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PLANNING CERTIFIED SECONDARY MARKETS FOR ELECTRIC TWO – WHEELERS: A DYNAMIC MODEL OF BATTERY INFORMATION, RECOVERY ROUTING, AND MOBILITY EQUITY



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Prof. Sayan Datta is an Assistant Professor Operations Department at Jindal Global Business school. He did his doctoral degree from the Indian Institute of Management, Kashipur. He completed his Master of Global Management, a Global Leadership degree from Thunderbird School of Global Management, Arizona State University. Prior to his Master's degree, he has ably carried out the duties of being one of the prime Lead Engineers in Department of civil maintenance, TATA Power Company Limited and handled diverse assignments on industrial construction project and purchase related activities. Also, chaired the position divisional representative of CSR committee in TATA Power with special focus on backward classes. He also held a managerial position at a startup that was responsible for developing various earmarked Opportunity Zones in the USA.

The study highlights how alternative institutional governance frameworks ranging from unmanaged markets to digitally enabled battery passports and co-regulated extended producer responsibility (EPR), mechanistically dictate or govern closed-loop supply chain dynamics, secondary market emergence and its related prevalence, material recovery yields, and primary fleet trajectories for electric two-wheelers. By integrating system dynamics modeling with Perceived Risk Theory and providing it with a game-theoretic paradigm, the study demonstrates that physical mass-balance constraints are insufficient to explain the degree of closed-loop performance. Under the scenario of unmanaged baselines P1, severe information asymmetries instigate lemon dynamic hence suppressing secondary liquidity and drives unassessed assets into unregulated informal channels, resulting in minimal cumulative recycling. Conversely, transitioning to inclusive co-regulation P4 via producer cost-sharing and diagnostic subsidies constructs a robust telemetric trust architecture; enhancing the urge and motivation for recycling. So, by addressing and mitigating consumer-perceived risk, digital battery passports validate the residual health of electric two-wheelers, expand cumulative recovery to its apex, and simultaneously stabilize primary manufacturing. Additionally, this integration provides the optimal level of societal welfare while curbing environmental pollution and promoting inclusive development by making secondary mobility affordable and by mainstreaming and formalizing green-collar employment.

MODERATOR: PROF. RITURAJ SINGH, ASSISTANT PROFESSOR, JINDAL GLOBAL BUSINESS SCHOOL



THURSDAY, 17 SEPTEMBER 2026



**12:30 PM to
01:30 PM IST**

MEETING LINK: https://zoom.us/meeting/register/Ke_2t0CcQyey46J0KRscdA