

# I-SITE CLERMONT

Clermont Auvergne Project

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Innovation. It's in our nature



## Members

### **The 11 members of the Consortium:**

University of Clermont Auvergne, SIGMA Clermont, VetAgro Sup, AgroParisTech, CNRS, INRA, INSERM, IRSTEA, FERDI, Clermont-Ferrand Teaching Hospital (CHU), Jean Perrin Centre

### **11 associate partners:**

École Nationale Supérieure d'architecture of Clermont-Ferrand, Michelin, Limagrain, Clermont Auvergne Métropole, Auvergne-Rhône-Alpes Regional Council, Institut de l'élevage, ADIV, Fédération Santé Mobilité, Céréales Vallée, ViaMéca, SATT Grand Centre

## Governance

**The CAP 20-25 decision-making body is the University of Clermont Auvergne Board of Trustees.**

### **The CAP 20-25 Council steers the CAP 20-25 project.**

It comprises 8 members belonging to the UCA Board of Trustees, as well as the Director of CAP 20-25 (Pierre SCHIANO):  
Mathias BERNARD (UCA),  
Sophie COMMEREUC (SIGMA),  
Jean-Baptiste COULON (INRA),  
Emmanuel CUSTODERO (MICHELIN),  
Frédéric FAURE (CNRS),  
Etienne JOSIEN (VetAgroSup),  
Valérie MAZZA (LIMAGRAIN),  
Bertrand VALIORGUE (UCA).



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# CAP 20-25 objectives

This project aims to extend the current dynamism of Clermont Auvergne University, initiated by the merging of two Universities and the strengthening of public-private partnerships (launch of FactoLab, the first shared laboratory between Michelin and a university), in order to build a multi-disciplinary university of excellence with an international reach.

This project has a signature theme, “**new models for sustainable living and production**”, and a global approach to “**multi-modal innovation**”. It operates across a range of programmes that address the university’s various missions: governance (structuring of a hub of engineering schools), scientific challenges, teaching programmes, international mobility, technology transfer and student life.

CAP 20-25 also aims to contribute to the improvement of our economic competitiveness and innovation capacities by fostering closer collaboration between stakeholders within higher education and research and their socio-economic environment.

# CAP 20-25 funding

At a reception for delegates of the IDEX/I-SITE programme award-winning projects organised on 13 March 2017 at the Élysée in the presence of the President of the French Republic, the Minister for National Education and the Secretary of State for Higher Education and Research, the government confirmed the funding granted to each project.

The CAP 20-25 project received a capital sum of €330M, that is €10M annually which includes funding for the 3 Laboratories of Excellence (LabEx, Investments for the Future 1 Programme). This sum reflects the international jury's positive evaluation of the CAP 20-25 project, which particularly highlighted the high standard of its scientific objective and its innovative teaching project, the quality of the European and international programme, and the exemplary nature of the partnership between academic stakeholders (the University, schools, research organisations) and the socio-economic environment.

# CAP 20-25 identity

CAP 20-25 has a federative identity that is based on the concept of **multimodal innovation**. Multimodal innovation brings together the following elements, which will be applied throughout the project programmes:

- Multi-stakeholders (research-teaching-development-businesses-community)
- Multi-disciplinary
- Multi-performances (economic, environmental, societal)

The human-sized Auvergne region is particularly well suited to this cross-modality: it contains all the various disciplines and stakeholders, and the region's size favours interaction.

The concept is founded on a general theme, multi-modal innovation for sustainable living and production models, and in particular on **4 scientific challenges**.

# The **4** multi-disciplinary scientific challenges

1

## Sustainable agroecosystems in a context of global change

This axis focuses on the future of agriculture. How can we better feed populations without waste and within a context of global change characterised by climate disturbances, resource scarcity and new dietary behaviour at a global level? The work will look at two agricultural systems that are emblematic of the Auvergne region (cereals and herbivores) and at their environmental integration.

The goal is to study the interaction between environmental, economic and societal constraints and agricultural production with a view to developing the best-suited varieties and modes of production.

The long-term objectives are to reduce resource consumption (water, energy) and the use of agrochemical products; to improve crop or livestock resilience; to feed livestock using locally-produced food; to combine crops and livestock in a way that benefits complementarity; and to build a circular economy (where the waste from some products helps the input of other products).

From an operational point of view, the goal is to provide public authorities, agriculture sector stakeholders and farmers with decision-making tools, and to offer new varieties, new products, new modes of production and new monitoring tools.



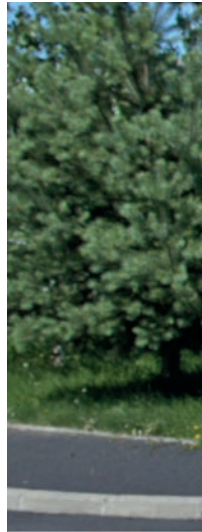


2

## Innovative systems and services for transport and production

The objective here is to design mobile robots that are able to handle goods and work as a team, and to optimise their efficiency. Robots equipped with sensors are able to analyse what they see and navigate their way through three-dimensional space, and to feel the strength and resistance of what they hold. Through LabEx IMobS3, the Clermont site has access to award-winning competencies in robot design, the manufacture of suitable materials, and organisational and decision-making technology that optimises the work of machines.

The project operates across 3 sectors: transport for the future (collaboration with Aulnat airport and SMTC), agro technology, and the factory of the future. Established in 2017, FactoLab, a collaboration between three UCA research laboratories (IP, LIMOS and LAPSCO) and Michelin, conducts research studies on the factory of tomorrow with a major dual purpose: to improve manufacturing performance at the same time as improving the quality of life at work, in order to increase the industrial sector's attractiveness.







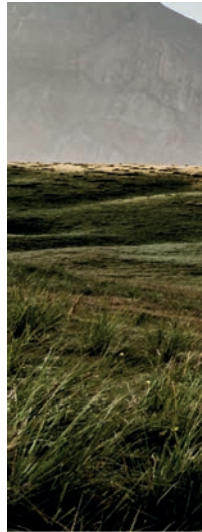
3

## Personalised mobility as a key factor in health

Studies across the board show that a fully functioning musculoskeletal system is a key element contributing to good health. Understanding how a muscle works, from the identity of its cells to its physiology, and why mobility is directly affected by chronic illness; identifying the aging factors of the musculoskeletal system and how well-being and self-confidence delay these effects. These are the issues addressed by the personalised mobility axis, structured around health

research teams and 4 Clusters (Analgesia Partnership, Nutravita, InnovaTherm and Pharmabiotics Research Institute). This project offers a differentiated approach to the muscular system and associated mobility issues, by looking at the direct factors involved in muscular development (development, metabolism and functionality) and the indirect factors of motor skills (epigenetics, intestinal functioning, pain, deformities, nutrition and osteoarticular diseases).

The objectives are to develop a concept for life by creating a range of medications and probiotics, and by experimenting with a new form of preventive medicine, which will be tested in Auvergne and distributed on a wider scale.





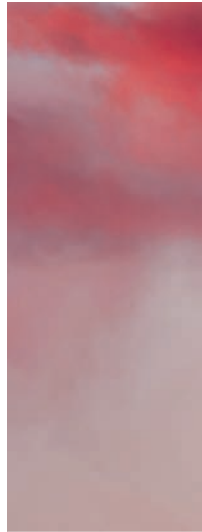
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## Disaster risk and socio-economic vulnerability

This project brings together volcanologists and developmental economists around 2 LabEx (ClerVolc supported by LMV and IDGM+ supported by CERDI).

Volcanoes are a major risk to man and the environment. They present major challenges to scientists who try to understand how they work, the mechanisms that lead to an eruption, the conditions that lead to a change in the eruptive pattern, and the propagation and dispersal conditions of plumes of ash and gas.

Using new techniques for information processing, experimentation and modelling, volcanologists will generate risk maps that will make it possible to quantify a given area's volcanic risk and can be used by economists. The latter will focus on inhabitants living in risk areas within developing countries and on understanding the decision-making mechanisms around whether or not to migrate.







# The operational committee

CAP 20-25 Director: Pierre SCHIANO

## Scientific challenges:

1. Sustainable agro-ecosystems in a context of global change:  
Isabelle VEISSIER
2. Innovative systems and services for transport and production:  
Michel DHOME
3. Personalised mobility as a key factor in health:  
Alain ESCHALIER
4. Disaster risk and socio-economic vulnerability: Patrick BACHELERY

## Transversal programmes:

1. Tools: Dominique PALLIN
2. Emergence (exploratory research):  
Pierre HENRARD
3. Campus @uvergne (student life):  
Stéphane CALIPEL
4. WOW! (international strategy):  
Valérie LIVRELLI
5. Hub Innovergne (innovation and transfer): Hélène MARIAN
6. Learn'in Auvergne (education):  
Françoise CAIRA
7. Talent policy: Vianney DEQUIEDT



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More info can be found at:  
<http://i-site-clermont.fr>



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