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Urban Logistics as a Service (ULaaS) Platform: Proposing a Sustainable Digital Business Model for Logistic Services

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Abstract

The increase in online orders following the COVID-19 pandemic has heightened consumer expectations regarding prompt deliveries. However, this phenomenon has subsequently triggered a substantial increase in the number of vehicles navigating through urban areas, highly affecting the overall quality of life within cities. Capitalizing on the complexities posed by urban logistics, this paper proposes an innovative digital business model for logistics services. In this context, we introduce “Urban Logistics as a Service (ULaaS) platform”, a concept rooted in the principals of circular economy and harnessed through the application of the Canvas methodology. The conceptual framework outlines the ULaaS ecosystem and explores potential user-functionality combinations. The proposed platform serves as both an on-demand service provider and a control hub for stakeholders such as traffic authorities, policymakers, logistics providers, carriers, and shippers. This platform streamlines citywide logistics to enhance movement efficiency, ease congestion, and reduce emissions. The ULaaS concept was validated through analysis of data collected from interviews in the unique social context of Campinas City, Brazil. The key value-generating modules within the ULaaS ecosystem include parking reservations, shared warehousing, e-commerce deliveries, and comprehensive logistics solutions. However, implementing Urban Logistics as a Service has challenges. These include defining public and private sector roles, creating effective pricing models, and fairly distributing responsibilities among service providers. The paper also elucidates various monetization models and required investments, crucial for fostering potential private sector involvement.

Keywords

Sharing Economy; Collaborative Digital Platform; Digital Business Model; Urban Logistics

Subject

Engineering, Transportation Science and Technology

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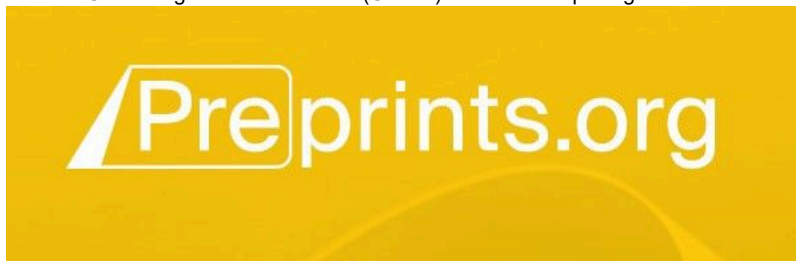
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