STUDY OF OPTIMIZATION STRATEGIES FOR LAST-MILE DELIVERY OF CPG PRODUCTS TO NANOSTORES IN THE CITY CENTER OF COCHABAMBA

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ABSTRACT

Last-mile logistics represents a major cost and environmental challenge in dense urban centers, particularly in emerging economies. In Bolivia, where over 92% of retail transactions occur through informal nanostores, urban freight operations to supply these channels are hindered by narrow streets, congestion, and a lack of logistics infrastructure. In this direction, this study explores an optimization strategy for last-mile delivery of consumer-packaged goods (CPGs) to nanostores in downtown Cochabamba. We used a mixed-methods approach, including surveys of 243 stores, interviews with logistics managers, and route modeling with VRP (Vehicle Routing Problem) Spreadsheet Solver. We considered a cluster-based logistics bay strategy, leveraging abandoned parking bays in the region for this purpose. Results show that the use of designated bays and the proposed route clustering can reduce delivery times by up to 11% and unit costs by 4,7%. These findings inform urban logistics planning and public policy for cities facing similar informal retail challenges.

Keywords: Last-mile distribution, traditional channel, public policies, routing model, bays

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