



# **38th Conference of Rectors and Presidents of European Universities of Technology and Economics**

**13-14 September 2019 - Hungary**

**INSA**

INSTITUT NATIONAL  
DES SCIENCES  
APPLIQUÉES  
LYON



# About INSA

**1957**

Creation of INSA Lyon by Gaston Berger, a philosopher  
INSA = National Institute of Applied Sciences

**Today**

1<sup>st</sup> Group of French Engineering Schools  
15% of nationwide students in engineering  
A strong commitment for diversity



**17.000  
students**



**37%  
women**



**+100  
nationalities**



**27%  
Grant holders**

**. 6,000** students

**. 43,000** INSA Lyon engineers throughout the world

**. 1,400** graduates each year,  
with 1 000 engineers in 9 specialist  
fields

# 9

## Engineering departments

- Biosciences
- Civil Engineering and Urban Development
- Electrical Engineering
- Energy and Environmental Engineering
- Mechanical Engineering
- Industrial Engineering
- Computer Science
- Material Sciences
- Telecommunications Engineering

## Board members of the School and the INSA Foundation

## Partnerships in R&D



**200** Partner universities

**4** Undergraduate International Courses  
(ASINSA, AMERINSA, EURINSA, SCAN)



**7** International laboratories

**2** International Research Units

**100%** INSA students in immersion abroad

**5** Representational offices  
Shanghai, Curitiba, Mexico, Hanoi and Sendai

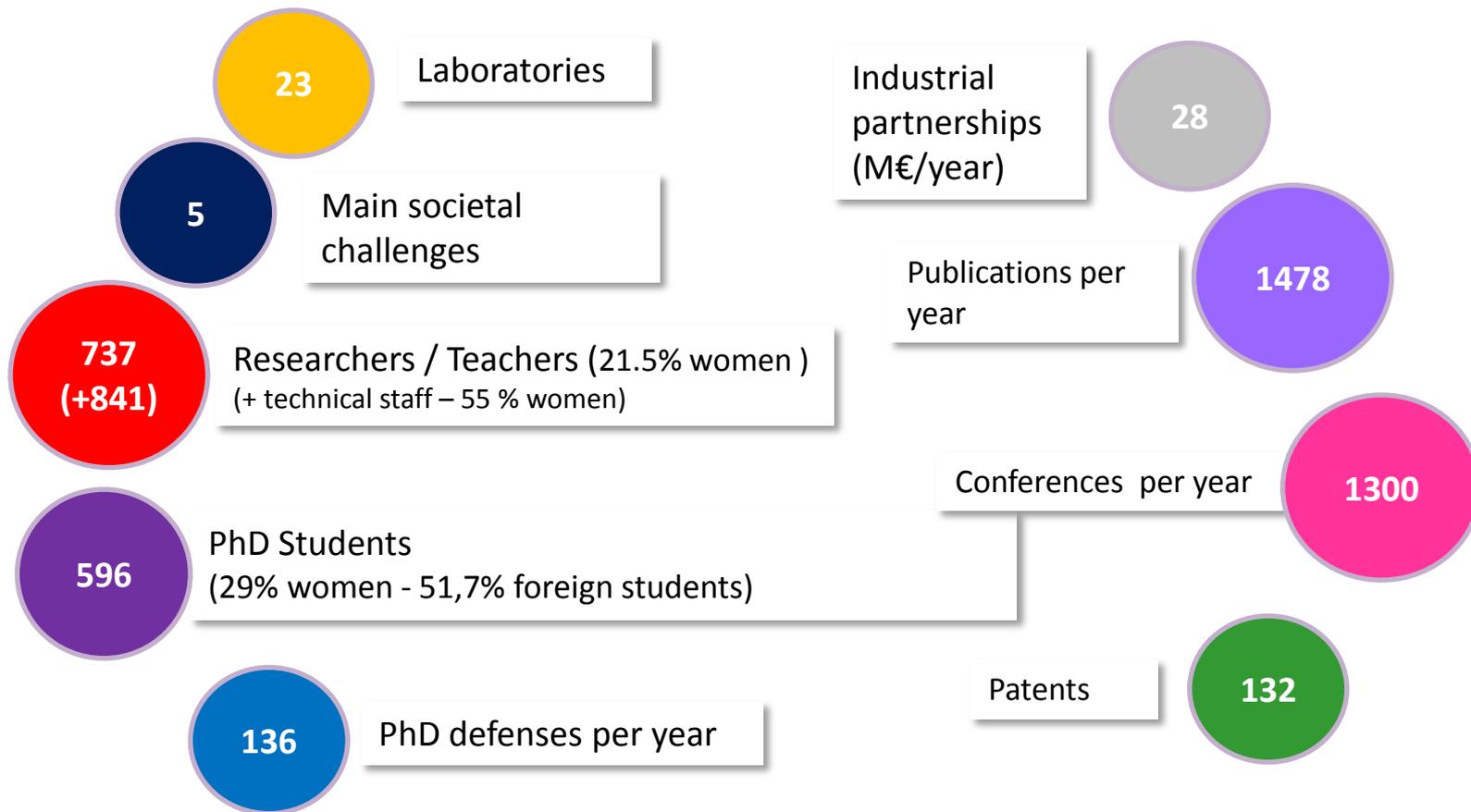
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**INSA LYON RESEARCH activity**

# INSA Lyon Research : key features in 2019



# 45.3 M€ (35.1% total budget) Research budget

35.2 M€ Payroll - 5.5 M€ Operation - 4.6 M€ Investment

1 300 +

Private and public collaborative projects

3

« tools » : CAPP, INSAVALOR and FOUNDATION

+ 1

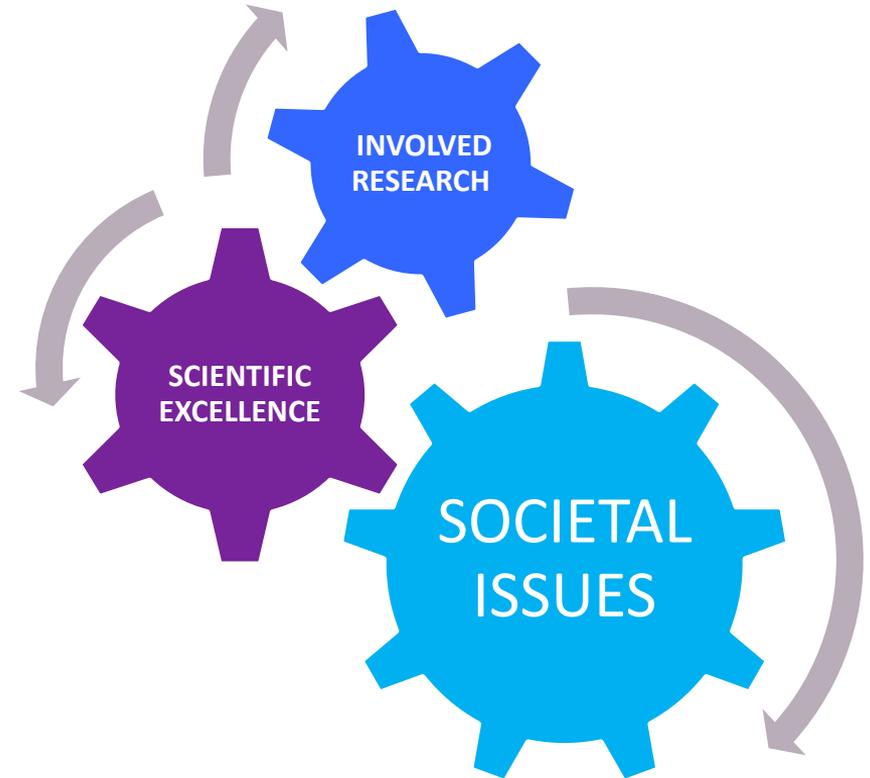
Carnot Institute: « Ingénierie à Lyon »

+ 1

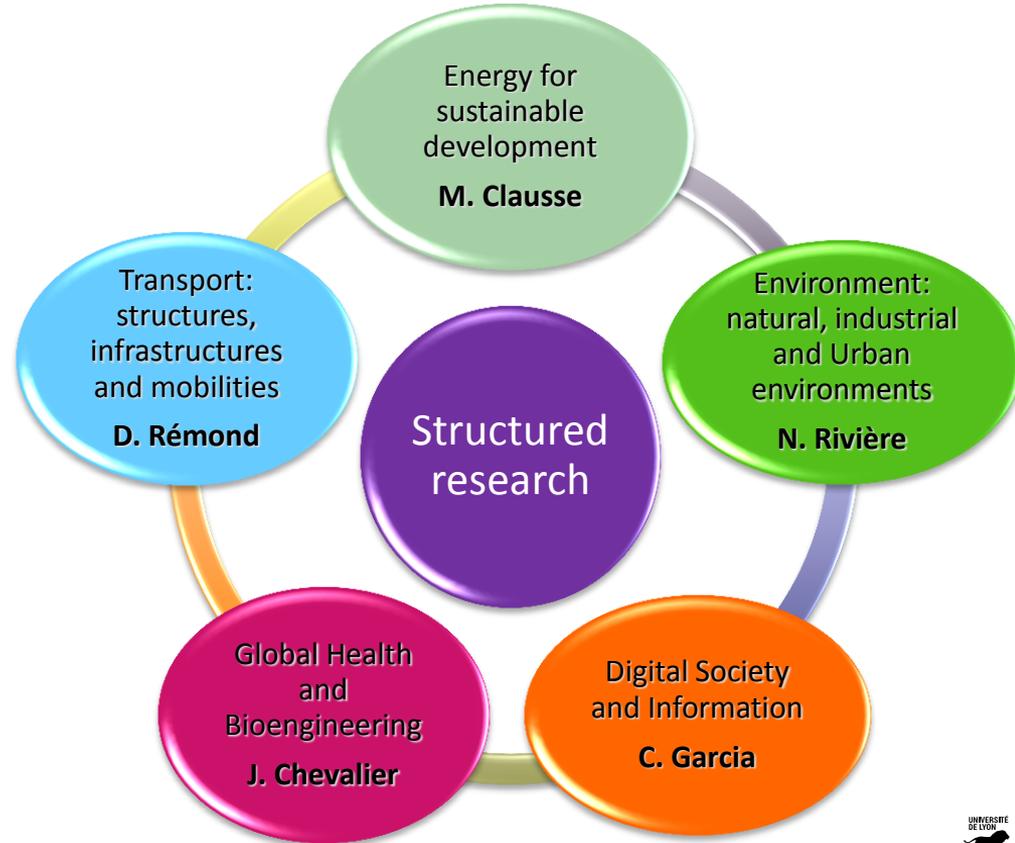
SATT : PULSALYS (patents, maturation fundings )

**Aim** : built a strategy to address societal issues

- 1. Scientific excellence:** scientific and technical challenges in response to societal and environmental issues and in support of economic development
- 2. Responsible Research :** questions the impacts and uses of research on society and its evolution



- A structured activity in five challenges
- Answers to 5 societal issues
- Based on disciplinary expertises
- Expertises focusing at original multi disciplinary researches



## Structured research activity : 5 challenges

Project team : deputy director and labs representative

**Energy**  
**13 laboratories**



**Environnement**  
**14 laboratories**



**Transport, Struct. infra. et mobilities**  
**13 laboratories**



**Health and bio-engineering**  
**18 laboratories**

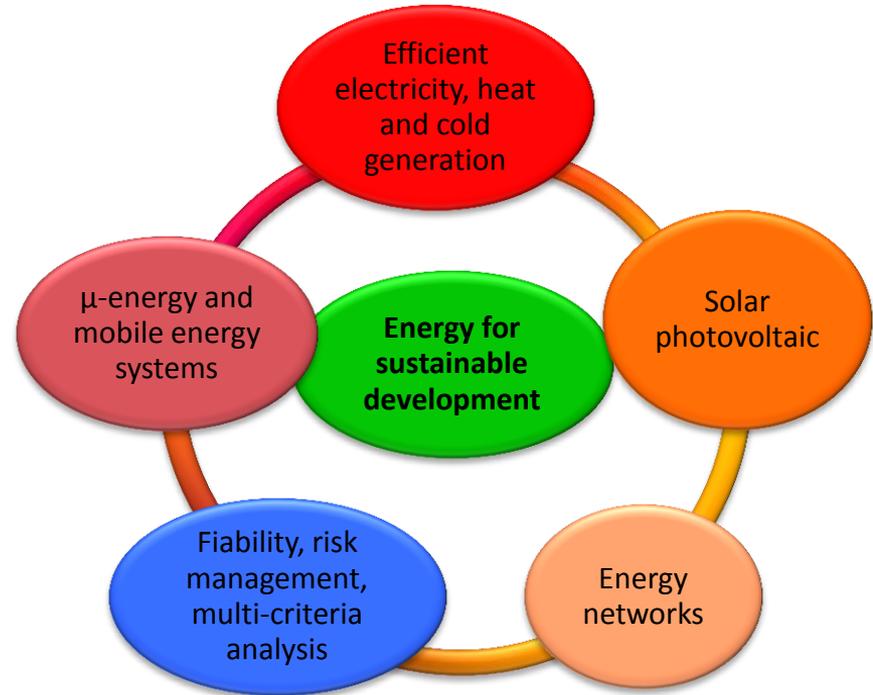


**Informatics and digital society**  
**10 laboratories**



# Energy for sustainable development

- Actions in the framework of EU & France objectives and directives
  - **Low carbon energy**
  - **Energy Efficiency**
  - **Smart distribution and consumption**
- Coverage of the whole **power range** and **value chain** : from **μ-energy** to **power plants** and **networks**
- **Innovation** friendly **multidisciplinary** environment : **material** for energy, **fundamental**, **component** and **system** approaches, presence of strong players in **ICT**



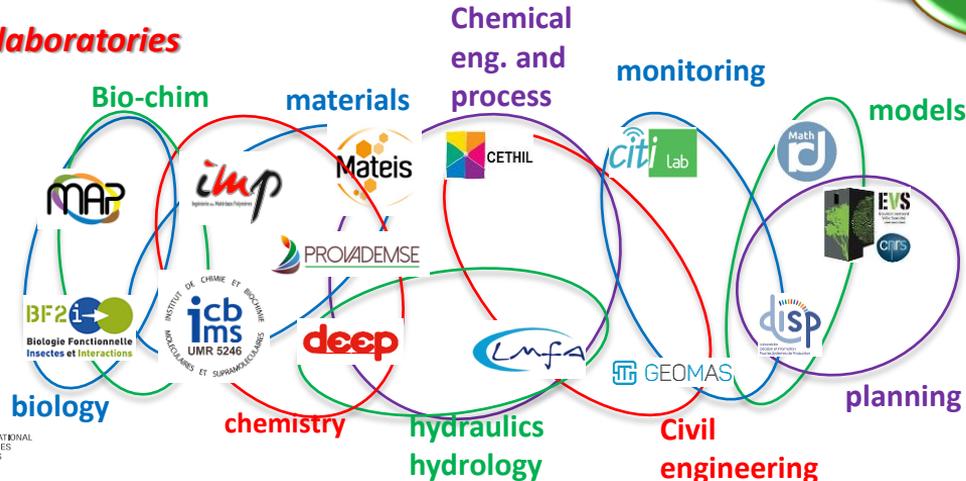
## Environment : natural, urban and industrial environments

INSA Lyon considers “Environment” at all scales : from our usual goods (e.g. a baby bottle in polymer) to our city or a whole river basin.

People/environment interactions are studied, considering global change and warming in the background, by 14 INSA laboratories.



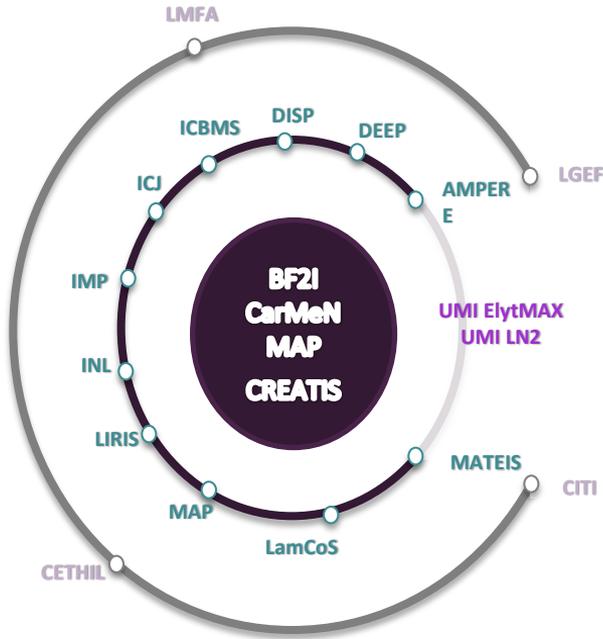
### 14 laboratories



# Health and Bio-Engineering

4 main fields integrating a full value-chain:

- Biomolecules, biomaterials, biomechanics (tissues, fluids, structures),
- Biomedical instrumentations: sensors, signal, image, modelling and data analysis
- Understanding and modelling complex biological systems
- Health systems



**Common labs with industries**

Ex: Lead

**Industrial partnerships**

Ex: Bayer

**1 Equipex, 1 Labex**

IVTV, Primes

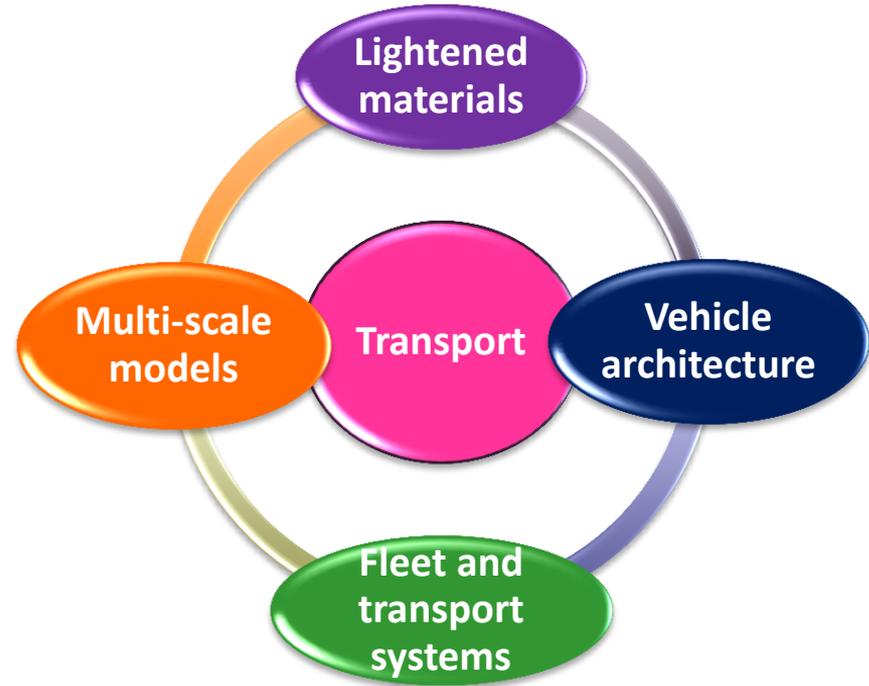
**1 additive manufacturing platform**



**Technical platforms and living labs**

## Transport : Structures, Infrastructures and Mobilities

- From **new integrated and improved materials** to the **organization of mobility services** including the **uses**, the architectures, their diversifications and the improvement of performances
- From **material** to **organizations** including **technological** diversification, **behavior optimization, information** and **autonomy**



- From **data capture** to **decisions** and/or **actions** via new methods of **modeling, processing** and **communication**.
- From **physics** to **Humanities** via **Computer Science** and **telecommunications**



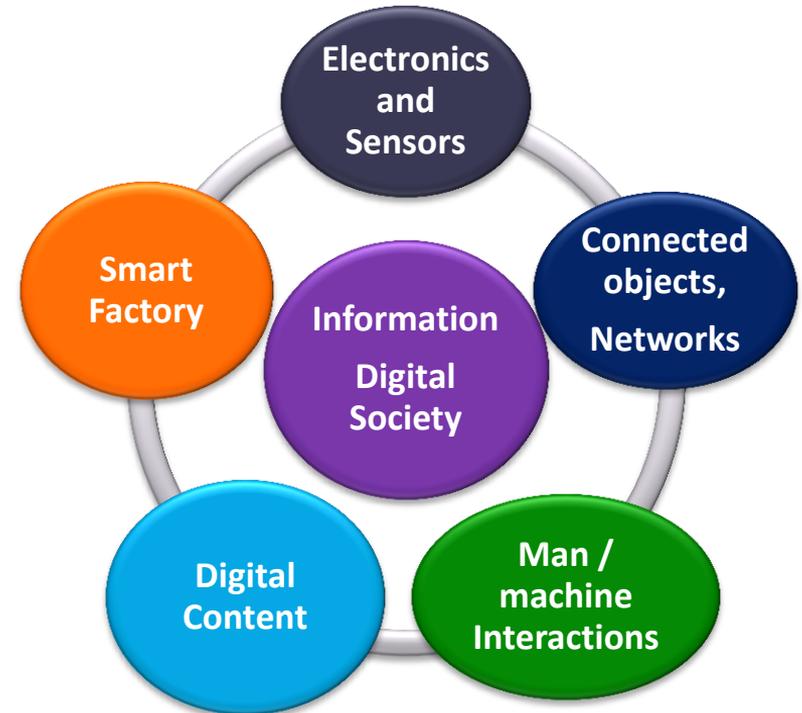
Which interactions ?



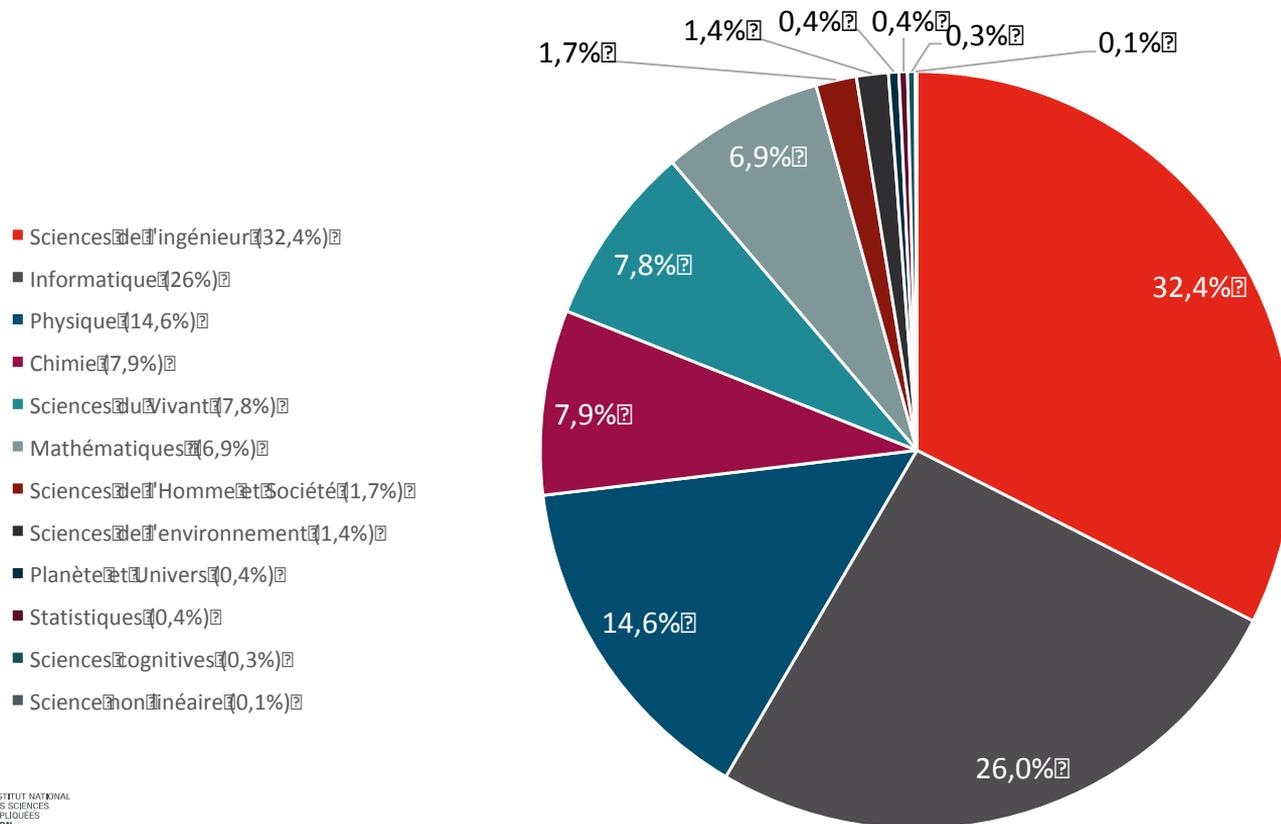
Which services ?



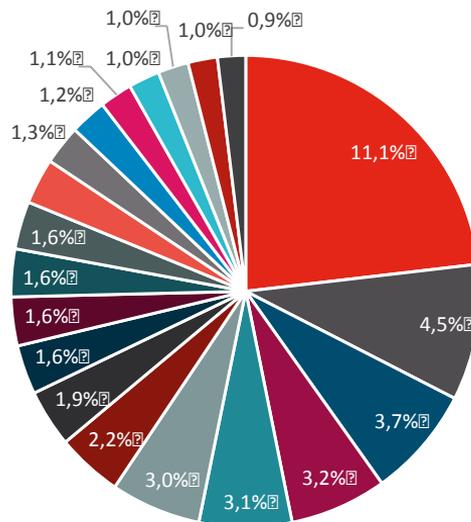
Which products ?



## Main disciplinary fields INSA Lyon



## INSA Lyon : 20 main collaborating countries



■ Etats-Unis (11,1%)  
■ Canada (3%)  
■ Belgique (1,6%)  
■ Australie (1,1%)

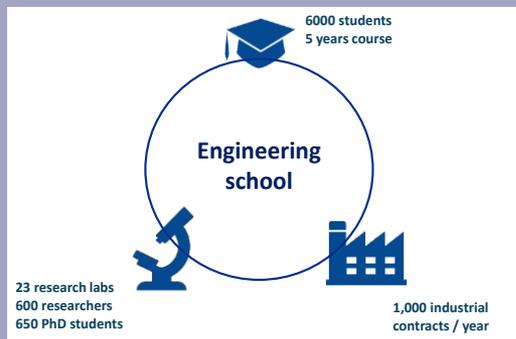
■ Italie (4,5%)  
■ Chine (2,2%)  
■ Portugal (1,6%)  
■ Brésil (1%)

■ Allemagne (3,7%)  
■ Japon (1,9%)  
■ Maroc (1,5%)  
■ Pays-Bas (1%)

■ Royaume-Uni (3,2%)  
■ Tunisie (1,6%)  
■ Autriche (1,3%)  
■ Turquie (1%)

■ Espagne (3,1%)  
■ Grèce (1,6%)  
■ Suisse (1,2%)  
■ Pologne (1%)

## An academic oriented to industry



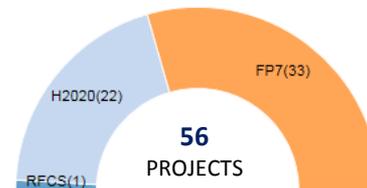
Research in engineering sciences for companies and RTOs looking for technological solutions



**PARTNER & COORDINATOR**  
In FP5-FP7, Horizon 2020, RCFS, ECSEL, Clean Sky, ...

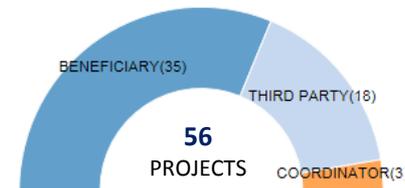
### Programmes

● RFCS(1) ● H2020(22) ● FP7(33)

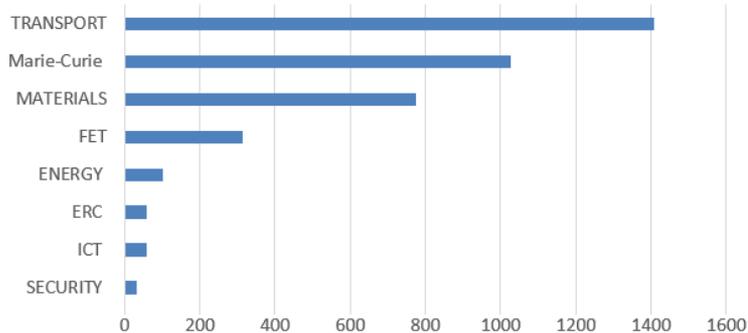


### Roles

● BENEFICIARY(35) ● THIRD PARTY(18)  
● COORDINATOR(3)



### EU contribution by Thematic priority in H2020



Member  
of European  
Lobbying associations



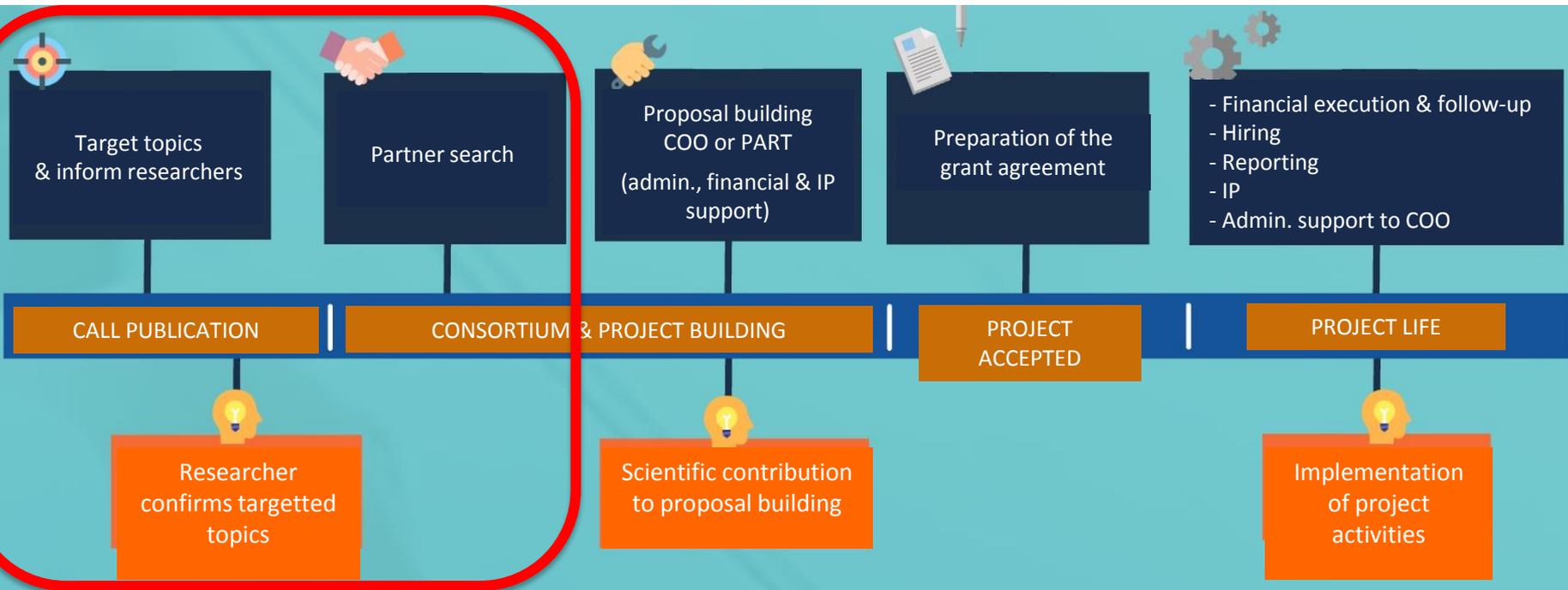
SUSCHEM

## Experiences

Strong political support & strategic organisation,  
financial means & dedicated support team  
Fostering global approach and lobbying

- Growing: interest for the program, acculturation and increasing skills to participate
- Twice as many participations as in FP7...
- ... even if drop of the success rate in the beginning of Horizon 2020
- Increasing number of submitted projects and success rate since the beginning (15% in 2018)

# Grant management office at INSA: support provided

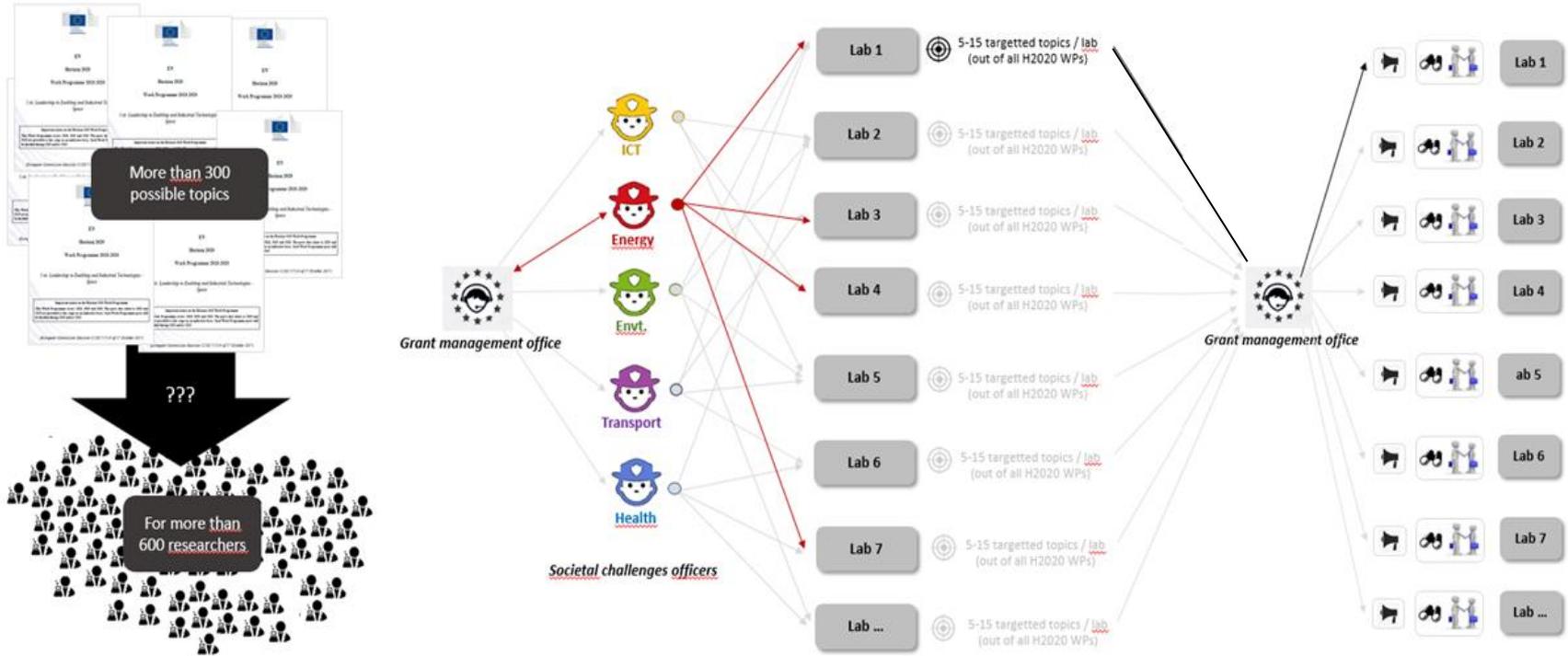


**Specific to Horizon 2020 calls**

**Global approach**

# Focus on topic targetting and partner search

Target the topics → Validate with lab → Personalised partner search



# Looking towards HORIZON Europe

## INSA expectations

Maintain and increase the participation level of INSA Lyon in the program

Further develop Horizon 2020 partner network and lobbying

Further develop participation in ERC



Current concerns for program preparation → current lobbying

- Scientific domain of interests maintained in the program structure and calls
- Technology readiness level accessible for engineering school
- Funding rules adapted to public accounting practices (equipment depreciation, internal invoice, ...)