

Implementing Urban Consolidation Centers made simple and accesible

H2020 RIA “LEAD” lessons learned in Madrid

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Business-as-Usual (BaU) scenario

- One-echelon routing
- Direct delivery from a periurban DC located at 25 km from city center



Engine type	Payload	Max n° parcels
Euro6CI	878 kg	161

Urban Consolidation Center (UCC) scenario

- Two-echelon routing
- Consolidated delivery to the UCC from the periurban DC, located at 25 km from city center
- Last-mile delivery from UCC, with e-Scooters



Engine type	Payload	Max nº parcels
Electric	250 kg	34

Parcel and Journey Standards



Avg weight	Avg volume	Avg density
1 kg	0,036 m ³	22 kg/m ³

Workday start	Workday end	Break
09:00	17:30	30 min

Rough-cut evaluation

Scenario	Vehicle types	Total journey (hours)	Driving time (hours)	Serve time (hours)	Km driven	Nº of vehicles	Energy per delivery (kWh)	CO ₂ per delivery (grams)	PM _{2.5} per delivery (grams)	NO ₂ per delivery (grams)
BaU	Diesel van	1.151	293	792	10.980	148	1.39	372.86	0.04	0.46
UCC	Hybrid van + E-scooter	-23%	-8 %	-28%	-22%	14%	-81%	-84%	-75%	-100%

➤ Zaragoza Logistics Center echelon model, available in LEAD Platform

(<https://platform.leadproject.eu>)

➤ Calculates one scenario at the time. Manual comparison calculations

Comprehensive, simultaneous evaluation

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BaU	Diesel van	1.151	293	792	10.980	148	1.39	372.86	0.04	0.46
	E-van	-	-	-	-	-	-96%	-100%	-100%	-100%
UCC	Hybrid van + E-scooter	-23%	-8 %	-28%	-22%	14%	-81%	-84%	-75%	-100%
	E-van + E-scooter	-23%	-8%	-28%	-22%	14%	-95%	-100%	-100%	-100%
	Big E-van + E-scooter	-25%	-14%	-28%	-33%	1%	-95%	-100%	-100%	-100%

Sustainable City Logistics Evaluation Platform

- Last Mile Digital Platform, by Last Mile Team
 - Route Modelling, Optimization & Scheduling. Input to Noise model
- COPERT, by EMISIA
 - A European emission inventory model
 - Internal Combustion vehicles emissions and energy consumption calculation
- REData Open API, by the Spanish Electrical Network Operator
 - Retrieval of daily electrical energy production by generation technology
 - Electric vehicles CO₂-equivalent emissions calculation

Current status

📍 TRL-6

Working days	Services	km driven
460	96,000	138,000

📍 Published in Horizon Results Platform

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform/62650>

📍 Beneficiary of Horizon Results Booster services

Seeking

City or Corporate investors

To accelerate SCLEP towards a profitable
commercial reality impacting the EU and beyond

Conclusions

- Rough-cut UCC evaluation technology is highly accessible, nearly cost-free & directionally correct
- In-depth UCC evaluation technology is highly sophisticated, and incurs a cost. However it:
 - Reduces traffic congestion
 - Decreases the last-mile carbon footprint
 - Lowers last-mile distribution costs
 - Enhances day-to-day operational management



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