

<https://cumin.univ-lille.fr/>

# Campus of University with Mobility based on Innovation and carbon Neutrality

## Annual workshop 2026



Pr. A. Bouscayrol  
(ST, L2EP)

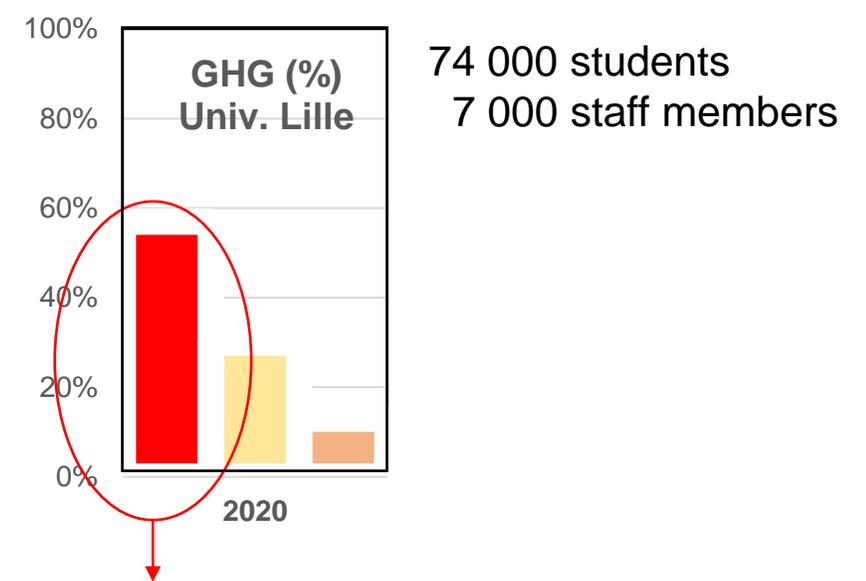
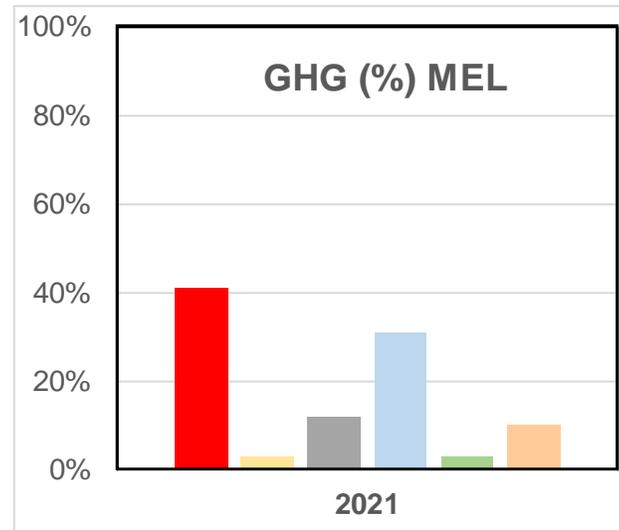
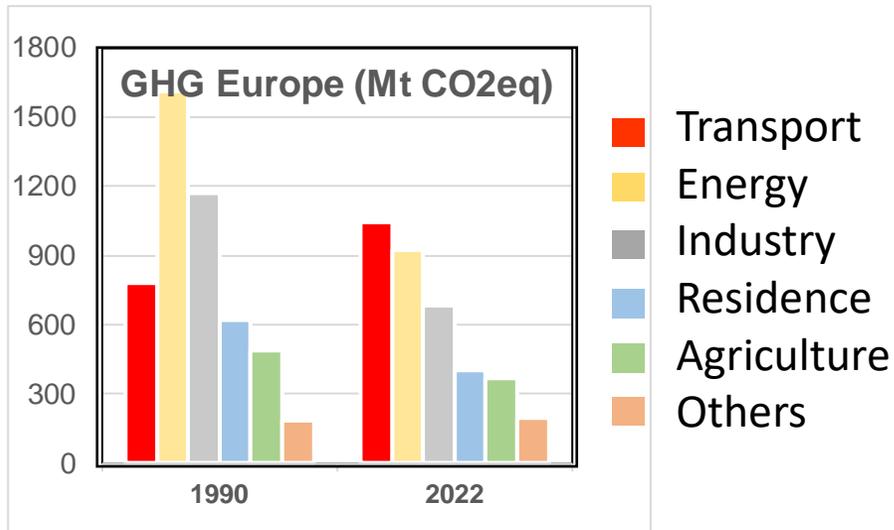


Pr. E. Castex  
(SHS, TVES)



# Mobility carbon footprint


 Université de Lille
 **GHG in 2020**  
 52 000 tons CO<sub>2</sub>eq



Transport, only sector still increasing [EEA 2023]



**needs of low-carbon mobility**

## Thermal vehicles

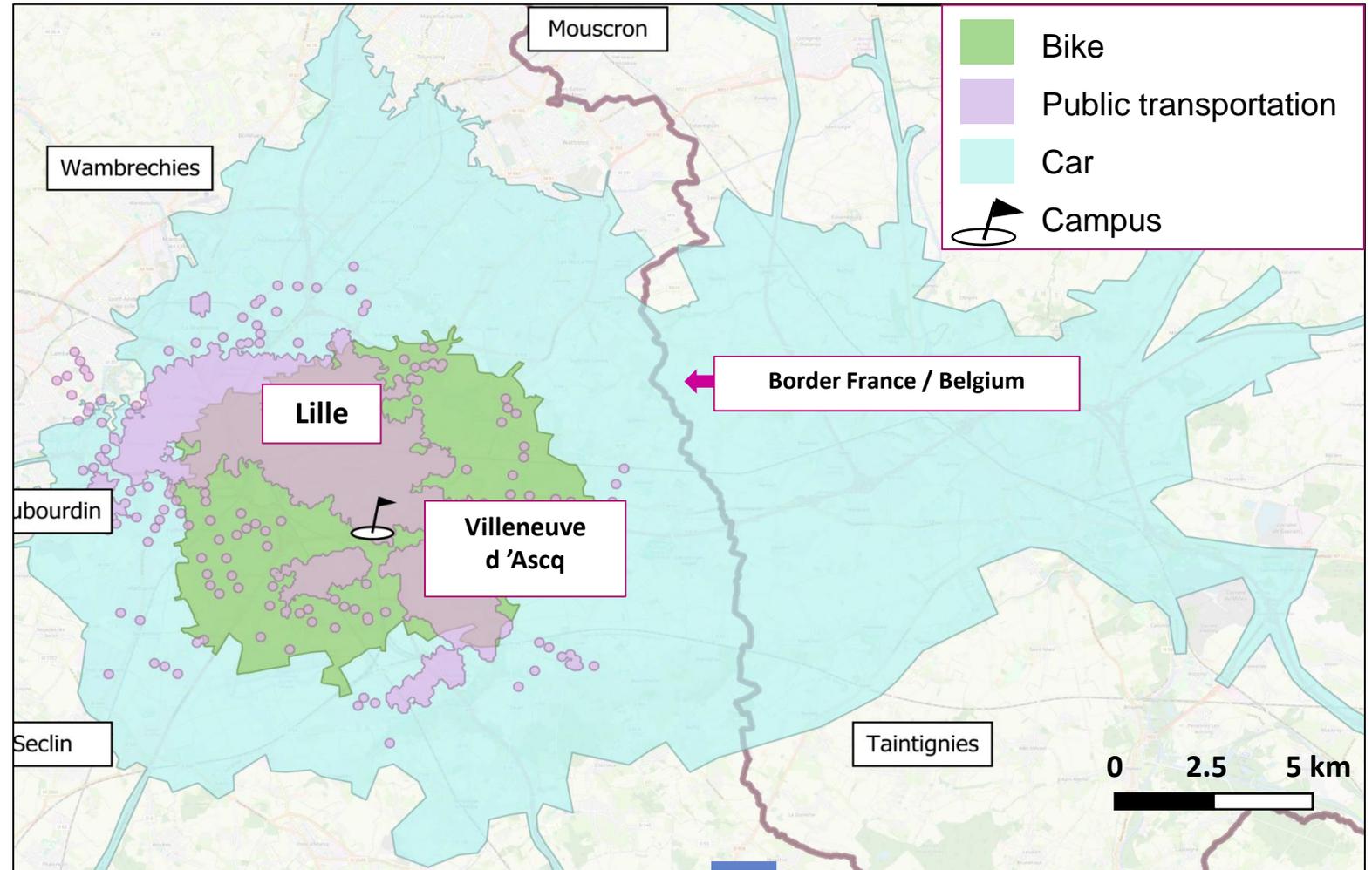
- 24% of the trips
- 81% of the GHG



**Impact of thermal vehicles**

# Which type of solutions?

Spatiotemporal accessibility  
of “Cité Scientifique” campus  
for 30min-long trip



**no unique solution**

# Complexity of the mobility transition



public authorities

recyclability charging possibilities purchase cost  
energy consumption common  
driving range greenhouse-gases  
traveling time material resources regulation  
distance particle emissions comfort  
operation cost incentive  
vehicle size charging time  
performances safety  
equity reliability

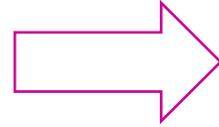


users



# Interdisciplinary programme

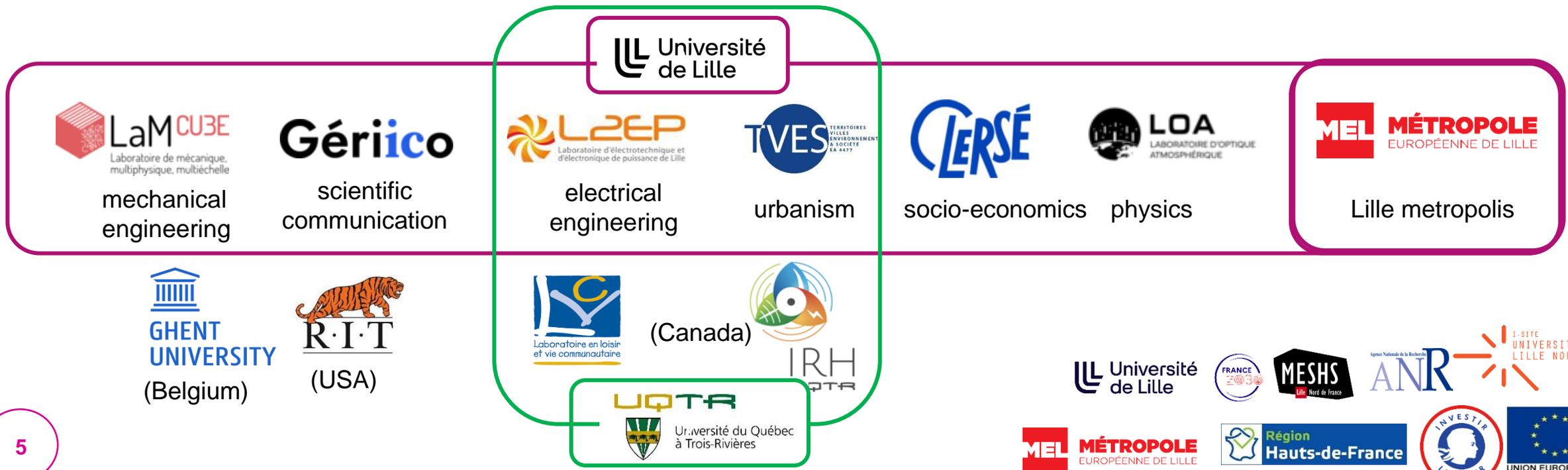
**C**ampus of  
**U**niversity with  
**M**obility based on  
**I**nnovation and  
**N**eutrality in carbon



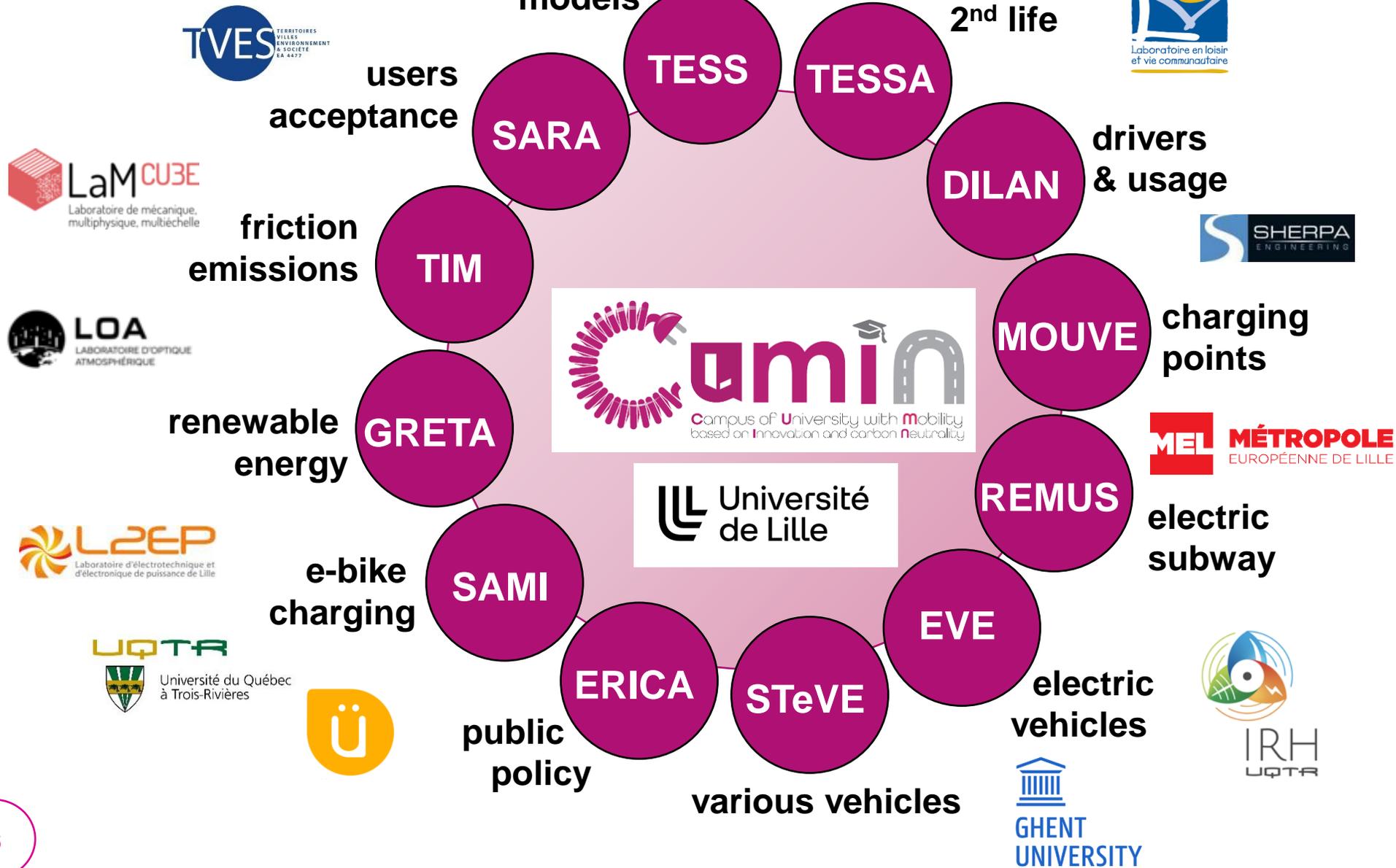
Development of interdisciplinary flexible methods and tools for e-mobility transition as an alternative to thermal cars with the campus « Cité Scientifique » as demonstrator

From innovative technical solutions....

... to socio-economic urban mobility plans



# CUMIN portfolio



### Funding

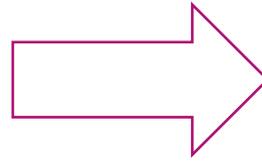
- I-SITE UNIVERSITÉ LILLE NORD-EUROPE
- MESHs Lille Nord de France
- Université de Lille
- MEL MÉTROPOLÉ EUROPÉENNE DE LILLE
- Région Hauts-de-France
- l'Europe s'engage en Hauts-de-France avec le FEDER
- Liberté • Égalité • Fraternité RÉPUBLIQUE FRANÇAISE
- bpi france
- ANR
- INVESTIR L'AVENIR
- UNION EUROPÉENNE

### Supports

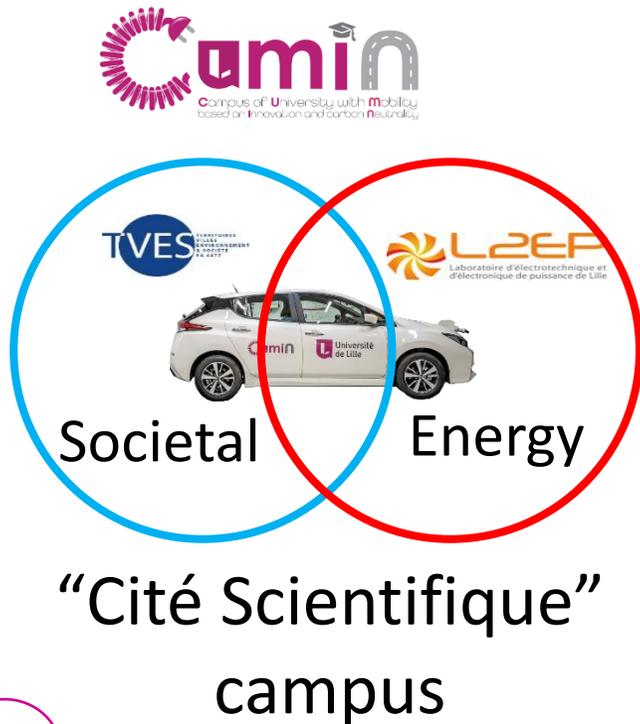
- MEGEVH French network on HEV's
- COMASYS Continuum de l'énergie
- IRH UQTR
- GHENT UNIVERSITY
- ce2i convertisseur d'énergie Intégré Intelligent
- ELSAT2020

# CUMIN evolution

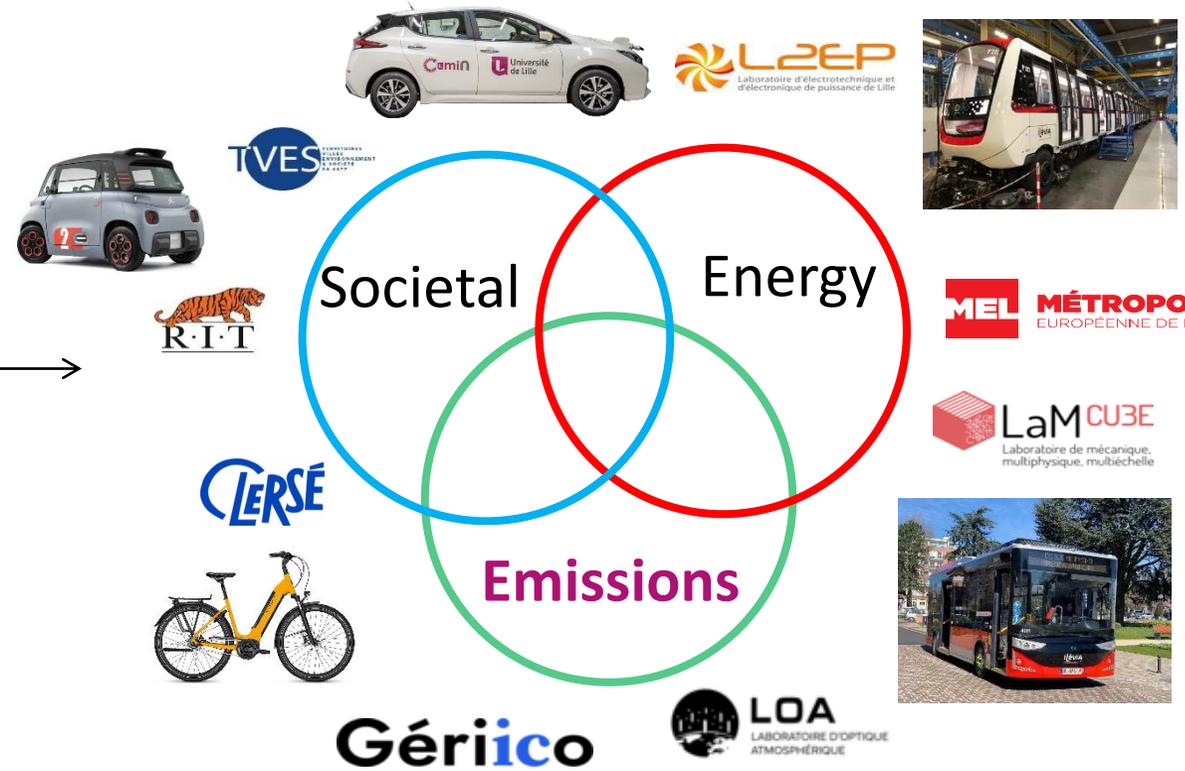
Campus of University with Mobility based on Innovation and carbon Neutrality



Cities and Urban areas with Mobility based on low Impact emissions and New interdisciplinary concepts

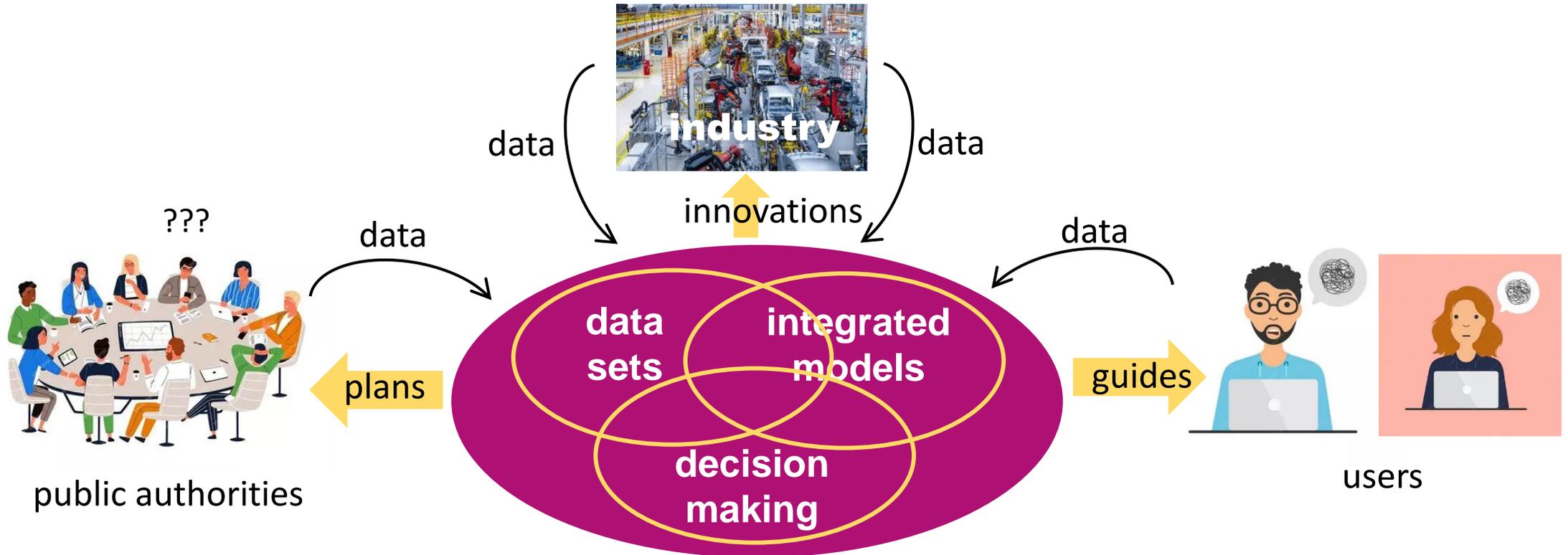


« Expand »  
University as Living Lab

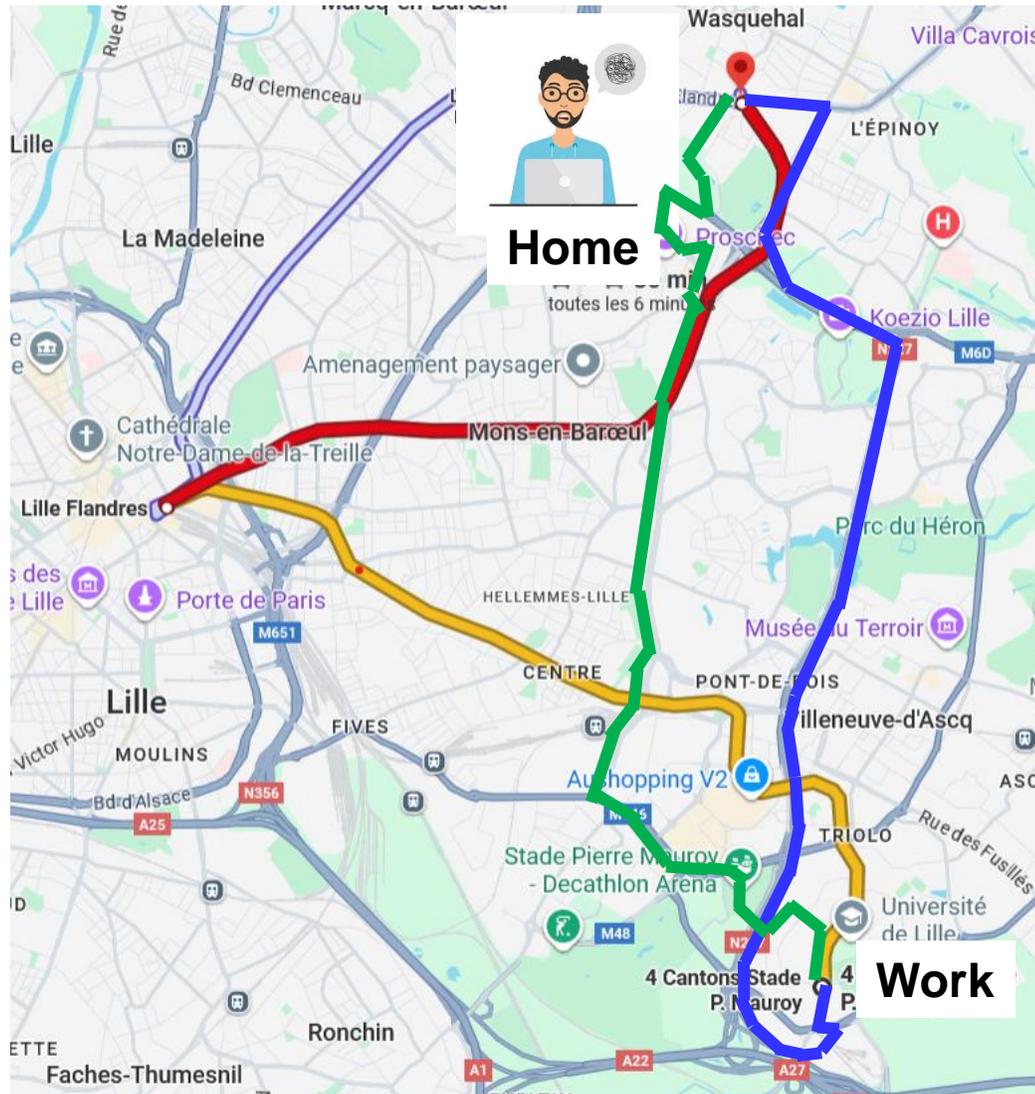


# Ambition

interdisciplinary tools  
for mobility transitions

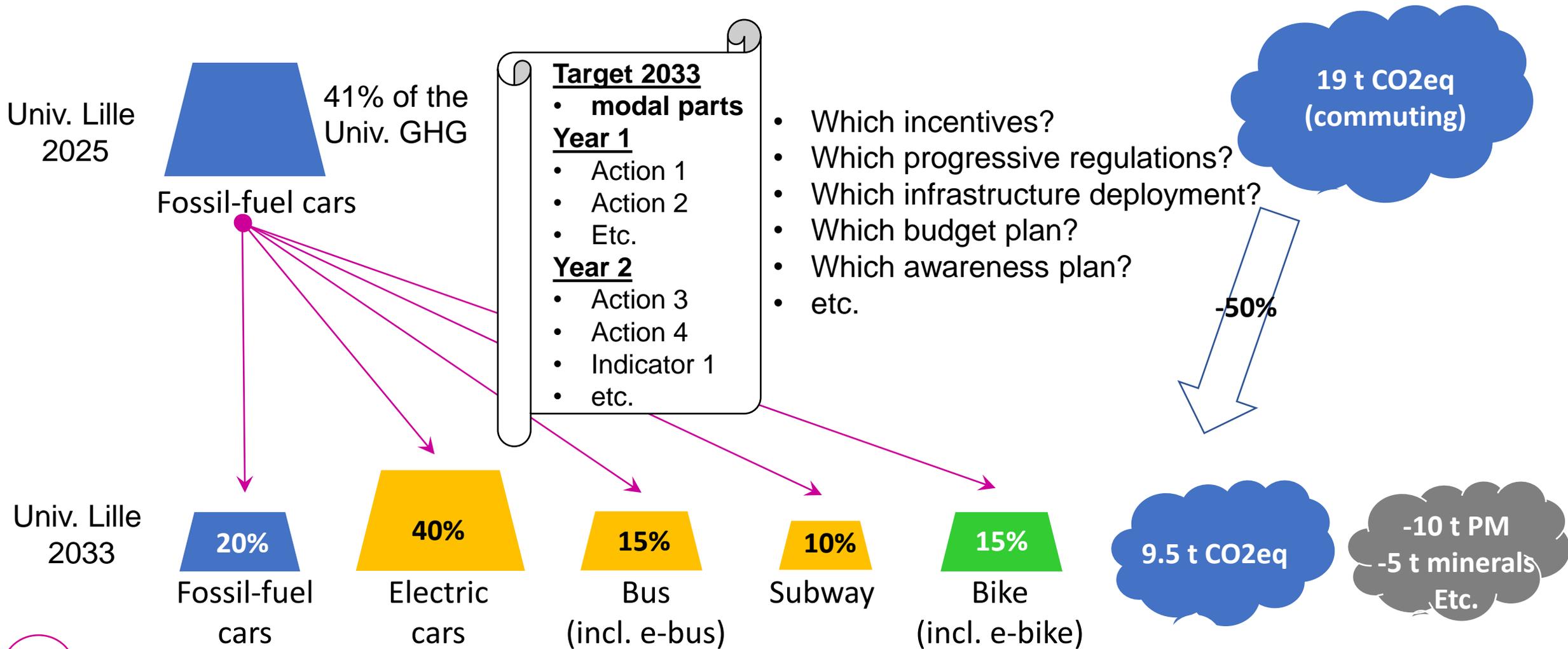


# Example of commuting change



		Alternatives			Actual trip
ST items	Time	35 min	32 min	13 min	13 min
	Energy	0 kWh	0.3 kWh	1.5 kWh	5 kWh
	CO2eq	0 g	20 g	800 g	2.5 kg
	PM	0 g	??	0,27 g	0.6 g
SHS items	Confort	??	??	★ ★	★ ★
	Cost (Op.)	0 €	1.2 €	1.5 €	3 €
	Safety	✘	★ ★	★	★
	Others?	??	??	??	??

# Example of sustainable university mobility plan



# Education outcomes

eV platform visits  
(Univ, IUT, Polytech'Lille, Centrale Lille, ENSAM)

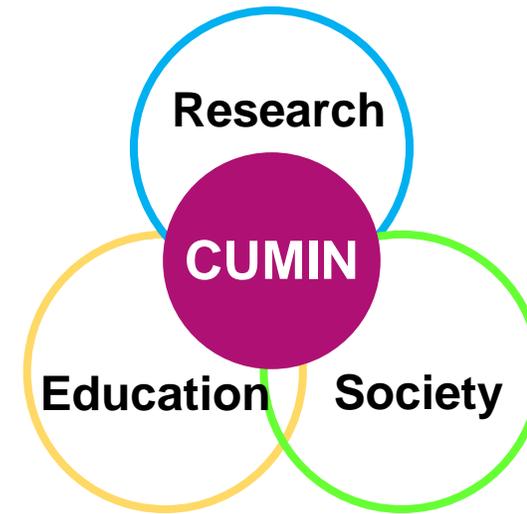
Various projects  
(Bachelor, Master, ST & SHS)

Lectures & seminars  
(Master ST & SHS)

A transversal doctoral unit  
« Green Mobility » (ST & SHS)

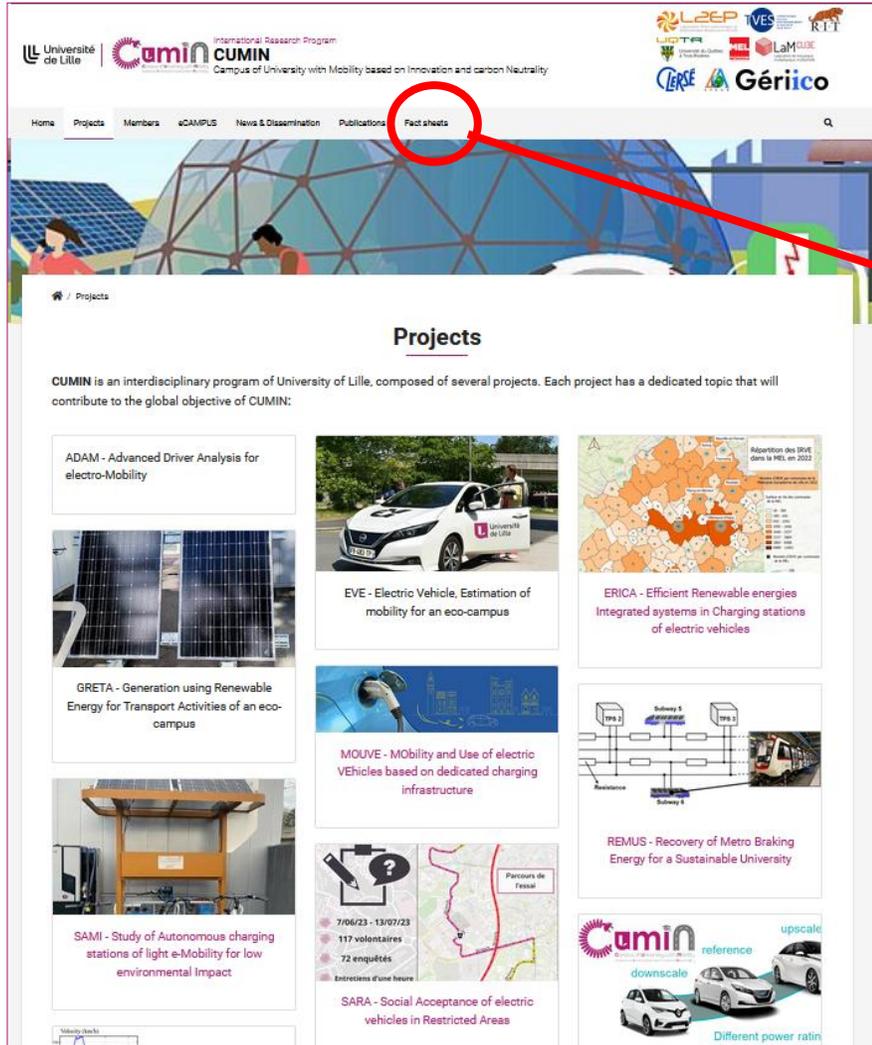
**Co-supervised PhD theses**

- 8 defended
- 4 on-going



# CUMIN website

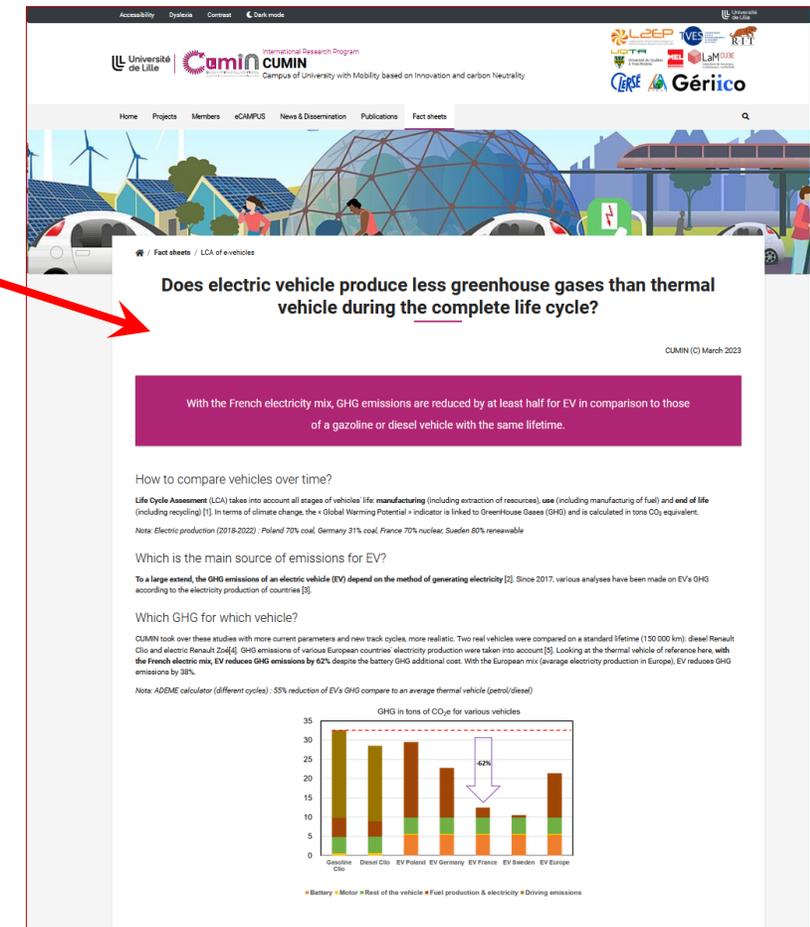
## CUMIN projects description



## Informative 1-page factsheets for a broad

(French and English):

- GHG of University of Lille
- Life cycle impacts of electric and thermal vehicles
- Impact of teleworking
- Ecologic transition plan of University of Lille



# CUMIN annual workshop 2025

Tuesday 3 February 2025, ESPRIT, amphi ATRIUM		
13:30	Welcome coffee	
14:00	CUMIN introduction	A. Bouscayrol, E. Castex (L2EP/TVES, ULille)
14:30	Dissemination: book on e-mobility	J. Frottey, E. Castex,, A. Bouscayrol (INRS Canada, TVES/L2EP, ULille)
14:45	eCAMPUS: Nissan leaf charging	S. Revankar et al. (eCAMPUS/L2EP, ULille/ IRH Univ 3 Rivières)
15:00	GRETA: PV-based charging station	N. Baza, W. Lhomme et al. (L2EP, Univ. Lille)
15:15	Coffee break	
15:30	CODE4EV: SDV technology	W. Lhomme et al. (L2EP, ULille)
15:45	DILAN: Driving In the Loop	C. Plomion, W. Lhomme, A. Bouscayrol, I. Arslane (L2EP, Ulille, CRITT-M2A)
16:00	DILAN: Driving test	I. Boukadia, A. Bouscayrol (L2EP, ULile)
16:15	TIM: Hybrid braking	M. Lehut, J.-F. Brunel, W. Lhomme (L2EP, LamCube, ULille)
16:30	Coffee break	
16:45	EVE: simulation of e-vehicles	R. Akif, R. Vandolaeghe (Amster; M2, VIE)
17:00	MOUVE: bidirectional charging station	S. El Boussidi, H. Ferrikh, E. Savi (Master, VIE, Ulille)
17:15	MOUVE: battery thermal model	F. Abdul-Hamid, L. Ble (Master M2 VEI., ULille)
17:30	TESSA: second use of battery	B. Bose, R. German et al. (L2EP, ULille, RIT)
17:45	End of the day	

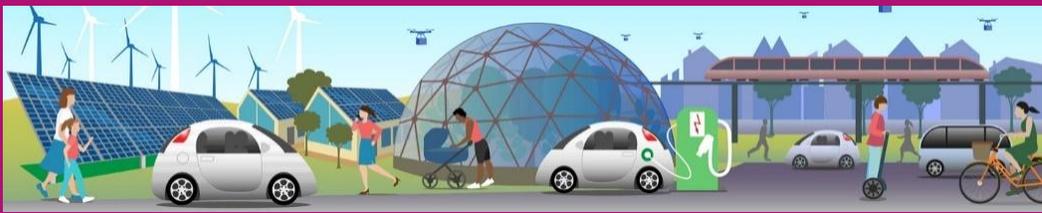
Wednesday 4 February 2026, ESPRIT, amphi ATRIUM		
12:30	Lunch - Barrois	
14:00	EDIS: data on e-mobility	C. Mayet et al. (L2EP, TVES, GERiiiCO)
14:30	EDIS: open data platform on e-mobility	N. Moisisi, A. Fraisse, A. Bouscayrol (GERiiiCO/L2EP, ULille)
14:45	SARA: livingLab	E. Masclef (TVES, Univ. Lille)
15 :00	SARA: New PhD Thesis	L. Juncker (TVES, L2EP, Univ. Lille) B. Debuys (TVES, Univ. Lille)
15:15	Coffee break	
15:30	CUMIN & SDG chair	A. Bouscayrol, B. Lemaire-Semail (L2EP, ULille, Chaire ODD TE)
15:45	REMUS: subway energy consumption	R. Averats, C. Mayet et al. (Master Erasmus L2EP, ULille)
16:00	REMUS: tramway energy consumption	A. Bounechada, A. Dahmane, M. El Khelfi (Master, VIE, MEL project)
16:15	EVE: bus energy consumption	S. Achbar, R. Belkhir (M2, VIE, MEL project)
16:30	Coffee break	
16h45	TESSA presentation	E. Hittinger, R. German, E. Caxtex (RIT/L2EP/TVES, ULille)
17:00	TESSA: battery ageing	A. Ndiaye, R. German et al. (L2EP, ULille, AMPERE Univ. Lyon)
17:15	TESSA: battery total cost of ownership	M. Chaud, R. German et al. (L2EP, TVES, ULille, RIT)
17:30	SAMI: charging station for e-bikes	F. Tournez, H. Ikaouassen et al. (L2EP, Ulille, FEMTO-ST ULMP)
18:00		

24 presentations by  
Professors, Associate Professors,  
Engineers, PhD students, Master students  
(a strong value chain!)

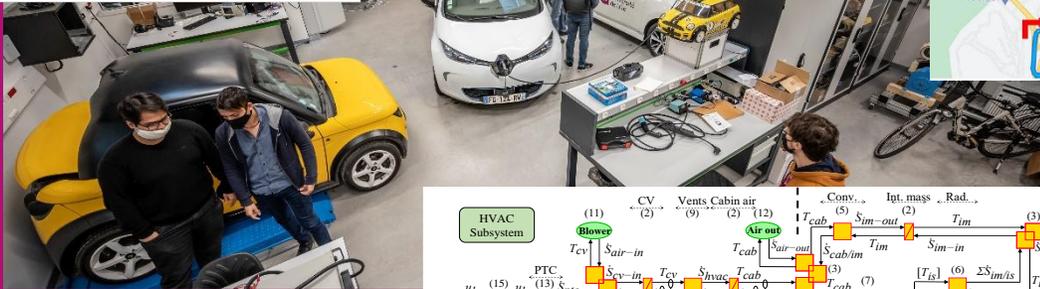
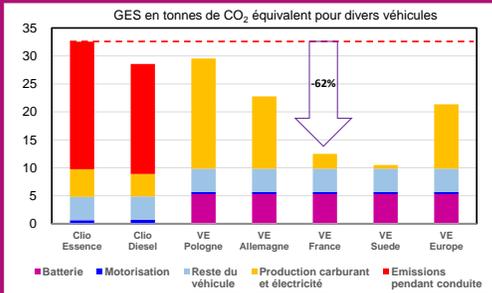
in hybrid mode with Canada and USA

pdf soon @  
<https://cumin.univ-lille.fr/>

Thanks for our supports



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Our university as an exciting living lab towards eco-cities through an innovative transdisciplinary framework !

