


Chapter 6

From Analysis to Action With PESTEL Insights Into Izmir's Sustainable Urban Logistics Plan

Olcay Polat

 <https://orcid.org/0000-0003-2642-0233>

Pamukkale University, Turkey

Aşkıner Güngör

Pamukkale University, Turkey

Soner Haldenbilen

Pamukkale University, Turkey

Halim Ceylan

Pamukkale University, Turkey

ABSTRACT

The Izmir Sustainable Urban Logistics Plan (LOPI) addresses the challenges of integrating sustainability into urban logistics amidst rapid urbanization and environmental concerns. It focuses on the significant role of urban freight transportation in city development and the obstacles it faces, including traffic congestion and pollution. Utilizing a participatory model, LOPI engages diverse stakeholders, leveraging the PESTEL analysis to evaluate and refine project proposals across seven key areas. This approach fosters collaborative planning and ensures that the logistics framework aligns with social, economic, and environmental objectives. The study illustrates the importance of stakeholder involvement in developing sustainable urban logistics plans, offering insights for cities globally to enhance logistics sustainability through inclusive, strategic planning.

INTRODUCTION

In the era of rapid urbanization and escalating environmental concerns, the concept of sustainable urban logistics emerges as a critical element in the blueprint of metropolitan development. Izmir, Türkiye's

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third-largest city, stands at the cusp of transformative growth, necessitating a comprehensive approach to integrate sustainability into its urban logistics framework. Urban logistics is a logistics sub-field that covers the examination, planning, maintenance and improvement of existing logistics activities in residential areas. In this context, the important role of urban freight transportation in the sustainable development of cities has long been recognized. However, urban freight transportation has to cope with many significant problems such as high levels of traffic congestion, negative environmental factors such as noise and emissions, and ever-increasing costs. In the realm of urban transportation, sustainability has emerged as an indispensable cornerstone for the development and progress of cities worldwide. As urban centers continue to burgeon, the imperative of sustainable practices within logistics becomes increasingly pronounced. Sustainable urban logistics plans (SULP) serve as pivotal instruments in this endeavor, orchestrating the harmonization of economic efficiency, social equity, and environmental responsibility within urban transportation networks. By integrating innovative technologies, optimizing route planning, and fostering collaboration among stakeholders, these plans not only mitigate the adverse impacts of freight transportation but also pave the way for resilient, livable urban environments. Recognizing the intricate interplay between urban logistics and sustainable development, cities like Izmir are poised to leverage such plans as catalysts for fostering vibrant, thriving communities while safeguarding the ecological integrity of their surroundings (Macario et al. 2023, Mutvadžija et al. 2023, Schachenhofer et al. 2023, Haarstad et al. 2024). Izmir province is developing in a similar way to the rest of the world and the need for urban logistics planning is increasing day by day (Öztürk et al. 2023, Göka et al. 2023). The Izmir Sustainable Urban Logistics Plan (LOPI) aims to create a plan for the effective execution of urban logistics activities in the province, minimizing their negative social and environmental impacts.

The participatory aspect of developing master plans for mega cities such as Izmir is critical for ensuring the inclusivity and effectiveness of sustainable urban logistics initiatives. Engaging a wide array of stakeholders—including government agencies, private sector entities, non-governmental organizations, and the public—fosters a collaborative environment that enhances the plan's relevance and feasibility. Stakeholder participation ensures that diverse perspectives and needs are considered, paving the way for innovative solutions and buy-in from all sectors of society. For instance, Maltese et al. (2023) explored different involvement levels, tools and strategies in this field, with a particular focus on the innovative Logistics Living Lab developed in Rome city, and concluded that despite these efforts, citizen participation in planning urban logistics is still a challenge that deserves additional effort and resources. Brusselaers et al. (2021) presented a participatory decision-making framework for the governance of urban construction logistics on economic, environmental and societal levels, building further on the Multi-Actor Multi-Criteria Analysis (MAMCA), which was then implemented on a use case in the dense urban Brussels-Capital Region (Belgium). Fredriksson et al. (2022) presented a planning tool based on interactive visualization for collaborative planning of construction transport in urban logistics planning, which facilitates a shared deliberation space by identifying alternatives and assessing predicted consequences, which supports a collaborative urban planning process for the cities in Sweden. Russo and Pellicano (2019) discuss the implementation of consolidation strategies in Barcelona to transition to a more sustainable urban freight distribution system. The authors focus on the rules about city logistics, considering the framework of the international and national goals to identify the way of transmission from one level to another, and show the absence of a well-defined link between one level and another and the voluntary choice of each administrative level to agree, or not, to the sustainable development process. Jamshidi et al. (2019) reviewed the recent papers aimed at considering simultaneously technical, social, environmental and economic criteria by using the analytical hierarchy process (AHP) method

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