Light Electric Freight Vehicles for Last-Mile Delivery

**Motivation / Background**

- Declining mail market
- Liberalization & E-substitution
- Universal Service Obligation
- Growing parcel market
- Capacity expansion
- Competition intensifies

**Key Question / Hypothesis**

- Will the introduction of LEFV lead to reduced distribution costs in the mail and parcel delivery network?

**Relevant Literature**


**Methodology**

- **Phase 1** – Literature review and present industry case
- **Phase 2** – Data preparation & analysis
- **Phase 3** – Development of the Location Routing Model (MILP)
- **Phase 4** – Run scenario analysis on parcel types.
- **Phase 5** – Determine the definitive impact of LEFV.

**Initial Results**

- LEFV require hubs in close proximity to the delivery area, since LEFV are slower on the linehaul than traditional vans.
- High drop density areas are more suited for LEFV.
- The benefit of integrating the mail and parcel network is depending on the characteristics of the geographical area.

**Expected Contribution**

- Quantified benefits of LEFV in last-mile delivery
- Geographical characteristics for synergy
- Improve the continuous approximation method
- Managerial Implications
- Real-world applicability at PostNL