Planning City Logistics in a maritime urban area

Massimo Di Francesco*†[1], Teodor Gabriel Crainic[2], Enrico Gorgone[1], and Paola Zuddas[1]

[1]University of Cagliari – Italy
[2]Université du Québec à Montréal – Canada

Abstract

This study is motivated by a problem of City Logistics arising in maritime urban areas. Consider a fleet of inbound containers at a port. Containers are filled with pallets, which must be delivered to their final destinations in the landside. Containers cannot be opened in the port because of the lack of space, and/or this operation is too costly or disallowed. Freight distribution is organized in a two-tiered structure: in the first tier, containers are moved from the port to satellites, where pallets are transhipped in smaller and environment-friendly vehicles, which move pallets to their final destinations in the second tier. In this study, each container is allowed to be unpacked at a satellite only. The planning of operations involves determining which routes are served by vehicles and which containers or pallets are carried in each echelon.
We present a mathematical formulation for this problem and discuss possible solution methods. Some computational tests on realistic instances will be presented.

*Speaker
†Corresponding author: mdifrance@unica.it