

# Cross-border resilience and interoperability: logistics corridors as hotspots

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FOREWORD

# RESEARCH TEAMS AND ACTIVITIES AT IMT MINES ALÈS

# 3 research centers and 6 research teams

**C2MA**  
*Materials*

**CREER**  
*Environnement and Risks*

**CERIS**  
*Computer science*

**PCH : POLYMERS, COMPOSITES,  
HYBRIDS**

**CIVIL ENGINEERING**  
*(WITH UNIVERSITY OF MONTPELLIER AND CNRS)*

**INTERACTION BETWEEN MATERIALS  
AND ENVIRONMENT**  
*(WITH UNIVERSITY OF PAU AND CNRS)*

**RESOURCES AND HYDROSCIENCES**  
*(WITH UNIVERSITY OF MONTPELLIER AND CNRS)*

**DIGITAL HEALTH IN MOTION**  
*(WITH UNIVERSITY OF MONTPELLIER)*

## Research

- 85 Professors and associate-professors
- 92 PhD students
- 3 Research centers
- 137 international publications (rank A)
- 3 M€ partnership contracts

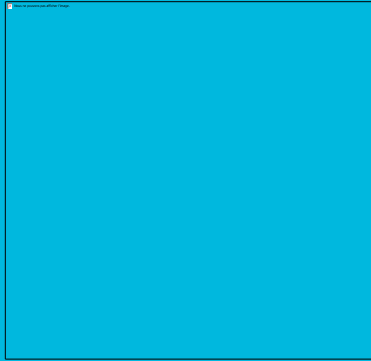


## Economic development

- 1 916 Partner companies
- 1<sup>st</sup> created incubator in a school of engineering (1984)
- 20 projects/year (average value)
- 200+ created start-up till now (1000 jobs)
- 88 % 5-year survival rate



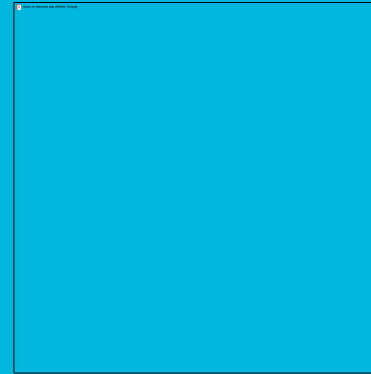
**Claudia  
Enrech**  
Architect,  
educational  
sciences



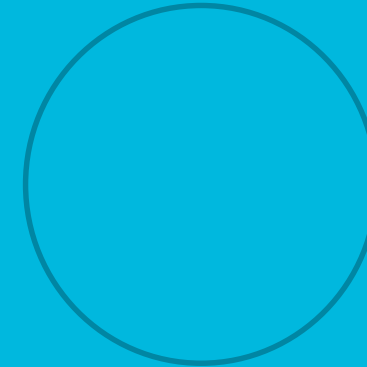
**Vincent  
Chapurlat**  
Interoperability,  
Complex system  
engineering



**Jérôme  
Tixier**  
Risk analysis, risk  
assessment



**Greg  
Zacharewicz**  
Computer  
engineering



**Aurelia  
Bony-  
Dandrieux**  
Risk analysis, risk  
assessment

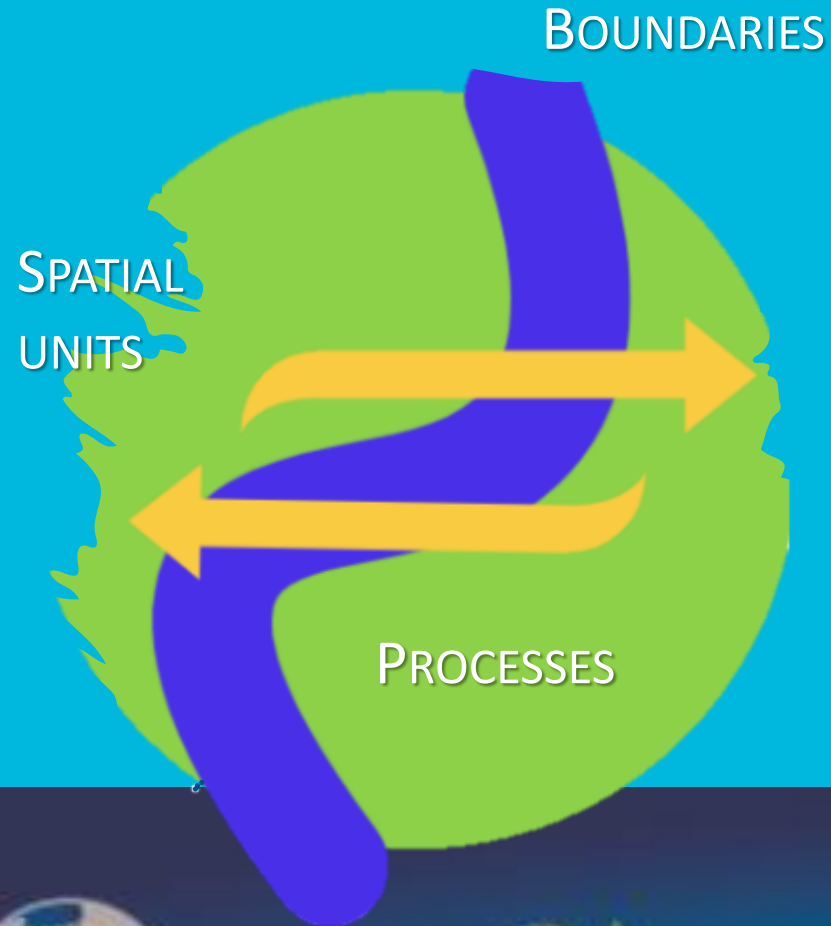


**Juliette  
Cerceau**  
Territorial  
ecology,  
socioecological  
interactions



CONTEXT

# GLOBAL CHANGES, FRONTIERS AND LOGISTIC CORRIDORS



## Global changes challenge frontiers:

- The effects of climate change do not stop at administrative borders;
- The logistics of **material, energy and information flows** transcend national boundaries;
- **Citizens' aspirations** in terms of governance question the intra and international scales;
- Etc.



## Agriculture and food

How to harmonize cross-border agricultural and food policies consistent with the challenges of ecological transition?



## Biodiversity and environment

How to preserve cross-border ecological continuities ?



## Energy and low carbon transition

How to foster cross-border energy solidarities ?



## Solidarity and buen vivir

How to express cross-boarder multicultural diversities ?



## Transport and mobility

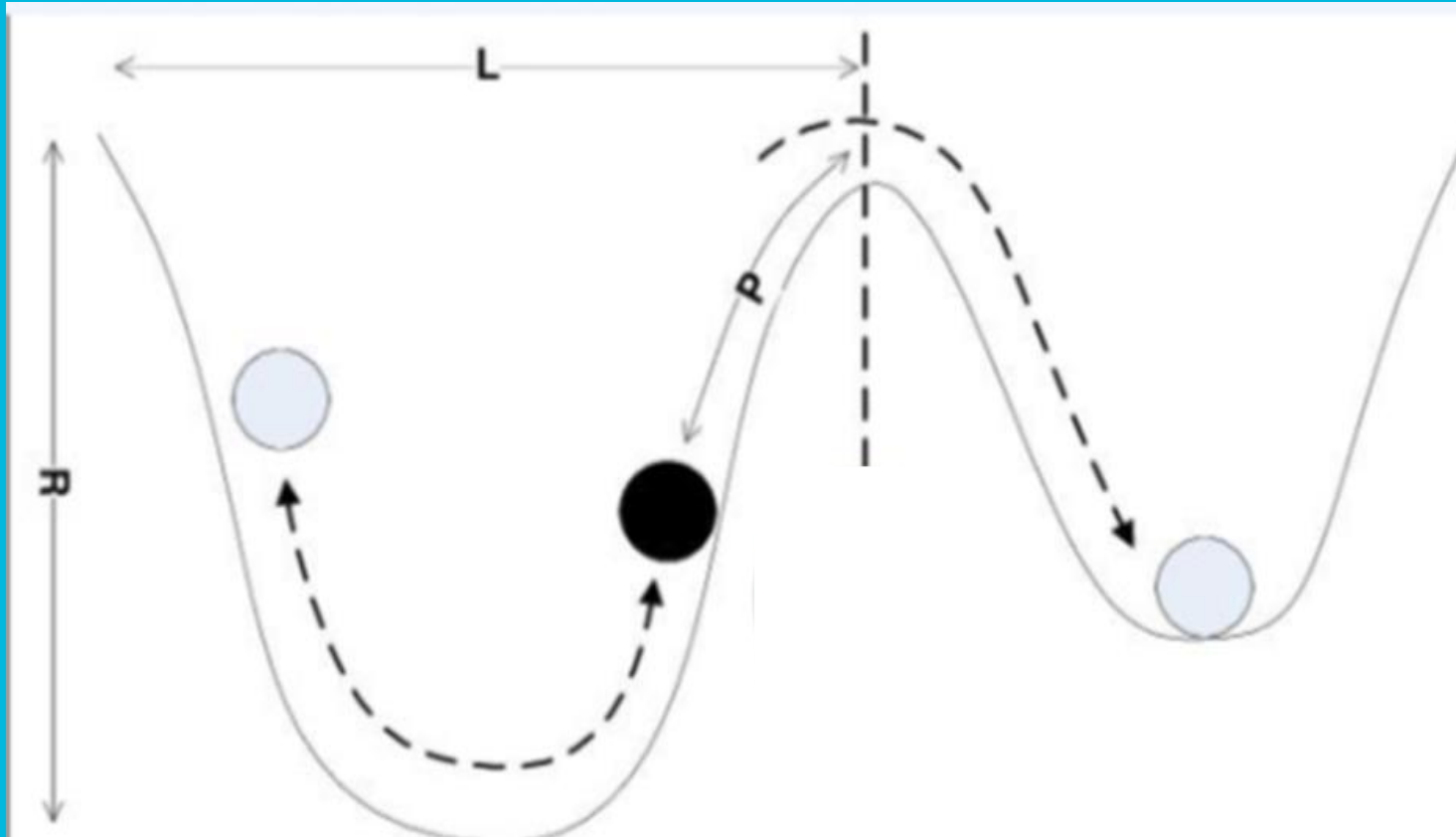
How to make cross-border mobility more fluid ?





FROM THEORY TO PRACTICE

# RESILIENCE AND INTEROPERABILITY



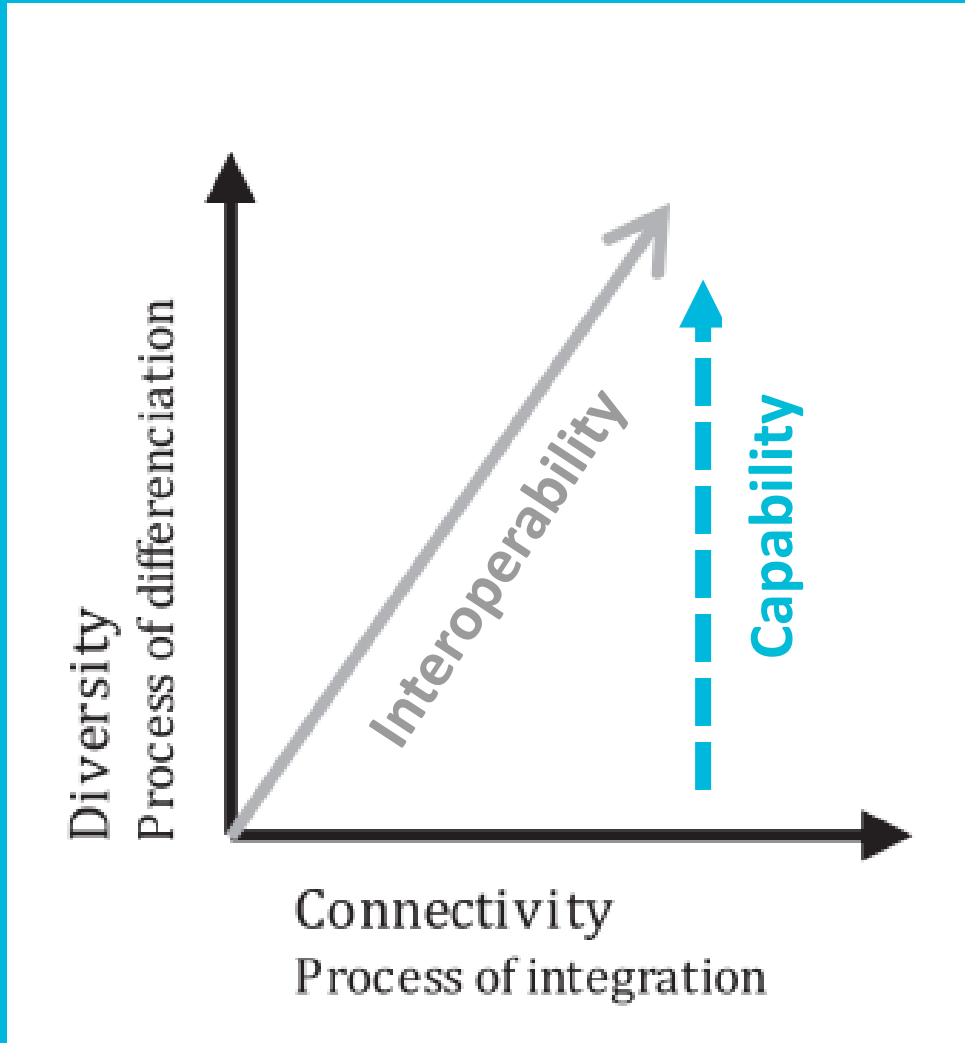
It is the **capacity of a system to absorb disturbances** before returning to its **initial state** or reorganizing itself into **another state**

Resilience challenges the adaptability and transformability of a system:

- **Adaptability** : ability and intent of agents to influence the trajectory of the system, attempting to move toward the previous or a new equilibrium.
- **Transformability**: ability of agents to create a new system



# Levers for territorial resilience and research agenda



## Interoperability

**Technical interoperability:** which technical solutions to limit load breaks?

**Informational interoperability:** what data management to support multi-actor management?

**Organizational interoperability:** what roles and processes should be used by the various stakeholders?

**Institutional interoperability :** what forms of governance should be used to guarantee territorial resilience ?

## Capability

What skills must local stakeholder enhance to foster territorial resilience processes ?



**Thank you for your attention !**