LAC pilot project for green last-mile urban freight delivery services

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Abstract

Cities in the developing world have the challenge of supporting and promoting clean, safe, and efficient ways for people and goods to access opportunities and markets, directly affecting human health and quality of life while reducing energy intensity. Significant innovations and disruptive changes are coming to the transport sector, electric vehicles, and digital technologies capable of revolutionizing the provision of transport services. These significant changes can decarbonize the transport sector while contributing to other sustainability goals related to healthier, safer, and more livable cities. In some dense city centers, inefficient trucks are being replaced with e-cargo bikes to deliver goods, with the potential to massively improve safety, cut noise and emissions, and free up the street and public space. Cycle logistics involves integrating bicycles, tricycles, and other cycling technology into the goods movement network to improve the efficiency of deliveries in congested urban areas. This work aims to assess the potential to implement a collaborative model of consolidation and burden sharing where the companies make use of a platform to consolidate merchandise from warehouses or distribution centers located in areas near the city and later load and distribute on smaller vehicles (electric bicycles/tricycles) to their final destination. The approach of collaborative models for the consolidation of load and distribution to smaller vehicles allows identifying a solution for the profit of all actors involved in the last mile distribution process. We design and implement a pilot with four companies during 3-7 months in order to evaluate the logistics, environmental and economic impact of cycle logistics under two operational models for the food and packaging sector. Results show that e-cargo bikes have the potential to replace 1-ton vehicles, motorcycles, and human-powered vehicles in last-mile operations in Bogota.