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# Sociotechnical diagnosis for designing pesticide-free coupled innovations at territorial scale

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## Context

The challenge of reducing pesticide use in agriculture has not been achieved in France despite numerous national plans and funding. These plans have mainly focused on farmers' and advisors' practices.

## Our hypothesis

A substantial reduction of pesticide use cannot be achieved without tackling the larger scale of **agrifood systems**  
 → Elements and activities relative to production, processing, distribution, preparation and consumption of food and associated environmental and socio-economic outcomes

## Our study

A **5-step methodology** to identify barriers and levers to coupled innovations prepare the **design** of alternative pesticide-free agrifood systems.

### A five-step methodology

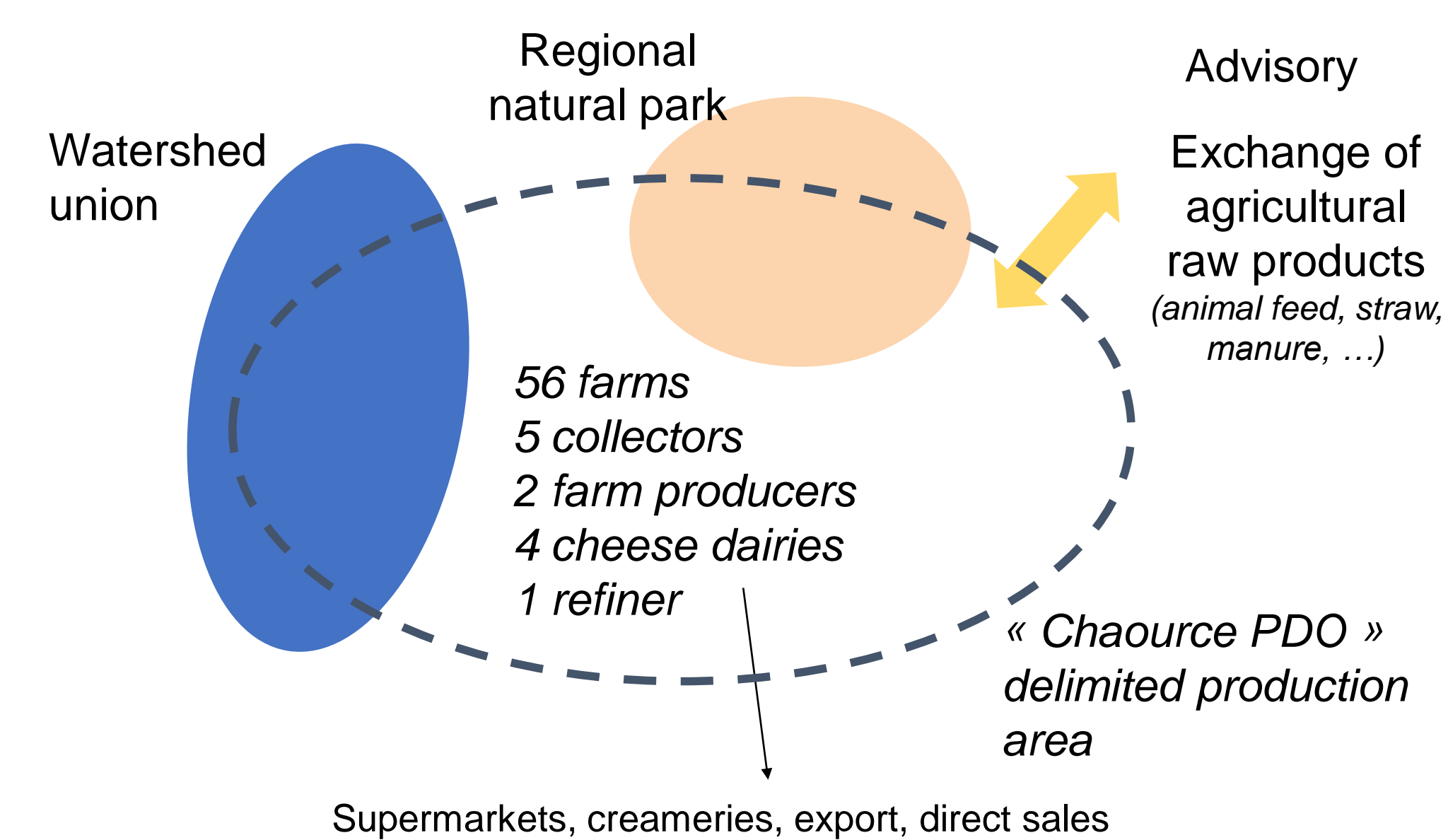
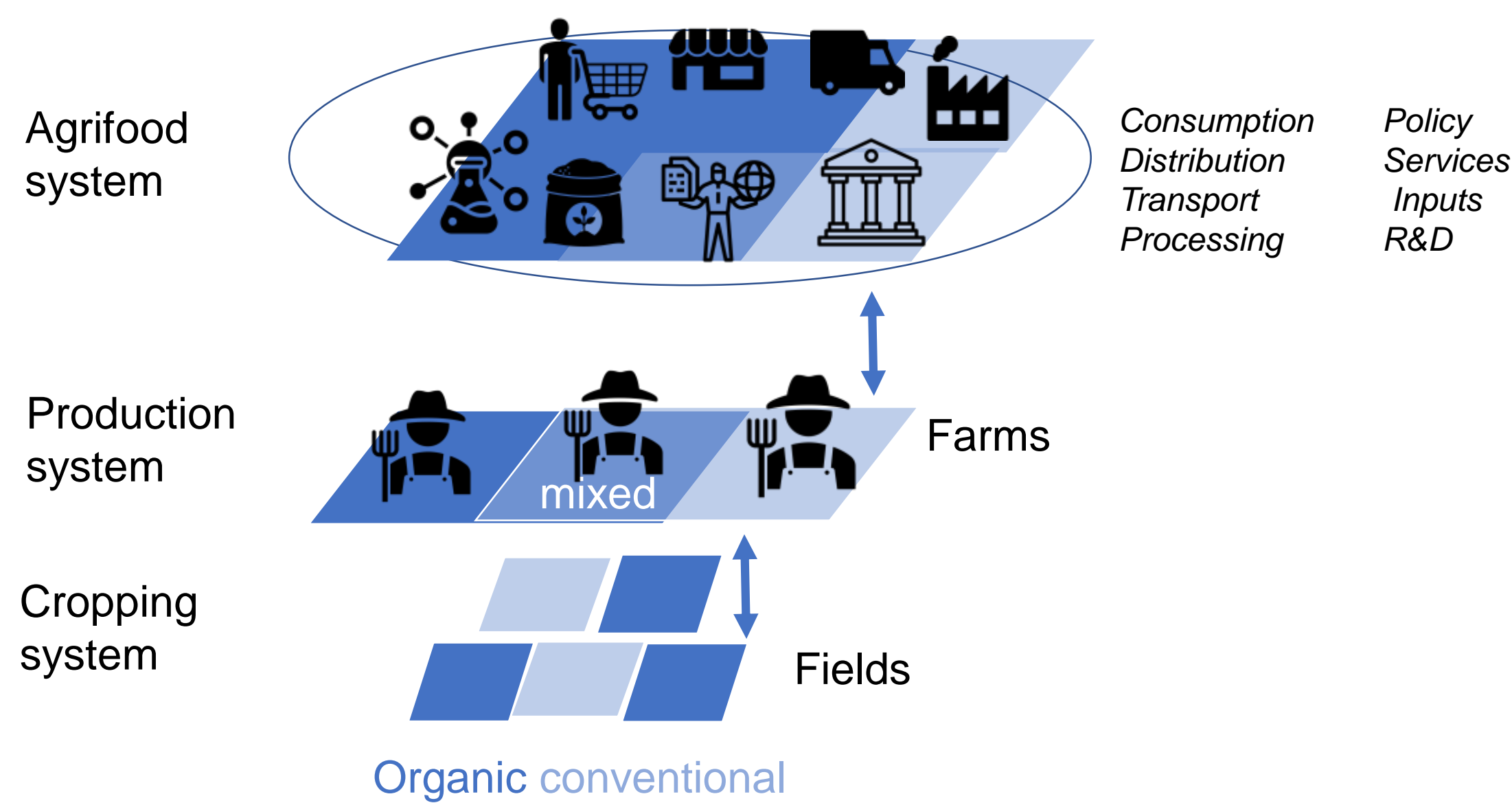
Applied on 2 French case studies

Development of pesticide-free agroecological management of soil health in Provence

Development of crop-livestock interactions to provide ecosystem services in Chaource production area

A vertical, sectoral approach

A horizontal, territorial approach

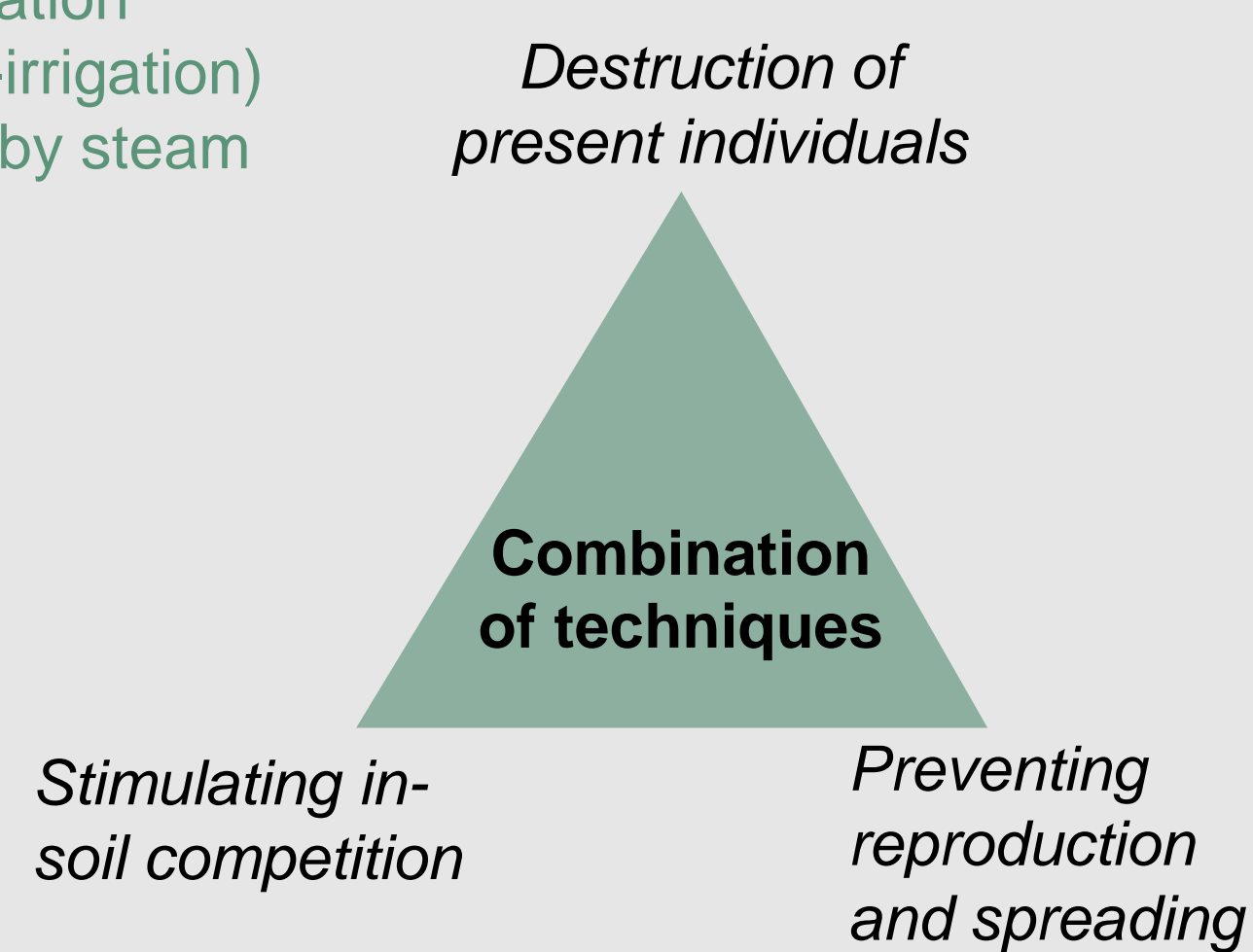


## 2 revealing technologies for the management of root-knot nematodes (RKN)

(ii) Disinfection technology with curative techniques :

- nematicides application (fumigation or drip-irrigation)
- soil disinfection by steam

(ii) Agroecological soil health technology

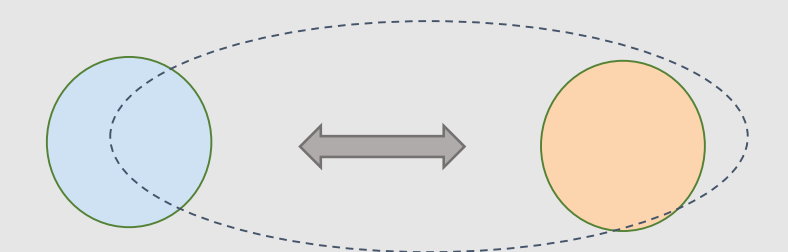


Revealing technologies show how an actor interacts with the innovation studied. Such technologies :

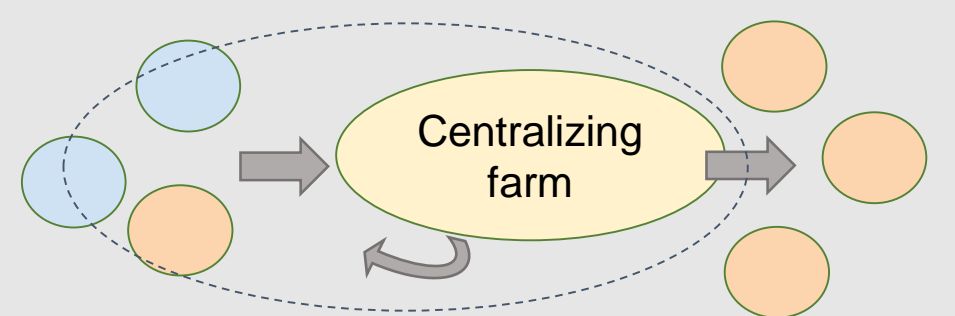
- already exist in the scope of investigation
- contribute to solving the problem identified
- are understandable by the actors

## 3 revealing technologies for the development of crop-livestock interactions

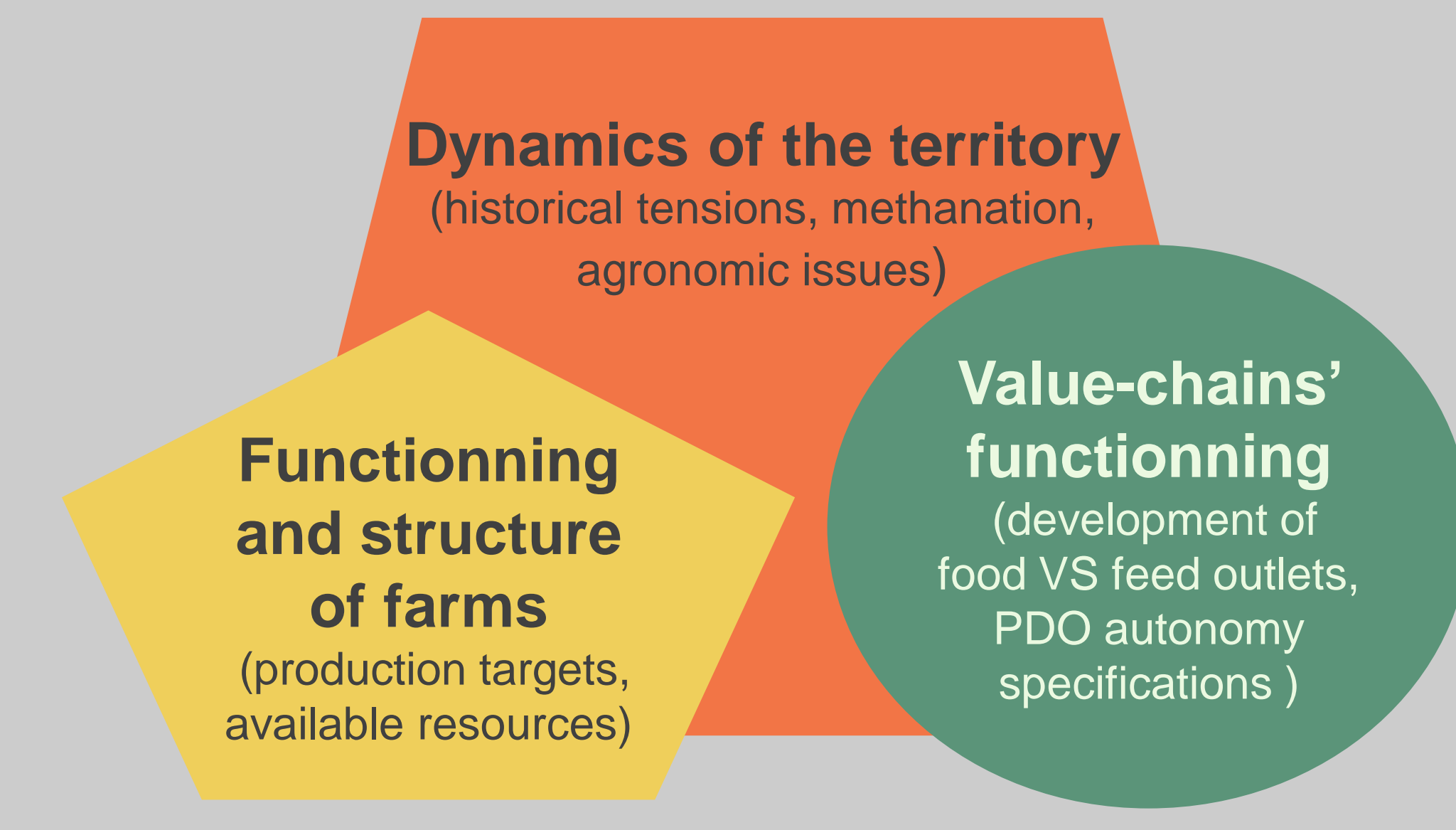
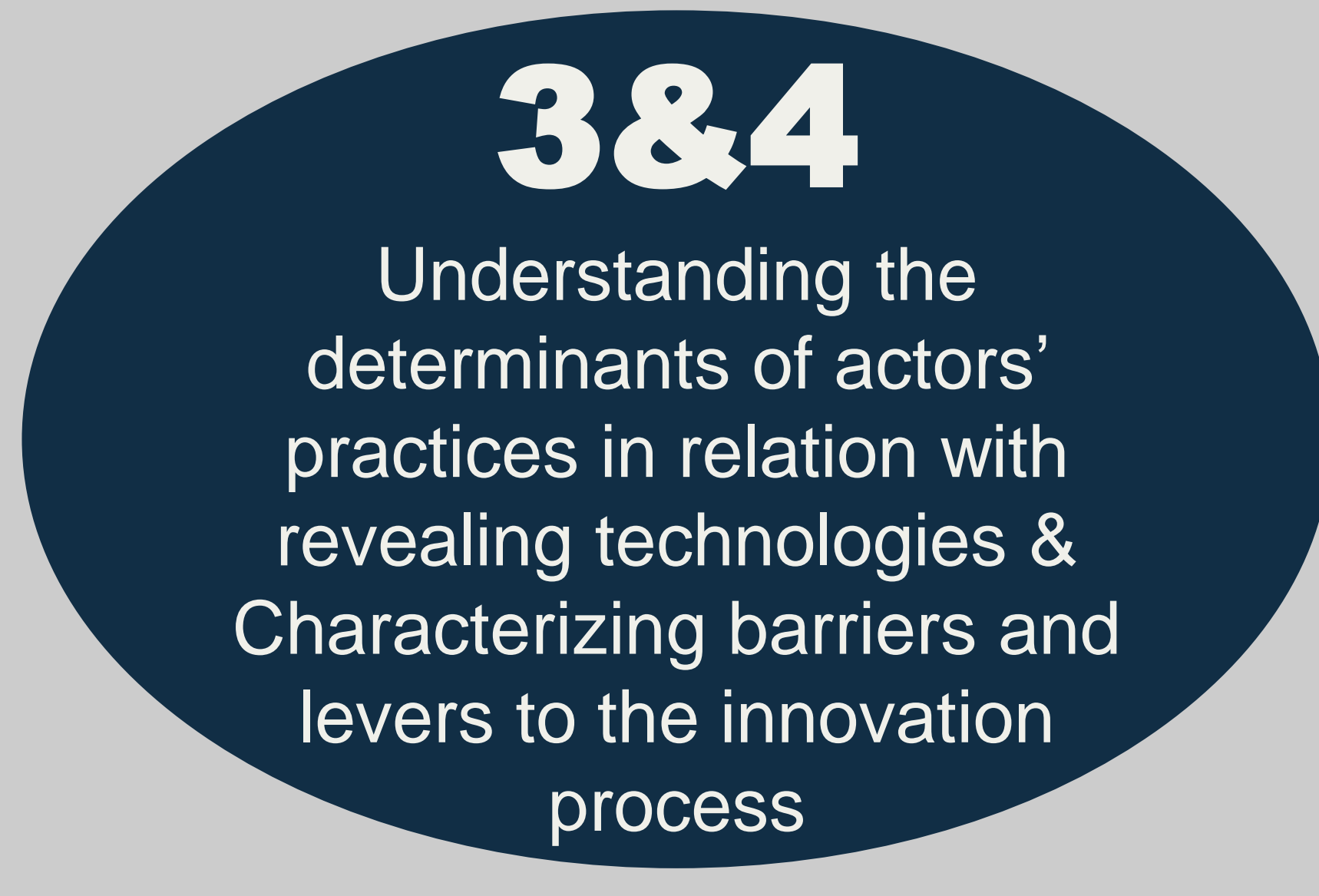
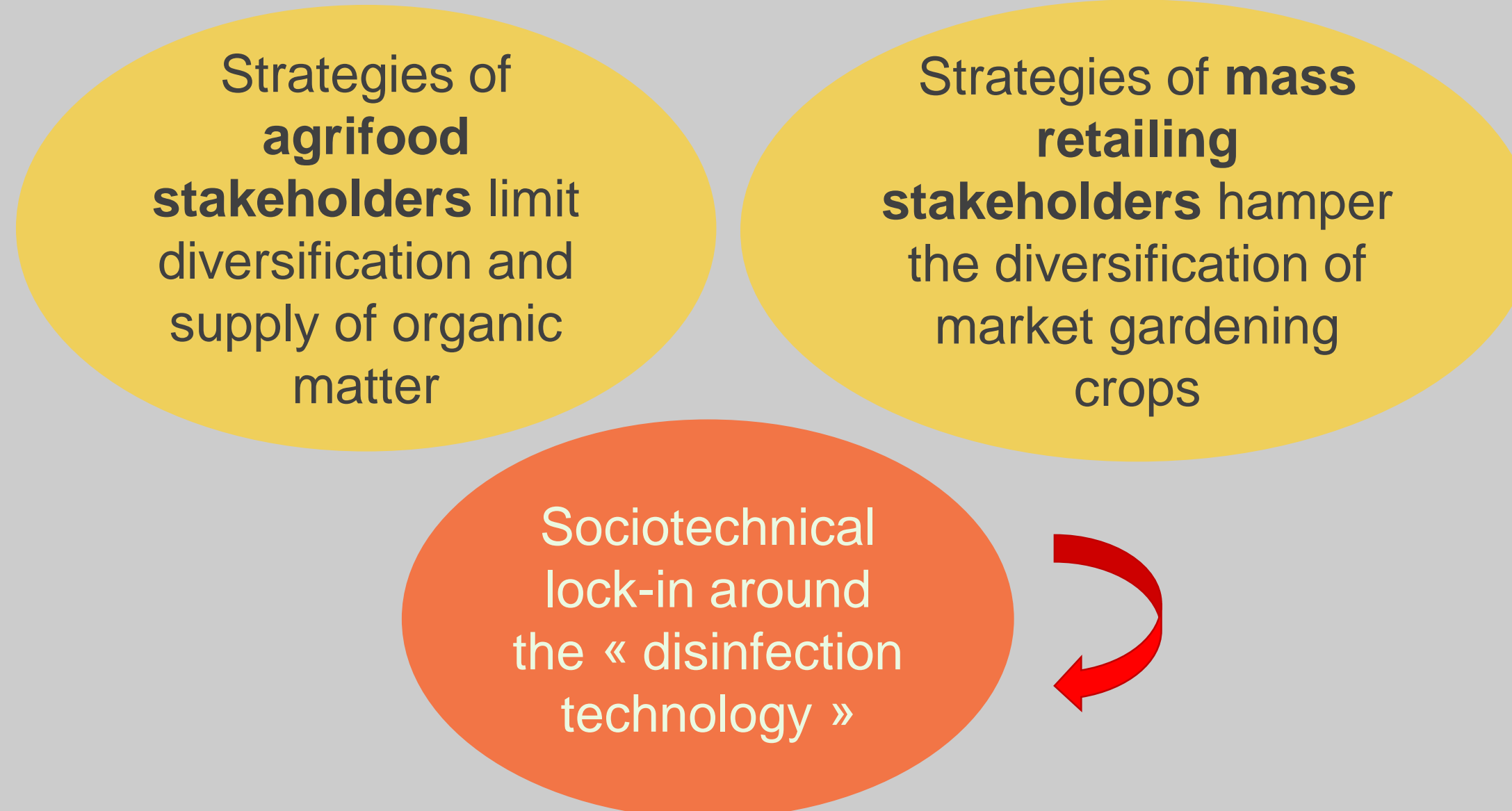
(i) Bilateral exchanges



(ii) Multilateral exchanges



(iii) Traced feedstuff chains



A serious game to effectively share the results to stakeholders and enhance their creativity and collaboration



Presentations of results and the next steps (co-design with the territory's stakeholders)



Workshops to complete and validate the results and to define common objectives

## Conclusion

- A **generic methodology** to identify sociotechnical barriers and levers to innovation process, that has successfully been applied to the Chaource and Provence case studies, but also to other case studies of the INTERLUDE and BE CREATIVE projects, that are not presented here.
- The outputs of such diagnoses will **support the design of coupled innovations** at the territorial level. Indeed, they might **help identifying innovation fields** (Hatchuel et al. 2001) and **stakeholders** to be involved in the design activities, and **anticipating the unlocking of complex situations**.

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