

# Structured **engineering** for **innovation** in **enterprises**



## Working together for innovation

Ingénierie@Lyon groups 1,800 actors in research experienced in contributing efficiently to ensuring the competitiveness of companies and one of the major in the development and transfer of general tools required to provide technology and competitive performance for enterprises in the sectors of **TRANSPORT, ENERGY AND HEALTH AND MATERIALS TECHNOLOGIES**.

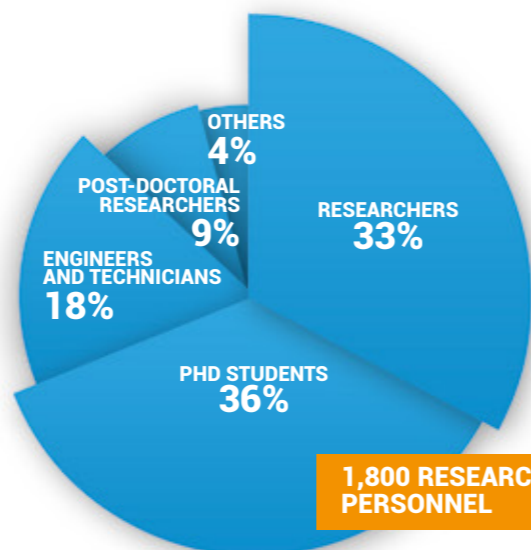
It has been created by the main institutions of higher education and research in Lyon: Ecole Centrale, Institut des Sciences Appliquées, Université Claude Bernard and CNRS to structure academic engineering in Lyon, and is labeled institut Carnot since 2007.

### OUR MISSIONS

- Mobilise resources, competences and knowhow, and consolidate resourcing and professionalism.
- Promote projects with high socioeconomic impact.
- Support the development of public-private partnerships.
- Offer research adapted to the stakes of industrial innovation and the challenges of the future.

### MULTIPLE COMPETENCES

Ingénierie@Lyon organises reactive and efficient expert multidisciplinary research teams, providing you with easy access to **scientific** and **technological** platforms: fluid, solid and structural mechanics; tribology, acoustics and vibro-acoustics, advanced design, energetics, electronics, aerothermodynamics, thermal analysis; health technologies, structural and functional materials, nanostructures, behaviour and characterisation, microsystems, MEMS and MOEMs sensors, chemistry.



1,800 RESEARCH PERSONNEL



### AN ACADEMIC INSTITUTE FOR BUSINESS RELATIONS

Ingénierie@Lyon gathers actors and brings together the procedures and conditions for exploiting research to provide **an offer adapted to the complex challenges of industrial application**. In France, more than 300 industrial operators, including around 75 SMEs, find their innovative solutions in our multidisciplinary offer.

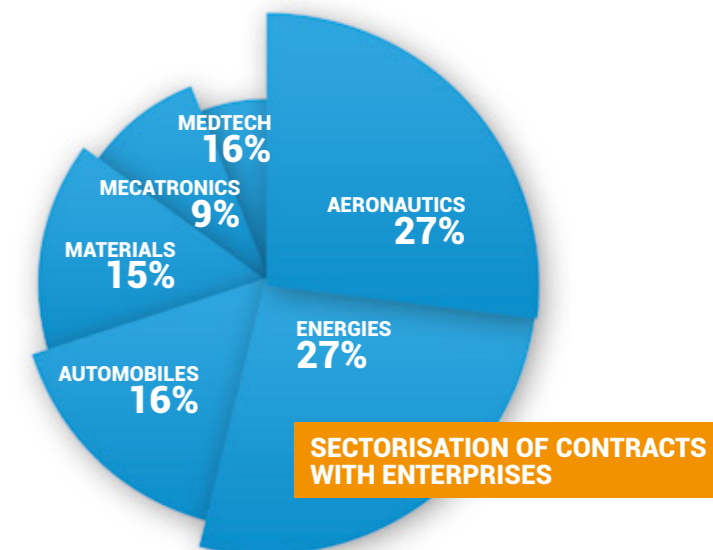
- Global budget **66 M€**
- Partnerships research incomes **32 M€**

### DYNAMISM OF NETWORKS

Ingénierie@Lyon interacts with ecosystems, particularly with French competitiveness clusters as LUTB TRANSPORTS & MOBILITY systems, VIAMECA, PLASTIPOLIS, AXELERA, TECHTERA, and Automotive and Aerospace clusters, to adapt research orientations to industrial demand. **To provide an optimised response to industrial needs**, Ingénierie@Lyon relies on a circuit of transfer comprising small start-ups, spin-offs of the laboratories.

Benchmarking, meetings, technological and scientific exchanges ensure Ingénierie@Lyon to **anticipate markets expectations**, and define its research areas and drive multidisciplinary projects with **high innovative potential**.

Strongly involved in Rhône Alpes **technological platforms** as AXEL'ONE, NANO-LYON, CLYM, PROVADEMSE, COATING Expert, Ingénierie@Lyon strengthens the capacities of the calculation and experimental facilities by enhancing their resources and operating procedures to make them attractive for industry, especially for SMEs, and **facilitate access to competences and technical resources**, in line with international standards.



SECTORISATION OF CONTRACTS WITH ENTERPRISES

### AN INNOVATIVE ENGINEERING INFLUENCE

The institute Carnot Ingénierie@Lyon is a **national and international reference in the world of engineering and collaboration between partners**.

In Korea, Japan, China, Brazil, Canada and elsewhere, the teams and their supervisory bodies are strongly involved in **International Associated Laboratories, International Joint Research Units**, and many **European projects**.

Ingénierie@Lyon organises **partnership and scientific days and workshops**, and sponsors **reputed scientific events**.

Ingénierie@Lyon's influence can be seen in the founding of

- **Joint laboratories** with SAFRAN, RIBER, EDF, ENERBAT, HUTCHINSON...
- An **OpenLab** with PSA named Vibro-Acoustic-Tribology@Lyon,
- **Chairs** with SAFRAN, AREVA-SAFRAN, EDF, SKF and Eco-Emballages.



### OUR LABORATORIES

- LTDS (Tribology and Systems Dynamics)
- LaMCoS (Contact and Structure Mechanics)
- LMFA (Fluid Mechanics and Acoustics)
- IMP (Polymer Materials Engineering)
- MATEIS (Materials, Engineering and Science)
- AMPERE (Electric energy, Bio-engineering, Systems)
- INL (Nanotechnologies)
- CETHIL (Energy and Heat)
- LVA (Vibrations and Acoustics)
- LMI (Multi-materials and interfaces)
- ECAM (Energy, Materials)
- LAGEP (Automation, Process engineering)

### MAJOR EQUIPMENTS

- ATMOSPHERIC DIFFUSION CHAMBERS AND MACH 2 SUPERSONIC WINDTUNNELS
- ANECHOIC CHAMBERS, AXIAL (2MW) AND CENTRIFUGAL (1MW) COMPRESOR TEST BEDS
- 450 M<sup>2</sup> CLEAN ROOM ISO CLASS 7 AND 5, MICRO-NANO FABRICATION PLANT AND HETEROEPIITAXY CENTRE
- HIGH VOLTAGE TEST CENTRE
- 13M<sup>2</sup> DOUBLE WALLED FARADAY CAGE
- LARGE SCALE (TRYBOGYR) AND ANALYTICAL ULTRA-HIGH VACUUM TRIBOMETERS
- 6-AXIS EXCITER (62N)
- NANOINDENTATION TEST CENTRE AND SEM EQUIPMENT
- GRANULOMETERS, SPECTROMETERS, RHEOMETERS, ETC.

### PLATFORMS

- ROTATING MACHINERY
- TRIBOLOGY
- MATERIALS PROCESSES & CHARACTERISATION
- ROBUST DESIGN
- ACOUSTICS & VIBRATION
- ENVIRONMENT (EMC, FLOW, HEAT, VIBRO-ACOUSTICS)
- NANOTECHNOLOGIES
- BIO-ENGINEERING







WITH



## place the ENTERPRISE at the heart of their strategies...

- Direct research (short and long-term projects) and collaborative research (FUI, ANR, H2020, etc.)
- Tests and trials on technological platforms
- Advice and expertise
- Joint laboratories

## ... and work to promote your approaches to innovation

- Analysis of the enterprise's research needs
- R&D response adapted to need
- Respect for confidentiality
- Professional project management taking account of the enterprise's constraints
- Clear and balanced intellectual property conditions
- Easy access for enterprises to scientific and technological competences, and to platforms.



### Head office:

**LYONTECH Campus**

**Centre d'Entreprise and d'Innovation 1**

66, boulevard Niels Bohr, CS 52132

F-69603 VILLEURBANNE Cedex

**Tel. / Fax: +33 (0)4 72 29 15 69**

**institut.carnot@ingenierie-at-lyon.org**

**communication@ingenierie-at-lyon.org**

[www.ingenierie-at-lyon.org](http://www.ingenierie-at-lyon.org)