98

Exploring E-Bike Use Intention for Commuting and Tourism through a Behavioral Reasoning Theory Approach: The Case of Lombok, Indonesia

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Extended Abstract

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Abstract Summary

Electric bicycles (e-bikes) represent a promising micro-mobility solution for reducing transport emissions in developing-country island settings, yet adoption in these contexts remains paradoxically low despite strong underlying potential. This study conceptualizes that paradox as the Island Mobility Trap, a triple-bottleneck condition arising from inadequate cycling infrastructure, motorcycle-dependent behavioral inertia, and fragmented service markets, and investigates its behavioral underpinnings through a contextually modified Behavioral Reasoning Theory (BRT) framework applied to Lombok, Indonesia.

A cross-sectional survey of N=200 respondents collected in July-August 2025, comprising tourism users (n=149) and commuting users (n=51), was analyzed using PLS-SEM in SmartPLS 4.0 with 5,000 bootstrap resamples. The modified BRT model integrates ten constructs and 29 indicators, including Value Orientation, Supporting and Resisting Factors, Attitude, Community-Based Influence, Digital Access, Experience Influence, Intention, and Behavior.

Of thirteen formally tested hypotheses, eight are supported. Attitude is the strongest direct predictor of Intention (β=0.467, f^2=0.362), followed by Community-Based Influence (β=0.318). Value Orientation functions as the dominant upstream driver, shaping Attitude, Supporting Factors, and Resisting Factors simultaneously. The Intention to Behavior link exhibits the largest effect size in the model (β=0.695, f^2=0.937), confirming that once adoption intentions are formed, behavioral conversion is highly reliable. The model explains 73.9% of variance in Intention. MICOM-validated multi-group analysis finds that commuting users exhibit significantly stronger resistance effects and stronger value-to-attitude relationships than tourism users.

The study contributes the first BRT application in a developing-country island tourism context, a three-zone MGA interpretation framework, and two original applied frameworks: the Island Mobility Trap as a contextual diagnostic model and the PEDAL Framework (Policy, Engagement, Digital, Attitude, Leverage) as an evidence-based multi-stakeholder adoption strategy. Findings carry direct implications for e-mobility policy in island tourism destinations across Southeast Asia.

Presenting Author Biography

Riris Nur Hamidah is a Master's student in Technology Management, Economics, and Policy Program at Seoul National University, with an integrated major in Smart City Global Convergence. She is an active researcher under the Brain Korea 21, SNU Smart City and Innovation Human Resource Development Program, with research interests spanning sustainable micro-mobility, behavioral adoption theory, and urban innovation policy. Her current research investigates e-bike use intention in Indonesia through a Behavioral Reasoning Theory framework, examining adoption drivers and barriers across commuting and tourism user segments.