

# Designing Urban Omni-Channel Distribution Networks

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## **Abstract:**

Based on the real case of a European retailer, this talk presents the omnichannel B2C urban distribution problem and proposes a modeling approach and deployment strategies under various scenarios. It builds on the fact that the retail sector is nowadays challenged with e-commerce channel expansion, service level expectations, and urban sustainability issues.

Thus, the focus of our research is on the reengineering of the current closed distribution network, characterized by disjoint online channel, stores channel and click-and-collect-at-store channel. The proposal reflects current innovative logistic organizations, last-mile delivery services, and ship-to/ship-from location options.

Accordingly, a set of alternative deployment strategies, reflected by orders' allocation, inventory positioning, delivery schema and inbound flow patterns decisions, are investigated. To produce good quality solutions, in respect with these deployment strategies, a modeling and optimization approach is employed.

It builds on a scenario-based modeling framework including orders' allocation, inventory positioning, delivery and inbound flows patterns decisions, and considering key distribution features such as multi-echelon structure, multiple periods, and uncertainty. To better illustrate the approach we intend to present various models, discuss their solvability and show numerical results obtained.