Open invited track proposal: Quantifying smart parcel station network usage as a logistical solution for the last-mile problem

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Abstract: Numerous research and studies was centered around supply chain design, development, and operation. However, few are concerned with enhancing the “last mile delivery” stage, which involves the clients’ willingness to be part of the supply chain. Henceforth, this work contemplates the Parcel Locker Stations as a solution to the “last-mile delivery” problem. The aim is to provide the logistics courier with a planning and optimization tool that strikes an optimum balance between two critical factors: the logistics company profits and the customers’ satisfaction levels. The problem employs (MILP) mixed-integer linear programming with the aid of OPL CPLEX software to select the optimal allocation of lockers’ sites in a particular network based in the state of Qatar.

Keywords: Facility Location; Last-Mile Delivery; Parcel Station; Mixed-Integer Linear Programming; E-Commerce.