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## A Review of Innovation Systems

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**CAMBIONET**  
DESIGNING A NEW CARIBBEAN  
AGRICULTURE

# A Review of Innovation Systems

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# Agroecology to face urgent challenges ?





Negative impacts of the industrialization of agriculture (on environment, health, food, etc.)

AGROECOLOGY &  
AGROECOLOGICAL  
TRANSITION(S) as a  
SOLUTION ?



But How ?

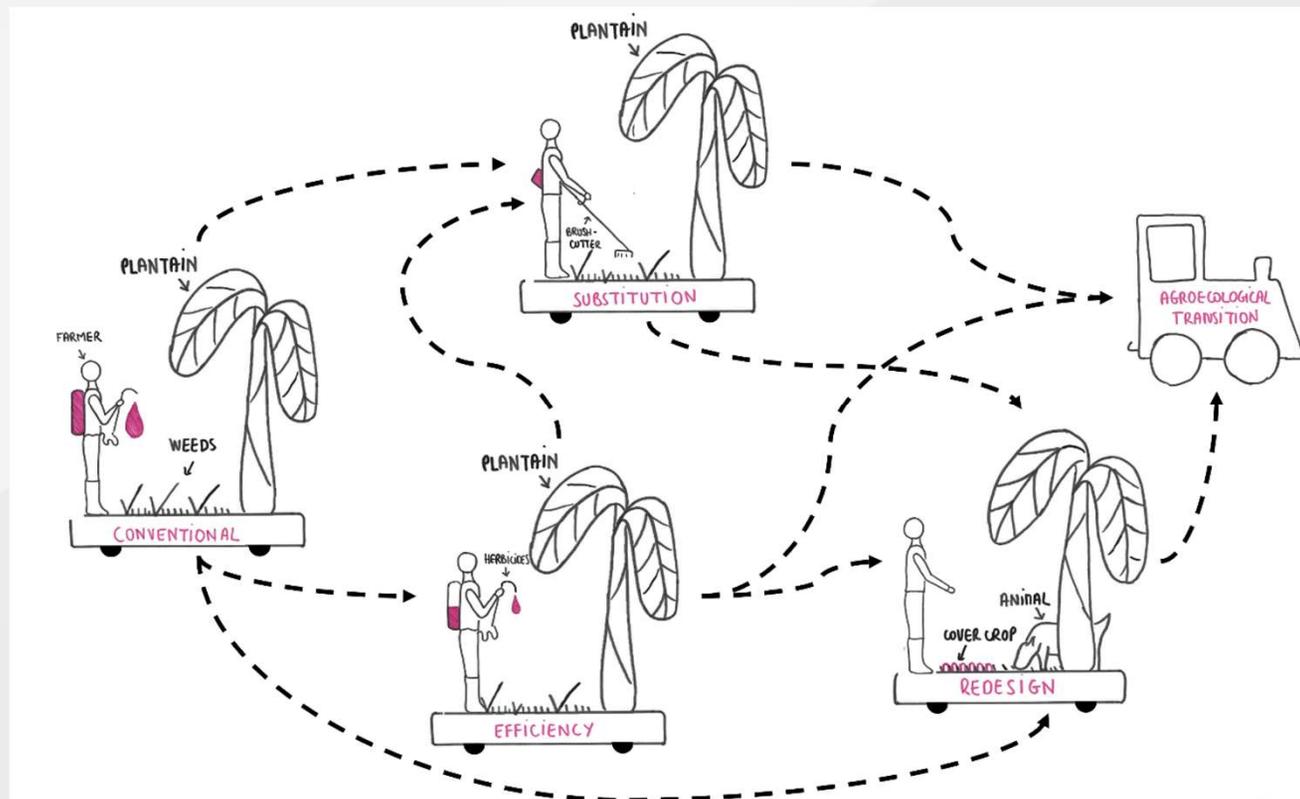


# Agroecological transition(s) ?

2 types of transitions  
for various pathways

1/ **Weak** – step by step

2/ **Strong** – radical  
changes



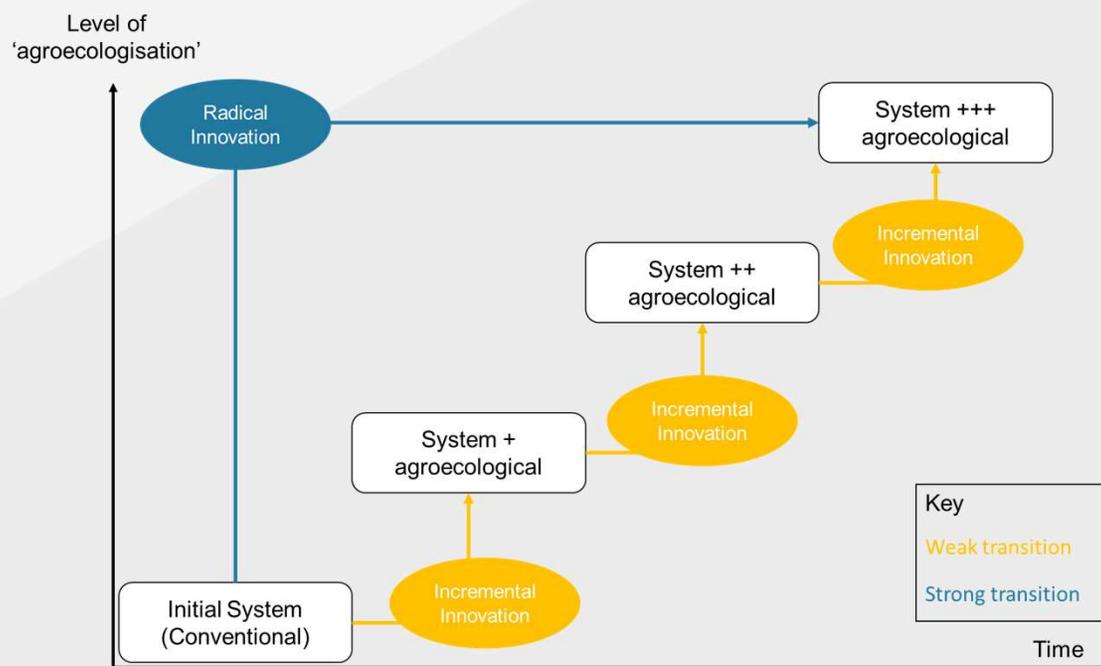
# Agroecological transition(s) ?

2 types of transitions  
for various pathways

1/ **Weak** – step by step

2/ **Strong** – radical  
changes

*To face the current challenges*



# Agroecological Innovation to support agroecological transitions ?



# What is an agricultural innovation ?

## From a **technological view...**

Innovation as an technological **invention**

Base of the Green Revolution to break free from environmental constraints

Farmers' empirical knowledge was not taken into account

(Godin, 2015)



e.g. new input, new tool, etc.

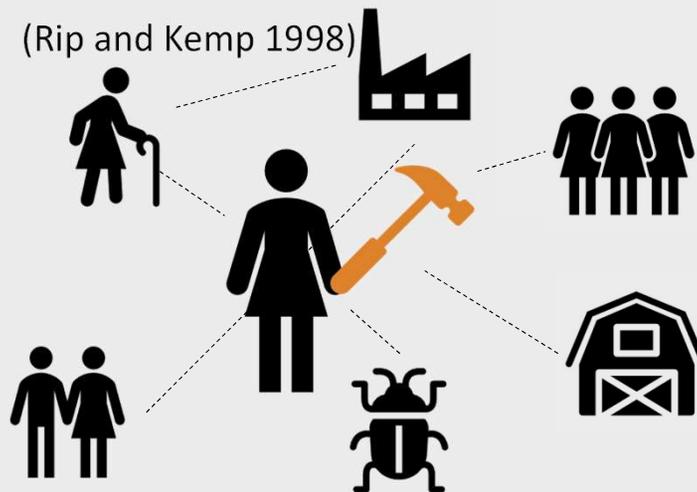


## ....To a **systemic view**

Innovation as **multi-dimensional** and **no linear**

The context and the actors became central and integral part of innovation process

(Rip and Kemp 1998)



# What is an agricultural innovation ?

Definition ?

A **co-evolutionary process** combining technological, social, economic and institutional changes

(Klerkx et al., 2012)



How to bring out these innovations and ensure they are in tune with local context ?

Which methods and at what scale ?



# Which methods ?

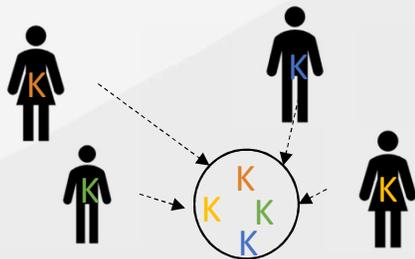


## 2 fields of literature in agronomy

To bring existing knowledge to the surface and to create missing knowledge

↓  
Ruled based design / Participatory approaches

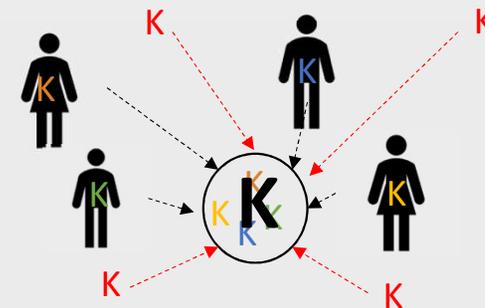
To share knowledge,  
To encourage dialogue and communication,  
Integrating non-academic knowledge,  
But little exploration of innovative solutions



Le Masson et al. (2006), Berthet et al. (2016)

↓  
Innovative design

To respond to the need for radical innovations based  
on knowledge not previously identified  
(identified during the design process)



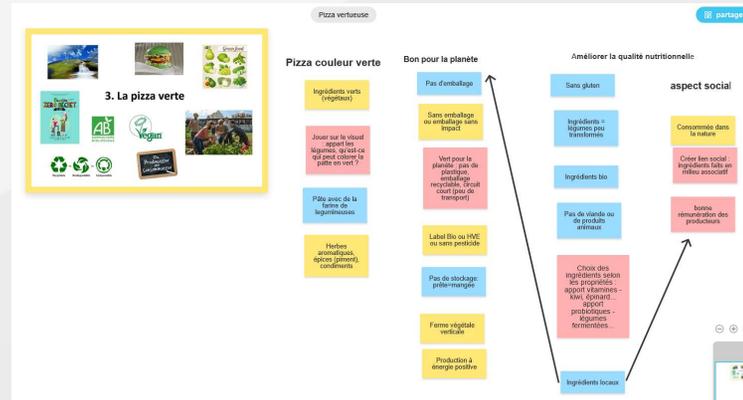
# Methods at the interface of these two fields

## Examples

### The ComMod Method



### The KCP Method



### The Living Labs



## The ComMod method

- based on serious game and modeling
- to share knowledge especially for the natural resource's management.



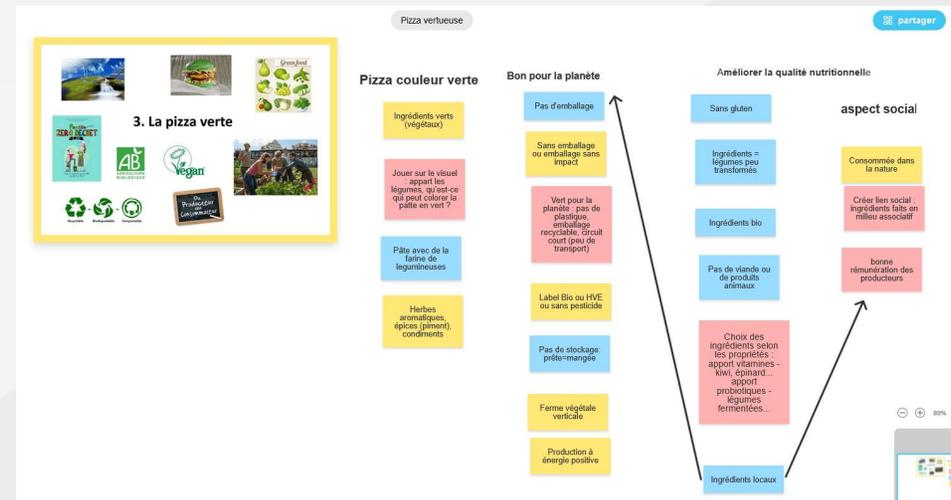
(Etienne et al. 2011; Mathevet et al. 2011).



## The KCP method

- For **K**nowledge, **C**oncepts, **P**roposals
- Based on participatory workshops to drive innovative design thinking.
- The aim is to go beyond known alternatives by mobilizing a variety of fields of expertise and to create new knowledge.

(Berthet et al. 2016, 2018).



## Living Labs approaches

- To address issues of open innovation for knowledge aggregation and design
- Now also mobilized to support agro-ecological transitions

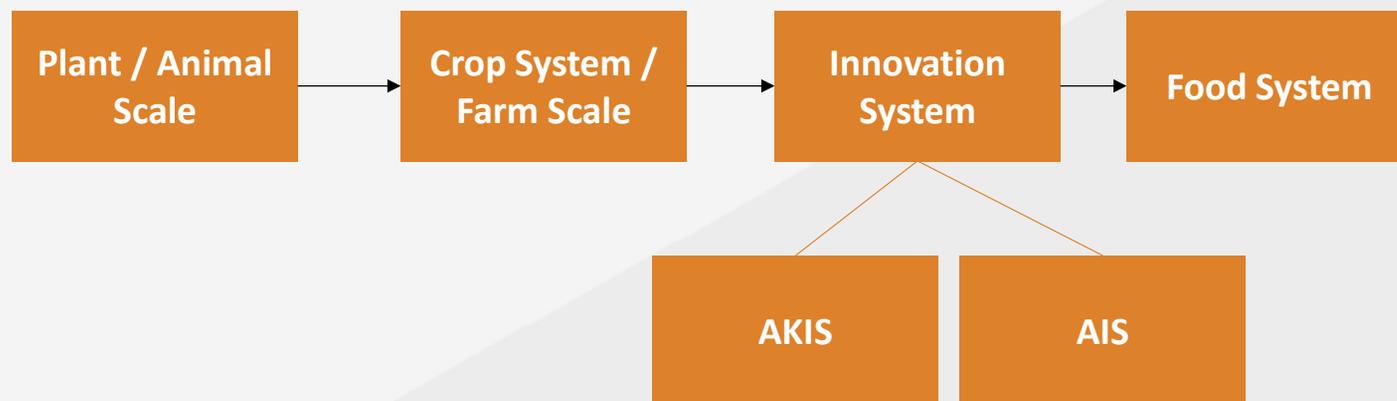
(Toffolini et al. 2023).



What Scale ?  
Innovation System scale to take  
into account the context ?



# How to set up agricultural innovations ?



(Faure et al., 2018; Klerkx et al., 2012)



## AKIS

### Agricultural Knowledge Innovation System

- Focus on dissemination and / or creation of knowledge
- Taking into account agricultural organizations and/or stakeholders, as well as the links between them

(Klerkx et al., 2012)

## AIS

### Agricultural Innovation System

«A network of organizations, companies and individuals focused on introducing new products, new processes and new forms of organization into economic circuits »

(Hall et al., 2006)



# Conclusion

Need to use various methods and various disciplines at different scale  
to cope with all the challenges...

It calls for a real trans and inter-disciplinarity research 😊



Thank you and enjoy the session 😊

