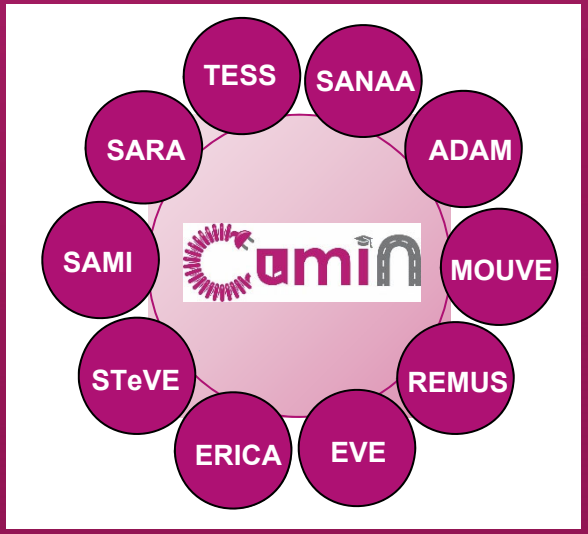
Campus of University with Mobility based on Innovation and carbon Neutrality

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

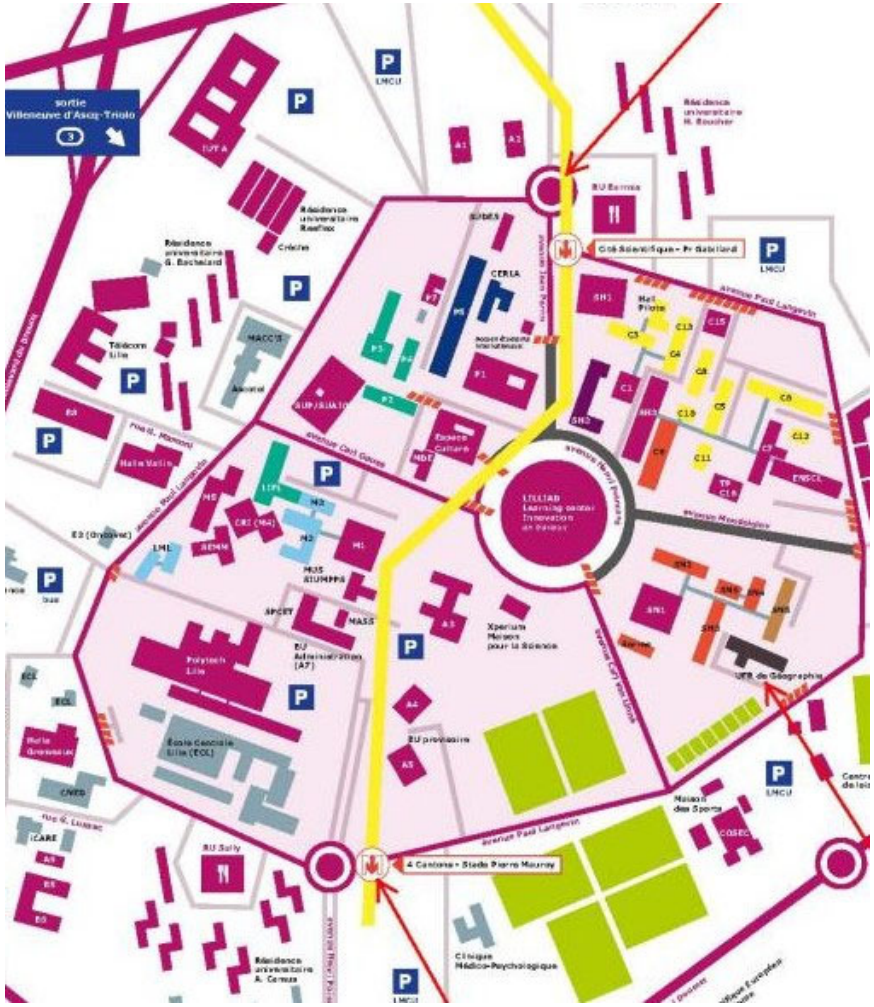


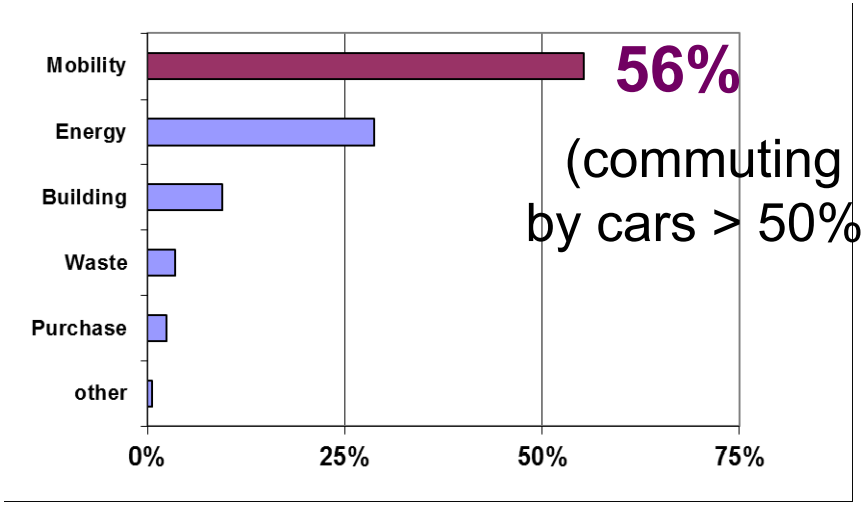
C ampus of U niversity with M obility based on I nnovation and N eutral in carbon

April 2022

Coordination:
Prof. Alain Bouscayrol
(L2EP, Univ. Lille, France)

Campus “Cité Scientifique” Université de Lille





[Bilan Carbone, Lille1, COMUE 2015]

CUMIN: demonstrator
campus for e-mobility with charging
using renewable energy

L2EP Laboratoire d'électrotechnique et d'électronique de puissance de Lille
TVES TERRITOIRES VILLES ENVIRONNEMENT & SOCIÉTÉ EA 4477
CRIStAL Centre de Recherche en Informatique, Signal et Automatique de Lille

Campus 22 000 users
80 buildings / 110 ha

Campus horizon 2030?

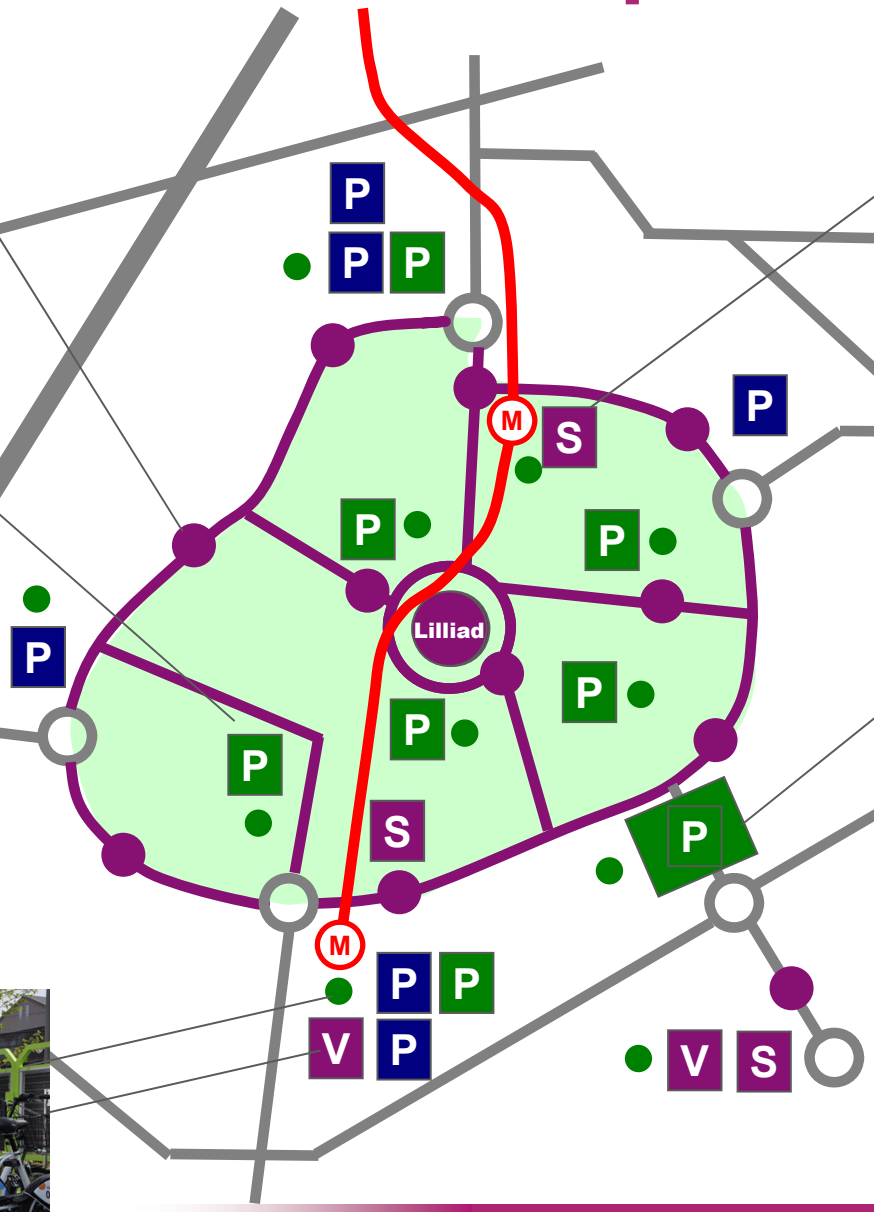
autonomous
electric bus

Segways in sharing service

Car park with
PV charging stations

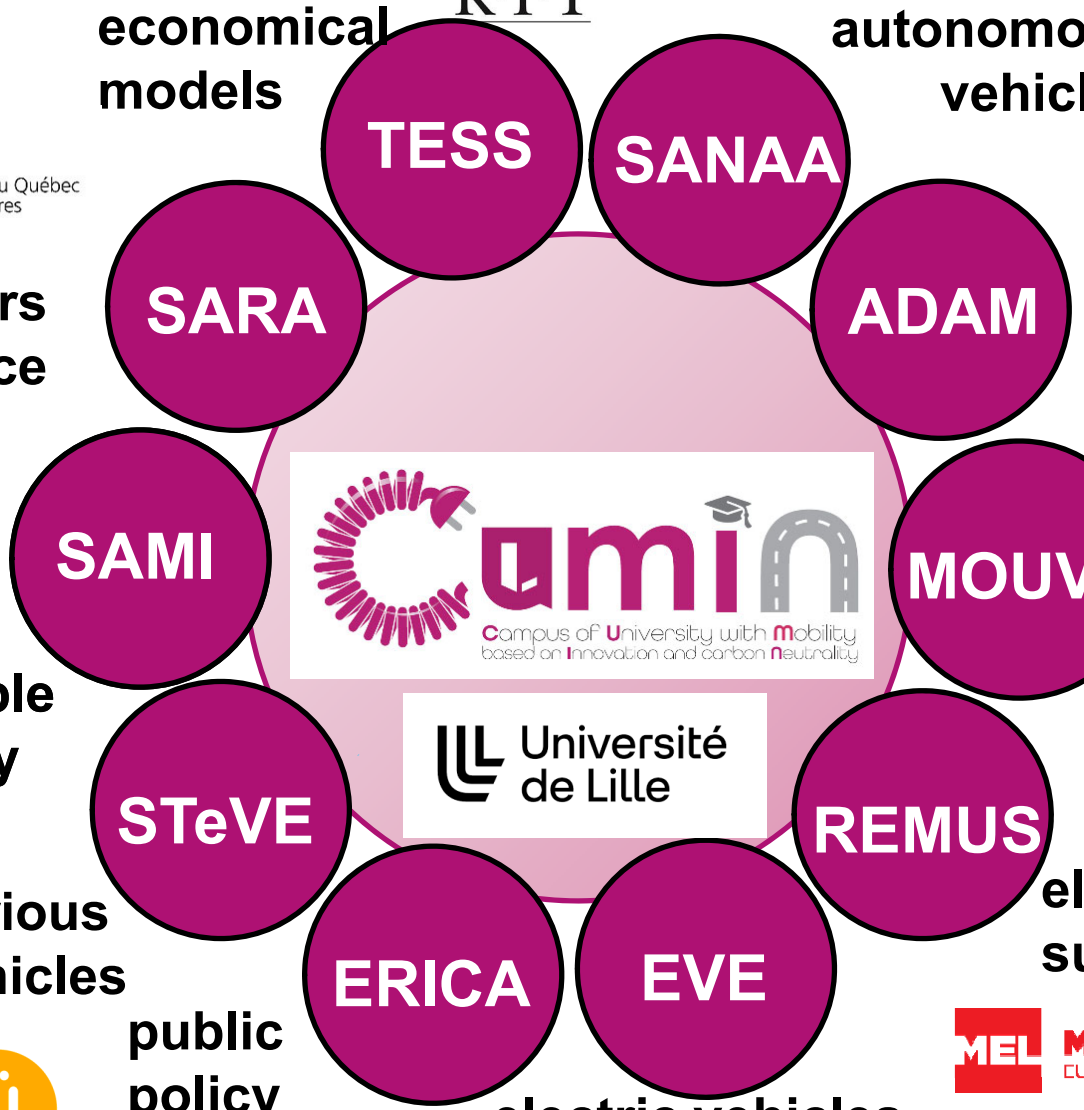
Logistics platform

Light EVs, e-bikes, bikes,
In sharing service



- bike (bike-sharing)
- Stop of the e-bus
- V EVs (car-sharing)
- S Segways (S-sharing)
- P Car park / charging point

CUMIN projects



economical models

autonomous vehicles

users acceptance

drivers & usage

charging points

renewable energy

electric subway

various vehicles

public policy

electric vehicles

Interdisciplinary team

International associated Lab

CAMPUS

Laboratoire en loisir et vie communautaire

social & human sciences Lab

IRH UQTR

Inst. Research on Hydrogen

UQTR Université du Québec à Trois-Rivières

(Canada)

MEL MÉTROPOLE EUROPÉENNE DE LILLE

Lille Europ. Metropole
(transport & mobility Groups)

CRIStAL Centre de Recherche en Informatique, Signal et Automatique de Lille

computer Sciences & Automatic control Lab

Université de Lille

TVES Territoires Villes Environnement & Société EA 4477

urbanism & social sciences Lab

L2EP Laboratoire d'électrotechnique et d'électronique de puissance de Lille

electrical engineering Lab

R·I·T

Rochester Inst. Tec. **(USA)**
(economics & public policies)

GHENT UNIVERSITY

Mechanical Engineering Lab
(Belgium)

CUMIN – objective

First University Campus with mobility neutral in CO_2 equivalent :

- reduction of the campus GHG thanks to e-mobility
- charging of electric vehicles using Renewable Energy
- involvement of the campus users in the development (Living lab)
- open database from experiences and survey (open science)
- flexible methods for extension to any eco-city or area.

Unique demonstrator campus (living Lab)
as a relevant example for new urban mobility → *Extensions to eco-cities…*

e-CAMPUS (International Associated Lab)

Electro-mobility for CAMPus of Universities based on Sustainability (2019-2024)

- 2 Labs on Electrical Engineering
- 2 Labs on Social & Human Sciences
- 2 co-supervised PhD students

Objectives:

- extension of CUMIN to an “artic climate” Campus (-30°C +30°C)
- introduction of hydrogen as energy carrier