

Krijn Poppe  
co-chair SCAR cwg AKIS  
(LEI Wageningen UR)



# LINKING INNOVATION AND RESEARCH

SCAR-cwg Agricultural Knowledge and  
Innovation Systems

# CONTENT OF THE PRESENTATION

- Background of SCAR and the Collaborative Working Group
- Some theoretical notions on Innovation Systems, AKIS and social innovation
- Science, R&D and Innovation – and the role of the EU
- Conclusions from the collaborative working group  
AKIS-2



# BACKGROUND OF SCAR AND THE CWG

- Standing Committee on Agricultural Research (1974, renewed 2005)
- Representatives of member states that advise the European Commission and Member States on coordination of agricultural research
- Since 2005: coordination in the European Research Area: EU + candidate and associated countries (in total 37 countries)
- 2006, Krems (Austria): “ [SCAR to] include questions of advisory services, education, training and innovation in their discussions”



# MANDATE OF THE SCAR – CWG ON AKIS

- 2008 Communication: “the Commission intends to make use of SCAR to identify agricultural knowledge structures in each Member State, with a view to eventually creating a corresponding CWG”
- 2009 France and the Netherlands volunteered to set up a CWG
- Chaired by Pascal Bergeret and Krijn Poppe
- Reports AKIS 1 (2012) and AKIS 2 (2013)



# THE ISSUE

- 1<sup>st</sup> SCAR foresight (2007): the mounting challenges facing the agri-food and rural sectors in Europe calls for a review of the links between knowledge production and its use to foster innovation

- 2<sup>nd</sup> SCAR foresight: rather crude light on the current state of Agricultural Knowledge Systems in Europe:

*“currently unable to absorb and internalise the fundamental structural and systemic shifts that have occurred. The remaining publicly funded AKIS appear to be locked into old paradigms based on linear approaches and conventional assumptions.”*

In the mean time a changing policy context: the financial and food crises, EU 2020 strategy: “Smart, sustainable, inclusive growth”, European Innovation partnership, CAP-post 2013



# NEED FOR INNOVATION

- How to feed 9 billion in 2050 in a sustainable way
- Economic crisis and the need for innovation
- Agriculture and food industry as an attractive sector to invest in:
  - *Good returns expected*
  - *Sustainability problems have to be solved*
  - *Not much risk that the industry will leave the region*
- Reflected in policy measures, including Horizon2020 and the renewed CAP



# INNOVATION IS A BROAD CONCEPT

- The implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations. [source: OECD]
- Also the public sector can innovate !  
(and public aspects of agriculture)



# SOCIAL INNOVATION

- The concept of social innovation originates in critiques of traditional innovation theory. By calling for social innovation, new theories point at the need to take the social mechanisms of innovation into account (*social mechanisms of innovation*)
- In the context of rural development, social innovation refers to the (social) objectives of innovation – that is those changes in the social fabric of rural societies, that are perceived as necessary and desirable in order to strengthening rural societies and addressing the sustainability challenge (*social inclusion / equity: the innovation of society as well as the social responsibility of innovations*)





# KNOWLEDGE & INNOVATION SYSTEM: 7 FUNCTIONS

1. Knowledge development and diffusion
2. Influence on direction of search and identification of opportunities
3. Entrepreneurial experimentation and management of risk and uncertainty
4. Market formation
5. Resource mobilisation
6. Legitimation
7. Development of positive externalities

(c) M. Hekkert et al.



# AKIS ARE QUITE DIFFERENT BETWEEN COUNTRIES / REGIONS / SECTORS – E.G. EXTENSION

- Mainly privatized systems (e.g.: NL, some states in Germany) where the funding mainly comes from direct payments from farmers, but coupled with high state funding for research
- Co-management between farmer organizations and the state (e.g. France, Finland and some states in Germany), with public funding, partial payments by farmers and farmer organizations.
- Semi-state management (e.g. Teagasc in Ireland which has a board with representatives from the state, industry and farmer organizations);
- Management by the state through regional organizations (e.g. Switzerland, Italy and Finland).



# SOME COUNTRIES HAVE RESTRUCTURED THEIR AKIS CONSIDERABLY

- NL: Privatising of state extension service, leading to competition; merge of applied research and university into Wageningen UR (a ‘third generation university’ with innovation in its mission), learning networks to address systemic coordination issues
- FR: Pole de competitivite – regional clustering with special projects to support consortia
- DK: merged applied research into regional universities.
- Hungary: Farm Advisory System in addition to Farm Information Service (chambers of agriculture) and Network of Village Agronomists (and agri-business)
- Austria: announced increased collaboration between institutes



# AKIS COMPONENTS ARE GOVERNED BY QUITE DIFFERENT INCENTIVES

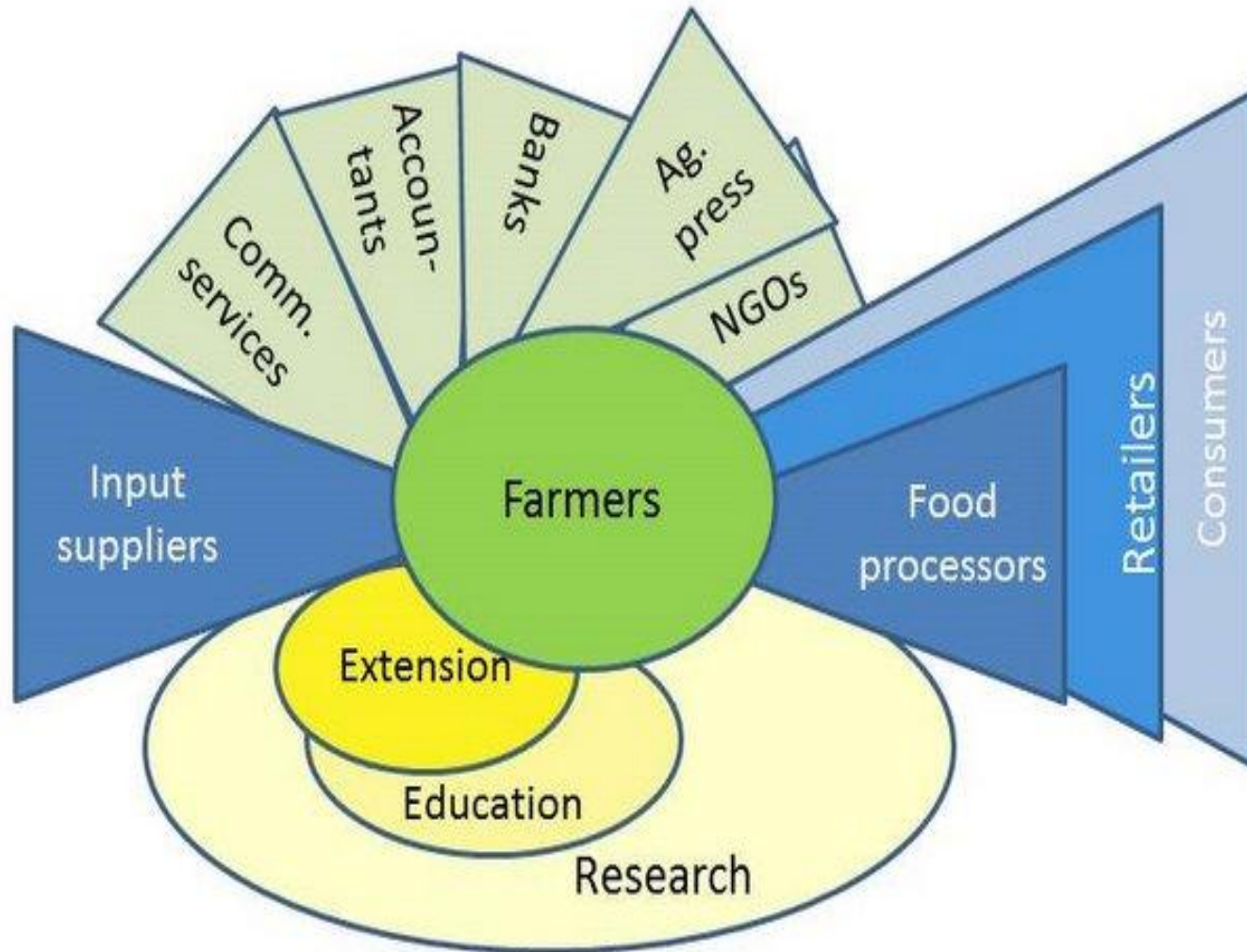
- interaction between the elements is crucial
- but elements are driven by different incentives, e.g.
  - research: publications, citations, ‘excellence’
  - education: funding based on student numbers
  - extension: payments by farmers / vouchers / subsidized
- Need for multi- / transdisciplinary approach often mentioned
- competition impedes cooperation between actors



# SCIENCE VERSUS INNOVATION DRIVEN

Aspect	Science driven research	Innovation driven research
<b>Incentive to program a topic</b>	Emerging science that can contribute to solving a societal issue (or a scientific question)	An issue / problem in society that can be solved by new research, or a new idea to solve an existing issue
<b>Participation of users</b>	In demonstration phase / via research dissemination	In agenda setting, defining the problem and during the research process
<b>Quality criteria</b>	Scientific quality	Relevance (for the sector or a region)
<b>Focus</b>	Research organisations	Networks of producers and users of knowledge
<b>Diffusion model</b>	Linear model	System (network) approach
<b>Type of government policy</b>	Science / Research Policy	Innovation Policy
<b>Economic line of thinking (see table 2.1)</b>	Macro-economics	Systems of innovation
<b>Finance</b>	To a large extent public money: more speculative and large spill over effects	Public-private partnerships very possible / advantageous
<b>The role of the EU</b>	Efficiency of scale (member states often too small), smart specialisation between member states, create European research market with harmonisation of hard- and soft infrastructures	Stimulate interaction and learning in Europe between national/regional AKIS. Enable in CAP innovation by networks with farmers
<b>Typical EU examples</b>	Horizon 2020, FP7, ERC, some ERAnets, Joint Programming Initiatives	CAP: European Innovation Partnership, LEADER, European Technology Platforms, EIPs, some ERAnets
<b>Type of research</b>	Interdisciplinary with absorption capacity in AKIS (to work with material science, ICT, chemistry etc.).	Transdisciplinary and translational with close inertactions.

# THE FOOD CHAIN AND AKIS



# INNOVATION BY INTERACTION IN NETWORKS

- Innovation as a process has strong learning aspects: learn how to do new things, bottom-up.
  - Alternative: force (or pay for) quality standards, mandates
- Thematically-focused learning networks of different actors can help.
- Generating learning and innovation through interactions between the involved actors.
- Members can include farmers, extension workers, food industry, researchers, government and ngo representatives and other stakeholders.





Different objectives,  
methods, and public roles

Science

- Science driven knowledge development
- Basic research
- Linear model
- Cross overs sectors
- Society sets agenda  
PUBLIC TASK

Market  
driven  
R&D

- Science for competitiveness or social issues
- Business sets agenda, helps to steer, uses results
- PRIVATE-PUBLIC PARTNERSHIPS

Innovation  
in  
partnership

- Prototypes // Localisation
- Change business models / finance
- Food chain is co-creator
- (De-)regulation, procurement etc.
- LEARNING AND INNOVATION NETWORKS
- INFORMATION BROKERS



## Role of EU policy

Science

- Countries are too small, large spill overs: pool funds
- Compete and collaborate with US, China, Brazil etc.
- Help re-organisation process in Europe (infrastructures)

Market driven R&D

- Collaborate with business in Food Chain in PPP
- Manage spill overs between EU regions

Innovation in partnership

- AKIS are REGIONAL
- Innovation , not dissemination
- Organise international exchange for spill-overs (farmers, extension)
- Empower innovation groups in CAP
- Don't forget monitoring (learning)

## ***EIP-AGRI's Key Entities: Operational Groups (OG)***

- Built around concrete innovation projects
- A combination of different competencies (practical and scientific), chosen in view of implementing concrete project objectives
- Action- and result-oriented groups aiming to benefit from interaction for co-creation and cross-fertilisation (interactive innovation)
- An OG may have various sources of funding:



## ***Key Acting Entities Within the EIP***

### ***- Operational Groups -***



*"Operational Groups" are no stakeholder networks, no stakeholder boards, no thematic coordination groups, nor discussion groups*

*An OG = actors working together in a project targeted at innovation and producing concrete results*

## ***Thematic networks under Horizon 2020***

- Projects **involving all concerned stakeholders** (researchers, farmers, advisors, enterprises, education, NGOs, administration, regulatory bodies...): no pure research networks
- Stocktaking, mapping and **state-of-the-art of existing scientific knowledge & best practices**: what do we have/what do we miss to make used
- **Projects must develop end-user material** to facilitate the discussion on, sharing and dissemination of knowledge in an easy accessible way: **input for education and a research database for end-users** (long term availability of results in a common format)

## ***Multi-actor projects in Horizon 2020 Work Programme 2014-2015***

- "multi-actor" is more than a strong dissemination requirement or what a broad stakeholders' board can deliver
- "all along the project" \*: **a clear role for the different actors** in the work plan, from the participation in the planning of work and experiments, their execution up until the dissemination of results and the possible demonstration phase.
- Project proposals should illustrate sufficient quantity and quality of **knowledge exchange activities**

This should generate **innovative solutions that are more likely to be applied** thanks to the cross-fertilisation\* of ideas between actors, the co-creation and the generation of co-ownership for eventual results.

(\*legal base in Specific Programme)

# NATIONAL AND REGIONAL GOVERNMENTS CAN STIMULATE INNOVATION

by implementing the EIP through multi-actor operational groups that work in a participatory way.

This should be translated in an instrument portfolio that:

- Gives incentives for research, development and innovation;
- Stimulates knowledge exchange, adoption of innovation, technical application in the production process;
- Supports the activities of facilitators, innovation brokers and tutoring paths for farmers to implement innovations;
- Value the input and knowledge of farmers;
- Supports operational groups also to develop cross-border interactions;
- Invests in AKIS-subsystems that have been underdeveloped in the specific national or regional situation.



# SPECIAL ATTENTION IS NEEDED TO INCENTIVIZE RESEARCH TO BE RESPONSIVE TO THE NEEDS OF INNOVATION PROCESSES

## Policy

## Institution

Incentives  
*„pull“*

P1: New evaluation criteria for funding of research proposals

I10: Include societal impact into the overall evaluation of a researcher's performance

P2: Include practitioners/experts on selection committees for project funding

I7: Training courses for academics at all levels

P3: New evaluation criteria for performance of institutions

P5: Funding for research-practice partnerships

I8: Creation of centres for Integration and Implementation Sciences

Enablers  
*„push“*

P4: Sabbaticals for short-term visits of researchers outside academics

P6: Data base for high quality non-academic publications

I9: Data base on institutions, methods, tools, publications, trainings in interactive research



## MORE CAN BE DONE THAN RESEARCH.....

- The difference between innovation and research means that governments have more instruments than research to promote innovation.
  - Extension and education, fiscal measures, credit guarantees, innovative procurement, inducements such as prizes and other incentives can help too.
- This implies that in addition to a science and research policy it makes sense to have an innovation policy.
- Cross-border collaboration in innovation should be improved.





# EU MARKET FOR RESEARCH AND INNOVATION..

- Cross-border collaboration in research could benefit from harmonisation of rules and procedures for commissioning research, to help to create to a more integrated ‘market’ for research.
- That does not mean that national or regional authorities should give up their strategy and agenda setting processes, but they could adopt such procedures that research institutes could easier match national and international funds.



Thanks for your attention

**SEE THE WEBSITE OF THE SCAR:**

[HTTP://EC.EUROPA.EU/RESEARCH/AGRICULTURE/SCAR/INDEX\\_EN.HTML](http://ec.europa.eu/research/agriculture/scar/index_en.html)

Krijn.Poppe@wur.nl

