URBAN LIVING LABS AS A TOOL TO ACHIEVE SUSTAINABLE DEVELOPMENT GOAL 16: A CASE STUDY OF ISTANBUL, TURKIYE

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Abstract
The article explores the potential of urban living labs (ULLs) to achieve Sustainable Development Goal 16 (SDG16) in the context of Istanbul, Turkiye. Focusing on the need for new approaches to addressing global challenges and local issues within a smart city approach, the research emphasizes the importance of ULLs. The findings reveal that the weakness of the local government and the unjust landscape pattern distribution in urbanization underlined the need for a new form of governance. However, ULLs have the potential to foster a culture of innovation and sustainability in urban governance. The ULL mindset can permeate the broader urban governance ecosystem, leading to the adoption of innovative policies and practices that drive sustainable urban development. However, defining the landscape pattern via planning and management system is crucial to understanding Turkiye's complicated governance. The findings contribute to the discourse on urban planning, offering a pathway for cities, including Istanbul, to navigate complex urban issues.
Keywords: land management; landscape pattern; urban governance; urban living labs (ULL); urban planning; sustainable development goals (SDGs); Istanbul

1   INTRODUCTION

Many initiatives focus on urban-related issues. These initiatives are labeled as city labs -focusing on the implementation process with multi-stakeholder participation (Scholl & Kemp, 2016); living labs - developing products with innovative, technological, and active users (Hossain et al., 2019); and urban living labs -focusing on urban-related problems (Juujarvi & Pesso, 2018). However, the presence of different platforms can lead to the ambiguity of the terms. Current approaches or initiatives, including smart cities, digital cities, urban labs, and city labs, place cities in competition nationally and internationally. Although being competitive can be a success for some cities, it can be a failure, too. Organizational charts being in a common unity away from competition strategies is an approach/method that can strengthen the local struggle against global problems. For instance, The Sustainable Development Goals (SDGs) set global targets under 17 headings (UN-Habitat 2016; 2018). SDG11,

"make cities and human settlements inclusive, safe, resilient, and sustainable," and SDG16, "build effective, accountable, and inclusive institutions at all levels," are the main goals that provide the foundation for creating sustainable cities (Ali et al., 2023). In this context, priorities for cities include developing national strategies, establishing the relationship with SDGs, creating an institutional framework for sustainable cities, strengthening international collaborations, and integrating participation and decision-making processes. Hence, the city has been an examination and experimentation field (Badach & Dymnicka, 2017); confusion about different perspectives, variance in understanding its nature, and transformation of governmental structures are critical topics. On the other hand, smart city efforts, dominated by visions of technology-enabled urban revitalization, economic development, community engagement, and enhanced citizen well-being, instead functioned as a way for private and corporate interests to become more involved in the highest level of urban governance and development processes (Shelton & Lodato, 2019). However, problems and developments such as combating and adapting to the climate crisis, digital transformation, and even the global pandemic have become issues affecting urban planning and local governments. While it is indispensable for countries to take a global step, the adoption and implementation of these steps by local governments have revealed local governments' power in the process (Yang, 2021). However, even well-meaning smart city efforts are incredibly resource-intensive, financially and humanly resource-intensive, distracting attention from the less salient but essential and pressing issues facing cities (Shelton & Lodato, 2019). Indeed, this new reality requires new terminology.

The New Urban Agenda published by the United Nations emphasizes the importance of Urban Living Labs (ULL) to achieve knowledge in experimental and urban governance (UN-Habitat 2015, 2016, 2018). With the rapid pace of urbanization, cities around the world are facing various issues, including environmental degradation, social inequality, and inadequate infrastructure (Paasche & Blewitt, 2018). Traditional approaches to urban governance often fall short in effectively addressing these challenges, necessitating the adoption of innovative and participatory methods (EC, 2019). ULLs, on the other hand, have emerged as dynamic and innovative platforms for addressing complex urban challenges and promoting sustainable urban governance (ENoLL, 2021). Moreover, ULLs offer a promising avenue for collaborative problem-solving, fostering citizen engagement, and facilitating sustainable urban development (ENoLL, 2021).

Additionally, ULL overtures opportunities that focus on daily problems, produce innovative solutions, and make brief decisions and experience with various actors and collaborations (Yilmaz & Ertekin, 2022a). However, there needs to be a governance model in which labs are in a decision-making position. Existing labs seek answers to urban problems by working on education-oriented, human-oriented, and nature-oriented subjects (Bulkeley et al., 2016). ULL platforms, which have become widespread throughout

Europe, are progressing primarily in education and theme-oriented progress (Bulkeley et al., 2016; EC, 2019; ENoLL, 2021; Paasche & Blewitt, 2018; UN-Habitat, 2015; Yilmaz & Ertekin, 2022a). ULL stands out by establishing cooperation between institutions and developing new and innovative methods (Bulkeley et al., 2016; EC, 2019; ENoLL, 2021; Paasche & Blewitt, 2018; UN-Habitat, 2015; Yilmaz & Ertekin, 2022a).

As yet, the climate crisis comprises the agenda of many academic and non-academic domains. Many cities are destroying their natural areas due to rapid urbanization and struggling with natural disasters. In recent days, Turkiye has had to confront many disasters, such as floods and earthquakes. These disasters also challenge the accuracy of city plans. In addition, member countries of the United Nations have made a call for action until the end of 2030. Unfortunately, we are in the last decade to achieve these goals. Hence, crisis interventions and brief and smart decisions constitute the agenda of cities. Achieving the SDGs as a local government requires a comprehensive and coordinated approach (Borzel, 2012; Burkeley et al., 2013; De Burca, 2010; Heijen, 2016; Sassen, 2015). In this regard, national and local governments seek new ways to combat the global agenda. Scientists argue that experimental governance tools that include various actors with collaborative approaches should be developed (Borzel, 2012; Burkeley et al., 2013; De Burca, 2010; Heijen, 2016; Sassen, 2015) until they emphasize cooperation's importance in decision-making, actualization, and implementation processes.

To engage in global challenges and local issues, cities require new methods to deliver quick and practical solutions. Therefore, the article concentrates on finding a viable alternative for Turkiye. The article, focusing on the city of Istanbul, emphasizes the need for ULLs to be embraced as a method within the governance and planning system to achieve the goals outlined in SDG16, which include creating an institutional framework for sustainable cities, strengthening international collaborations, and integrating participation and decision-making processes. According to Sassen (2015), experimental governance tools at the city scale are promising because successful tools can serve as examples for other parts of the city (Sassen, 2015). Based on Sassen's (2015) perspective, the research conducted in Istanbul will serve as an example not only for all cities in Turkiye but also globally. The article is organized into two main sections and three subsections based on its ambitious goals. The article first explains the planning system in Turkiye, then includes GIS analyses, and finally covers the legal framework and governance system. Additionally, the challenges and problems in the governance and planning system are highlighted based on Istanbul's landscape character, aligning with the goal of sustainable urban planning. As a result, it is crucial to analyze in detail how local governments interpret and apply the smart city approach within a comprehensive framework. By examining their perspectives and strategies, we gain a deeper understanding of the underlying motivations and aspirations driving smart city initiatives at the local level.

2   READING URBAN GOVERNANCE FROM PLANNING PERSPECTIVE

In the 1990s, economic neoliberalism was still widely regarded as a remedy for the world's financial problems. The unrestricted movement of capital, human resources, products, and ideas became a global ideology. The issues faced by urban areas stem from a combination of political and economic factors. These factors include changes in the structure and social dynamics of capitalist models, like the decrease in urbanization and production concentration, unregulated urban expansion, the loss of ecological values, and the decline in public spaces (Badach & Dymnicka, 2017). As issues arise, such as the allocation of public space or the need for more greenery, there has been a broad agreement to enhance the quality of life for citizens consistently. Actors already familiar with the rules, required to determine the opinion on their product in the aggregates had to perform by the rules (Bueren, 2019). So that in the policy-making process or decision-making process, engaged actors have an advantage over the actors new to these arenas since they experience substantive and procedural knowledge. Actors already familiar with rules had a clear advantage over newcomers on the scene (Bueren, 2019; Heijen, 2016; Sassen, 2015). Local governments, citizens, or other local actors can be familiar actors in this sense. As a result, there is expanding knowledge of spatial governance's influence over the economy, natural and cultural environment, and social life.

We are experiencing the fourth industrial revolution involving the manufacturing and digitization of contemporary technologies. The outcomes of this revolution take time to foresee. However, defining governance from the perspective of smart cities is necessary to show challenges in the technological era. Meijer and Bolivar (2016) evaluate the concept of smart cities in three different dimensions, which are using smart technologies (technological focus), characterizing smart people in the center (human resource focus), and connecting with smart collaboration (governance focus) (Meijer & Bolivar, 2016). They offer smart city governance in four conceptions: the government of a smart city, smart decision-making, smart administration, smart urban collaboration, need government transformation to make cities smarter (Meijer & Bolivar, 2016). According to research Meijer and Bolivar (2016), effective policies and administrations can lead to positive interactions at the urban level, with the ultimate goal being smart urban collaboration as the highest level of transformation (Meijer & Bolivar, 2016). In today's decision-making, implementation, participation, and collaboration processes, using "innovative approaches" is considered a sign of intelligence. Emphasizing the process, sophisticated information technologies and innovative networks can better serve citizens and communities in smart governance systems (Garcia et al., 2014; Schuurman et al., 2012).

Moreover, smart governance defines making the right policy choices and effectively implementing processes without transforming governmental structures (Batty et al., 2012). Additionally, governmental

management can be counted as smart governance whenever the city promotes itself as smart governance (Batty et al., 2012). However, smart governance emphasizes citizen-centric approaches and collaboration between multi-level actors (Batagan, 2011). Smart cities can stay ahead of the curve by embracing new technologies and collaboration networks. On the other hand, Colding and Barthel (2017) criticize smart cities as they can further marginalize those not skilled in digital technologies and those who refuse to use them because of negative attitudes towards trying and testing new technology equipment and services (Colding & Barthel, 2017). At this stage, it is necessary to question whether smart city methods suit every citizen or every country.

Therefore, it is essential to reveal new approaches that value participation in human-centered approaches, nature-based solutions, and global struggles. In this circumstance, ULL that supports the local economy and creates strong neighborhoods appears as an advantage (Leminen et al., 2017). Currently, ULLs work on mobility, energy, water, waste/materials, and urban agriculture at the neighborhood scale (Bulkeley et al., 2017; 2018). In different circumstances, providing essential urban services and accessible, green, and quality public spaces are vital goals for urban governance (Bajracharya & Khan, 2020). However, by emphasizing the needs of the vulnerable population, promoting citizen engagement, and providing better solutions for the local economy, the local environment can only be sure with the power of local governments in the process. Hence, there is a need for more vital coordination and cooperation between different levels of government. In addition, ULLs can provide an environment for local government to collaborate with the private sector, civil society (Leminen et al., 2018), and entrepreneurs to ensure substantial public interest and transparent accountability mechanisms and manage essential services (Yigitcanlar & Velibeyoglu, 2008).

Conversely, experimental governance is a new approach to public policy and decision-making emphasizing experimentation, co-creation, and learning to address complex social, economic, and environmental challenges (Bason, 2014). The approach involves acknowledging that traditional governance models and institutions may need to be better equipped to handle the complexity, uncertainty, and diversity of contemporary issues. This recognition can lead to the developing of more suitable models and institutions (Voß & Bornemann, 2011). Moreover, experimental governance involves creating spaces and processes for experimenting with new policies, programs, and technologies and involving diverse stakeholders in co-creating and testing these innovations (Sørensen & Torfing, 2011). The purpose of these experiments is to gather real-world data, receive feedback, and gain knowledge that can be used to create and improve solutions, as well as expand their reach. This approach often involves partnerships between government, academia, civil society organizations, and private sector actors and requires a high degree of flexibility, openness, and adaptability. Examples of experimental governance include ULLs,

which provide platforms for experimentation and learning in different domains. ULL aims to foster a culture of innovation, collaboration, and experimentation and to create new forms of governance that are more adaptive, responsive, and inclusive (Bulkeley et al., 2014; Doré & Halkier, 2018). Besides, ULL are collaborative and user-driven innovation platforms that unite diverse stakeholders, including citizens, civil society organizations, businesses, and government agencies, to co-create and test new solutions for complex urban challenges. ULL often employs experimental methods, such as prototyping, testing, and iteration, to generate evidence and insights on what works and what does not and to inform the development of new policies, programs, and technologies (Bulkeley et al., 2014; Doré & Halkier, 2018; Gabrys et al, 2016; van Winden et al., 2013). ULLs can be viewed as a distinct form of urban experimentation that puts into practice the ideals of experimental governance, such as co-creation, user-driven innovation, and learning. They provide a space for experimentation and learning, where stakeholders can collaborate, test new solutions, and evaluate their impact in real-world contexts (Westerlund & Leminen, 2018). The concept of ULLs is a practical example of experimental governance in cities. ULL can offer valuable lessons on creating sustainable, resilient, and inclusive cities by working together, being innovative, and trying new things.

Since there is no correct governance approach, the scale and scope of the studies have limitations. If the ULL model combined with the local government succeeds, local solutions can answer global concerns with rapid results. Furthermore, data from the locality will be gathered and stored on a unified platform. While discoursing urban concerns, another issue is addressing the local data and the openness of the data (Sørensen & Torfing, 2011). Open data systems and collaborations can carry out common perspectives even when the authority is not in the local governments. However, in this circumstance, unfortunately, local problems come into action. What is essential here is to develop solutions for priorities and the problems to be encountered in the future, starting with determining priority fields, establishing a network of relations, and determining the method of participation. These solutions require system and process design to meet SDG 2030 targets. Identifying urban risks with urban trends such as innovation and technology can bring a step closer to the solution. Although governance's relationship with democracy is not always apparent, it is essential to clarify governance's nature, practical aspects, and challenges (Badach & Dymnicka, 2017; Ruijer, 2021). Heijden (2016) emphasizes that the governance instruments interventions should be non-traditional, at a local scale, locally problem-focused, and malleable, as well as responding to their local contexts, with traceable results, observable and learnable (Heijen, 2016).

At this stage, it is necessary to explain the governance instruments in Turkiye.

3   METHODOLOGICAL APPROACH

We developed a thorough method to find a practical substitute for Turkiye. Our approach highlights the significance of ULLs in the governance and planning system, which is crucial to achieving the objectives outlined in SDG16. This approach involves several essential steps aimed at gaining a comprehensive understanding and conducting an extensive analysis of the subject matter, focusing on the vibrant city of Istanbul.

▪   Data Collection: To gather pertinent information, we used various sources such as government reports, official statistics, and Istanbul-specific datasets. The research relied on diverse and reliable data sources, including the Istanbul Metropolitan Municipality (IMM) and the Urban Atlas open database, to ensure a comprehensive analysis. The primary data was initially collected in the year 2022.

▪   Spatial Analysis using GIS: The collected data underwent extensive analysis using Geographic Information Systems (GIS) software, such as ArcGIS and ArcPro. GIS analysis examined spatial patterns, land-use characteristics, infrastructure networks, and landscape patterns in Istanbul. This geospatial analysis was crucial in understanding the complex urban dynamics and the interplay between different variables.

▪   Legal and Governance Framework Analysis: By critically evaluating the existing framework in Turkiye, the article aimed to identify strengths, weaknesses, and potential areas for improvement in achieving sustainable urban development.

▪   Research Questions and Objectives: The research question "How can ULLs be adapted to urban management?" guided the overall research process. In order to provide comprehensive answers to our research question and reach meaningful conclusions, we gathered relevant data and skillfully analyzed it using GIS. The knowledge and insights gained throughout this process robustly supported our findings.

By employing this multi-faceted methodology, the article sought to comprehensively explore the topic, encompassing theoretical insights, empirical analysis, and practical considerations. The emphasis on Istanbul allowed for a focused examination of a dynamic urban context while drawing broader implications and lessons for urban governance and planning in Turkiye. As a result, the ULL model is proposed as a novel approach to urban governance, offering a solution for complex authorities and their spatial ramifications in Turkiye, using Istanbul as an exemplar. The model considers existing management plans, ongoing lab operations, and the spatial challenges created by the complex management structure in Turkiye.

4   URBAN GOVERNANCE FROM ISTANBUL'S PLANNING PERSPECTIVE

The planning system in Turkiye is considered a political instrument. Therefore, governance and planning are addressed together in the research. The primary focus of this section is to address the critical issues related to management and governance in Turkiye. The ULL model is the most viable solution to tackle these challenges.

4.1   The regulations

Urban landscape management in Turkiye is governed by a combination of national legislation, regional regulations, and local planning frameworks. These policies and regulations aim to guide land use, preserve green spaces, protect cultural heritage, and ensure sustainable urban development. Institutional frameworks related to urban landscape management in Turkiye:

▪   National Legislation (Url-1): The Turkish Constitution provides the legal basis for urban planning and environmental protection. Several laws and regulations govern urban landscape management, including the Environmental Law, Land Registry Law, Law on Conservation of Cultural and Natural Heritage, Law on Spatial Planning, and Law on Protection of Cultural and Natural Assets. These laws set the legal framework for land use planning, environmental impact assessments, heritage conservation, and protection of natural areas.

▪   Spatial Planning (Url-1): The Ministry of Environment and Urbanization is responsible for spatial planning in Turkiye. The Spatial Plan Law establishes the legal framework for preparing national, regional, and local spatial plans. The plans define land use categories, development zones, and conservation areas, providing guidance for urban development and landscape management.

▪   Zoning Regulations (Url-1): Zoning regulations play a crucial role in determining land use and development in urban areas. These regulations define different land use categories, such as residential, commercial, industrial, and green spaces, and specify the permissible building density, height, and setbacks. Tehnically, they aim to ensure orderly and sustainable development while preserving green areas and protecting the environment.

▪   Environmental Impact Assessment (EIA) (Url-2): The EIA process is mandated by the Environmental Law and requires developers to assess and mitigate the environmental impacts of their projects. Projects with potential environmental impacts, including those related to urban development and infrastructure, must undergo an EIA process before receiving approval. The EIA process considers the impact on the natural environment, biodiversity, and landscape values.

▪ Cultural Heritage Protection (Url-1): Turkiye has a rich cultural heritage, and numerous laws and regulations are in place to protect and preserve historical sites, monuments, and cultural landscapes. The Law on Conservation of Cultural and Natural Heritage establishes the legal framework for the protection, restoration, and management of cultural assets. The Ministry of Culture and Tourism, along with local authorities, plays a key role in implementing these regulations.

▪ Local Governance (Url-1): Local municipalities and metropolitan municipalities are responsible for urban planning and landscape management at the local level. They prepare local development plans, zoning regulations, and green space strategies in line with national legislation. Municipalities also play a role in managing parks, gardens, and other public green spaces, ensuring their maintenance and accessibility.

▪ Institutional Framework (Url-1): Various governmental institutions, including the Ministry of Environment and Urbanization, Ministry of Culture and Tourism, Ministry of Agriculture and Forestry, and Ministry of Interior, are involved in urban landscape management.
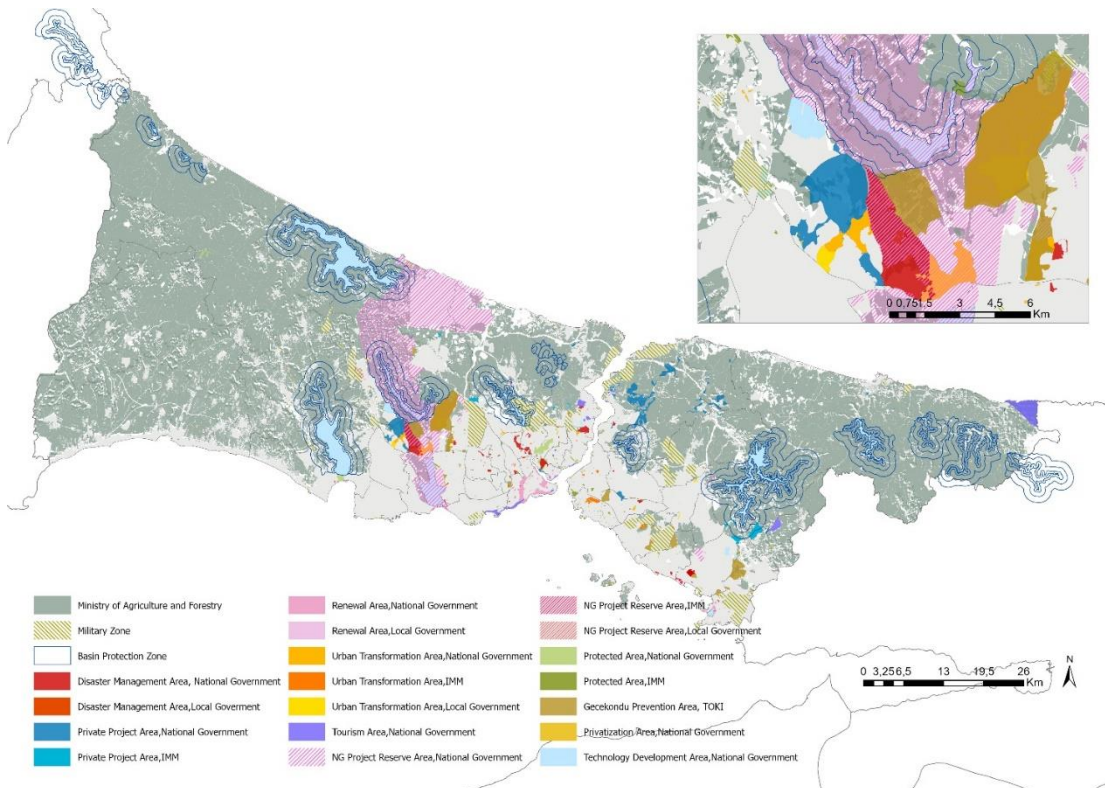

FIGURE 1 - LAND GOVERNANCE MODEL OF ISTANBUL'S URBAN DEVELOPMENT.

While these policies and institutional frameworks provide a foundation for urban landscape management in Turkiye, challenges and gaps still exist. These include limited enforcement capacity, inadequate

coordination between different institutions, the need for enhanced public participation, and addressing emerging issues like climate change adaptationi, biodiversity conservation and SDGs as global agenda. Improving the effectiveness of these policies and frameworks requires continuous monitoring, evaluation, and revision to align with evolving urban challenges and sustainability goals.

In order to provide a comprehensive understanding of the confusion of authority in Turkey, it is necessary to explain the urban planning system in simple terms. The spatial planning process in Turkiye follows a hierarchical structure, where decisions are made at different scales. Upper-scale plan decisions, such as the environmental plan, are prepared and implemented by the national government, while lower-scale plans, including the master zoning plan and implementation zoning plan, are the responsibility of local governments. It is important to note that lower-scale plans must align with the decisions made at the upper-scale level, creating a hierarchical framework. Additionally, certain planning boundaries are determined by special laws, and the authority over these areas lies with the national government and relevant ministries.

Figure 1 illustrates the jurisdictional boundaries in Istanbul's planning process. The analysis presented in Figure 1 reveals the presence of fourteen distinct planning boundaries and twenty-one or more authorization classifications. For instance, Law No. 6306 on the Transformation of Areas under Disaster Risk (2012) designates urban transformation areas, disaster risk areas, and project reserve areas. The law specifies the identification of areas at risk due to geological conditions and construction, and the establishment of new settlement areas known as reserve areas. This example demonstrates the top-down planning model, where spatial decisions are shaped by laws, implementation decisions, and plans.

However, when we examine the spatial reflection of the implementation decisions, it is possible to see the current system's deficiencies and the spatial problems it creates. For instance, the areas defined by the law as reserve areas that do not pose any problems in the procedure overlap with the natural areas, as seen in Figure 1. Regions, including water resources, forests, and protected areas, were declared reserve areas and, unfortunately, opened to settlement. Another concern is that the national government takes the spatial decision, affecting the city's citizens directly. On the other hand, the effect of local governments on the city is superficial, which indicates that the authority of small intervention areas in the analysis (Figure 1) is local governments.

Although the planning legislation in Turkiye is detailed and comprehensive, it can become a disadvantage if the decisions made during the implementation process are unfavorable. The purpose of illustrating the jurisdictions in Figure 1 is to demonstrate the presence of multiple decision-makers, overlapping categorizations of areas, and the resulting settlement pressure on natural areas. While the existence of

laws serves to regulate spatial decisions, it can also lead to confusion regarding authority and inappropriate implementation decisions.

In this stage, the importance of cooperation comes into sense. While the intense cooperation between the national government and the local government can be beneficial in minimizing the problems, they can also assume the supervisory role of each other. For example, the opening of the reserve areas for construction - new settlement areas - and the application permits in this area with the Mass Housing Law No. 2985 (1984) was given to Toplu Konut Idaresi (TOKI- Housing Development Administration). However, TOKI works as another part of the national government. As a result, local governments do not have significant influence in determining spatial decisions in the city. Therefore, there is a need to explore alternative models that address these issues.
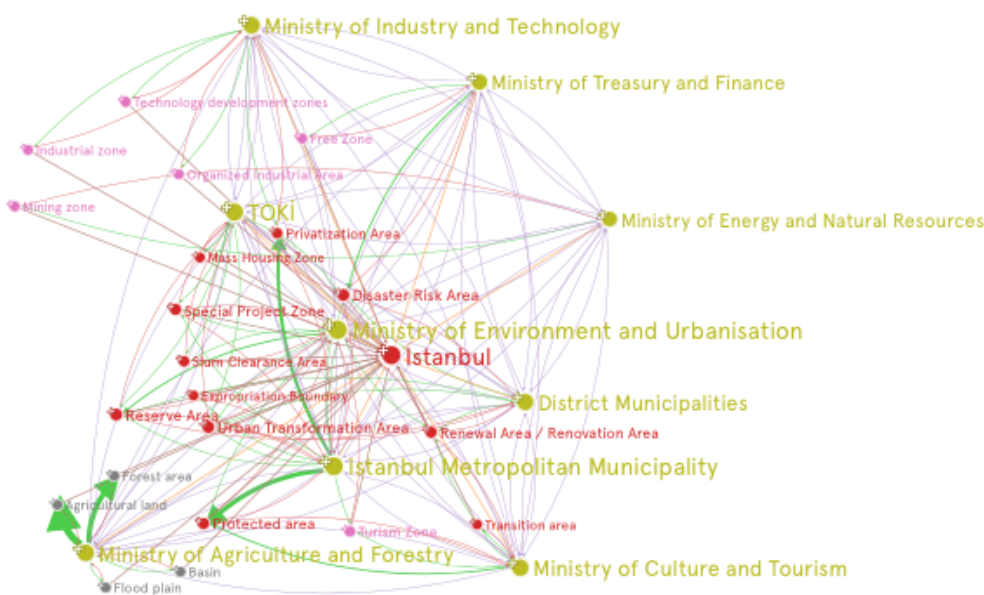

FIGURE 2 - ORGANIZATIONAL STRUCTURE IN LAND-USE PLANNING ISTANBUL.

Furthermore, Figure 2 provides a visual representation of the organizational framework and its relationship with the jurisdictions described in Figure 1. Also, Figure 2 showcases the planning zones and the corresponding authorities within Istanbul's planning system. The intricate and interconnected nature of the organizational structure reflects an ecosystem approach to urban governance in Istanbul.

Moreover, Figure 2 emphasizes the necessity for greater authority to be granted to the Istanbul Metropolitan Municipality (IMM), as local government, in planning decisions. While there have been some experimental governance models implemented, many urban problems still require effective solutions and attention. The IMM has recognized the importance of addressing these challenges and has taken steps

to address them, such as providing information on reducing the availability of green spaces for citizens. However, it is crucial to note that brief and localized actions are essential in today's rapidly evolving landscape of information exchange and decision-making. In Figure 2, we aim to visually demonstrate the complex organizational framework of Istanbul's planning system and the need for enhanced authority for the local government. This representation highlights the interconnectedness of various planning zones and emphasizes the importance of addressing urban issues through comprehensive and collaborative approaches. By providing Figure 1 and 2, we aim to shed light on the complexity of the authority structure in Turkiye's urban planning system and the challenges it poses. We recognize the importance of finding a new model that promotes effective cooperation and empowers local governments to play a more significant role in spatial decision-making.

4.2   Reading the pattern: Spatial reflections of the governance

In Turkiye, in 2019, the urban population counted 36.961 million people (World Bank, 2019). Istanbul, with a population of approximately 16 million (excluding the unregistered population), stands as the most significant city in Turkiye (TUIK, 2022). The concentration of population in Istanbul highlights its critical role and challenges as a major urban center. Despite the city receiving a majority of economic investments, the influx of people and the expanding labor force make it increasingly complex for Istanbul to address global issues. While the local government focuses on efforts to combat the climate crisis and achieve the Sustainable Development Goals (SDGs), these endeavors are hindered by limitations in authority.

One of the consequences of urban sprawl is the loss of natural landscapes in Istanbul due to misguided spatial decisions (Figure 3). The improper implementation of spatial plans has led to a decline in the value of landscapes over time. An example of this is the Istanbul Canal Boundary, authorized by the Ministry of Environment and Urbanization, as depicted in Figure 4. This canal project has contributed to the degradation of the city's landscape.

FIGURE 3 - TEMPORAL VARIATION OF LANDSCAPE PATTERN.

In addition, Figure 3 shows the temporal variation of landscape patterns. It illustrates the negative impact of urban development on Istanbul's natural environment. However, Figure 4 provides insights into the distribution of authority between the national and local governments within the planning system, specifically from the perspective of the urban landscape. The analysis presented in the Figure 4 only reflects the current situation, where eight departments hold decision-making and implementation authority at the national level, while there are only two at the local level. However, the spatial overlap of different authority levels within each section raises questions about the effectiveness of this approach. Collaborative planning and coordination between different stakeholders are essential. Unfortunately, the current collaboration exhibits a top-down understanding, which can impede the search for effective global solutions.

By referring to Figures 3 and 4, we aim to provide visual evidence of the challenges faced by Istanbul in terms of landscape degradation and overlapping authorities within the planning system. These illustrations highlight the urgency for improved collaboration and a more integrated approach to address the city's pressing issues.
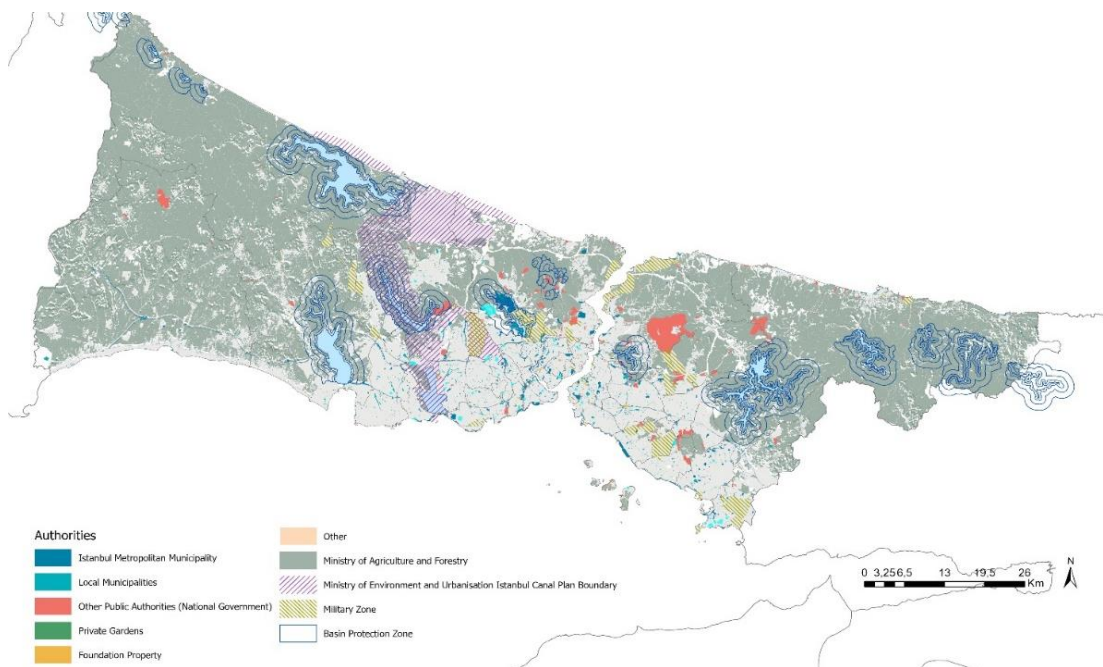

FIGURE 4 - LAND GOVERNANCE MODEL OF ISTANBUL'S LANDSCAPE PATTERN.

However, despite the existing authorities, Figure 4 sheds light on the landscape pattern in Istanbul. The city possesses significant potential in terms of urban forest areas, benefiting from fertile soil, and urban agricultural areas also have considerable potential (Figure 4). However, both forested areas in the city's periphery and to the north, as well as agricultural fields, are at risk of disappearing due to planning

decisions. The rapid population growth of the metropolitan city has exacerbated this issue, but it has not yet reached an irreversible state. While grappling with global challenges, preserving and even enhancing the current state of Istanbul's natural areas is crucial for its future.

One major concern is the management of specific fields that fall under the control of the national government, leaving the local government with no authority over them. This represents a missed opportunity to leverage the expertise and insights of local officials and residents who have a direct connection to these areas. Such collaboration and cooperation are essential for effective governance and can be particularly challenging in the context of addressing global problems. Empowering and involving the local community becomes crucial in establishing effective governance models. This statement also applies to protected areas, which face similar challenges. The landscape quality of these protected areas is also at risk as a result of various factors. The loss of landscape quality in a large number of protected areas further underscores the importance of addressing these issues. To ensure sustainable and effective management of Istanbul's natural areas, involving local stakeholders and empowering them in decision-making is imperative. Their knowledge, expertise, and proximity to the affected areas can contribute significantly to finding suitable solutions. By engaging the local community, fostering collaboration, and addressing authority limitations, Istanbul can work towards a more sustainable and resilient future.

In addition to the protected zones established by national legislation, Istanbul boasts a significant expanse of agricultural lands, pastures, and forests, showcasing the diverse landscape character of the city. Furthermore, protected landscapes within Istanbul hold international status, underscoring their global significance. Given the ongoing climate crises, ensuring these vulnerable landscapes are appropriately managed and authorized becomes crucial. However, the existing planning systems in Turkiye lack comprehensive legislation specifically dedicated to landscape planning and conservation. Without a unified and holistic approach to landscape protection, it becomes challenging to effectively address not only the SDGs but also other pressing global concerns within a reasonable timeframe. This gap in the planning systems raises important questions about how we can navigate the complex management of landscapes while simultaneously tackling global challenges. The research on management complexity aims to explore potential solutions to these pressing issues. By studying the intricate dynamics of landscape management in Istanbul, it is identified that strategies can enhance the integration of SDGs and global concerns into the planning and conservation of landscapes. It seeks to bridge the gap between landscape protection and the broader sustainability agenda, enabling more effective decision-making processes that consider the long-term implications for local and global. Addressing the management complexity of Istanbul's landscapes requires a multidisciplinary approach involving various stakeholders, including government agencies, local communities, conservation organizations, and researchers. By

incorporating landscape pattern principles into the existing planning systems, achieving a more harmonious balance between development, environmental protection, and the pursuit of global sustainability goals is possible. Our research aims to help develop policies and strategies that acknowledge the importance of landscapes in achieving sustainable development. By fostering a comprehensive and integrated approach to landscape management, we can ensure the preservation of Istanbul's diverse landscapes while promptly addressing global challenges.
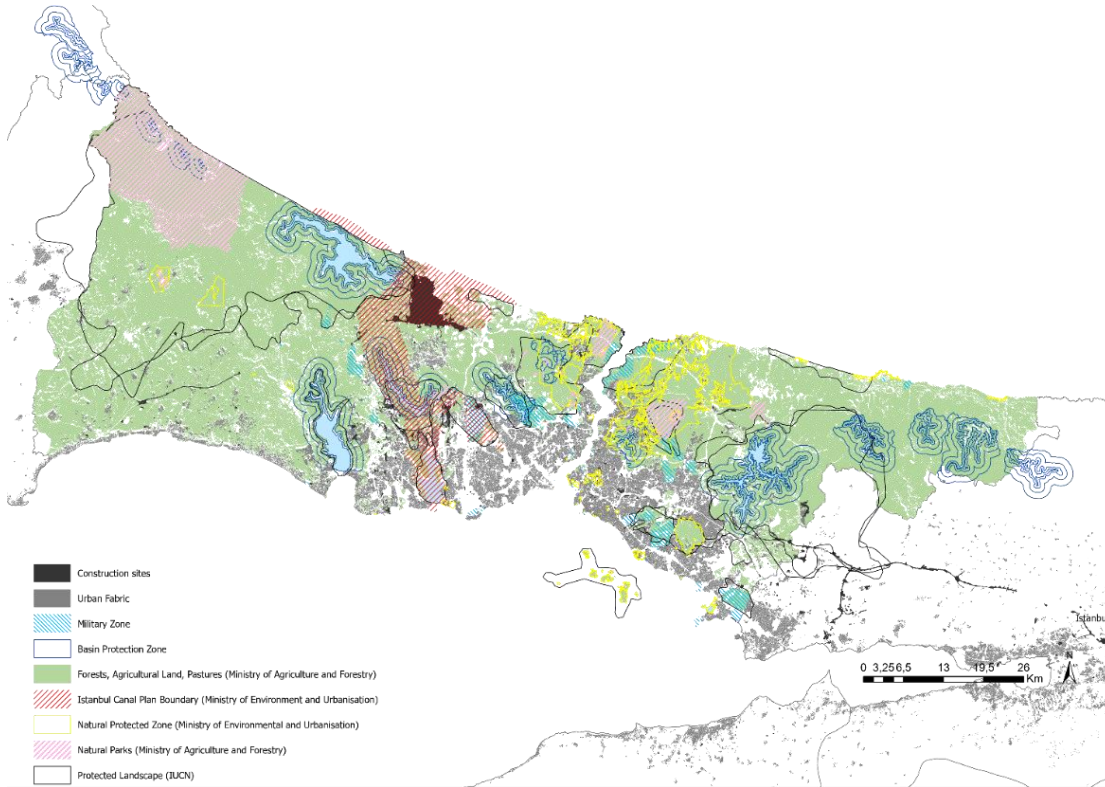

FIGURE 5 - LAND-USE COVER BASED ON AUTHORITIES.

To provide a concrete illustration of the management complexity in Istanbul, Figure 5 showcases the challenging situation surrounding military areas in the city center. Despite being natural landscapes, these areas have been designated reserve areas by the relevant ministries and are now targeted for construction purposes. The challenge of maintaining natural landscapes while accommodating urban growth is a complex and pressing issue. The conversion of these military areas into construction sites has destroyed valuable natural landscapes, including forests, agricultural land, pastures, and protected areas.

The decision-making authority lies primarily with the national government, limiting the ability of local governments to influence the planning and management of these large-scale landscapes. This centralized approach to decision-making disregards the local context and the potential contributions of local governments and communities in protecting and preserving Istanbul's landscapes. On the other hand,

natural parks and protected zones serve as crucial spaces accessible to city residents for recreational and daily use. However, excessive use of these protected lands often leads to pollution and other administrative challenges that require careful management and oversight. It is imperative to foster local conservation awareness and engagement among residents to address these concerns. By raising awareness about the value and fragility of natural landscapes, local communities can become active participants in their protection and preservation.

Moreover, managing the complexity of landscape management in Istanbul requires a collaborative and coordinated framework that involves various stakeholders, including government bodies, local communities, conservation organizations, and researchers. Establishing a common platform for dialogue and decision-making makes navigating complex challenges and finding mutually beneficial solutions possible. Protecting Istanbul's landscapes and addressing the management complexity also necessitates the development of comprehensive conservation strategies and policies. These frameworks should consider the local context, engage stakeholders at all levels, and balance sustainable development and environmental preservation.

In conclusion, developing a solid local conservation ethos and embracing a collaborative approach to address the management complexity of Istanbul's landscapes is crucial. By recognizing the value of these natural areas and involving all relevant stakeholders, we can work towards a shared vision of protecting and preserving Istanbul's diverse and ecologically significant landscapes for future generations.

4.3   The urban experience: Daily practice of the locals

The Istanbul Metropolitan Municipality (IMM) has adopted the vision of creating a fair, green, and creative city that makes its residents happy. This vision will guide the planning of Istanbul's future (IMM, 2020). Creating sustainable green areas and increasing the amount of active green areas per capita are among the strategic goals of the municipality (IMM, 2020). In addition, within the scope of the green city vision in the 11th Development Plan, the aim is to increase the quality of life and the number of green areas within the framework of adaptation to climate change. According to a recent survey conducted by the municipality, citizens placed the highest priority on transportation (44%), social support (15%), green spaces (7%), and urban planning (6%) services (IMM, 2020). The survey was conducted with a participatory approach. The studies carried out within the scope of external stakeholder analysis are; the priority issues of Istanbul are green spaces and environmental services (23%), earthquake-disaster and emergency management (23%), and transportation (19%). IMM considers it essential to carry out its services without depriving future generations of the present environmental assets and to increase the green areas of Istanbul that are accessible to everyone (IMM, 2020).

As stated in the Strategic Plan (IMM, 2020), the need for green space is among the main problems of Istanbul (IMM, 2020). However, it is essential to take action and utilize the potential in order to find solutions. According to Spatial Planning Code (2014), there are two types of green areas: active and passive green areas. Active green areas include playgrounds, parks, botanical gardens, zoos, picnic areas, and recreational areas such as public sports, urban forests, natural parks, and timber forests. These areas benefit citizens, tourists, and those living nearby or far away. Passive green areas, such as forests, traffic islands, cemeteries, and woodlands, are typically viewed as open spaces that are not considered public areas with users. However, citizens also use passive green for daily activities due to the need for more green space. Therefore, contrary to the worldwide concern about biodiversity conservation, the daily use of protected areas brings destruction. However, there is a need for new regulations according to ecological concerns. The presence of passive and active green areas does not necessarily depend on the landscape characters and vice versa. In this sense, green areas should be considered with a perspective other than passive and active areas managed to preserve the landscape character. Although there are regulations on protected areas, these regulations do not indicate whether the priority is service or protection. When comparing cities, it is only appropriate to use green area calculations per capita. The city's main problem is demonstrating how it deals with the landscape. The fact that Turkiye has too many regulations and plans reveals another confusion on the issue. The reality is that different institutions with regulations manage areas with different landscape characteristics causing authority confusion and the landscape not to be handled holistically. Regrettably, the high population in Istanbul makes it challenging to meet the demand for urban green spaces. The city's green distribution is expected to be available to everyone. Even so, the situation cannot be met due to the deficiency of nature-based solutions in urban planning. Therefore, the decisions taken by the IMM as a local government in Istanbul (as given in Figures 1 & 4) are specific to restricted areas. Here, the necessity of cooperation and applying a new method to the city comes to the fore. Along with green areas are not considered landscape ecosystems, evaluating the active and passive green areas per capita is reasonable only to meet urban standards. However, urban green areas and natural landscapes should be evaluated concurrently as a part of the ecosystem. Even though local governments take notice of citizens' voices and seek an answer to their green needs, they move away from the significant picture. Although there are conservation approaches for natural landscapes, they can be easily ignored due to political decisions, rapid urbanization, and urban sprawl.

The Istanbul Metropolitan Municipality (IMM) has implemented several initiatives to increase the city's green spaces under the Green Istanbul vision. These include rehabilitating streams, improving streets and squares, enhancing coastal landscapes, and creating new parks. Currently, there are ongoing projects to connect the forests in Istanbul's north to the southern coastline using "life valleys." The goal is

to create natural transitions between these areas. It cannot be emphasized enough that protecting Istanbul's ecological values demands far more than these mere efforts.

On the contrary, it is essential to address the issue of encroachments, as explained in sections 1 and 2, where military and forest areas have been opened for development under the national government's authority. Therefore, the focus should be on finding a solution to the issue of conflicting authorities. Otherwise, achieving successful projects that effectively respond to local and global challenges will not be possible, given the different approaches prioritized by local and national governments.

The planning issues in Turkiye, particularly in Istanbul, mentioned in the article have adverse effects on the global agenda. Resolving the issue of conflicting authorities in the planning approach should be the fundamental priority. The discussion of green spaces in the article reflects just one of the issues that mirror the problems in Istanbul. Focusing on green spaces is essential in combating the climate crisis and its significance in terms of ecosystem diversity and biodiversity and improving urban residents' living standards and quality. On the other hand, the Istanbul Planning Agency (IPA) (Url-3), established under the IMM, serves as a laboratory that supports the municipality's work, projects, and practices. Within the scope of IPA, activities such as data management, content production, and pilot projects are carried out, and training and consultancy services are provided in urban planning. IPA, considered the academic research field of IMM, also offers innovative support to the municipality's initiatives. However, the issue of conflicting authorities in the country also comes into play here. While the data produced within the lab are utilized in IMM's implementation field, collaborations with other local and national governments still need to be established. Political differences affect collaborations and indirectly affect the city itself. The lack of a legal framework explicitly addressing urban living labs limits the scope of innovative lab activities.

Nevertheless, the successes of labs in focusing on local problems and generating local solutions have started to be discussed on the global agenda (Bulkeley et al., 2018; Leminen & Westerlund, 2019; Yilmaz & Ertekin, 2022b). Many cities seek rapid and practical solutions to urban and global problems through labs, especially in Europe (Palgan et al., 2016; Petrescu et al., 2022). Lab practices have been expanding in many countries, including Turkiye, which now includes a new governance approach and perspective (Yilmaz & Ertekin, 2022b).Lab activities that enable local users to become urban actors through education and experiential participation in planning and design processes are among the topics that should be important on the global agenda (Yilmaz & Ertekin, 2022b). Ecological and biodiversity-based problems are no longer confined to national borders; they have become global issues concerning the world. This situation emphasizes the need for collaborative action. However, countries facing planning and implementation challenges cannot respond to the global agenda. In this context, labs have the potential to act on a global scale.

In addition, the research that included the comparative analysis of two ULLs in Turkiye, Yilmaz & Ertekin (2022) identified the deficiencies of the labs and produced recommendations for revision (Yilmaz & Ertekin, 2022b). The suggestions involve enhancing labs and actively participating in urban planning to create immediate solutions for global and local challenges. Concurrently, the need to strengthen cooperation with local governments to discover solutions to local problems and the process's transparency was underlined (Yilmaz & Ertekin, 2022b). On the other hand, openness, continuity, realism, empowerment of users, spontaneity, and influence are the lab's criteria to meet daily life situations (Yilmaz & Ertekin, 2022a). Based on these criteria, it is necessary to re-design the ULL model from a local perspective. Even though the current ULL model focuses on urban issues, the ULL implementations have yet to expand and remain inadequate. The principles of openness, empowerment of users, continuity, realism, influence, and spontaneity in the current ULL model are not at a level to solve local problems or are not at a level to localize global issues. It pays attention to the diversity of actors, the role of the user, designer, and cooperation and entrepreneurial relations. The dimension of participation is broad, but its relationship with urban planning still needs to be established. In this framework, it is necessary to establish a connection between the existing potentials and challenges of ULLs.

Apart from the ULL approach, the smart city approach includes measurement and evaluation criteria such as quality in cities, tourist attraction, production, and innovative approaches (Batty et al, 2012; Batagan, 2011; Barns, 2018). It adopts the method of easy evaluation of cities under six headings and ranking and scoring with this evaluation. It is a question of whether it focuses on the problems encountered in the cities or whether decisions are taken according to the locals' priorities (Cowley & Caprotti, 2019; Gordon & Buck, 2005; Herrera, 2017). The priorities framework (Cowley & Caprotti, 2019; Gordon & Buck, 2005; Herrera, 2017) is used to implement the implementations. A similar problem emerges on the global agenda as well. There is an ongoing debate on how to address particular preferences, whether national, urban, or local, and there is a need to find answers to these.

Consequently, the article's next section examines the lab model from a Turkish perspective to serve as an example for all cities and countries. In the following section, a new ULL model has been re-evaluated in urban planning, incorporating the global agenda and the existing ULL. The model, which can be a solution and adaptable for any country with a top-down or bottom-up management system, is balanced with the implementation process and success. However, there are differences in decision-making processes. In addition to all these, in the case of Turkiye, which has a top-down management system, a different system proposal for ULL is outside the requirements, but it is essential to include it in the management system. Therefore, the immediate response here is to enable the benefits of ULL to be used in urban planning and to raise awareness of the concern.

5   A NEW MODEL OF URBAN LIVING LABS

Planning in Istanbul is yet hierarchical and largely top-down in the contemporary context. Istanbulites can make the right decisions for their future. However, the approach should include more than just the citizen participation process. On the contrary, the proper approach should consider the process as a whole that educates, informs, and includes the citizens. Implementing spatial strategies in a city should not be categorized as a complete or incomplete approach. Instead, it is essential to develop intervention methods in the most appropriate ways. Of course, flexibility is necessary when new methods are on the table. Apart from the ULL structure, the management scheme in Turkiye includes a system that needs to be more flexible. Turkiye's complex management system can benefit the ULL model's development.

Regardless, Istanbul's potential and weaknesses may emerge due to the need for strong cooperation and the separate actions of the management at each level. Considering the budget is an essential factor that cannot be overlooked. The municipality's annual budget, approved by the council members, is distributed to all the municipality's services. This situation may result in problems with having a limited budget and difficulty allocating funds effectively. However, collaborating with other local administrations, universities, and private companies may pose a budgetary challenge. In these situations, the recommended solution from the research is to utilize the potential of ULLs. ULLs can resolve issues by serving as mediators and facilitating collaborations by providing methods or space. Of course, this proposal is a prelude to rethinking, redesigning, and re-acting cities.

In the planning approach of ULL, there is constant interaction and feedback between the stages of decision-making, testing, implementation process, controlling, and auditing. Urban planning studies show that technological developments are not a gradual process or situation but rather a continuous loop. Instead of measuring the long-term impact of large-scale projects, focusing on local governments can reveal the effects on everyday life. Moreover, seeking answers to local problems, responding to the needs of residents, trying to produce solutions to daily issues, and demonstrating their impact on everyday life helps us recognize real-world issues. It has the potential to set an example for small-scale to large-scale studies. In this context, ULL emerges as a relevant method for developing system and process design. It is crucial to benefit from the advantages of ULL with its adaptation to rapidly developing and changing technology, comprehensive cooperation network, the multi-stakeholder participatory application process, self-renewing, and rapidly correcting approach contents.

According to concerns, mentioned in previous sections (the law, the pattern and the citizen), urban planning in Turkiye faces several weaknesses and challenges, including;

▪ Lack of comprehensive planning: Turkiye has a history of fragmented and ad-hoc urban planning, which has led to urban sprawl and poor environmental quality.

▪ Fragmented Governance: One of the key limitations is the fragmented governance structure, with multiple institutions and agencies involved in urban landscape management. This fragmentation can lead to coordination difficulties, overlapping responsibilities, and inconsistent decision-making processes.

▪ Lack of Integration: There is often a need for integration between different policy domains and sectors related to urban landscape management. This can result in disconnected efforts and a lack of holistic approaches to addressing urban challenges such as land use and green infrastructure.

▪ Inadequate Enforcement: Despite regulations and policies, the enforcement mechanisms for urban landscape management can be weak. Regulations and laws related to urban planning are often not enforced in Turkiye, leading to unregulated construction, illegal settlements, and uncontrolled urbanization. This can lead to non-compliance, unauthorized development, and degradation of green spaces. Strengthening enforcement mechanisms is crucial for effectively implementing and protecting urban landscapes.

▪ Political instability: Political instability and frequent changes in government can disrupt urban planning and development, leading to inconsistent policies and investments.

▪ Lack of Long-Term Planning: Urban landscape management requires long-term planning and vision. However, there may be a tendency towards short-term and project-specific approaches, which can undermine urban landscapes' long-term sustainability and resilience. Developing comprehensive and long-term planning strategies is crucial for effective management.

▪ Limited citizen participation: Citizen Participation in the urban planning process is limited in Turkiye, with decisions often made by government authorities and private developers without adequate consultation with local communities.

▪ Limited Capacity and Expertise: Building capacity and expertise in urban landscape management among relevant stakeholders, including government officials, planners, and professionals, can be challenging. This can affect the quality of decision-making, project implementation, and overall effectiveness of urban landscape management efforts.

▪ Limited sustainability: Urban planning in Turkiye has historically prioritized economic growth and development over environmental sustainability, resulting in high levels of pollution, and resource depletion.

▪ Insufficient Funding: Adequate financial resources are essential for implementing and maintaining urban landscape projects and initiatives. However, there may be limitations in funding availability, allocation, and prioritization. There needs to be more funding to ensure the implementation of sustainable and inclusive urban landscape management practices.

Addressing these limitations requires a comprehensive approach that involves policy reforms, institutional coordination, enhanced public participation, capacity building, and adequate funding. By overcoming these challenges, Turkiye can foster sustainable and inclusive urban landscape management practices that enhance the quality of urban environments and promote the well-being of its residents. However, these weaknesses and challenges requires a comprehensive and collaborative approach, including measures such as comprehensive planning, citizen participation, transparency, enforcement of regulations, sustainable development practices, and investment in infrastructure. Such measures can help ensure that urban planning in Turkiye is more inclusive, equitable, and sustainable, and contributes to the long-term well-being of cities and residents. Urban Living Labs, on the other hand, have the potential to be a new model for urban governance by enabling collaborative, inclusive, and participatory approaches to urban planning and development. ULL bring together diverse stakeholders, including citizens, academia, industry, and government, to co-create solutions and experiment with new ideas in real-life urban environments.

Furthermore, ULL can be seen as a complement or alternative to traditional top-down approaches to urban governance, which have been criticized for their limited participation, lack of innovation, and focus on short-term goals. ULL provide a platform for testing and validating new ideas, technologies, and policies, which can inform and shape broader urban governance strategies. However, ULL can also foster a culture of innovation and experimentation, which can be beneficial for cities seeking to address complex and evolving urban challenges, such as climate change, losing landscape value, and social inclusion. By involving citizens and other stakeholders in the co-creation process, ULL can generate solutions that are more responsive to the needs and preferences of the local community. However, for urban living labs to become a new model for urban governance, several challenges need to be addressed, such as funding, scalability, institutional support, diversity, and ethical considerations. Urban living labs also require effective monitoring and evaluation mechanisms to measure their impact and effectiveness.

In the new ULL model shown in Figure 6; the context title focuses on the sub-titles, such as environmental-based, urban-based, rural-based, socio-capital-based, technology-based, and methodology-based. In addition to underlying which subject the context is related to, what is essential here is to consider global, urban, or human-related problems as context in a broad perspective. It is underlined that necessity here is to seek solutions by localizing each scale, whether a global problem or a local one. The context, in fact,

also emphasizes how experts should handle the subject. At this point, the second title, actor-network, appears in action. The actor-network title defines the role of the planner/designer, describes the user's position, and determines the short-medium-long-term process of the steps to be taken. However, the ecosystem approach, determines level of participation or collaboration in the process. On the other hand, ecosystem approach emphasizes that the project's effect can be spatial and social. Education level is another ecosystem approach to deal with global or urban concerns to evaluate with the sub-headings of application level, participation level, infrastructure level, entrepreneur level, and collaboration level. Here, it underlines that the entrepreneurship network will have an important place in urban studies and education in participation and cooperation processes.

Moreover, experimental governance refers to the decision-making process, the collaboration and participation process, the implementation process, the evaluation and co-creation process, and the re-thinking process. In this case, a process definition is made for each priority defined in the context. The determination of the process also responds to many principles such as transparency and openness in governance. On the other hand, scale refers to the scale of the project, impact limits/scale, participation scale, and collaboration scale. In fact, with technological help, the scale concept has also begun to increase, and its sphere of influence has expanded. Although we have not yet caught up with the speed of technological reflections and their impact on cities, the scale definition in the model aims to reveal the effect of the reflections. Finally, influence refers to openness and flexibility. In principle, it underlines the transparent, open, and flexible management of the entire process.
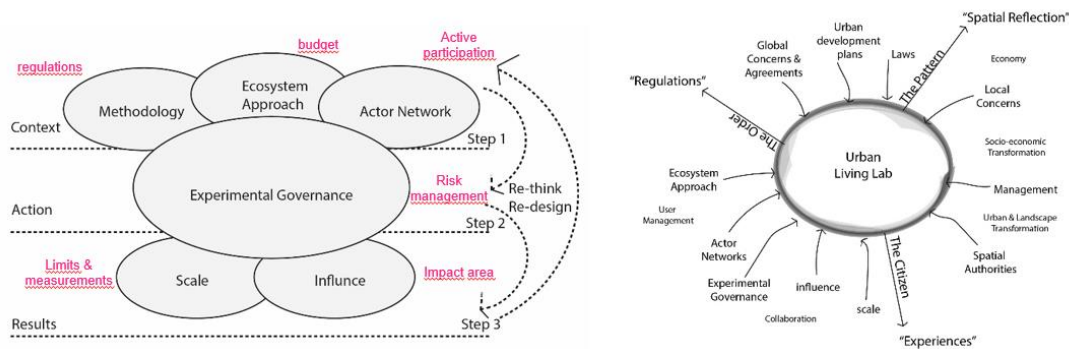

FIGURE 6 - A NEW MODEL FOR ULLS.

Consequently, ULL have the potential to contribute to more collaborative, inclusive, and innovative approaches to urban governance, which can help cities become more sustainable, resilient, and livable. However, their success depends on the extent to which they are supported by institutional frameworks, resources, and partnerships and their ability to address our time's complex and evolving urban challenges.

6   DISCUSSIONS

From the perspective of ULL, the purpose is to provide a fresh perspective on the detailed management plans faced during global and local challenges. Thus, the article focuses on Istanbul, which encompasses Turkiye's most complex spatial planning system and witnesses the highest number of investments and implementations compared to other cities. Thereby, research background has been conducted on governance and labs as experimental tools for addressing global and urban crises.

The urban planning system in Turkiye, particularly in Istanbul, exhibits a hierarchical structure with decision-making progressing from upper-scale to lower-scale plans. The national government is responsible for creating and executing large-scale plans, while local governments focus on smaller-scale plans. However, this system of planning authority faces challenges and requires improvement in its implementation. The analysis reveals multiple planning boundaries and authorization classifications, resulting in confusion and overlapping jurisdictions. The planning process is complicated by special laws, which give authority over certain areas to the national government and relevant ministries. The planning method of starting from the top and working downward causes spatial issues and requires better implementation decisions. For instance, areas designated as reserve areas under the law overlap with natural areas, leading to concerns about settlement encroachment. Additionally, the influence of the national government on spatial decisions outweighs that of local governments, limiting their authority and impact.

Although Turkiye's planning legislation is detailed and comprehensive, unfavorable decisions during the implementation process can undermine its effectiveness. Numerous decision-makers and overlapping jurisdictions exacerbate confusion and can lead to unsuitable application decisions. Collaboration between the national and local governments becomes crucial to minimize problems, but it can also result in a supervisory dynamic between the two. To give local governments more power in spatial decisions, it is necessary to explore new models of authority.

In the changing and transforming world, seeking answers to problems, being affected, and being involved are essential in urban-related concerns (Yilmaz & Ertekin, 2022a). Therefore, urban problems should also be evaluated from a new perspective. This point of view reveals the deficit of a method that changes and adapts with technology and produces fast solutions with the local power, besides being solution-oriented. While the current urban governance system may need to be revised to find answers to global concerns, the impact of existing lab approaches may also need to be improved. The research conducted within the scope of understanding the urban governance system in Turkiye; showed that although urban problems are local, there are no current acts locally. The analysis, made in Istanbul, highlighted the need for

improvement of the local government in the steps to be taken. This situation requires strong collaboration and the search for new methods.

Concurrently, Turkiye and Istanbul have encountered considerable urban problems due to rapid population growth, out-migration, and unsuitable management decisions. Thus, rapid urbanization has destroyed natural areas. Istanbul, covered with forests in the north and numerous drinking water sources, is in danger of losing its productive lands, water resources, and forest areas. However, the local government's efforts independently need to be revised, making it challenging to take a step between complex management models. Developing new models requires establishing solid inter-institutional communication. Local and national governments' cooperation and immediate action are essential in the global and local agendas. Briefly, the problems, such as population growth and rapid urbanization, have been negotiated expressly in Turkiye and overlapped with spatial planning. According to the analysis results, the cooperation gap in urban planning in Turkiye, which has a top-down management system, has been underlined. The management dimension, explicitly handled in Istanbul, has drawn attention to the fact that spatial decisions are more than one decision-maker. This situation emphasized that the steps taken at the urban scale are handled with institutional structuring without establishing a relationship with global or local problems. As a result, a vicious loop of problems emerges. The experience of the locals is also overlooked, although it is a strength. Users are perceived as fundamental actors in conducting the ecosystem of their everyday life, central in the process of creativity, experimentation, and evaluation of technological artifacts (Bulkeley et al, 2014 & 2018; Leminen et al, 2018). Therefore, user-centric methods and emerging methods of ULLs entail a collaborator role in creating new solutions.

Nonetheless, there are no limitations to mixing approaches. Suppose it is an observable fact, such as the protection of natural areas, ecological values, and the ability to respond to the green needs of the citizens, it can still be a global agenda and problem of planning (Yilmaz & Ertekin, 2022b). However, the analyses carried out at the district level emphasized that the steps should be fast and easily adaptable by revealing the current situation. The necessity is to make quick decisions and intervene quickly with the help of changing technology to recurring problems. Indeed, the urgency is local rather than global. The faster we solve the local, the faster we can respond to the global. Therefore, removing organizational complexity is the first step to take. The new ULL model sees the current situation as potential and acts on the potential. It can quickly adapt to the global agenda and localize it.

However, solving the problem of a complex urban management system in Turkiye requires a comprehensive and multi-pronged approach that addresses both structural and operational issues. To improve these complexities, the new ULL model can evolve urban challenges and address new strategies for a new nature. Some potentials are:

- *Simplifying and integrating urban management functions:* Currently, urban management functions in Turkiye need to be more cohesive across multiple agencies, leading to inefficiencies, duplication of efforts, and lack of accountability. ULL can improve coordination, reduce costs, and increase effectiveness.

- *Enhance institutional capacity and governance:* Improving the capacity and governance of urban management institutions in Turkiye can help ensure they respond effectively to urban challenges, such as environmental degradation. ULL can help enhance institutional capacity and governance by strengthening institutional frameworks, building technical and managerial capacity, and promoting transparency and accountability.

- *Increase citizen participation and engagement:* Citizen Participation and engagement are critical for effective urban management. The ULL model can address the lack of citizen engagement in the current planning approach.

- *Promote innovation and experimentation:* Innovation and experimentation can help Turkiye develop new solutions to complex urban challenges. This can be achieved through ULL that bring stakeholders from different sectors to experiment with new ideas and approaches.

- *Invest in data and technology:* Improving the availability and use of data and technology can enhance the efficiency and effectiveness of urban management in Turkiye. This can be achieved by developing digital urban planning and management platforms, using sensors and other technologies to collect real-time data on urban conditions, and leveraging data analytics and artificial intelligence to inform decision-making help with ULL.

- *Collaborate across sectors and levels of government:* Effective urban management requires collaboration across sectors and levels of government. Turkiye can promote such collaboration by creating multi-stakeholder platforms for dialogue and cooperation, sharing best practices and experiences, and building partnerships for joint action. In order to achieve collaboration, current terminology needs a new model like ULL.

On the other hand, the new ULL model (context, actor-network, experimental governance, scale, influence, ecosystem approach) is essential in attracting the global to the local (ENoLL, 2019). Furthermore, a new ULL process allows the creation of a holistic approach by adding local data to the decision-making process. Thus, a new ULL is a tool to combine global goals with new parameters and local structure, as seen through analyses carried out over Istanbul. Here, the incompatibility of the top-down or bottom-up system in contemporary planning differences with the method is not observed. In any case, the ecosystem approach in the new ULL model will act as a combination. The experiment dimension

focuses on urban issues and deals with administrative matters from the perspective of Turkiye. The experience is; represents the human scale. Regardless of the global agenda, how this problem is reflected locally and experienced is fundamental problematics.

The discussion highlights the complexities, challenges, and shortcomings of Turkiye's current urban planning system, particularly in Istanbul. It emphasizes the need for a more inclusive, participatory, and integrated approach that empowers local governments, fosters collaboration, and aligns planning decisions with sustainability principles. By addressing the confusion of authority and promoting effective governance, Turkiye can strive towards more equitable, resilient, and livable cities that cater to its citizens' diverse needs and aspirations.

7   CONCLUSIONS

Consequently, the research sheds light on the challenges in Turkiye's governance and planning system by critically examining the landscape pattern in Istanbul. Through the conducted analyses, the answers to both research questions have emerged. The suggested model outlines how ULLs can adapt in terms of management. Furthermore, it is imperative to acknowledge that ULLs hold the key to solving global, urban, and local issues succinctly and effectively. Our in-depth examination of the governance challenges within the city empowers us to pinpoint the crucial stakeholders, consisting of those with decision-making and implementation abilities, thereby affording a lucid comprehension of the circumstances. Through analyses, we have strived to reinforce the notion that an alternative government model is possible. ULLs, as collaborative and innovative platforms, holds the potential to address the identified problems and offer practical solutions. By adopting the ULL method, we envision a new form of governance that emphasizes cooperation between local governments, stakeholders, and communities, ultimately contributing to sustainable urban development in Istanbul. In this framework, we aimed to re-read and outline the landscape pattern in Istanbul to understand urban problems and the local government's role in the planning system. Transparency, openness, citizen engagement, and sustainable services are essential to achieve a better governance system. Local governments have greater authority than national authorities in providing safe, green, and high-quality landscapes, which aligns with achieving the SDGs. SDG16 aims to develop national strategies, create an institutional framework for sustainable cities, strengthen international collaborations, and integrate participation and decision-making processes. Although there is a requirement for new technologies and tools, it is essential to consider the role of local government in the process. The vision of IMM exposes precisely the planning approach that matches the SDGs agenda. To improve SDG16, ULLs can perform an essential role in evaluating experiences and strategies, managing sustainability knowledge with sustainable education, guiding collaborative planning

and partnerships, and regulating budgets for needs. As a result, ULL indicators or dimensions can better promote solutions for global, urban, and local challenges. Perhaps, a dynamic solution is required for a dynamic world. Indeed, the legal framework in Turkiye needs improvements to connect with SDGs.

Further, we will define success criteria for testing ULL's methodologies in urban governance and sustainable urban development.

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