

# Urban night deliveries evaluated from a multi stakeholder perspective

Results of a STRAIGHTSOL demonstration in Brussels

Sara Verlinde  
Cathy Macharis

26 November 2014  
2014 Annual Polis Conference Madrid



# Urban night deliveries

## Place De Brouckère - Brussels



15h03

17h39

22h48

# Is it possible?



Holguín-Veras et al., 2008

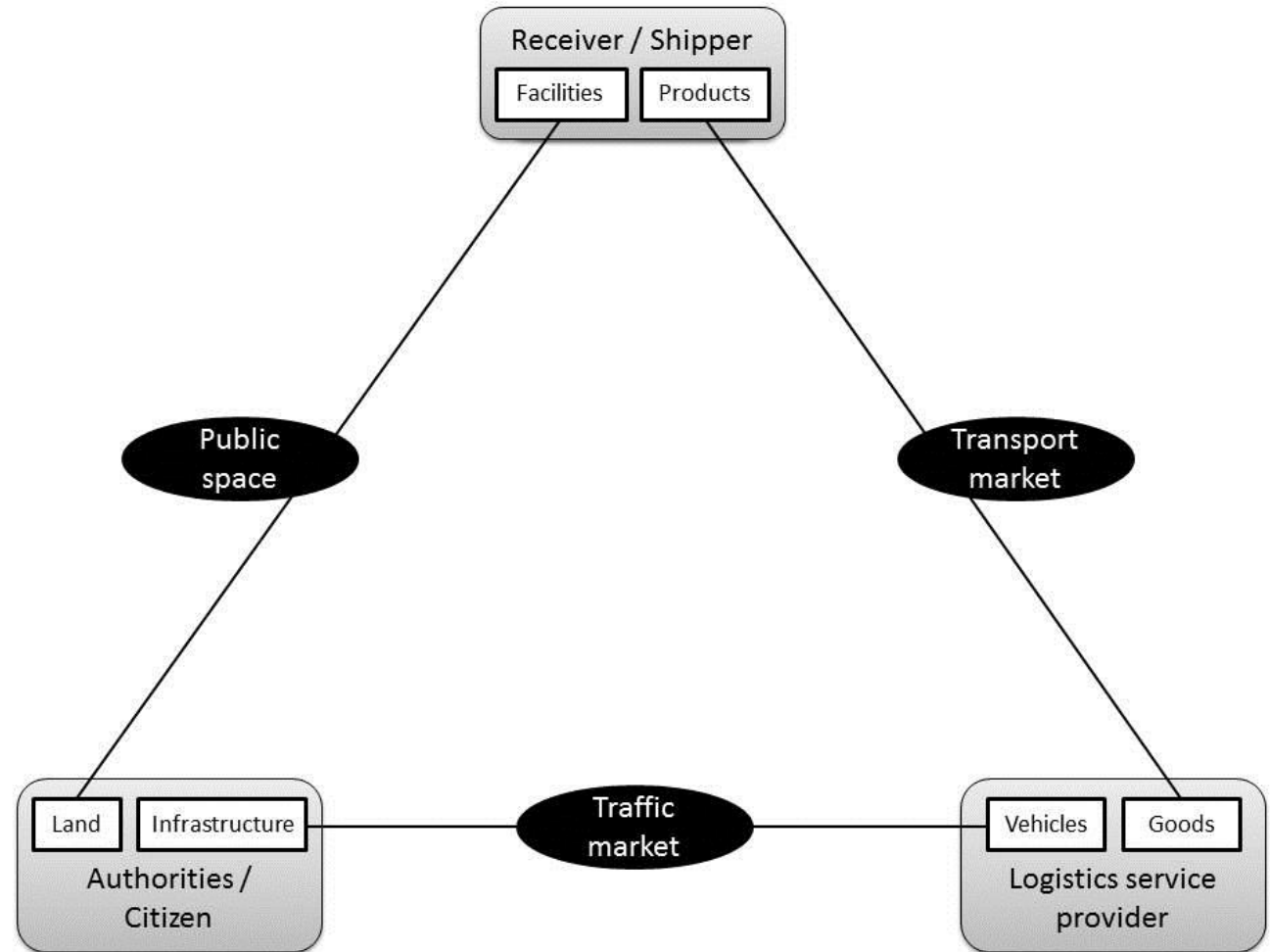


[www.niches-transport.org](http://www.niches-transport.org)



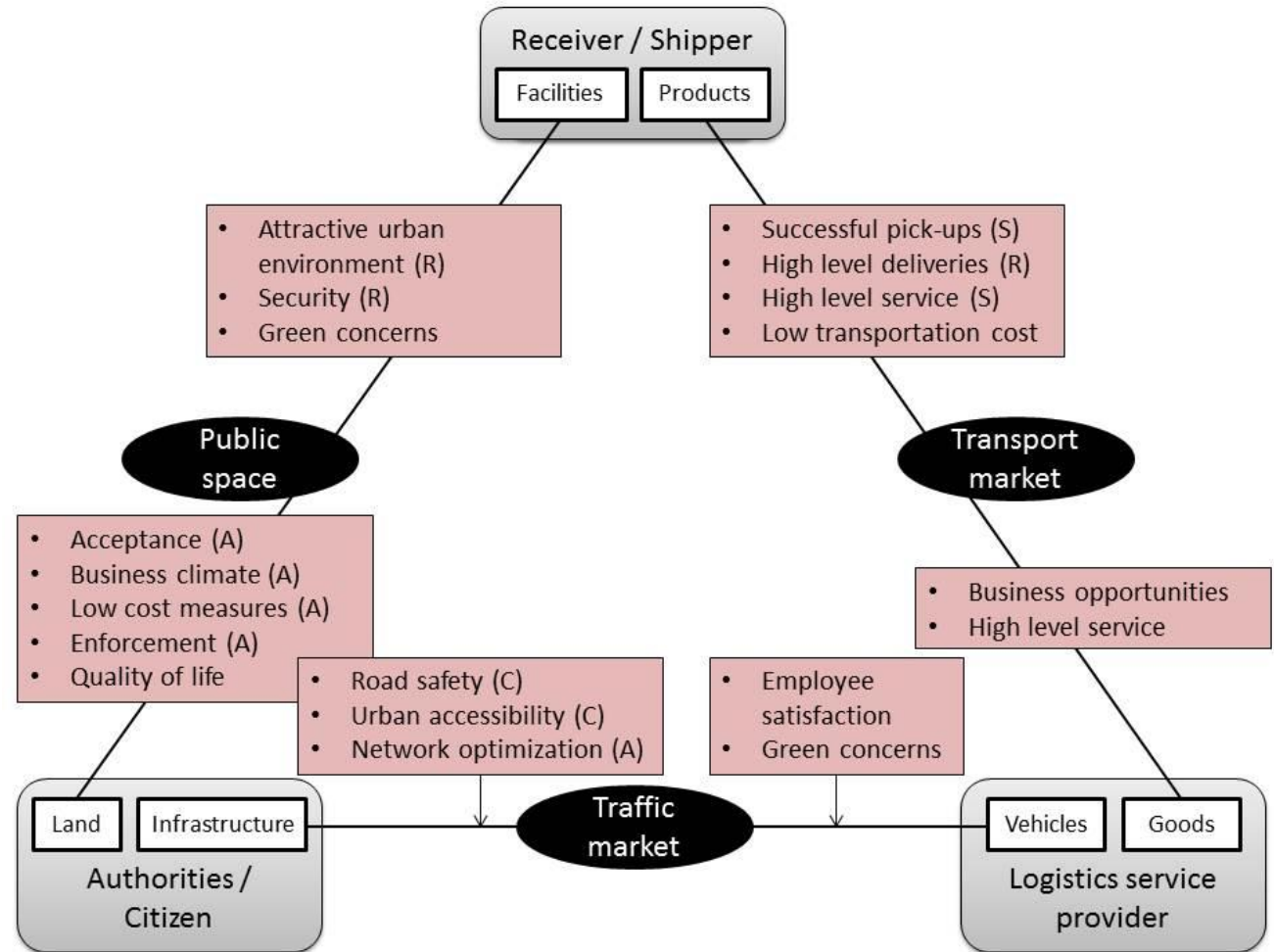
Piek project

# Stakeholders

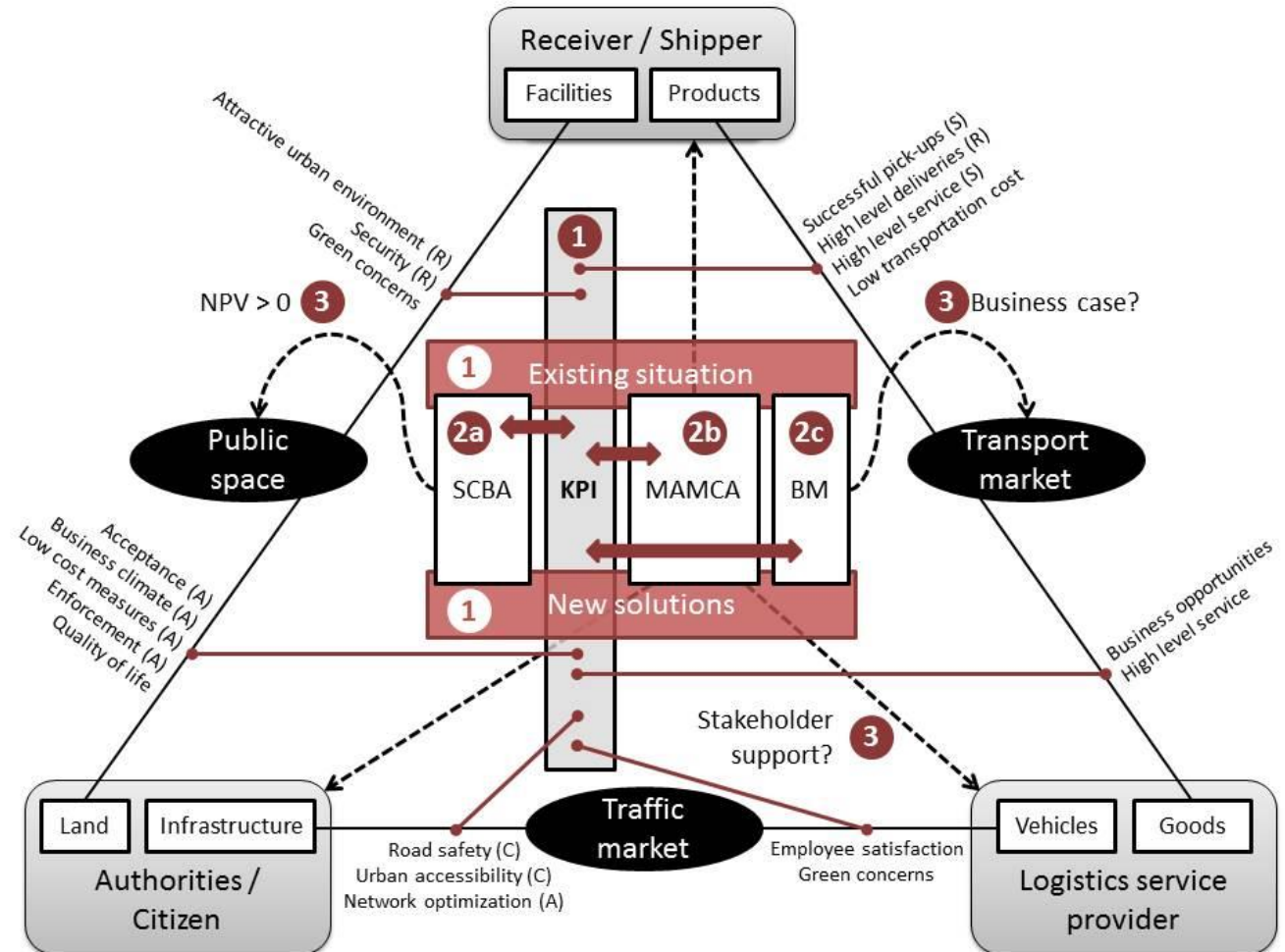


Based on Behrends, 2011

# Objectives

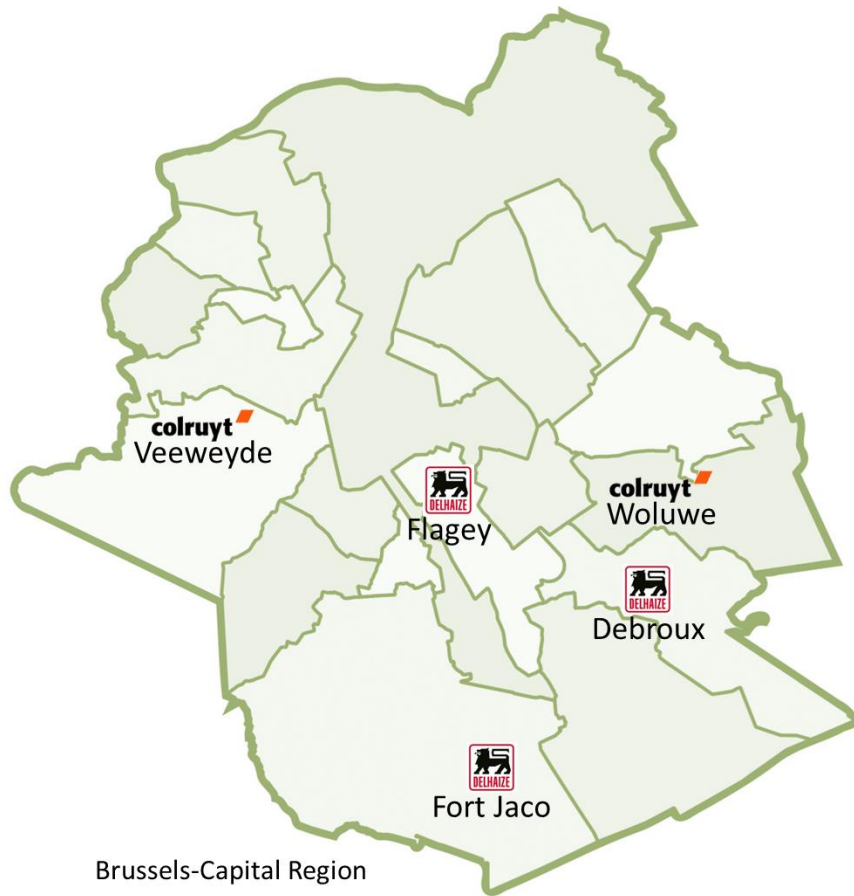


# Evaluation framework





# Pilot in Brussels

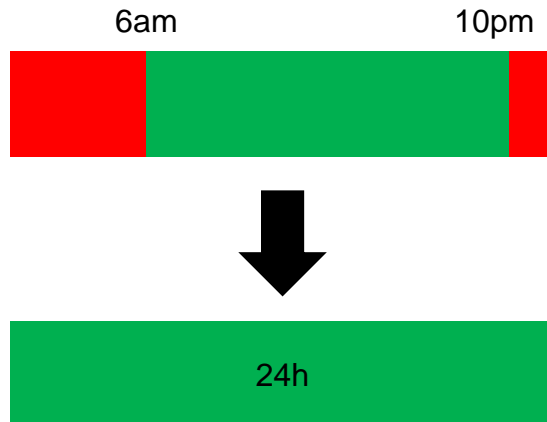


- 5 retail supermarkets – 2 retail chains
- **Different** circumstances:
  - Open or closed quay
  - Distance to closest housing
  - Conditions environmental permit



# Pilot in Brussels

Maximum spread  
throughout the day



Quiet deliveries



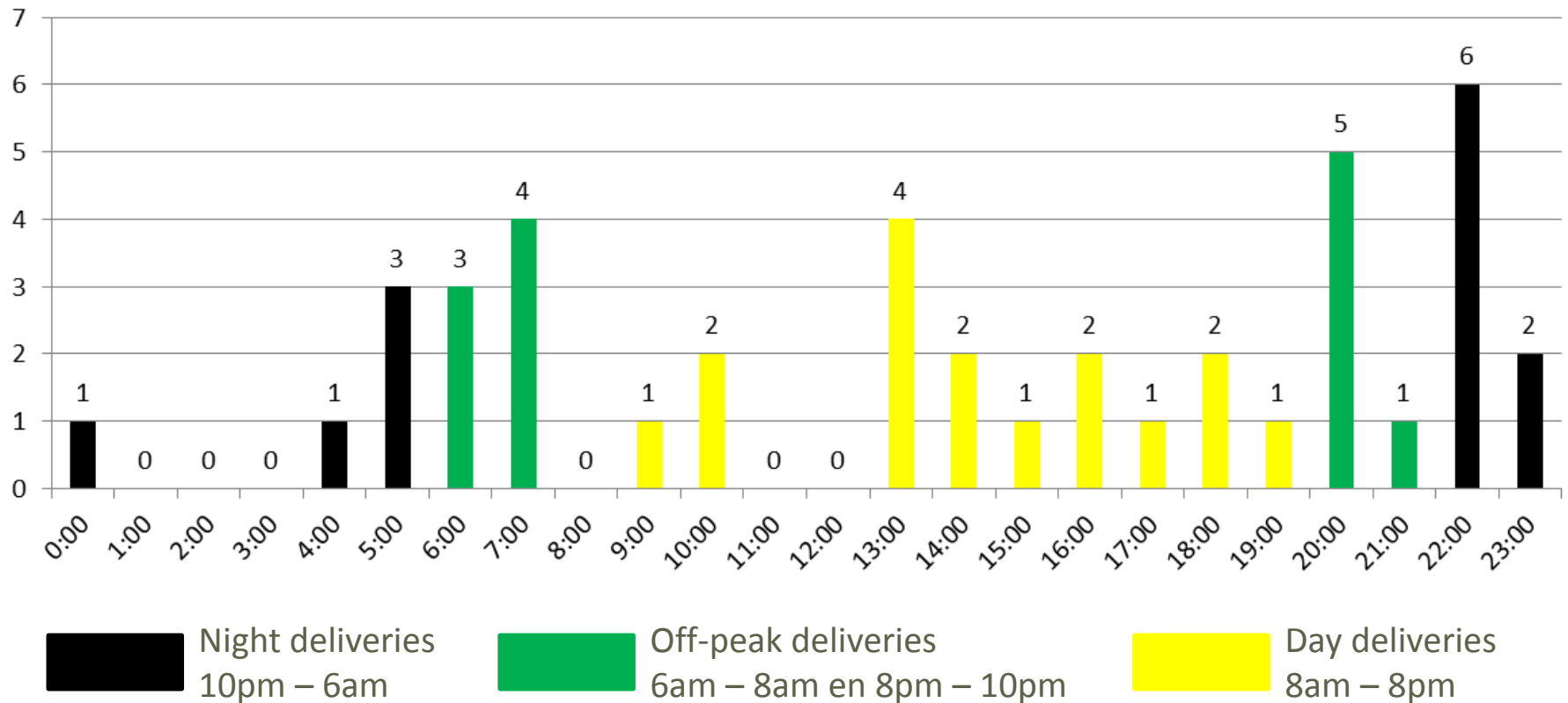


# Pilot in Brussels

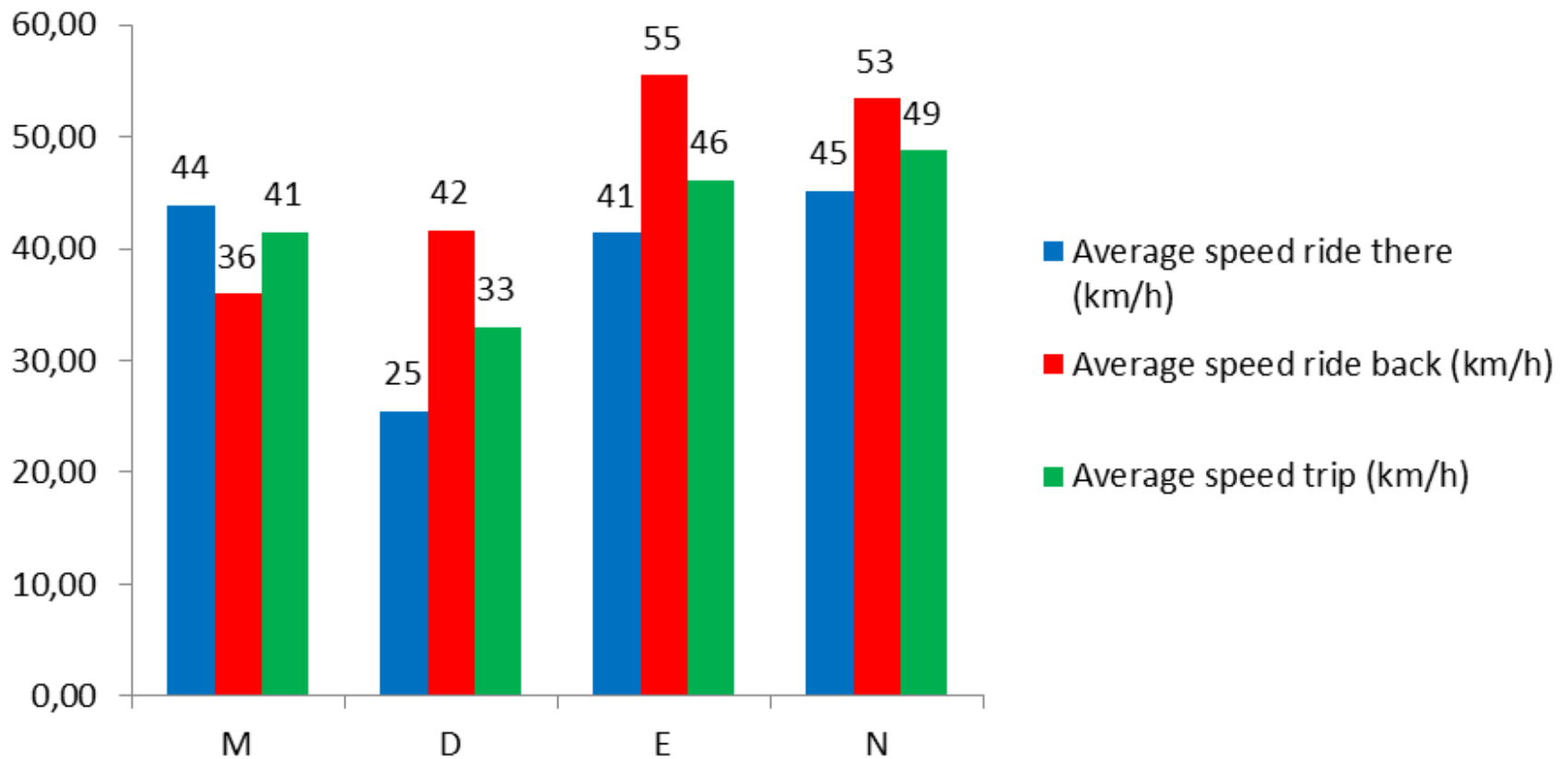
WEEK 2014	4	5	6	7	8	9	10	11	12	13
	20/jan	27/jan	3/feb	10/feb	17/feb	24/feb	3/mrt	10/mrt	17/mrt	24/mrt
Colruyt Veeweyde	M + E		M + E + N							
Colruyt Woluwe		M + E		M + E + N						
Delhaize Debroux						N				
Delhaize Fort Jaco										M
Delhaize Flagey									E	

# Pilot in Brussels

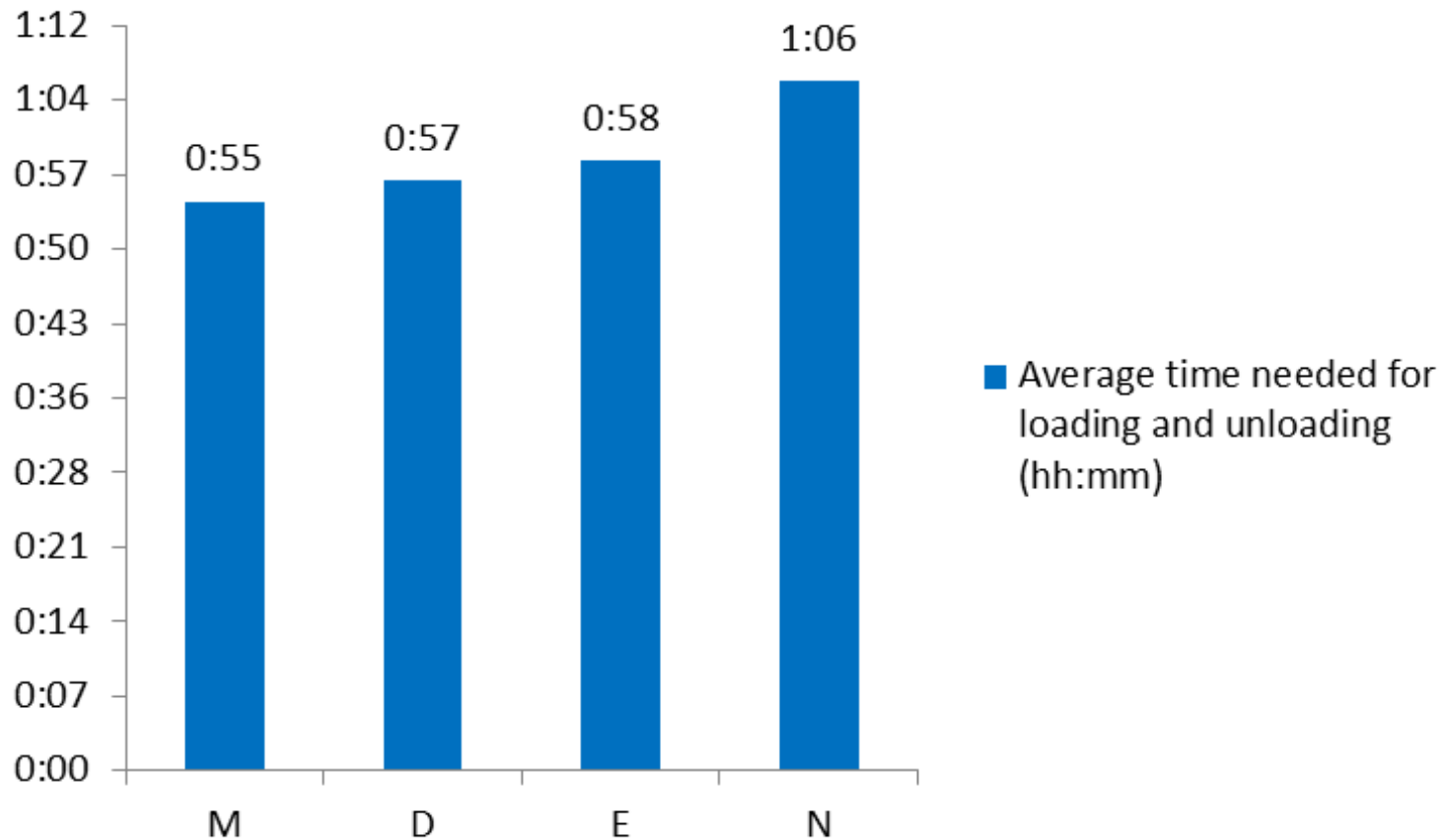
Data available for 42 deliveries



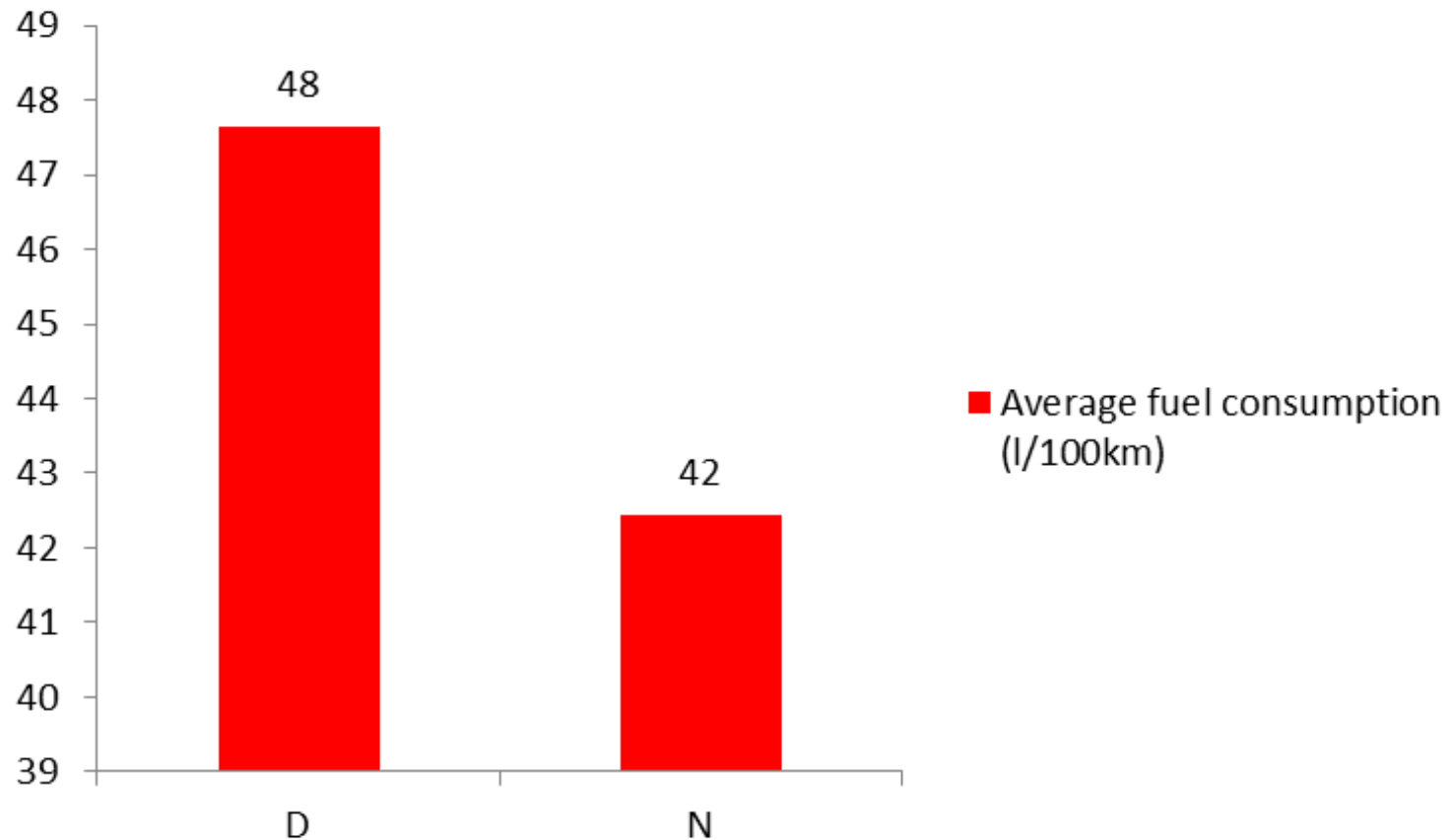
# Average speed



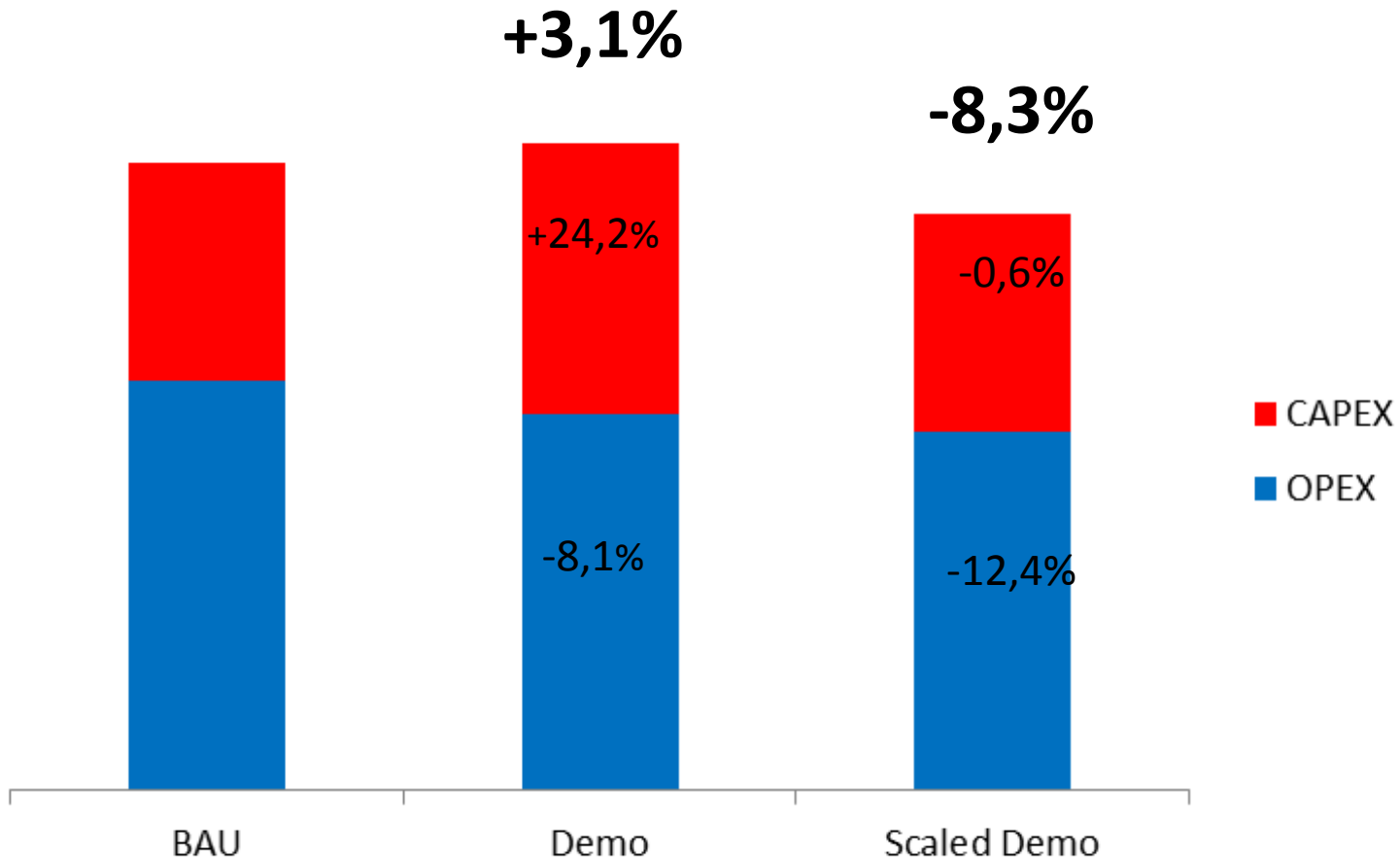
# Loading and unloading



# Fuel consumption

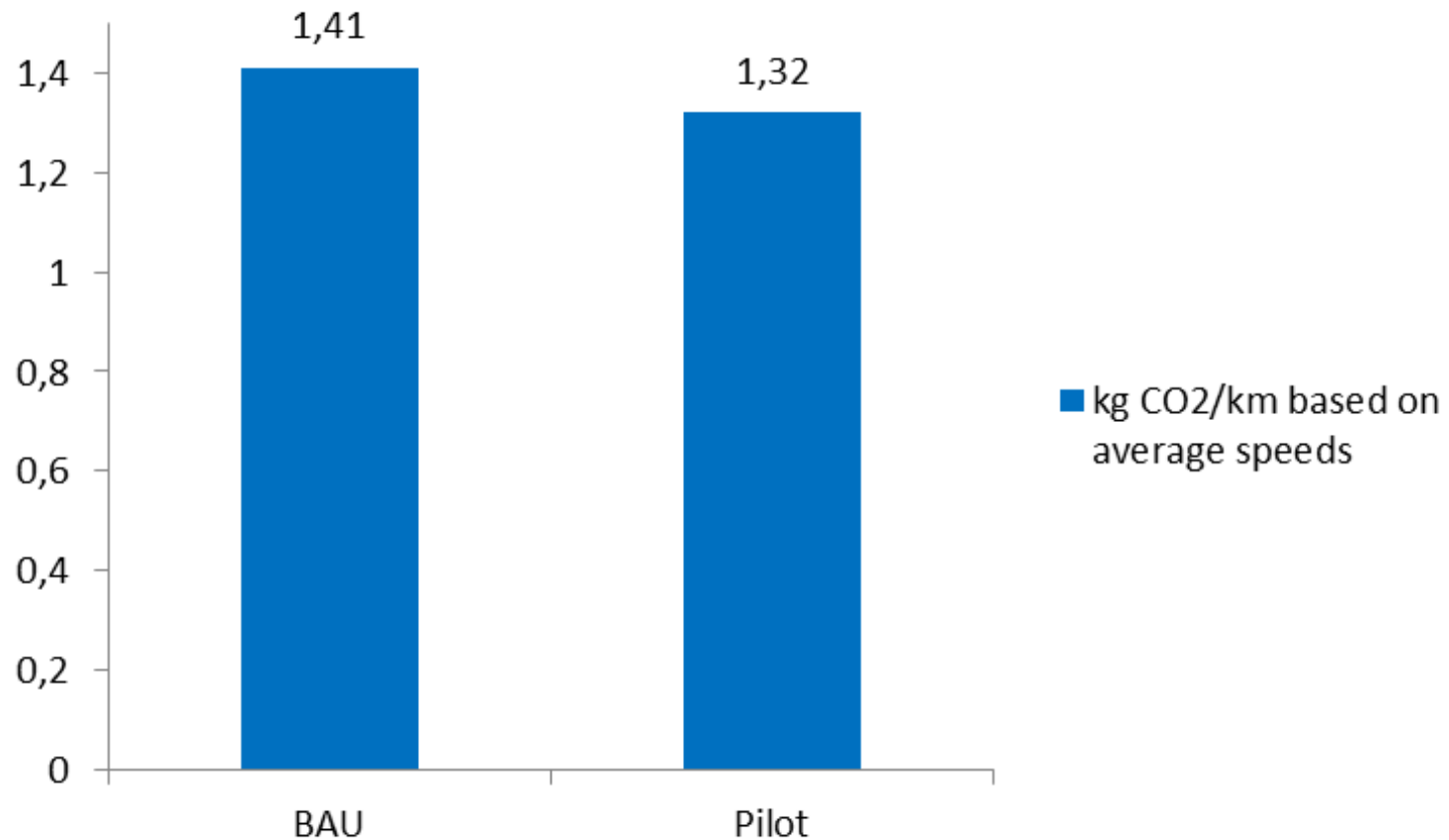


# Business Case





# CO2 emissions



# Noise

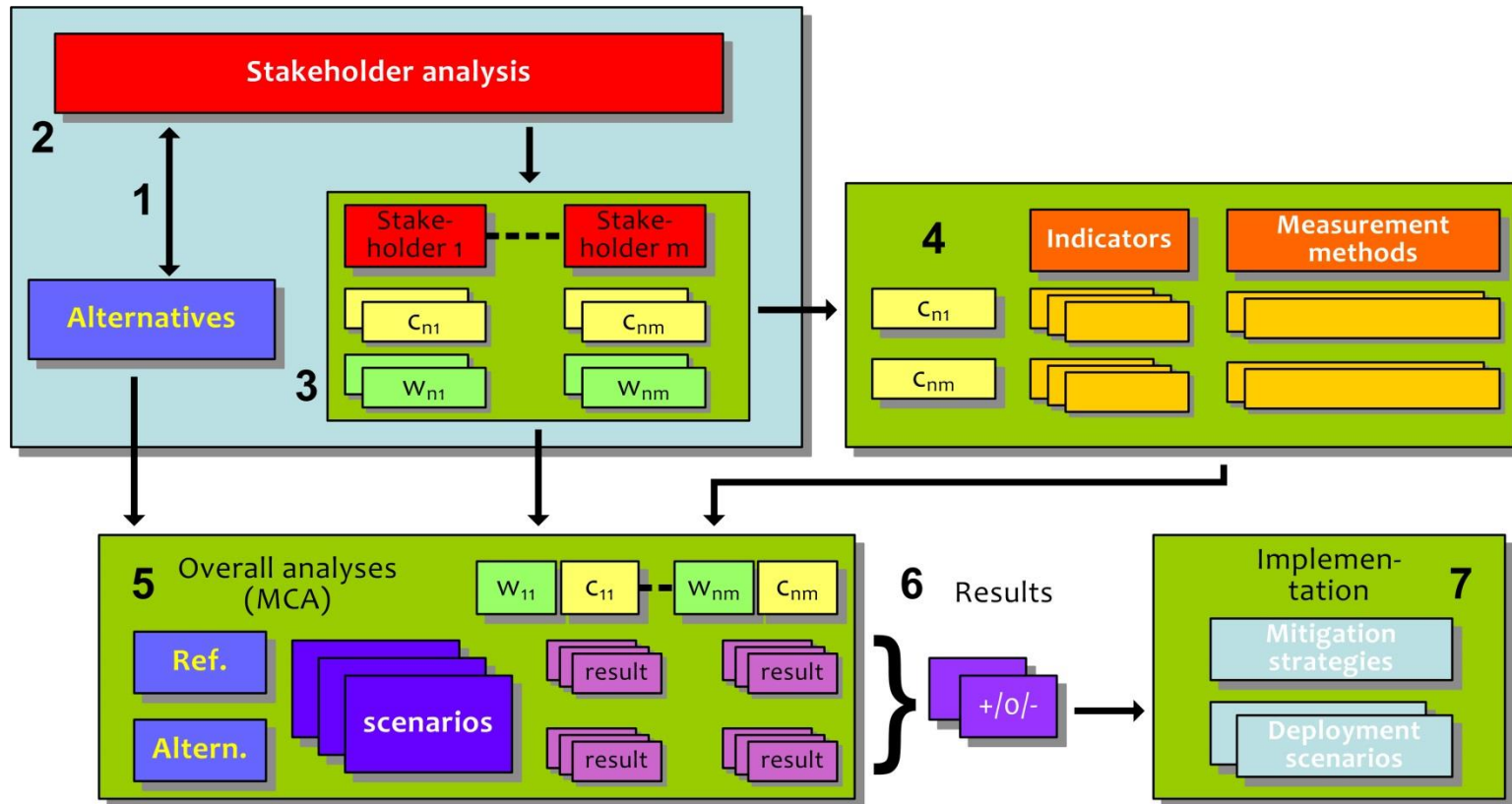


	Zone de déchargement	Camion	Distance à 1 <sup>ère</sup> habitation	PRAS	$L_{sp,max}$	Résultat
1_ <u>Debroux</u>	IN	IN	82 m	Zone 5 (magasin) Zone 2 (habitations) Zone 5 (bureau) ⇒ <b>zone 5</b>	≤ 48 dBA	OPS = OK Camion = voirie
2_ <u>Fort Jaco</u>	IN	OUT	15 m	Zone 1 (magasin) Zone 1 (habitations) MAIS : point de variation de mixité ⇒ <b>zone 3</b>	≤ 42 dBA	OPS = OK Camion = voirie
3_ <u>Colruyt - Veeweyde</u>	IN	IN	31 m	Zone 3 (magasin) Zone 2 (habitations) ⇒ <b>zone 3</b>	≤ 42 dBA	OPS = OK Camion = non-OK
4_ <u>Flagey</u>	IN	IN	13 m	Zone 2 (magasin) Zone 2 (habitations) ⇒ <b>zone 2</b>	≤ 39 dBA	OPS = OK Camion = voirie
5_ <u>Colruyt - Woluwé</u>	OUT	OUT	80 m	Zone 3 (magasin) Zone 3 (habitations) Zone 3 (école) ⇒ <b>zone 3</b>	≤ 42 dBA	OPS = OK Camion = non-OK

# Employee satisfaction

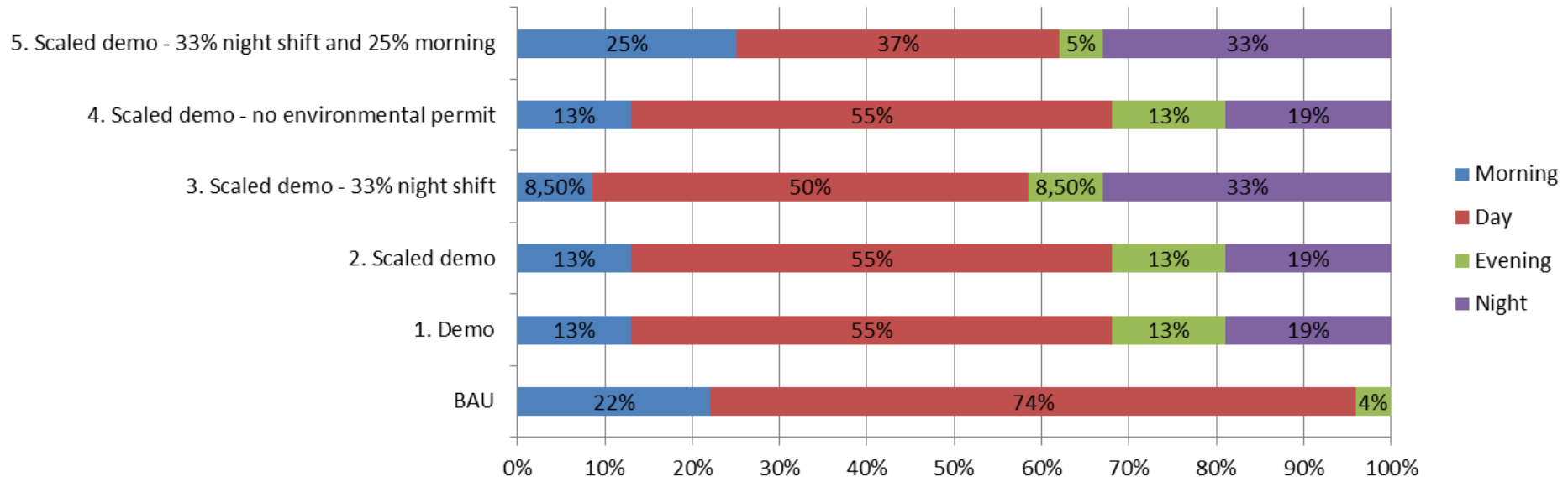


# Multi-actor multi-criteria analysis (MAMCA)

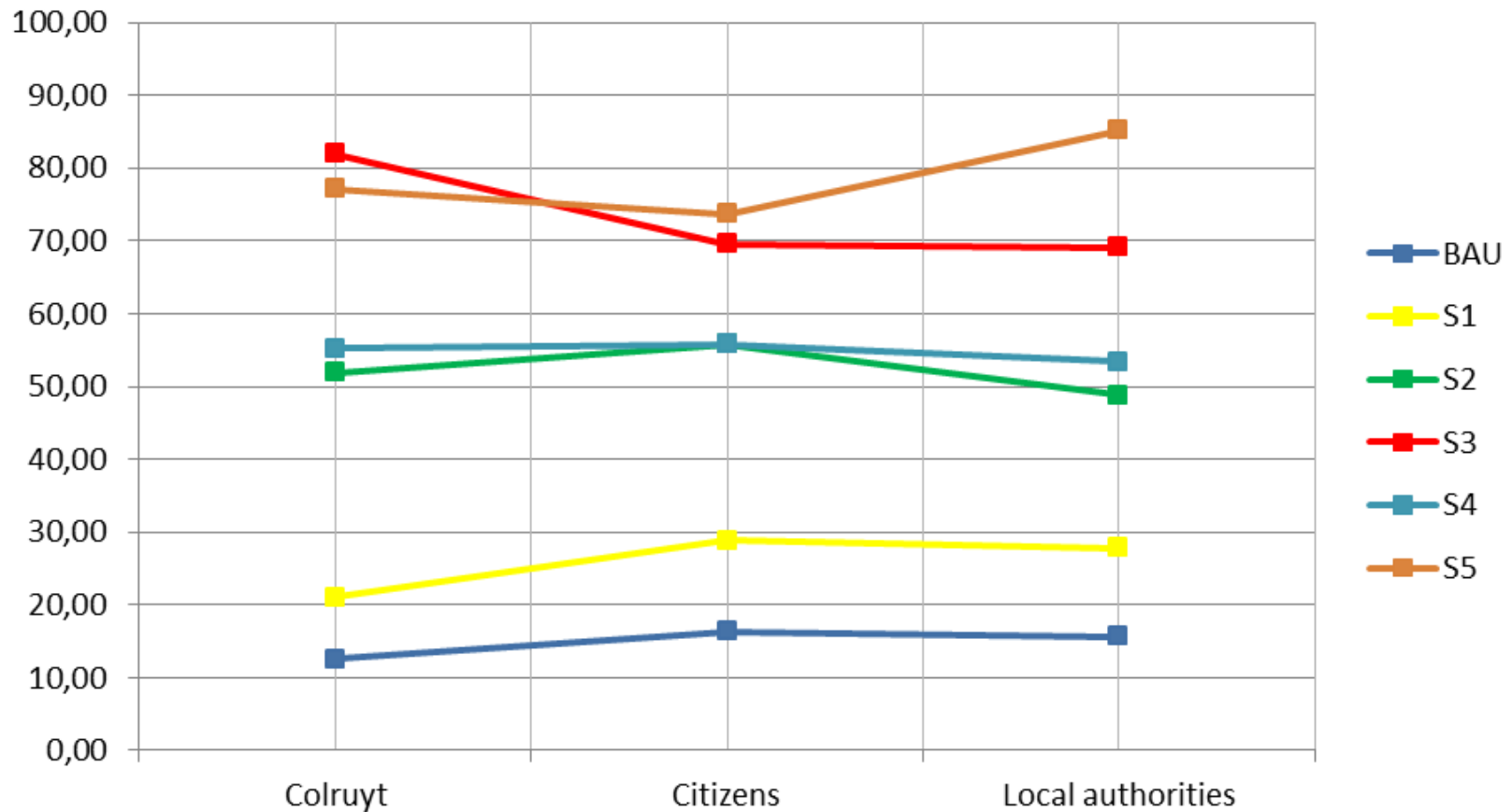


Macharis, 2000

# Scenarios MAMCA



# Multi-actor view MAMCA





# To conclude

- Pilot in Brussels **confirms results** earlier tests
  - Higher average speeds
  - Night deliveries are beneficial for retail supermarkets
  - Noise nuisance remains a point of attention but can be kept acceptable under certain conditions
- MAMCA reveals that:
  - Overall stakeholder support is **achievable**
  - Stakeholders should look for the **right balance** between day, evening, night and early morning deliveries

# Thank you for your attention

Sara Verlinde

[sara.verlinde@vub.ac.be](mailto:sara.verlinde@vub.ac.be)

Cathy Macharis

[cathy.macharis@vub.ac.be](mailto:cathy.macharis@vub.ac.be)

