Chapter 3
Integrating Mobility in Multimodal Transportation Systems: A Comprehensive Analysis and Their Impact on Urban Mobility

Manmeet Kaur Arora
https://orcid.org/0009-0002-5071-117X
Sharda University, India

Sahil Lal
https://orcid.org/0000-0001-9827-3717
Sharda University, India

Bhupinder Singh
https://orcid.org/0009-0006-4779-2553
Sharda University, India

Saquib Ahmed
https://orcid.org/0009-0008-1891-6910
Sharda University, India

Christian Kaunert
https://orcid.org/0000-0002-4493-2235
Dublin City University, Ireland & University of South Wales, UK

ABSTRACT

As cities face the escalating demands of urban mobility, sustainability, and accessibility, multimodal transportation systems are gaining recognition as a solution to

DOI: 10.4018/979-8-3693-9410-6.ch003

these complex challenges. It examines how different modes of transport (cars, public transport, bicycles, walking, and micromobility) can be integrated into seamless transport networks which improve the user experience as well as the efficiency of transport operations. The chapter outlines the challenges facing multimodal systems, including complex iteration requirements, coordination between the numerous different transportation providers, differing regulatory environments, and the need for users to adapt to integrated systems. It goes on to highlight best practices, keeping users at the centre of the agenda when introducing new integrated ticketing solutions and developing robust infrastructure to support such systems in place. It concludes with policy recommendations, stressing the need for regulatory alignment, sustainable funding frameworks, and incentives for sustainable practices.

INTRODUCTION

Multimodal transportation is a groundbreaking mode of transport, providing the accessibility and interconnectivity to help the passage of people and goods. This system recognizes that no individual mode can serve all transportation needs effectively, therefore striving for a mix of transportation modes, including walking, cycling, public transportation, and private vehicles. The idea behind Travelled is based on the belief that improving accessibility and transportation, is only possible by taking the big picture of the transport world through the connection between different transport methods. Multimodal transportation seeks to combine not only the strengths of individual modes of transport but also its supplementary benefits to fullfill the needs of mobility solutions in the urban and regional context effectively. With the rising urbanization, population density, and environmental challenges, multimodal transportation has gained significant importance. As urban centres grow and traffic congestion worsens, legacy car-first planning paradigms no longer are up to the task. Multimodal systems, which promote multifaceted transportation methods, Dass relieved traffic, lowered emissions, and increased the ambiance of living and disposition of the inhabitants. Additionally, multimodal transport facilitates economic development by expanding access to employment, services, and recreation (Toshniwal, 2024).

Mobility and Accessibility Multimodal transportation planning is inherently about mobility and accessibility. Mobility describes the potential of people to travel from origins to destinations with different modes of transportation, and accessibility measures how well agents can access desired activities and services distributed over geographic space (Sharma, 2024). Core features. The conceptual boundaries of multimodal transport are drawn along a few important principles: Context-sensitive approach looking at the larger transportation ecosystem Holistic

Recent Application of Deep Neural Network and Data Augmentation for Classifying Leaf Diseases

R. Angeline, Raunak Agarwal, Sidhant Kumar Sidharthand Pratik Raj Biresh (2023). *Handbook of Research on Advanced Practical Approaches to Deepfake Detection and Applications (pp. 245-256).*

www.irma-international.org/chapter/recent-application-of-deep-neural-network-and-data-augmentation-for-classifying-leaf-diseases/316758