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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 ?

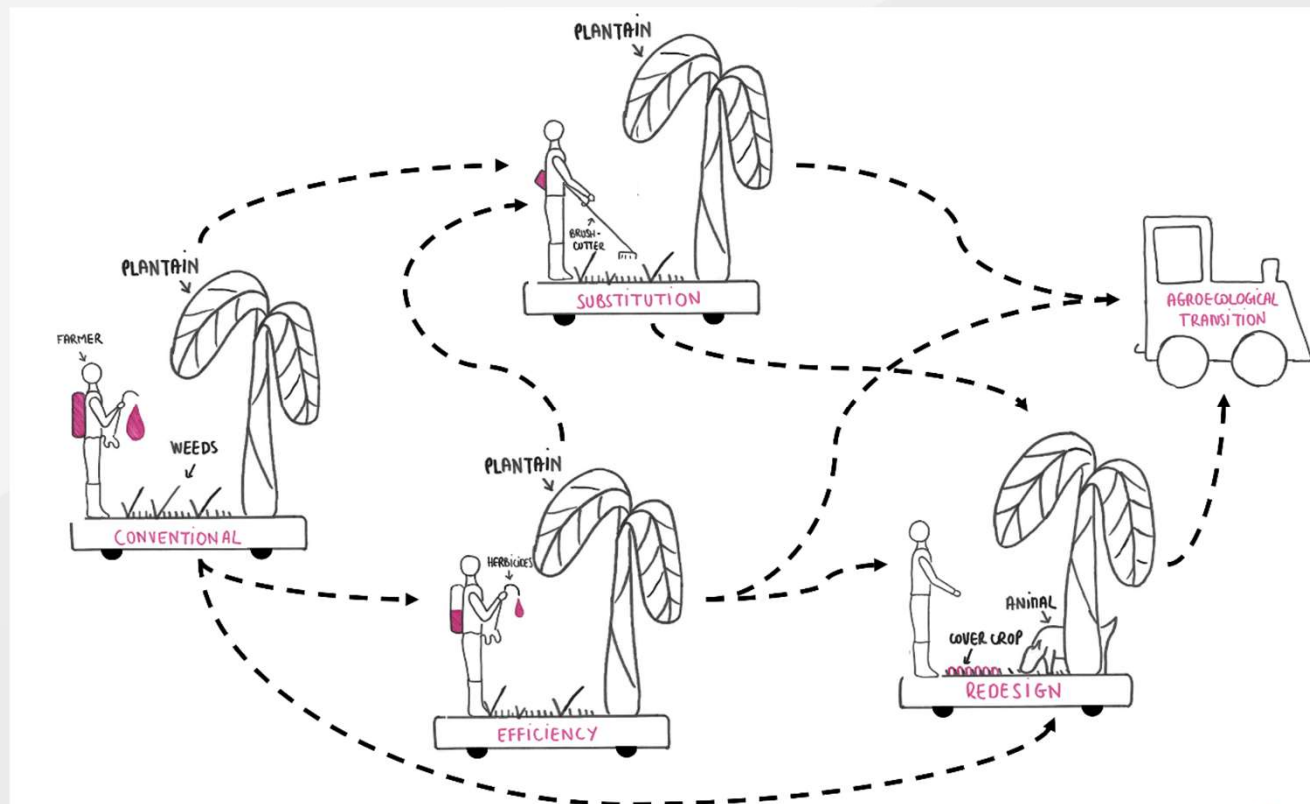


Agroecological transition(s) ?

2 types of transitions
for various pathways

1/ **Weak** – step by step

2/ **Strong** – radical
changes



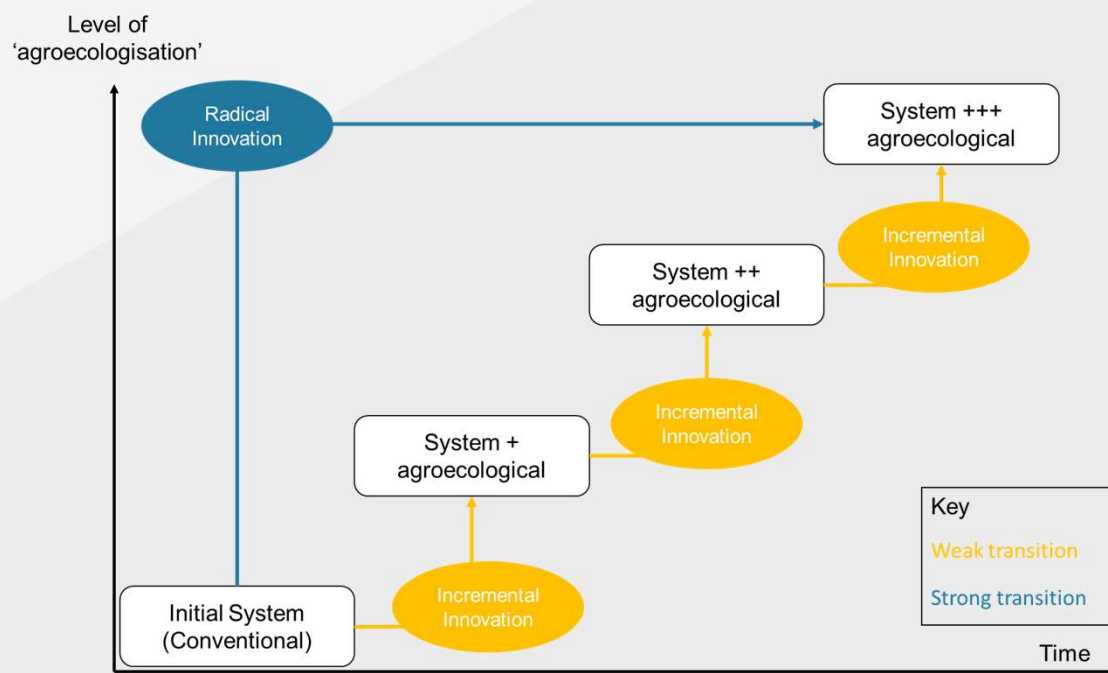
Agroecological transition(s) ?

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.

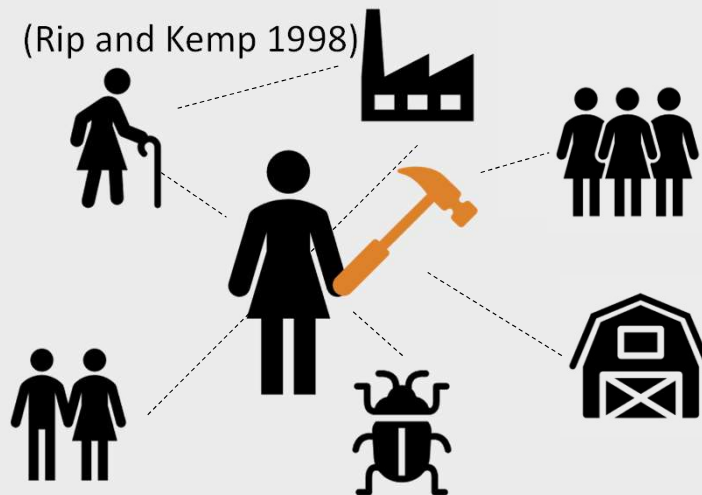


....To a **systemic view**

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 ?

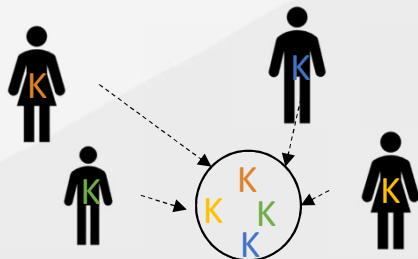


2 fields of literature in agronomy

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

↓
Ruled based design / Participatory approaches

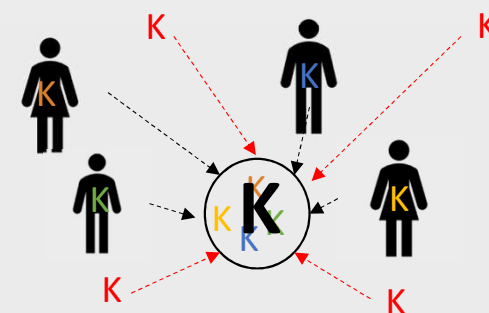
To share knowledge,
To encourage dialogue and communication,
Integrating non-academic knowledge,
But little exploration of innovative solutions



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)



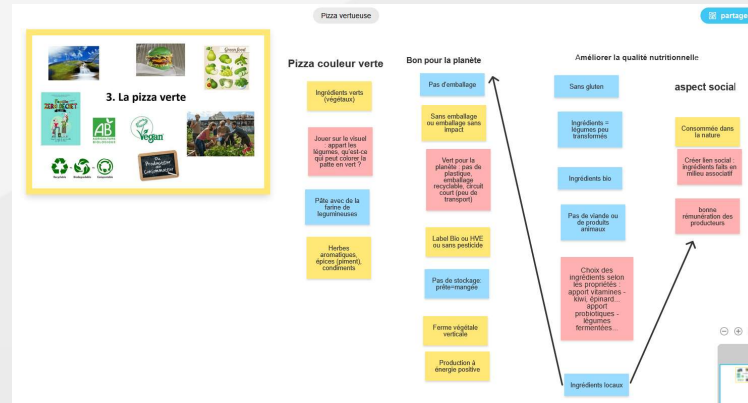
Methods at the interface of these two fields

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.



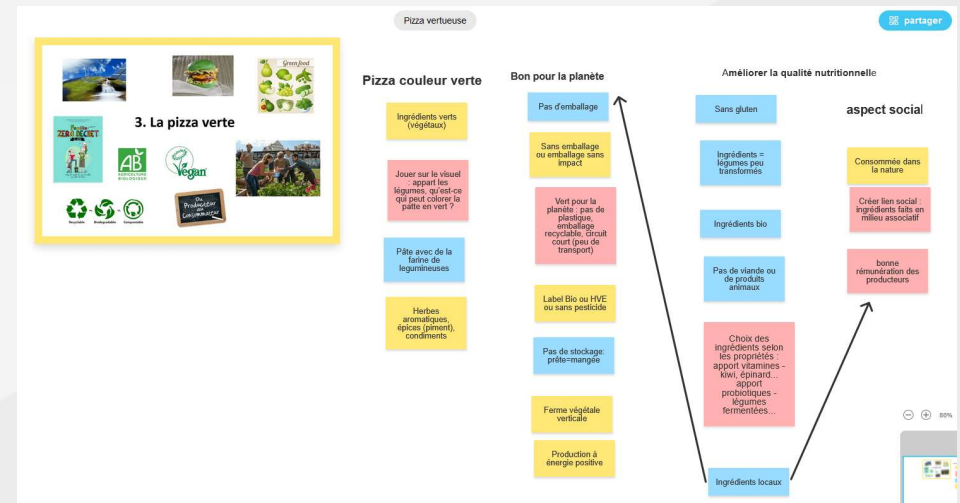
(Etienne et al. 2011; Mathevet et al. 2011).



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

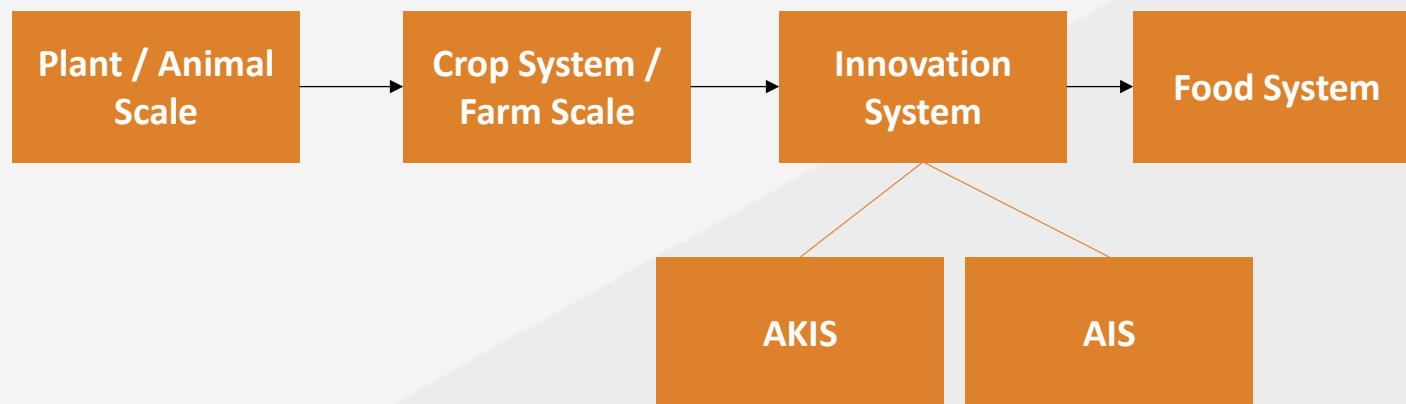
(Toffolini et al. 2023).



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 😊

