

Integrating Urban Mobility: Adoption of the Gujarat Metro Rail to Enhance Multimodal Transportation in Ahmedabad

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Abstract: Urbanization, economic growth and migration in Gujarat have had far-reaching effects on urban transport by causing challenges such as congestion and pollution, as well as inadequate connectivity to public transport. The paper presents an analysis of how the Gujarat Metro Rail in Ahmedabad was implemented as a driving force to enhance the multimodal transportation systems through the integration of buses, BRTS, auto-rickshaws, taxis and Indian Railways into one network. The mixed-methods approach of the study combined quantitative data of 50 participants in a survey and qualitative data based on the analysis of perceptions, preference, and satisfaction levels of commuter. Results indicate that attitudes and preference toward the modes of public transportation do not have a significant direct effect on the multimodal adoption; but, commuter satisfaction is highly associated with the quality and the availability of services, which suggests that integrated infrastructure and efficiency of operation play an important role in determining user acceptance. The statistical tests, including regression, correlation, Chi-square and t-tests, show that there are insignificant differences in the perceptions between men and women, but the importance of smooth transfers, low costs, and the last mile accessibility. The findings emphasize the role of legislative backing, technological intertwining, and partnerships among the stakeholders in achieving sustainable and inclusive mobility. The construction of Ahmedabad Metro in Phase II to Gandhinagar and GIFT City demonstrates the potential of reducing the time taken by conducting a trip, fostering regional integration, and influencing people to use public transport. This study offers practical recommendations to city planners, policymakers, and transportation officials who want to have effective multimodal networks in rapidly growing cities. The subsequent studies ought to address behavioral change strategies, long-term environmental impacts, and innovative financial structures to facilitate urban mobility changes.

Keywords: Urban Mobility, Multimodal Transportation, Ahmedabad Metro, Commuter Satisfaction, Sustainable Transport, Integration of Public Transportation, Gujarat