produced claim on urban futures. In this reflexive frame, mobility transforms into an emancipatory space through which urban residents assert their right to the city—a right not just to access but to shape and inhabit public space, economic opportunity, and civic life on just and equitable terms. Mobility, thus conceived, becomes a catalyst for democratizing urban governance and redistributing spatial power.

Strategic goals in a rearticulated SUMP must be structured around equity-driven imperatives rather than conventional modal or infrastructure-based categorizations. The planning framework should explicitly ask: who is currently excluded from mobility systems, who stands to gain in terms of reduced travel time, improved safety, or increased opportunity, and who disproportionately absorbs the social and environmental costs of urban transport? This reframing positions equity not as a peripheral concern but as a core organizing logic of the entire planning apparatus.

By anchoring strategic priorities in redistributive justice, planning interventions can be aligned to directly redress historical exclusions, elevate the needs of peripheral and vulnerable communities, and reconfigure the spatial allocation of public investment. This may include prioritizing last-mile connectivity for informal settlements, enhancing pedestrian infrastructure in underserved areas, or subsidizing informal transport operators who serve essential routes. Ultimately, strategic goal-setting must function as a political act—deliberately tilting the balance of mobility benefits toward those who have been structurally disadvantaged by previous planning regimes. At the level of measures, SUMPs must adopt a flexible, modular approach capable of navigating institutional fragmentation, fiscal limitations, and infrastructural unevenness typical of many Global South cities. This flexibility is not only a logistical necessity but a strategic response to the plural mobility ecosystems that define such urban contexts.

While formal interventions—such as the development of dedicated bus corridors, transit-oriented development, or pedestrianization schemes—can play a vital role, they must be conceived as part of a broader integrative strategy that includes and elevates informal systems rather than displacing them.

A reflexive SUMP must treat informal transport—such as minibuses/dolmuş services—not as a problem to be solved but as a vital asset to be supported, regulated, and incrementally improved. While current SUMP frameworks sometimes acknowledge the role of paratransit as a feeder to high-capacity rail corridors, this limited framing underestimates its broader significance in the mobility ecosystem. Informal modes often serve as primary transport solutions in peripheral neighborhoods, act as critical connectors between fragmented formal services, and embody community-responsive systems that adjust flexibly to shifting spatial and temporal needs. Planning should identify and enhance the complementarities between formal and informal systems through the design of shared nodes, integrated ticketing schemes, corridor coordination, and non-punitive regulation. Additionally, measures must address the labor conditions, safety norms, and environmental performance of informal transport to ensure these systems are not only functional but also dignified and sustainable. Such an approach recognizes that informal systems are often the outcome of adaptive problem-solving in environments where the state has failed to provide adequate services. Therefore, measures should be embedded in an ethos of collaborative governance, where planners act not as enforcers of top-down standards but as facilitators of negotiated arrangements that improve efficiency, accountability, and equity across the entire mobility system. The implementation phase should be viewed as a multi-scalar and iterative governance process, wherein national ministries, municipal agencies, metropolitan authorities, and neighborhood-level organizations collaboratively co-create, pilot, and adapt mobility initiatives over time. This polycentric governance structure must be deliberately cultivated to accommodate varying capacities, political interests, and jurisdictional overlaps, which are often pronounced in the context of developing cities. Effective implementation demands a redefinition of roles—not merely top-down enforcement or bottom-up advocacy, but shared responsibility and mutual accountability across levels.

Capacity building within this phase must go beyond technical training or institutional restructuring; it must encompass political negotiation, relational trust-building, and mechanisms for ongoing conflict mediation. This involves developing facilitative leadership, transparent communication channels, and participatory budgeting mechanisms to ensure that diverse stakeholders remain engaged and empowered throughout the process. Importantly, implementation should not be treated as a linear execution of predetermined plans but as a dynamic, feedback-driven learning cycle that accommodates shifts in social, economic, and political conditions. Only through this reflexive, inclusive implementation architecture can SUMP in developing cities begin to generate meaningful and durable mobility transformations.

Monitoring and evaluation must be reframed as dynamic, participatory processes that go beyond conventional performance indicators and embrace reflexive, socially grounded metrics (Peters and Reisch, 2023). Rather than solely emphasizing quantitative outputs such as kilometers of track laid, ridership growth, or modal shift percentages, evaluative frameworks must also scrutinize qualitative dimensions of equity, inclusion, and empowerment. Questions like: Has physical and economic access improved for women, children, and people with disabilities? Are informal transport operators more secure in terms of income, labor rights, and institutional recognition? Have commute times and cost burdens been reduced for residents in peripheral and underserved areas?—must become central to the assessment matrix. To support this, monitoring systems should incorporate community-led evaluation tools, participatory feedback loops, and context-sensitive indicators that are co-defined by stakeholders during earlier planning phases. Mixed-method approaches, including ethnographic fieldwork, user experience diaries, and real-time digital platforms for commuter reporting, can enrich the evaluative process and foster ongoing civic engagement. Importantly, evaluation must be adaptive and recursive—feeding insights back into the planning and implementation pipeline to refine goals, modify interventions, and maintain accountability. In a reflexive SUMP, monitoring becomes not an endpoint but a learning architecture that sustains continuous transformation toward greater urban mobility justice.

*What about Istanbul?*

In the case of Istanbul, where the population has remained relatively stable over the past five years, the dramatic 32% increase in motorized vehicle ownership during the same period underscores a deepening reliance on private

cars and a stark misalignment with the aims of sustainable mobility. This accelerating automobilization, unmatched by population growth, signals not only policy inertia but also the inadequacy of current planning paradigms to influence transport behavior meaningfully. A reflexive SUMP would necessitate a fundamental departure from the existing technocratic and infrastructure-heavy orientation that dominates Istanbul's mobility strategy. While the SUMP report for Istanbul demonstrates commendable alignment with EU-defined planning procedures and sustainability language (Canitez et al., 2020), it ultimately mirrors a prescriptive framework developed for mature European cities. It emphasizes quantitative metrics, modal efficiency, and high-cost infrastructure projects—such as metro expansions and congestion pricing—without adequately responding to the lived experiences, socio-spatial inequalities, and plural mobility practices that define Istanbul's dynamic urban fabric.

One of the major risks in Istanbul's current approach stems from its insufficient capacity to anticipate and adapt to the shifting equilibrium conditions that inevitably follow significant mobility and land use interventions. The introduction of new metro lines and transit extensions—while ostensibly aimed at promoting modal shift and reducing congestion—has led to a spatial reconfiguration of travel demand and intensified land speculation in proximity to these new transit nodes. In several cases, this has catalyzed urban transformation processes such as gentrification, displacing lower-income populations and altering the socio-economic fabric of these districts. Simultaneously, urban sprawl continues to expand Istanbul's peripheries, driven in part by rising car ownership and auto-oriented development paradigms that remain insufficiently challenged by the current policy framework.

These concurrent phenomena have created a fluid, often volatile landscape of mobility behaviors and spatial patterns. Modal preferences, trip lengths, and travel times fluctuate as new corridors emerge, housing markets shift, and job centers decentralize. In this dynamic context, SUMP strategies that rely on static baselines or pre-defined mode targets risk obsolescence and misalignment. Without adaptive feedback loops and real-time monitoring mechanisms, infrastructure investments can inadvertently generate induced demand or reinforce existing spatial disparities. A truly reflexive SUMP must therefore integrate scenario planning, continuous impact assessment, and responsive institutional coordination to remain aligned with the evolving urban metabolism. It must move beyond infrastructure provision as a deterministic force and recognize its catalytic role in shaping, and being shaped by, broader urban transformations.

A reflexive SUMP for Istanbul would begin by acknowledging the city's complex and plural mobility ecologies that encompass formal transit lines, informal systems like *dolmuş* and minibuses, ferry routes shaped by the city's geography, and the daily pedestrian flows that characterize many lower-income districts. The current SUMP process has only marginally addressed the social logic of these systems, treating informal transport as a residual phenomenon rather than as a strategic component of the urban mobility network.

Furthermore, Istanbul's SUMP underutilizes participatory methods. Public engagement has been limited to consultation rounds rather than constituting a co-productive planning process. A reflexive model would invert this logic—planning would begin with ethnographic inquiry, spatial storytelling, and neighborhood-level assemblies to co-diagnose problems and formulate contextually meaningful interventions.

Institutional fragmentation and jurisdictional overlaps continue to impede mobility coherence in Istanbul. The current SUMP does little to resolve these governance issues beyond recommending coordination. A reflexive SUMP would treat governance integration not as an administrative fix but as a political process that requires cross-level negotiation, interdepartmental trust-building, and shared accountability.

To improve Istanbul's SUMP, it must move toward a deliberative framework that emphasizes procedural justice and localized knowledge. This includes formalizing the role of informal actors in planning councils, adopting community-based evaluation indicators, and reframing infrastructure decisions around distributive equity. Rather than deploying standardized tools like congestion pricing without adaptation, Istanbul should develop hybrid solutions that balance demand management with improved access for peripheral and low-income areas. In sum, Istanbul's mobility planning must transition from a compliance-driven blueprint to a reflexive, adaptive, and locally resonant transformation process.

Such a framework, while grounded in the values of the original SUMP model—sustainability, inclusiveness, and integration—must diverge methodologically and politically. It must embrace uncertainty, foreground local agency, and frame mobility not as a matter of control, but as a collective negotiation over space, access, and rights.

In doing so, SUMPs in the Global South can evolve from prescriptive models into emancipatory processes, capable of reshaping the urban future from below.

### **Conclusions for Istanbul, The Biggest (Developing) City in Europe**

Sustainable Urban Mobility Plans (SUMPs) have emerged as a transformative framework for urban transport planning, emphasizing sustainability, inclusivity, and environmental stewardship. Developed by the European Commission, SUMPs aim to reconfigure urban mobility systems to prioritize public transport, active modes of transport such as walking and cycling, and the integration of land-use planning with transport infrastructure. Unlike traditional strategies focused on vehicular flow, SUMPs align mobility planning with broader socio-economic and environmental objectives. Their adoption addresses urban challenges like congestion, greenhouse gas emissions, and social inequality (Rupprecht et al., 2019; May, 2015). SUMPs are built on principles of participatory planning and integrated development, tailoring policies to each urban area. Key goals include reducing the environmental impact of transportation, improving public health through active mobility, and fostering equitable access. They contribute to the European Union's climate goals and align urban development with the United Nations' Sustainable Development Goals (Werland, 2020; Spadaro and Pirlone, 2021). A key feature of SUMPs is their focus on short- to mid-term interventions that can be scaled and adapted. These include enhancing public transport efficiency, expanding cycling and pedestrian infrastructure, and integrating multimodal networks. Such strategies mitigate the negative externalities of high car usage, like air pollution and congestion (Lindenaua and Böhler-Baedeker, 2014; Broseta, 2015). Adaptability is crucial for accommodating evolving urban dynamics. However, implementing SUMPs in rapidly growing cities like Istanbul reveals critical limitations. Istanbul's context—marked by sprawling urban development and rising car ownership—presents challenges that conventional SUMPs, originally tailored for stable European settings, are not fully equipped to manage. One fundamental issue is the failure to adequately address the city's systemic transition from a bus-based to a rail-based transit system. Over the past two decades, Istanbul has shifted from a flexible, point-to-point bus network—valued for its economies of scope, thick market and adaptable routing properties—to a more rigid, hub-and-spoke rail system dependent on economies of scale. This transition signifies both a structural and cultural transformation. Bus systems often feature movable stops and adaptable service paths, while rail systems are anchored by fixed stations that serve as enduring spatial nodes. These nodes have significant implications for surrounding land use in terms of densification, economic clustering, and shifts in real estate dynamics. Despite these changes, the current SUMP does not sufficiently account for the spatial repercussions of this shift. It reiterates observations of spatial transformation but stops short of embedding them in actionable strategies. This oversight reflects a broader pattern in which the planning system remains passive—adopting a laissez-faire approach instead of strategically engaging with the systemic transition. To achieve meaningful sustainability outcomes, planning institutions must go beyond merely acknowledging change and take an active role in shaping development. This requires a proactive integration of land use and transit planning that leverages the transformative power of fixed rail infrastructure. Only through such engagement can the full potential of costly transit investments be realized and sustainability targets met.

Although SUMP documents reference integration and multimodal coordination, they lack a comprehensive grasp of the systemic change that is reshaping urban mobility in Istanbul. Without explicitly addressing the full implications of this rail-centric transition—and its interdependence with land use and service delivery—SUMP initiatives risk remaining fragmented and ineffective. The lack of a holistic view inhibits progress toward meaningful sustainability goals. To address this gap, a revised SUMP must prioritize this structural transition at its core, proposing a cohesive, forward-looking framework that aligns land use, accessibility, and multimodal connectivity with Istanbul's evolving rail-based urban form (Torrìsi et al., 2020). A notable issue is the inadequate support for sustainable modes like walking and cycling, which remains disconnected from a broader spatial vision. Aspirational goals are undermined by the absence of a flexible land-use strategy, particularly one centered on urban transformation around high-capacity rail transit stations. Pedestrian infrastructure is not systematically linked to multimodal hubs, reducing its utility, while cycling paths are fragmented and insufficiently embedded into daily mobility networks. To realize the full potential of costly transit investments, a grand urban transformation strategy based on transit-oriented development (TOD) is essential—one that balances density and diversity of

land uses in both newly built and already developed urban areas. Without such an approach, SUMP risks failing to curb car ownership and the growing demand for road and parking space, ultimately weakening its capacity to deliver sustainable mobility outcomes (Przybylowski, 2018; Vujadinović et al., 2021).

Another shortcoming is the limited adaptability of the current SUMP to Istanbul's evolving transport landscape. While rail transit investments such as metro and tram expansions are underway, these high-capacity systems are not integrated into a broader land-use and transit strategy. To maximize the value of such investments, the existing bus-based transit topology must be comprehensively restructured. This reconfiguration should involve redefining the metropolitan area into coherent transit zones aligned with transit-oriented development (TOD) principles. These zones should support a hierarchical, polycentric urban model, in which multiple centers are interconnected by a unified and strategically layered transit system. Such a system would ensure seamless integration between modes—including rail, bus, and ferry—while enabling flexible land-use responses in both new and established urban areas. Without this level of coordination and adaptive planning, the SUMP will be unable to fully leverage its infrastructure investments or meaningfully reduce car dependency and its attendant demands for road and parking space (Yaoundé SUMP Summary, 2019; Kiba-Janiak and Witkowski, 2019).

Addressing these challenges requires a reimagined SUMP framework tailored to dynamic cities—one that goes beyond technical fixes and embraces strategic planning engagement. While adaptive tools like real-time data analytics are essential to identify shifting mobility patterns and anticipate intervention impacts, they are not sufficient on their own. Without an overarching vision anchored in institutional responsibility and proactive policy-making, even the most sophisticated data-driven tools may fall short. A genuinely effective SUMP must not only adapt to evolving conditions but also shape them by deliberately guiding urban growth, land use, and mobility behavior. This means abandoning the current *laissez-faire* attitude, where systemic transitions are acknowledged but not strategically acted upon, in favor of a planning culture that leads rather than follows urban change. In this paradigm, data serves not just as a mirror to urban trends but as a catalyst for visionary, sustainability-oriented decision-making (Wołek, 2014).

Institutional changes are also essential to realizing SUMP initiatives in Istanbul. The current administrative structure, characterized by fragmented decision-making, hinders effective coordination. Without a centralized governance model that consolidates transportation planning and aligns it with land-use policies, the implementation of SUMP will likely fail. Effective integration demands a governance framework that establishes clear relationships between land use and transportation planning, ensuring decisions are made with a holistic view of urban development. Only by restructuring institutional frameworks can Istanbul overcome the challenges of siloed operations and fragmented accountability, paving the way for successful SUMP execution (Rupprecht et al., 2019). Sustainable initiatives in Istanbul must pair land-use policies with context-driven urban design strategies to achieve meaningful results. While mixed-use developments integrating residential, commercial, and recreational spaces can reduce commute needs, these alone are insufficient without a parallel emphasis on urban design. Transit-oriented development (TOD) should not only enhance accessibility but must also be anchored in complete street design principles that prioritize inclusive, safe, and legible public spaces. Urban transformation around transit hubs must include pedestrian-friendly streetscapes, protected cycling infrastructure, accessible transit stops, and vibrant public realms that accommodate all transport modes equitably. These urban design interventions must be tailored to varied neighborhood contexts—densely built historical cores, new development areas, and informal settlements alike. Without such targeted and comprehensive design efforts, even well-conceived land-use strategies may fail to deliver sustainable mobility outcomes or foster the modal shift necessary for reducing car dependency (Andréi and Papuc, 2021; Salazar Deza et al., 2021).

Curbing private car usage is critical. Policies such as congestion pricing, low-emission zones, and parking management are vital tools to discourage automobile dependence and redirect funding toward sustainable projects. However, these measures must extend beyond boutique or pilot applications confined to limited districts like historical peninsula in Istanbul. To be effective, they should be scaled across the entire metropolitan built-up area and consistently engage private mobility in all urban settings. Comprehensive application ensures that car use is managed holistically, not just in selected city centers. At the same time, these measures must be coupled with substantial improvements in public transport—particularly in terms of coverage, frequency, and reliability—to offer credible and attractive alternatives to car use (MobiliseYourCity, 2023).

Expanding non-motorized transport networks, such as bike lanes and pedestrian zones, also remains essential to building an inclusive and balanced mobility system (Kiba-Janiak and Witkowski, 2019).

Stakeholder engagement is another critical SUMP component. Truly inclusive planning must involve a wide spectrum of stakeholders, ranging from neighborhood councils and local civic organizations to metropolitan-scale construction firms, mobility providers, and transport unions. Ensuring that citizens, businesses, and policymakers are actively included allows policies to more accurately reflect localized needs, values, and challenges. Beyond that, integrating private-sector stakeholders—especially those involved in large-scale construction, transit operations, and urban development—can support both the acceptance and implementation of mobility strategies. A multi-scalar and cross-sectoral engagement process strengthens social legitimacy and enhances the responsiveness of the SUMP to Istanbul's complex metropolitan dynamics (Lindenau and Böhler-Baedeker, 2014).

Istanbul's experience underscores the need to adapt SUMPs for fast-growing cities. While sustainability and inclusivity remain central, practical applications must reflect local challenges. Without recalibration, SUMPs risk becoming aspirational documents with limited impact. By adopting innovation and context-sensitive approaches, cities like Istanbul can realize SUMPs' full potential and set benchmarks for addressing urban complexities (Rupprecht et al., 2019; Spadaro and Pirlone, 2021). Lessons from Istanbul highlight the importance of aligning mobility strategies with long-term goals and institutional capacity. As the primate city of Turkey, Istanbul not only holds the largest population and economic weight but also possesses the highest institutional capacity for urban and transport planning. This leadership role makes Istanbul a reference point for other Turkish metropolitan areas, which frequently adopt its policies, institutional frameworks, and operational models. As such, the development and refinement of a robust, context-sensitive SUMP in Istanbul carries significant potential for transferability and scaling. Even the specific policy and operational proposals outlined in Istanbul's SUMP could serve as a blueprint for institutional and legal revisions in municipal governance and local service delivery. A carefully reiterated and effectively implemented SUMP in Istanbul could thus function as a national model, offering tested frameworks and adaptable strategies that reflect both ambition and practicality. Achieving this outcome will require technical expertise, investment, political will, and sustained public engagement. As cities across Turkey grapple with rapid urbanization and climate change, a resilient and well-localized SUMP in Istanbul can inform a scalable, nation-wide shift toward sustainable urban mobility planning (Werland, 2020).

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