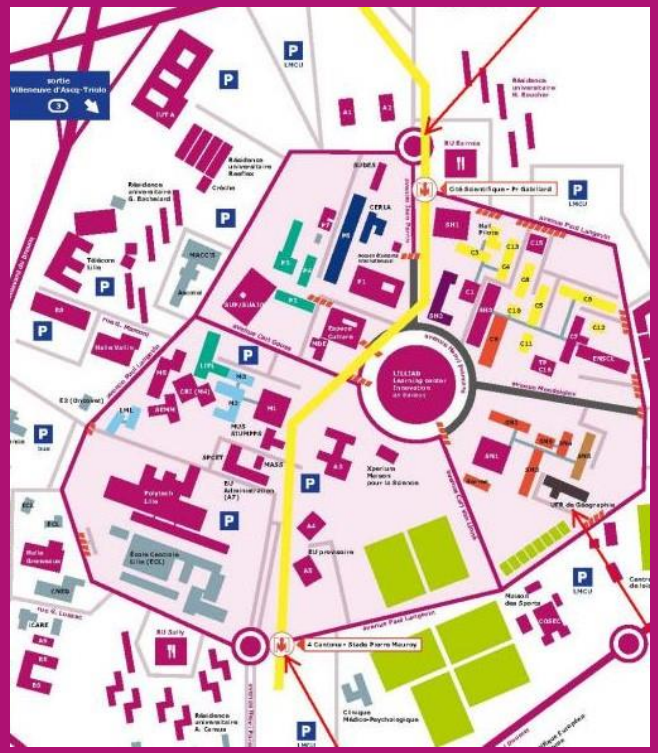
https://cumin.univ-lille.fr/



Campus of University with Mobility based on Innovation and carbon Neutrality

Annual workshop 2024

Pr. A. Bouscayrol
(ST, L2EP)

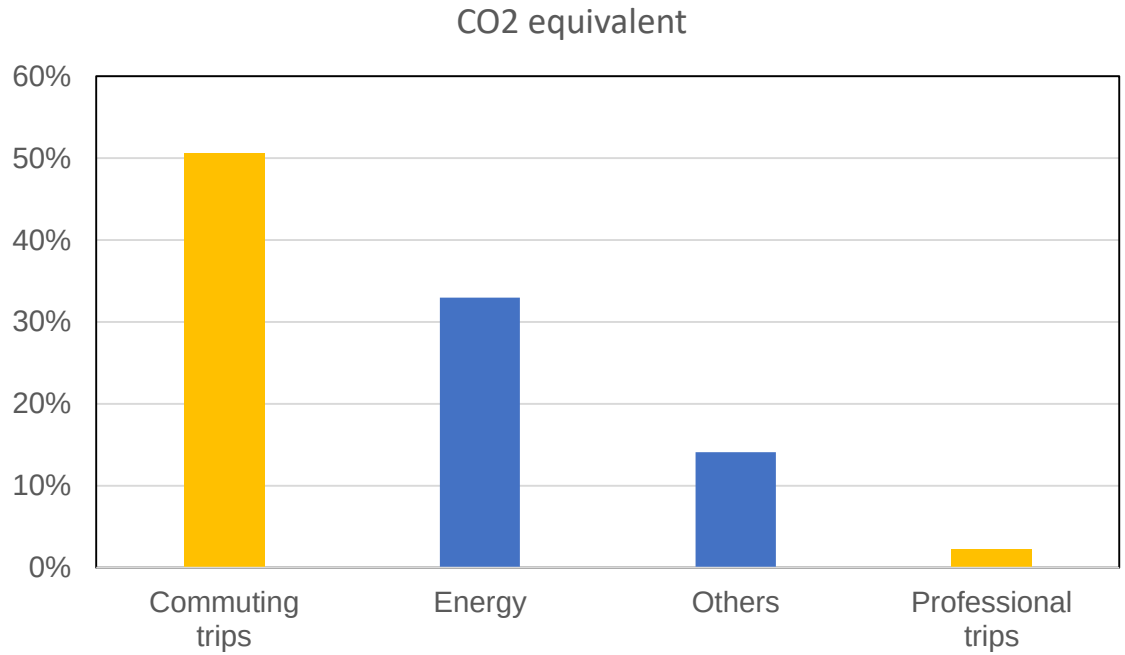
Pr. E. Castex
(SHS, TVES)

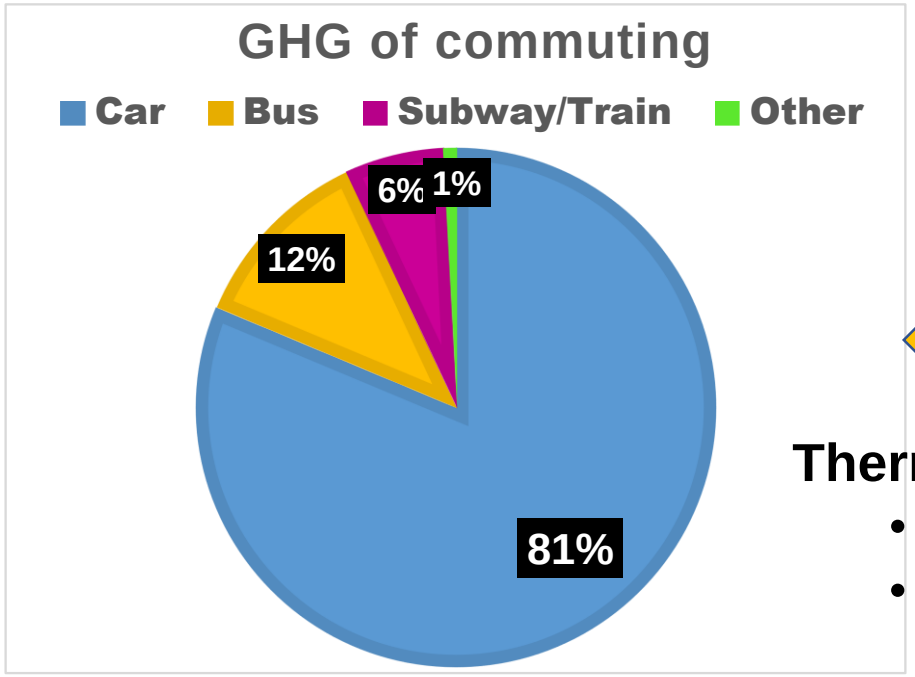
Outline

1. Context
2. Objective & interdisciplinarity
3. Evolutions

University carbon footprint

In 2020
74 000 students
7 000 staff members
Green House Gases (GHG) 52 000 tons CO2eq





Thermal cars

- only 24% of km
- but 81% of GHG

e-mobility transition?

Thermal vehicles = 41% of the GHG of the University

How to motivate commuters with thermal vehicle to switch to low-carbon alternative?

[ADEME 2022]

	TV 1 person	TV 2 persons	EV 1 person	EV 2 persons	bus GNV*	subway	bike
kgCO2eq / km	0,22	0,11	0,1	0,05	0,12	0,03	0
GHG saving	reference	50%	55%	**77%**	45%	**86%**	**100%**

* Natural Gaz Vehicle

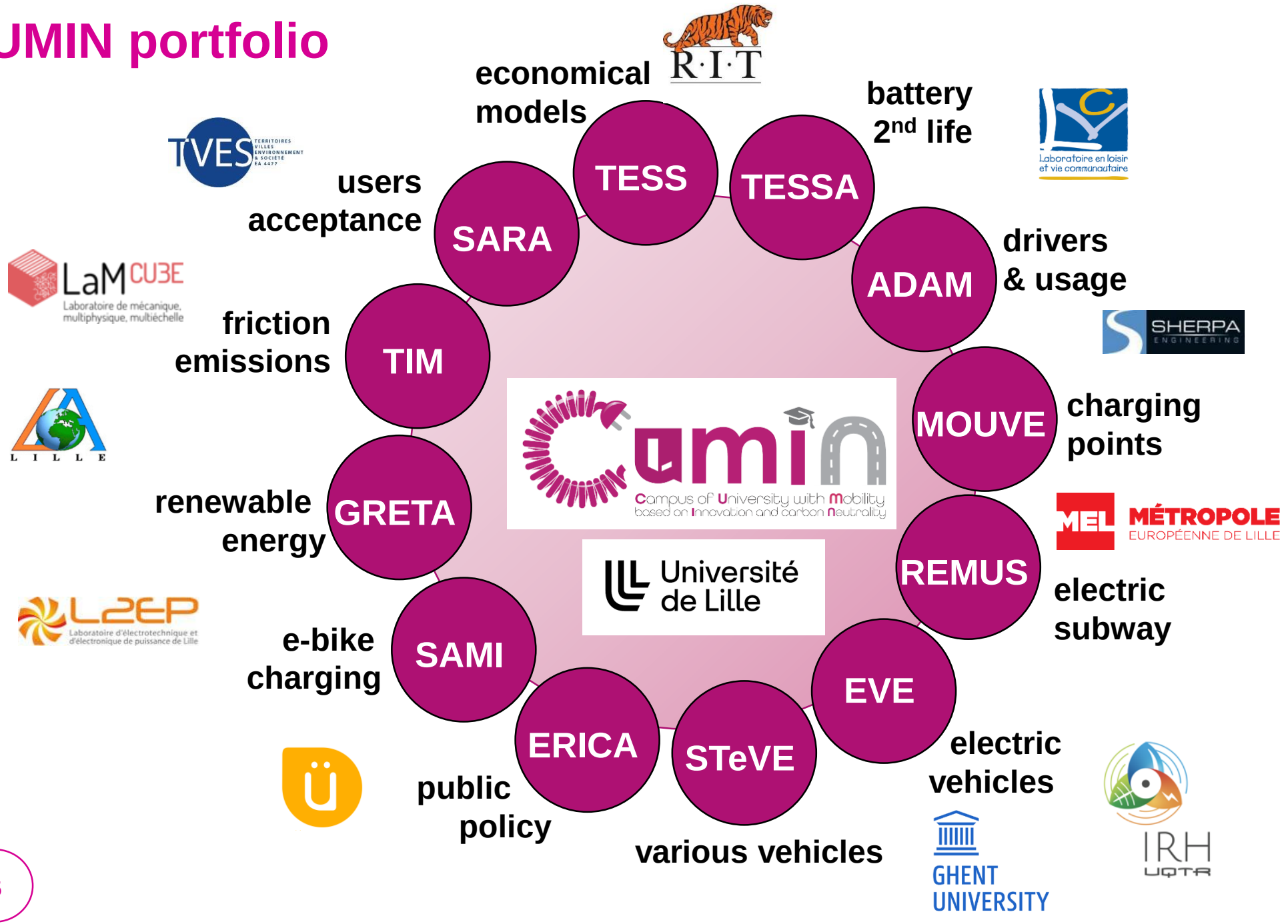
5 000 Thermal Vehicles (TV)

Which distribution?

Which incentives?

Which constraints? Which cost? Which technologies?

CUMIN portfolio



Funding

I-SITE Université Lille Nord-Europe

Université de Lille

MESHS Lille Nord de France

MEL Métropole Européenne de Lille

Région Hauts-de-France

l'Europe s'engage en Hauts-de-France avec le FEDER

Liberté • Égalité • Fraternité
République Française

bpifrance

Agence Nationale de la Recherche ANR

Investir l'avenir

Union Européenne

Supports

MEGEVH French network on HEVs

COMASUS Continuum de l'énergie

Panda

ce2i convertisseur d'énergie Intégré Intelligent

ELSAT2020

Interdisciplinary programme

Campus of
University with
Mobility based on
Innovation and
Neutrality 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

Université de Lille

LaMCUBE – Laboratoire de mécanique, multiphysique, multiéchelle – mechanical engineering

Gériico – scientific communication

L2EP – Laboratoire d'électrotechnique et d'électronique de puissance de Lille – electrical engineering

TVES – Territoires Villes Environnement & Société – urbanism

CLERSÉ – socio-economics

LILLE – physics

MEL Métropole Européenne de Lille – Lille metropolis

GHENT UNIVERSITY (Belgium)

R·I·T (USA)

Laboratoire en loisir et vie communautaire

(Canada)

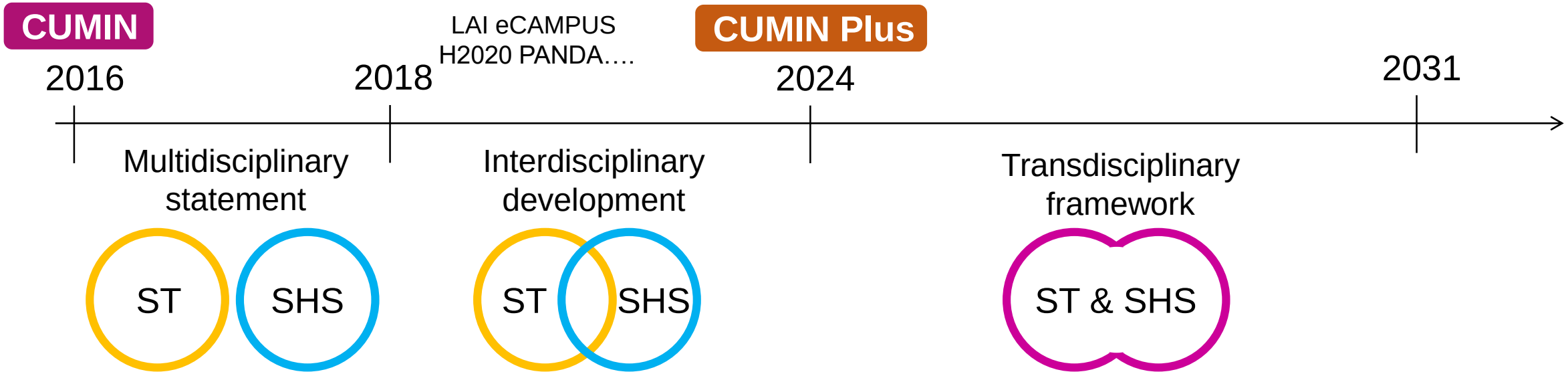
IRH

UQTR Université du Québec à Trois-Rivières

Université de Lille · France 2030 · MESHS Lille Nord de France · ANR · I-SITE Université Lille Nord-Europe

MEL Métropole Européenne de Lille · Région Hauts-de-France · Investir l'avenir · Union Européenne

From multidisciplinary to transdisciplinary



3 ST Labs + 3 SHS Labs (person.months: 55% ST + 45% SHS) / (Gender balance: 43%F + 57%M)

CUMIN Plus vs. CUMIN

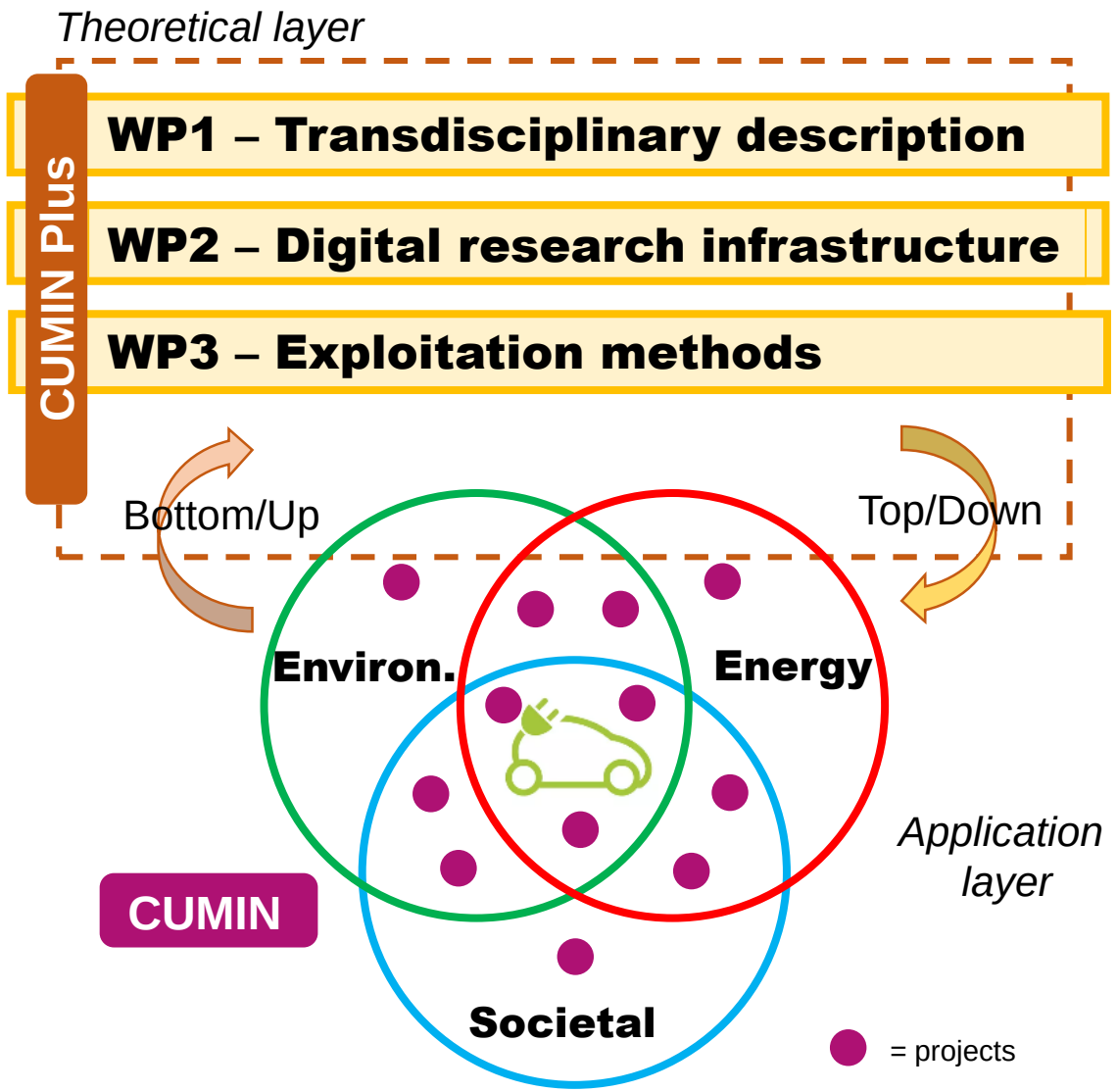
CUMIN

- valuable interdisciplinary projects
- common objective of 1 campus
- no real project interrelations
- no common framework

CUMIN plus **CDP**

- new partners in ST and SHS
- **Theoretical transdisciplinary layer**
- **common tools and database**

towards transition to e-mobility cities



Impact on education

Some Bachelor projects

10 to 20 Master theses per year (ST and SHS)

6 Co-supervised defended PhD
4 Co-supervised on-going PhD

CUMIN "Plus"

CUMIN Seminars in Master (since 2016)

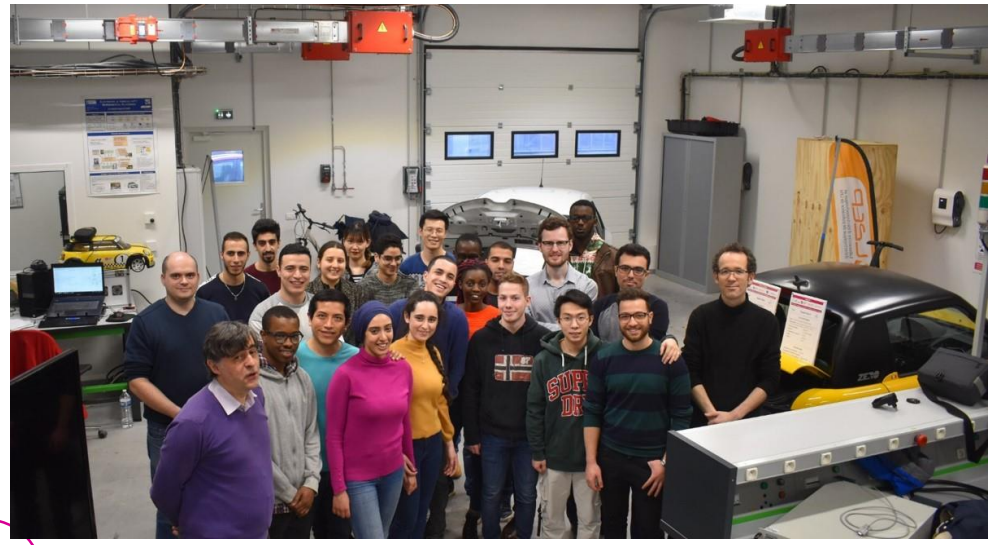
- M2 Electrical Eng. For Sustainable Develop
- M2 Véhicules Electriques Intelligents
- M2 Projet urbain & ville durable

CUMIN "Green Mobility" unit
(Doctoral schools since 2019)

- 7 seminars of 2h
- Lectures in English
- Speakers from CUMIN (ULille+USA+Canada)
- various aspects of e-mobility: technical, societal, economical,…)
- average of 12 PhD students per year

Summer Schools

- Annual **EMR** summer schools (Lille even year, abroad odd year)
- **ACES** summer school every 2 years



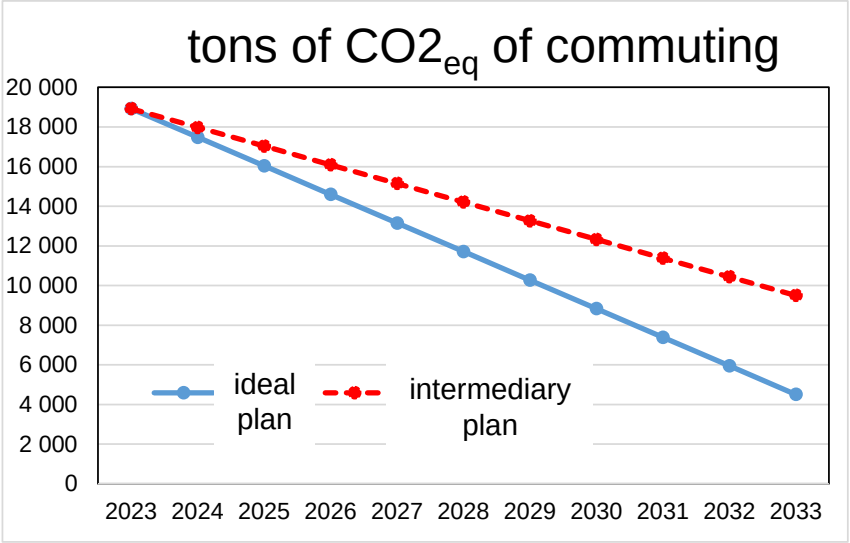
CUMIN Master students in 2019-2020

to be extended to the new partners and other education programmes (including Graduate Programmes)

CUMIN & involvement in University groups

Ecologic Transition Plan (2023-2033) of University of Lille

- CUMIN in the mobility committee
- Contribution to the GHG reduction plan
- Working on implementation actions (inc. Eco-campus project)



Sustainable Development Goals of ULille

- 7 SDG committees for Univ. Lille among the 17 UN SGD
- SDG 7 – Energy transition (L2EP/IEMN)
- SDG 11 – Metroforum (TVES)
- SDG 12- – Commons (CLERSE)

"Transition week" of Université of Lille (18-22 March 2024)

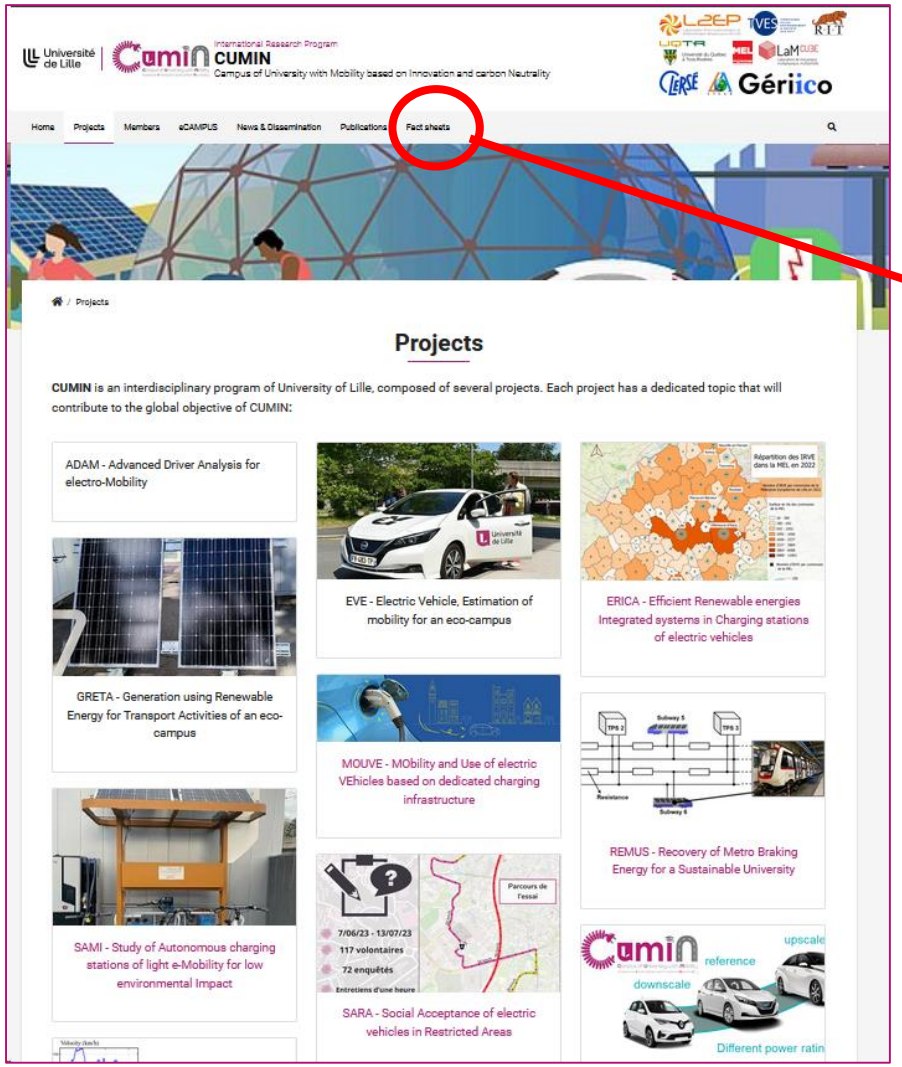
- Test of e-vehicles all the week (from e-bikes to e-cars)
- 2 CUMIN workshops on "Mobility changes"
- contribution to other workshops

CUMIN in interaction with other university groups on ecological and energetic transitions

CUMIN website

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

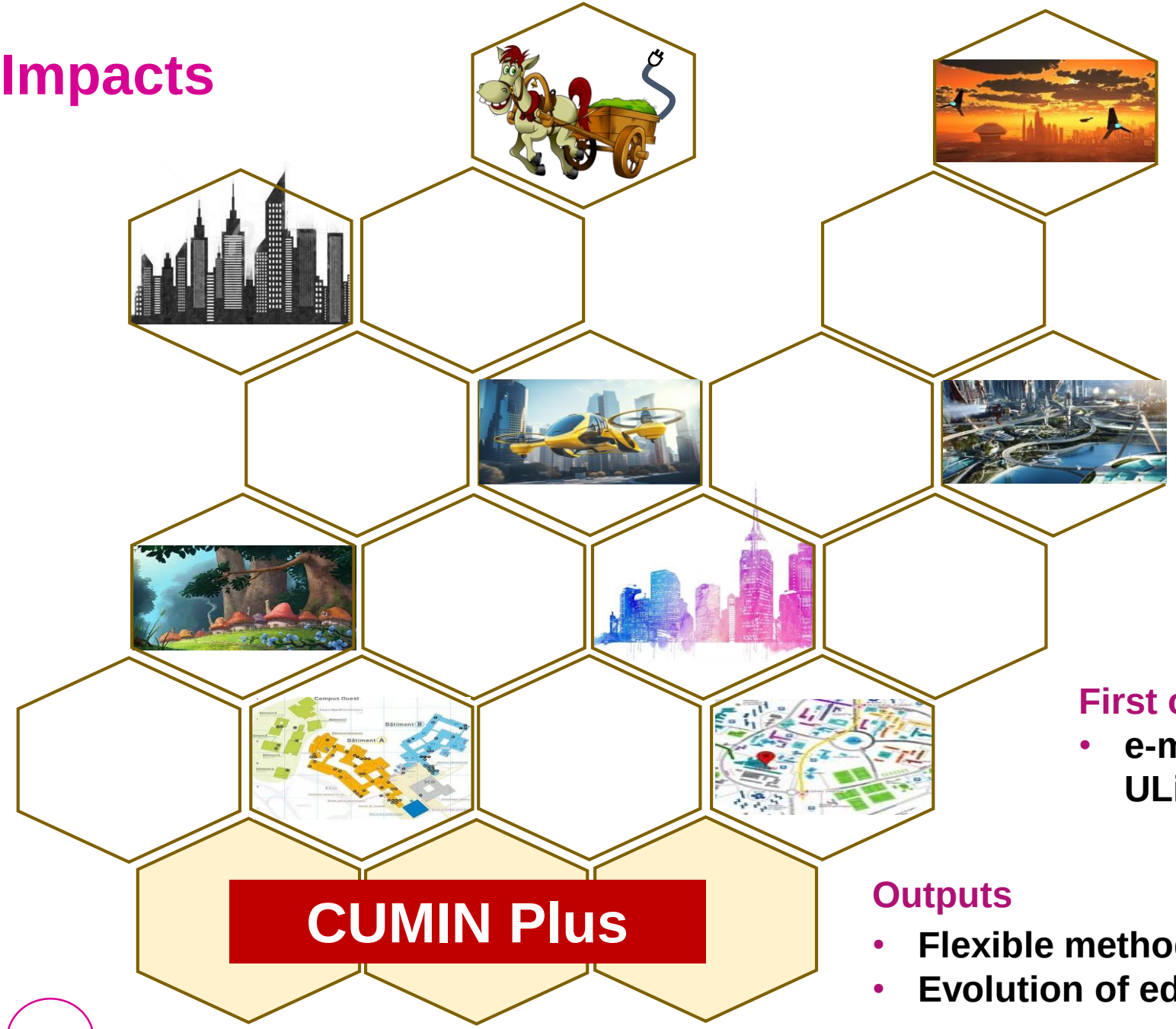
CUMIN projects description



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

Impacts



Impacts

- Contribution to pollutant emission reduction of mobility

Main outcomes

- e-mobility transition plans for more and more metropolitan areas

First outcomes

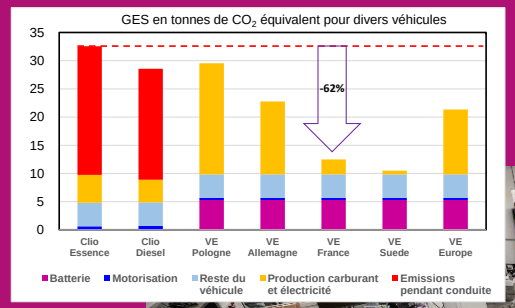
- e-mobility transition plans for an ULille Campuses and MEL area

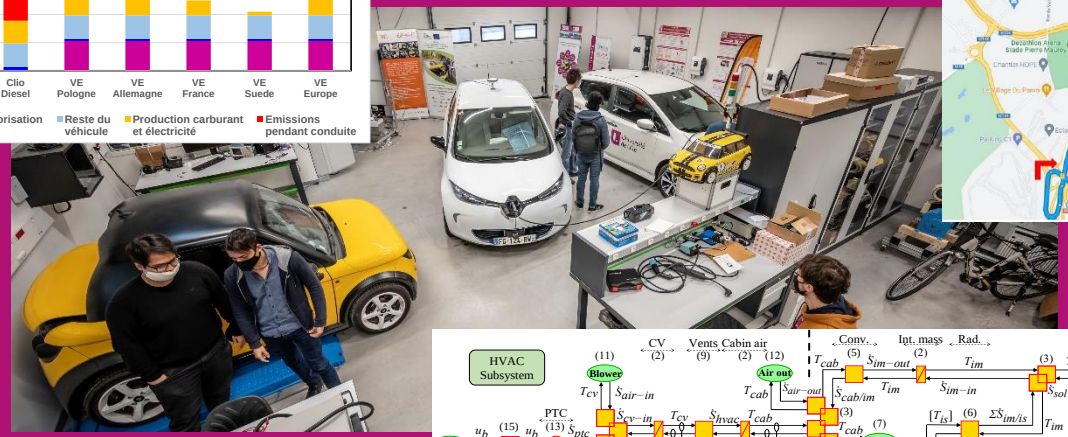
Outputs

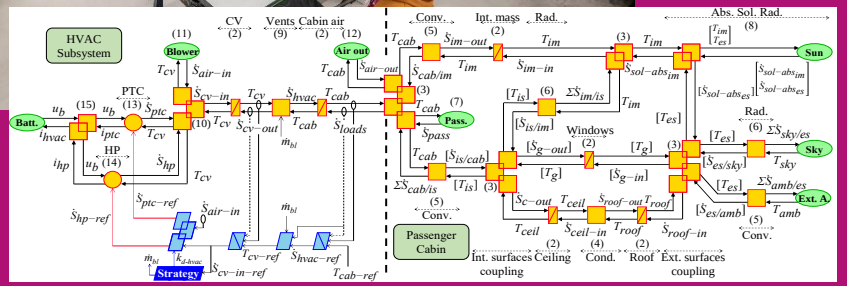
- Flexible methods and tools on e-mobility transition
- Evolution of education programmes

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

Call-CDP 2023







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