## How can 'innovation thinking' help to transform Food Systems?

Presentation for seminar 'Agricultural Innovation for Development: how to make it more systemic, and why should we?' The Hague, April 17, 2019

Cees Leeuwis, Knowledge, Technology and Innovation group







How can 'innovation thinking' help to transform Food Systems?

- Outline
- I. Food Systems as a focal point in Dutch policy
- 2. A reminder: the Dutch fame in `innovation thinking'.
- 3. Integrating Food Systems and 'innovation thinking'?
- 4. Towards <u>process view</u> of system change



### A representation of a Food System

By: High Level Panel of Experts on Food Security and Nutrition (HLPE) / UN Committee on World Food Security (WFS)

**Biophysical and** innovation. Political and Socio-cultural Demographic technology and environmental economic drivers drivers drivers frastructure drivers drivers Leadership Population growth Culture Globalization and trade Changing age distribution **Religions & rituals** Natural resource capital Innovation Conflicts and humanitarian crises Urbanization Social traditions Ecosystem services Technology Food prices and volatility Migration& forced Women's empowerment Climate change Infrastructure Land tenure displacement Food Food supply chains environments Food availability and Farmers, indigenous peoples, agribusiness, land and plantation Production Nutrition physical access (proximity) systems owners, faheries, financial entities Consumer and health Diets behaviour Economic access outcomes Storage and Transporters. (affordability) Quantity agribusiness, distributors distribution Choosing where Quality and what food to Promotion, advertising and acquire, prepare, Diversity Packing plants, food and Processing information everage industry, small and medium enterprises cook, store and eat Impacts and packaging Safety Food quality and safety Retail and Retailers, vendors, food Social outlet owners, traders markets resauranters, wholese alers Economic Environmental Political, programme and institutional actions Sustainable Development Goals 💿 🕍 📚 🕒 🚛 🐼 🐼 🐷 🔽 🛞

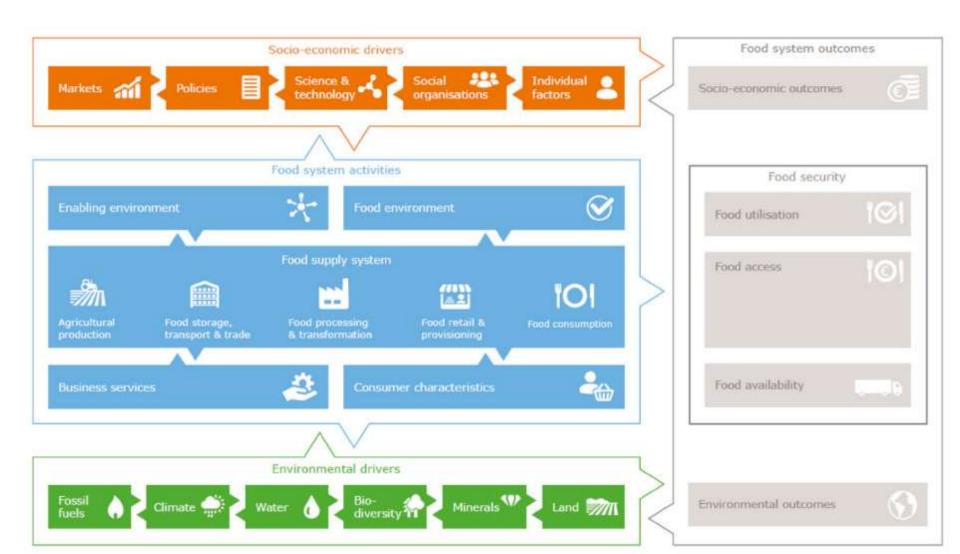
Figure 1 Conceptual framework of food systems for diets and nutrition

AVAILABILITY

UTILIZATION

### Another representation of a Food System

#### By: Van Berkum et al., 2018



### Another representation of a Food System

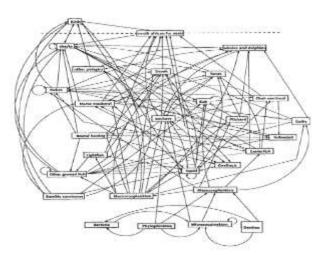


Figure 3 Food supply chains and food environments

Source: Adapted wheel concept from Ranganathan et al. (2016).

### What can we learn from this?

We are dealing with complex wholes



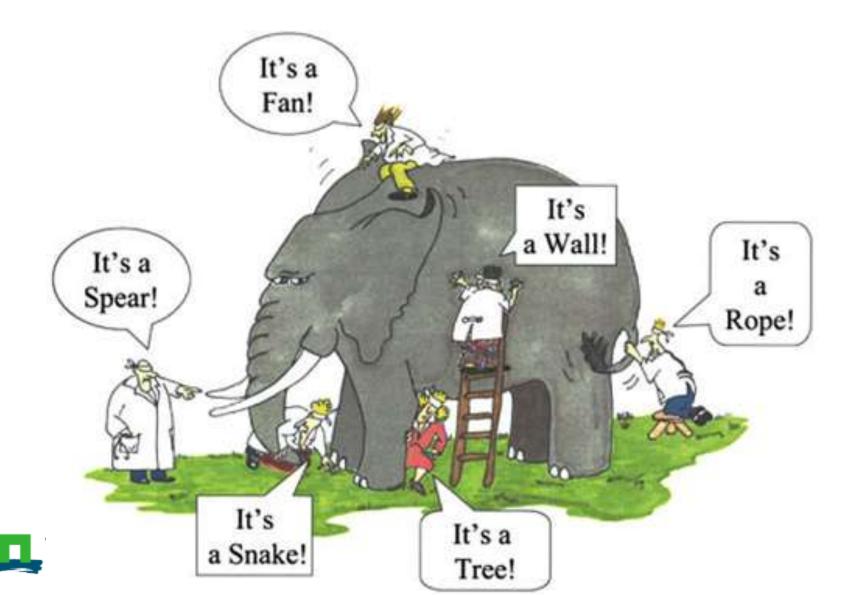
 Composed of different entities: Actors, Drivers, Outcomes, Impacts, Activities, Functions, Processes, Behaviours, Chains, Environments, etc.

We use 'systems thinking' to make them more tangible

We can think about systems in different ways!



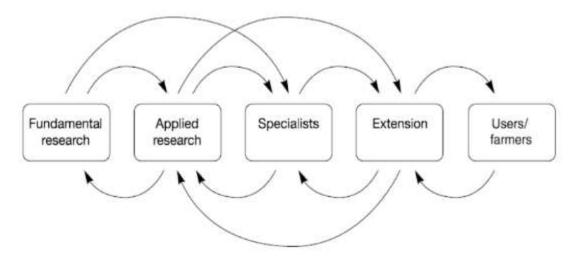
## This is also true for stakeholders who constitute the system!



The EER triptych (Het OVO drieluik) (pre-privatisation)

• Education, Extension, Research

AKIS: Agricultural Knowledge and Information Systems





Prof. Niels Röling

#### The establishment of the 13<sup>th</sup> CGIAR Centre in The Hague! (1979 – late 1990s?)

CGSpace A Repository of Agricultural Research Outputs

r CGSpace Home / Technical Centre for Agricultural and Rural Cooperation (CTA) / CTA Spore / CTA Spore (English) / View Item

## ISNAR The International Service for National Agricultural Research

Share



- Golden Triangle / Dutch Diamond (post-privatisation)
- The Netherlands became world leading in Innovation Studies / Transition Studies

| Sustainability Transitions | KSI | Transitiepraktijk | SRTN |

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 Utrecht, Rotterdam, Eindhoven, Amsterdam, Twente, Wageningen, etc.

#### The potential and need for `STI diplomacy'



#### Home > Documenten >

## STI Diplomacy - Advancing the internationalisation of science, technology and innovation

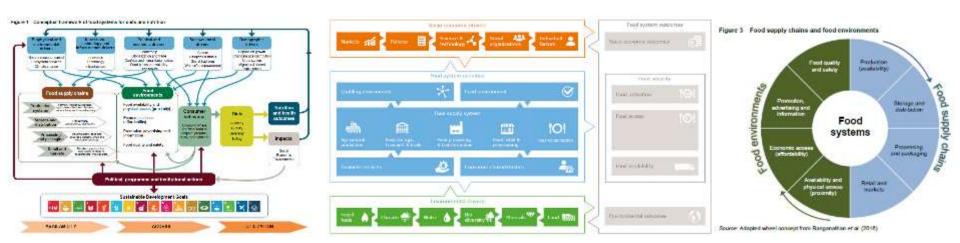
The Netherlands is in the top five in the global competitiveness ranking, partly thanks to its innovative strength and the solid international position enjoyed by Dutch science. In order to stay in the top five, the Netherlands will need to remain one step ahead of competing countries. Those countries are not standing still: some of them are investing heavily in science, technology and innovation (STI) and are also making major efforts to support the internationalisation of their STI ('STI diplomacy'), including attracting and retaining talent. It is therefore crucial for the Netherlands to ensure that our

## Integrating Food Systems and 'innovation thinking'?

Asking the question: How do (Food) Systems <u>change</u>?

• ... we need more than a mental map of a system!

• ... we need more than analytical understanding too!



## Integrating Food Systems and 'innovation thinking'?

#### Systems: the whole is more than the sum of the parts





How to foster synergy?

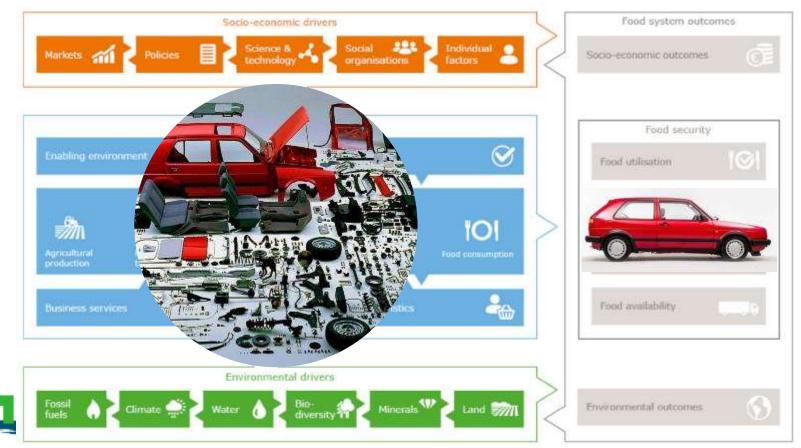
1 + 1 = 3

How do systems develop 'emergent properties' that are more desirable?



## Integrating Food Systems and 'innovation thinking'?

How do systems develop 'emergent properties' that are more desirable?

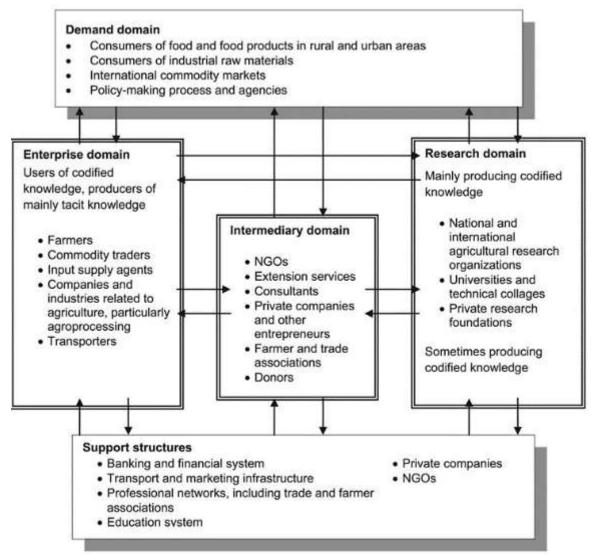


## Different views on how systems change: An <u>infrastructural</u> view (World Bank)

What is needed is an organisational infrastructure for innovation'

WAGENINGEN UR

For quality of life

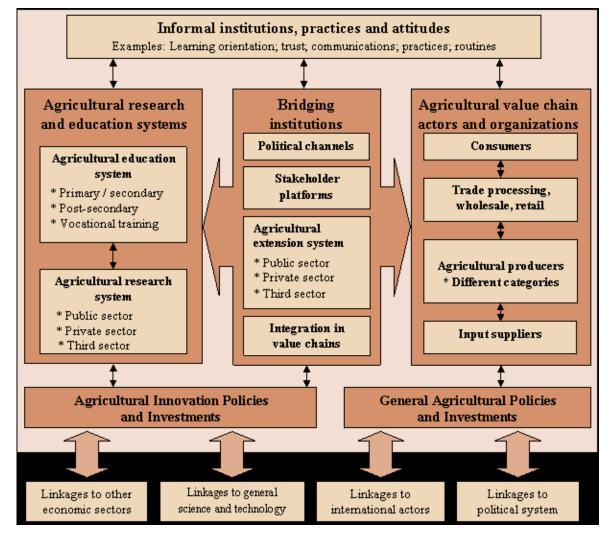


## Different views on how systems change: An slightly less <u>infrastructural</u> view (FAO)

You also need governance of innovation:

- policies
- investments
- rules
- incentives'





Different views on how systems change: A <u>functional</u> view (Hekkert et al.)

We need to make sure that critical functions are fulfilled'



#### **Functional analysis**

#### Innovation system functions

- F1 Knowledge development
- F2 Entrepreneurial activities/commercial experimentation
- F3 Knowledge diffusion/ exchange in networks
- F4 Mobilizing resources
- F5 Market formation
- F6 Guidance of the search
- F7 Creation of legitimacy

### Interesting to note ....

- We have done many studies of 'innovation ecologies' across the world:
  - 8 countries scientific analysis
  - 25 rapid appraisals



Rapid Appraisal of Agricultural Innovation Systems (RAAIS)

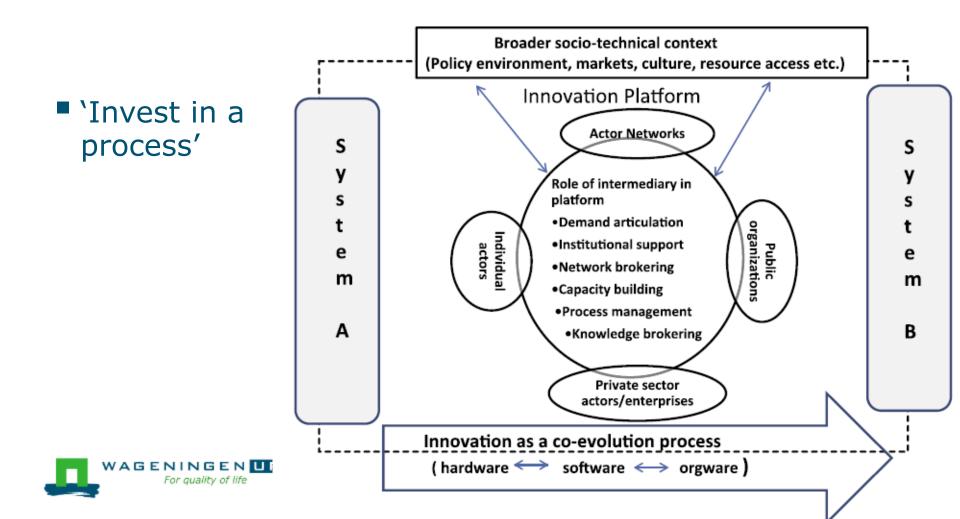


The agricultural knowledge and innovation system of Jordan's horticultural sector

But we have hardly studied the 'post-privatization' Dutch 'innovation system'



Different views on how systems change: A <u>dynamic process</u> view (Kilelu, Klerkx et al.)



## What kind of processes to support? In situations where:

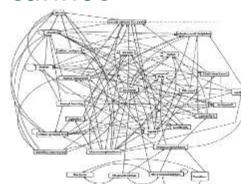
Multiple stakeholders are inter-dependent; cannot change alone

No stakeholder is in control !

Dynamics are partially un-predictable

Transformation is likely to be contested





PATHWAYS TO SUSTAINABILITY

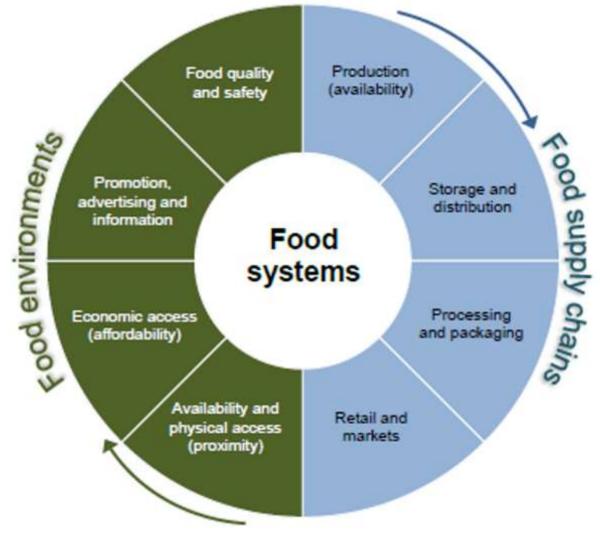
CONTESTED

Agricultural Research in a Changing World

AGRONOA

## From: outside observation and understanding of the system (FOR Development)



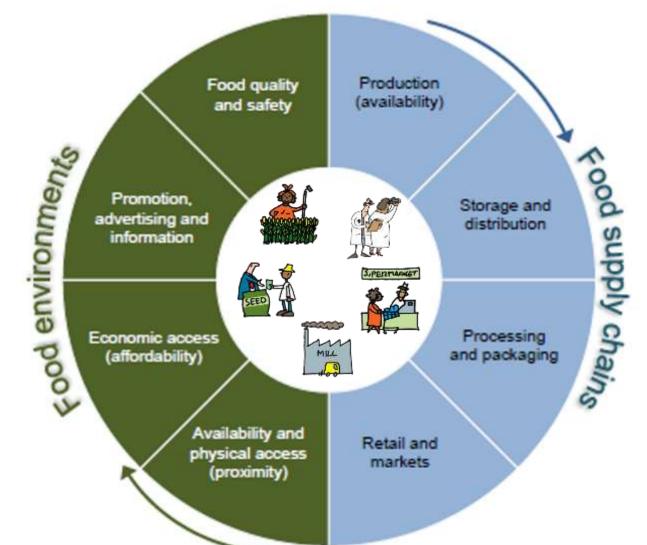




To: collaborative observation, understanding and action in the system (IN Development)

The only people that can change the system are the people that are in the system!

For quality of life

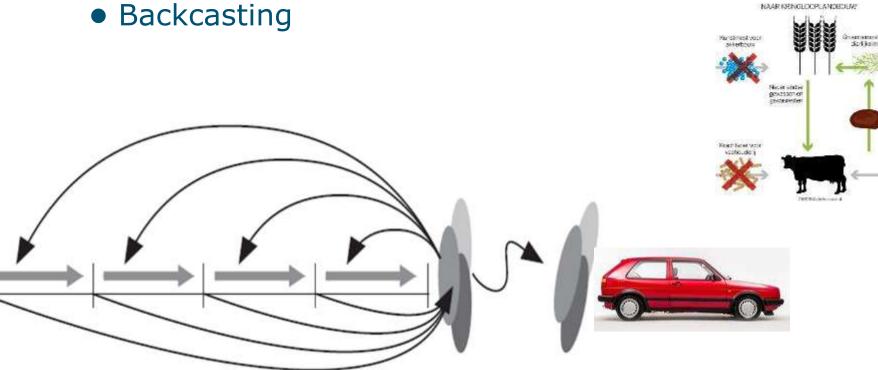


Eventually: Visioning desirable futures

• Identify overlapping long term goals

EVERALIZE VALUE

After un werdinge mobilien industrie

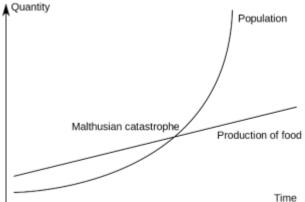


Increasing pressure on the system

- Trend and scenario analysis
- Awareness raising
- Advocacy campaigns
- Imposing deadlines
- Creating urgencies

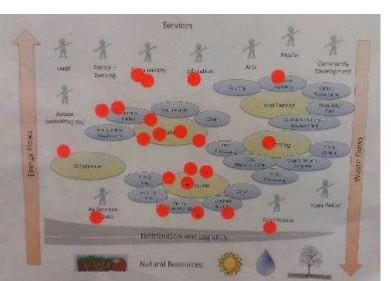


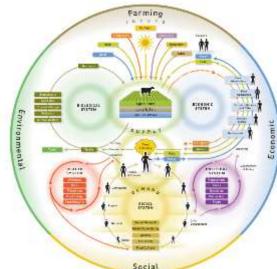




Enhancing feelings of interdependence

- Participatory analysis of the system
- Visualising interdependencies







Enhancing mutual understanding

- exchange of perspectives
- meeting with each others reality



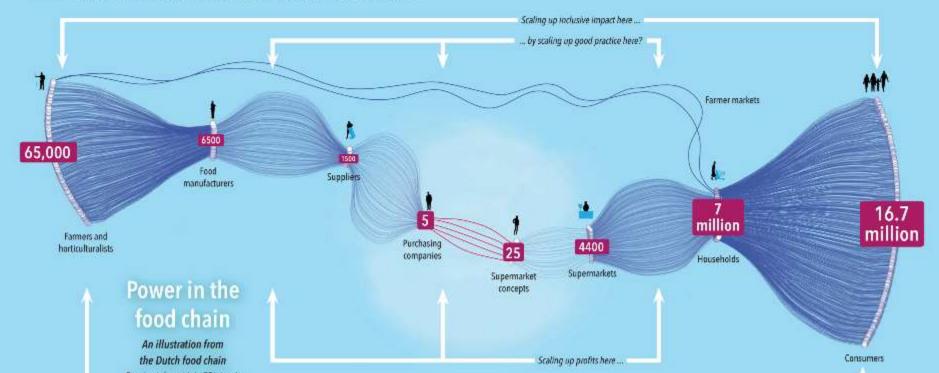
- Explicate uncertainties / perceived risks that prevent people from changing
  - translate towards researchable questions
  - demand-articulation



Identifying bottlenecks and leverage points for change

#### • Where is the power in the system?

Including Example of a discourse on drivers underpinning scaling ambitions in relation to food-chain configurations.



Creating variation: sufficient alternative options

- joint technical experimentation
- identify existing technical diversity





Creating variation: sufficient alternative options

- joint <u>institutional</u> experimentation: formal and informal rules
- identify existing institutional diversity



- credit modalities
- policy and legislation
- licencing
- business models
- pricing systems
- Iand tenure / security
- Iabour organisation



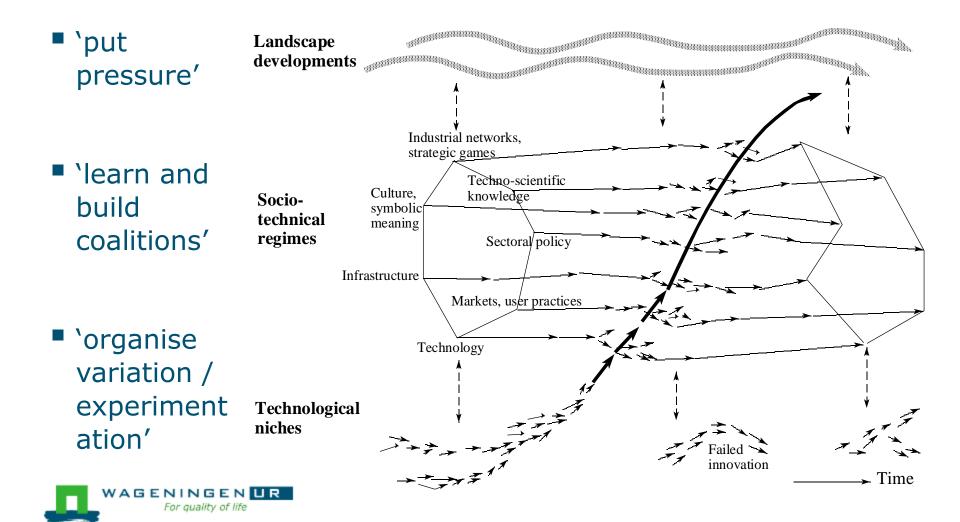
- Conflict management
  - Coalition formation around options
  - Organising contexts for negotiation



- Conflict management
  - Coalition formation around options
  - Organising contexts for negotiation



## This <u>process</u> view is in line with a <u>historical</u> view (Geels) on how systems change



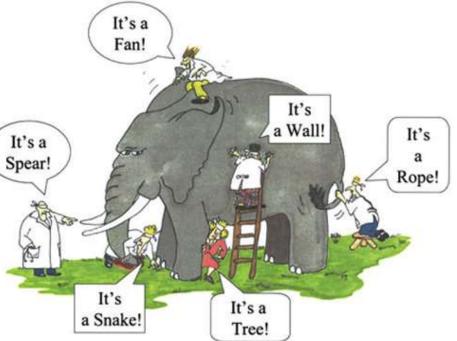
### Concluding remarks

Innovation thinking helps to foster Food System change

• through: infrastructures, functions and processes

Supporting people to understand and change their system in an action research mode

Even without them calling it a 'Food System'!





## Thank you for your attention!



