

ACTIONS ON RESEARCH FOR TECHNOLOGY AND SOCIETY

The Carnot institute ARTS, lead by the French high education engineering school Arts & Métiers ParisTech and its valorization organization called Arts, gathers 25 research labs and 1250 researchers and PHD's, through a strong partnership with 12 research organization partners (CNRS, CNAM, CEA Valduc, ECL, ENSCI, HEI, IPB, and the following universities: UB, UB1, UPVM, USTL and UVHC).

Highly involved in Transports, Health and Energy domains, the Carnot ARTS institute is organized in 3 major research fields:

- Mechanical, Materials and Manufacturing Processes;
- Fluids and Energetics Systems;
- Design, Industrialization, Risk, Decision.



Research and innovation activities

- Lab's professors and researchers are the partnership research key players who are taking care of the industrial partners needs.
- Well equipped with all required modern calculation and experimental equipments, the teams are well-known for their high scientific level and innovative works. Their competencies are established upon constant scientific and technology state of the art survey and high quality basic research works.
- The regular partnership research works with industrial partners, notably in association masters or PhD's students, leads the Carnot ARTS institute to be an efficient partner to achieve the needs for scientific and technology developments, as well as to meet the industrial needs on innovation.

Research management & development

The associated valorization organization, a non-profit organization called Arts, negotiates and manages the research partnerships contracts for works conducted under the research's team's scientific responsibility. According the research team involved, the contract can be manage by another organization among the partners of the Carnot ARTS institute.

This unique key point, non-profit organization Arts, is accredited ISO 9001 allows the access to the institute Carnot best skills.

The industrial partners, and specifically Small and Medium ones, are getting an administrative and legal support notably to obtain public financing. The non-profit organization Arts which is also involved in the promotion of the research labs activities, brings the required administrative support, for instance in the area of patents and creation of startups.

Collaborative main economic sectors

Fields	Economic Sectors	Examples of combined technology and scientific issues
Materials	Car industry, mechanical engineering, transports	Characterization, composites manufacturing, polymers, study of alloys, materials for biomechanics, study of surfaces (corrosion, wear, shock damages, aptitudes for working, machining, etc.)
Processes	Mechanical and processing industry	Manufacturing optimization, mass optimization, numerical simulation, integration of materials characteristics, ironwork, stamping, foundry with pollution control, manufacturing, adaptation of process-material couple
Mechanical engineering	All sectors of manufacturing industry, transports, civil engineering	Transmission, machines, special equipment, structural analysis, dimensional accuracy control
Fluids	Air transports, building industry, electric capacity	Optimization of structures, renewable energy sources (wind power new generation), micro turbines, miscellaneous equipments, noise reduction, aerodynamics, acoustics, engines
Energy systems	Production of electricity, trapping of CO2, heating with renewable energies, cold production	Modelling, machinery order, energy storage, sustainable development
Design	Manufacturing industry, consumer goods	Virtual reality, fast prototyping, customer perception, integration of artificial intelligence, numerical model, collaborative engineering
Industrialization	Manufacturing industry	Numerical simulation of processes, convergent engineering, virtual reality, design of manufacturing chains, modelling with integration of material characterizations in data bases, integration of new subject in the engineering design process, optimization, formalization of professional rules, planning
Risk & decision	Industries manufacturières, transport, produits et services	Simulation numérique des procédés, des systèmes de production, prise en compte des facteurs humains
Informatique communication	Manufacturing industry, transports, products and services	Numerical modelling of processes, production systems, consideration of the human factors
Biomechanics	Life and health	Modelling, reliability of models

- Paris, St Cyr l'école**
- DynFluid (AMP)
 - LBM (AMP)
 - LCPI (AMP)
 - PIMM (AMP, CNRS)
 - ERDT (AMP)
 - IAT (CNAM)
 - LGP2ES (CNAM)
 - P2AM (CNAM)
 - PDL (ENSCI)

- Lille, Valenciennes**
- L2EP (AMP, USTL, EC Lille, HEI)
 - L2MA (AMP)
 - LML (AMP, CNRS)
 - ERDT (AMP)
 - TEMPO (UVHC)

- Metz**
- LCFC (AMP)
 - LEM3 (UPVM, AMP, CNRS)
 - ERDT (AMP)

- Châlons-en-Champagne**
- LMPF (AMP)
 - ERDT (AMP)

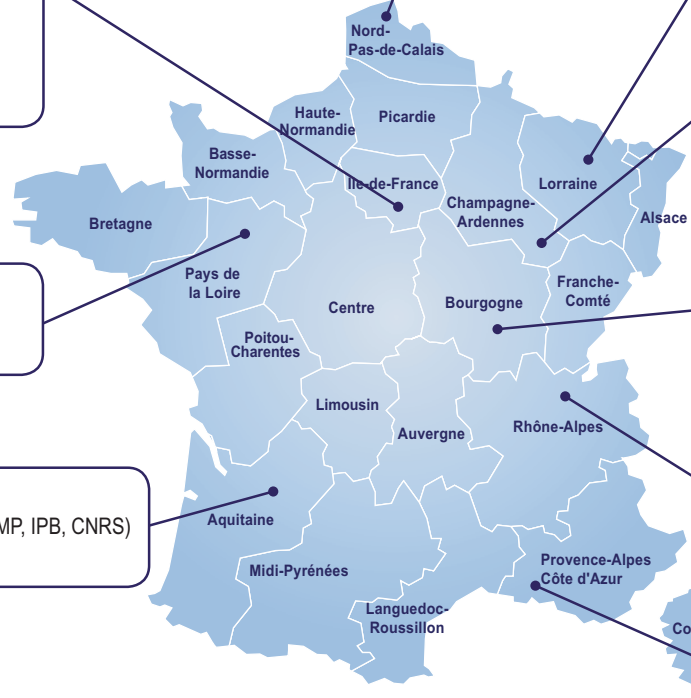
- Cluny, Le Creusot, Dijon, Chalon-sur-Saône, Valduc, Auxerre**
- LABOMAP (AMP)
 - LE2I (UB, AMP, CNRS)
 - ERDT (AMP)
 - ICB (UB, CNRS)
 - ERMPV (CEA Valduc)

- Angers, Laval**
- LAMPA (AMP)
 - ERDT (AMP)

- Bordeaux-Talence**
- I2M – DUMAS & IMC (UB1, AMP, IPB, CNRS)
 - ERDT (AMP)

- Chambéry**
- LCPI-MAPIE (AMP)

- Aix-en-Provence, Bastia**
- LSIS-INSM (AMP)
 - MECASURF (AMP)
 - ERDT (AMP)



→ CONTACTS
Frédéric MERIENNE, Director
 +33 (0)3 85 90 98 67
 frederic.merienne@ensam.eu
Joachim RAMS, Deputy Director
 +33 (0)1 44 24 64 92
 joachim.rams@ensam.eu
Pascal BELLENGER, Business Development Manager
 +33 (0)1 44 24 61 32
 pascal.bellenger@ensam.eu

→ KEYS FIGURES
Staff
 Permanent staff (full-time equivalent): **690**
 PhD students: **570**
Budget
 Global budget: **82 000 k€**
 Partnership research incomes: **22 300 k€**