Case studies for stakeholder-driven innovation

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Outline



- Context: translating research and co-innovation
- The stakeholder-driven methodology
- Case study insights
- Conclusions



VALERIE Background and Aims



 Outreach and translation of results into field practices from EU and nationally funded research projects (agriculture and forestry) is limited

• The overall aim of VALERIE is to **boost the outreach of research** by facilitating the integration into innovative field practices

How do case studies contribute to these VALERIE objectives? Valerie

- Review, extract and summarise knowledge from national, international and EU research projects in agriculture and forestry
- Translate "promising" research results into formats for end-users (farmers, advisers, supply chain, actors)
- Develop a 'smart' search engine (ask-Valerie.eu) for research outputs, for use by farm/forestry community and link to EIP-AGRI platform'

Re-thinking translation of research



- Translation turning knowledge into action
- Science continues to be essential for innovation but there are challenges in translating research into practice
- Achieving translation of research to enable effective deployment of innovative research is seen as an essential part of the research and innovation process
- Large amounts of available research material untapped
- Emerging interest in translational research more emphasis on involving end-users in innovative networks

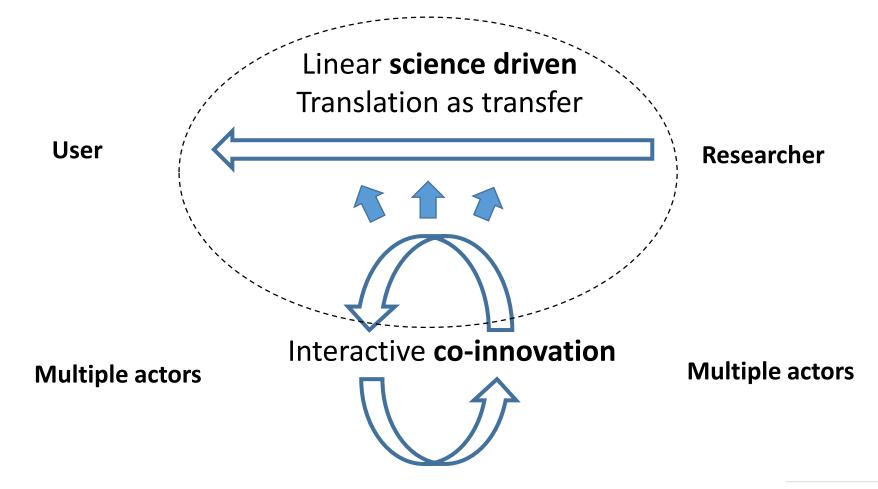
"Knowledge translation is the meeting ground between two fundamentally different processes: research and action. It knits them with communicative relationships" Bennett and Jessani (2011)

Co-innovation to enhance translation of research

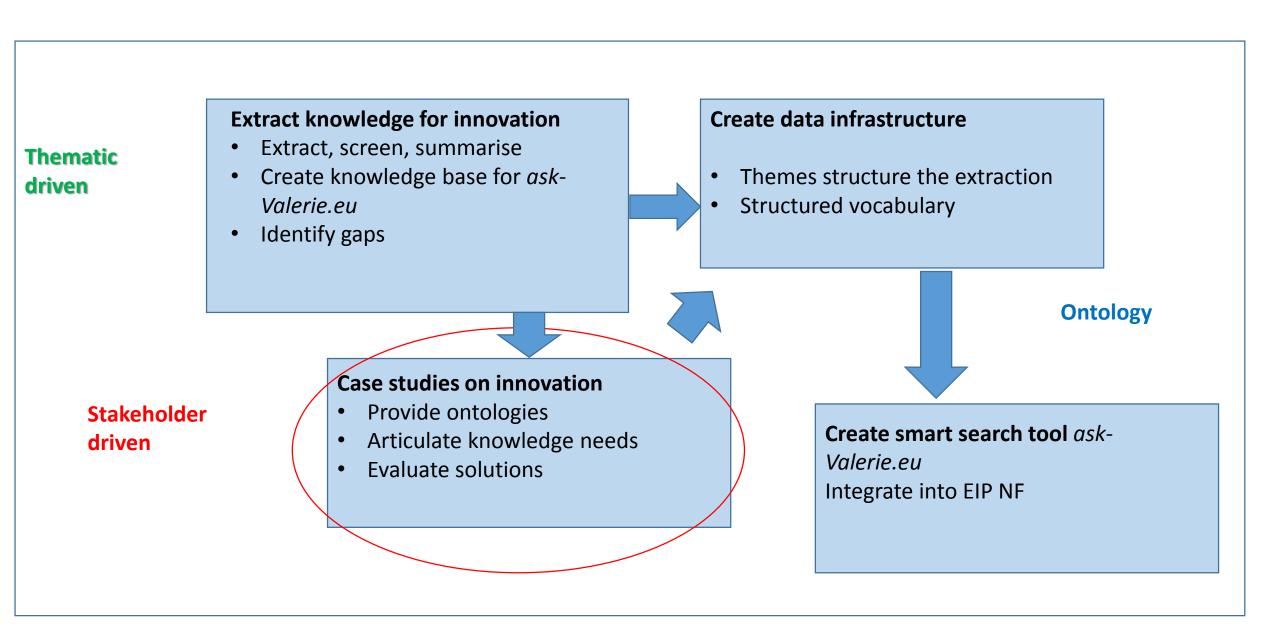


- The co-innovation approach offers a mechanism to make research-based knowledge more accessible
- Co-innovation —a process that allows multi stakeholder learning, operates
 according to principles of dialogue, reflection and iterativity, built around
 feed-back loops between researchers and users, applied using participatory
 methodologies

Co-innovation to enhance translation of research









- solutions derived from research need to be utilised and re-built on the farm with the involvement of relevant actors
- iterative stakeholder-driven methodology in 10 case studies
- mobilises stakeholders (farmers, advisers, foresters, supply chain actors) to:
 - -assess their innovation demands, screen and trial solutions, understand how stakeholders ask questions
 - -capture their knowledge for integration into ask-Valerie.eu, ensures ask-Valerie.eu is relevant to users

Developing *ask*-Valerie.eu

Contribute to ontologies and document base

Raise **issues** of interest

Evaluate solutions

Test and co-develop AV

Understand how stakeholders ask questions

Initiate AV community

Co-innovation -learning in the project

Help **identify** research needs

Fact sheets to answer specific questions

Test out innovations in trials

Use AV – to answer questions

Connect with and learning from others

Mobilises farmers to assess their innovation demands and capture their knowledge for integration into ask-Valerie.eu, ensures ask-Valerie.eu is relevant to users

> Identify, apply, test and refine screened research outputs



Build a smart search engine that is relevant to users' needs



CO-INNOVATION IN CASE STUDIES

Stakeholders identify: list of issues

Factsheets from research outputs

CS evaluate factsheets, test and refine

Valerie

CS create trial leaflets

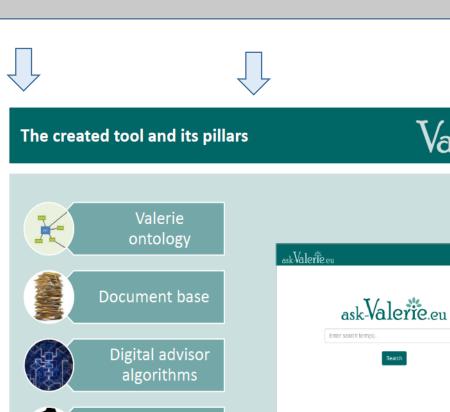


Issues, terms, concepts /relations ROC+ Translate concepts

CSP suggest and scan 100 papers

Suggest **repositories** (different languages)

CSP evaluate AV interface, community



User



Test and feedback:

Query editor **Snippets** Ranking Language **Translation**



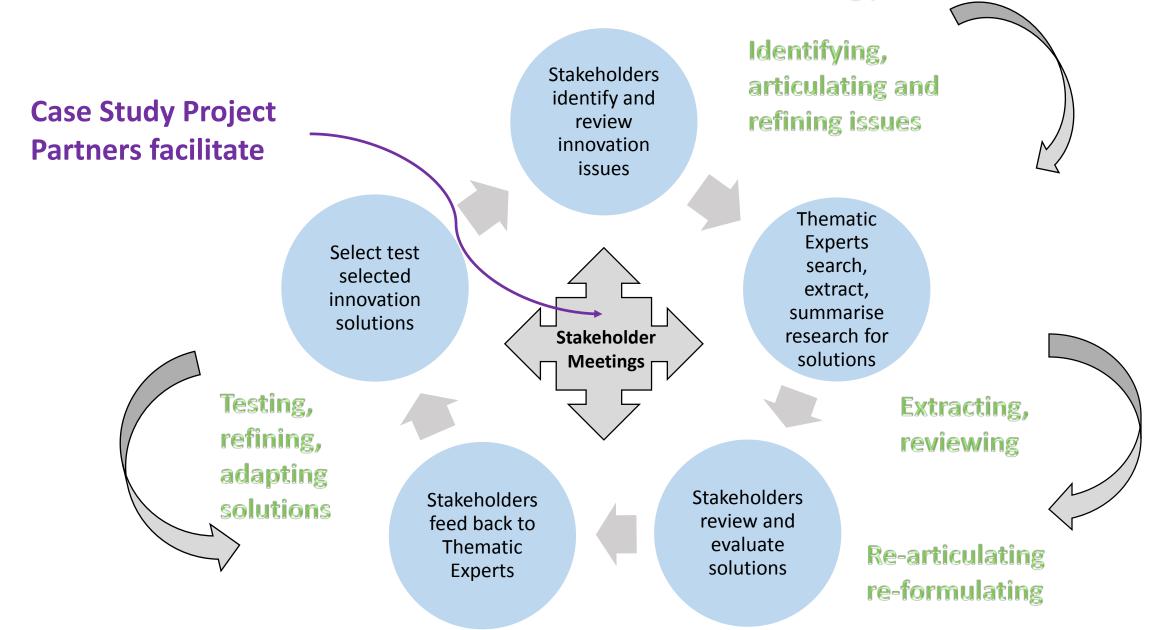
Series of participatory meetings with stakeholders in case studies facilitated by Case Study Project Partners using Dynamic Research Agenda



- Stakeholders identify innovation issues (research needs)
- Scientists (Thematic Experts) search and retrieve 'best matching' information -innovation solution
- Scientists **translate science** into 'end user format' (Research Fact sheets summaries)
- Stakeholders review Fact sheets and feedback to scientists
- Stakeholders screen information- assess viability with trials –
 adapt innovation and feedback







Case study: Sustainable potato supply chain



The potato production in Poland for the French fry industry in the Netherlands. Supply chain SHs - growers, processing and exporting industry, suppliers of seeds, fertilisers and pesticides, extension service and research

Key quality issue- potato quality.. cause problems in processing of french fries









Innovation issues

- •Internal brown spots in potato tubers, variety specific.
- •Grey discolouration of french fries after processing
- Early dying of potato crop, variety Innovator
- •Sprouting of Innovator in store
- Pathogen Rhizoctonia solani
- Hollow hearts in tubers
- •Skin set after haulm killing in seed potatoes
- Bacterial wilt in seed potatoes
- Misshaped tubers, tuber length, frying index

Sustainable potato supply chain

Refined issues

Brown spot caused by Tobacco Rattle Virus (TRV) transmitted by nematodes

Brown spot caused by Ca deficiency

Control with variety choice

Control with crop rotation

Refined issues

More about TRV

Calcium deficiency

Ozone damage

Trial topics

transmission by nematodes, and different varieties

Calcium deficiency & hollow heart

Research Factsheets

Integrated management of TRV

- General information
- Control methods
- · Which cultivar to chose?

Research Factsheets

Ca fertilisation and quality Role of ozone in crop quality



Sustainable potato supply chain

Meeting 1-3 issues



FIELD TRIAL

- 1. Two plots infected with Trichodorus spp, with 5 potato varieties
- 2. Trial is on working scale, 3 replicates with 2 Ca products at different times.

Revised trial actions

- Susceptibility of current and potentially new varieties to specific strains of TRV, transmitted by nematodes
 (Trichodorus spp.)
- 2. Testing 2 Ca fertilisers for the effect on hollow heart and reduction of Ca deficiency symptoms in Russet Burbanle

Trial topics

TRV transmission by nematodes, and different varieties

Calcium deficiency & hollow heart





This project is funded as a collaborative project under the fluridean framework programme, drant agreements, control agreements, pp. 1974/8886-2015-0-413826-UNLEANS



Potato brown spot issues in the supply chain in northern Poland: testing the susceptibility of potato varieties to Tobacco Rattle Virus

the problem.

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Stakeholders

CU/Clephy warking with the VALERIE project has brought together stakeholders from the French fry Indiany nothers. Planted. The Farm Fritte company produce Friends their in this region for a number of clients, inches the project of t

Innovation solution

- 1. Varieties to replace susceptible Innovator and Russet Burbank
- 2. Adapted solution -the best application time and techniques identified

Research papers

- Ca fertilisation and quality
- Relation between P. penetrans (nematode) and early dying
- Weeds, host for TRV
- TRV and potato varieties
- Effects of green manure crops on diseases

Trial leaflets

Innovative Arable Cropping



The Berry arable farmers group, central France, active since 2005, with the help of an agronomist developed different cropping techniques (e.g. tillage and legumes)

They are addressing issues of decreasing or stagnating yields linked to short rotations and simplified tillage which creates soil problems



Meeting 1 issues

Farmers questions

- Rapeseed drilling associated with which leguminous crops?
- What are the proper drilling techniques for our region?
- How to succeed seeding/drilling in a covered soil?
- Using strip-till for better soil structure?
- Which crop should be added to the rotation to improve its sustainability?
- o How to manage intercropping?
- o Cash crop or intercrop?
- Would it be beneficial to maintain permanent soil cover?
- Can good drilling limit the impact of pests?
- o Has the intercrop impact on pest management?

Innovative Arable Cropping

Refined questions

- >What are the effects of agricultural practices such as direct sowing, cover crops and soil tillage on the nitrogen and organic matter cycles and availability? "
- >"What does influence (trigger) the end of dormancy i.e. the germination of the weeds?"
- > "How can we evaluate in the field the properties of the soil (structure, texture, "health")? What are the possible evaluation methods?"
- >"How can we **best drill (sow)** a crop through a soil cover (soil covered by a crop or crop residue)?"
- >"What are the practical impacts of the use of existing alternative plant controls and protections?"

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Trial topics

Rapeseed, wheat and protein crop plots, according to farming practices:

- direct sowing
- cover crops

crops

- ≠ land tillage association of
- etc.

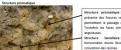
Research Factsheets

Agronomic techniques



Innovative Arable Cropping







La porcosité
Elle fait référence au volume de vide présent dans le soi et disponible pour l'eau, l'air et les racines.

Meeting 1 issues : Farmers & refined questions

FIELD TRIAL (May 2016)

Soil structure evaluation guide

Quick, visual & descriptive assessment (simplified spade test)

4

Innovation solution

Decision support system (in 2017)

Based on 4 steps

- 1- Parcel characteristics & recent history (weed, pest risks etc.)
- 2- Field assessment (soil structure, residues,)
- 3- Decision-making (use of innovative practice ?)
- 4- Assessment of the success

Revised trial proposals and actions

7 to 10 farmers meet
Observations & recordings
4 key periods

- 1- Soil structure: end of spring (June 2015, May 2016)
- 2- Crop residues: fallow period 3- Crop growing structure, density (mid-Sept to mid-oct 2015; 2016)
- 4- Evaluation of quality of roots (length; biomass) in winter (mid-Nov. to February 2015, 2016)

Trial topics

Rapeseed, wheat and protein crop plots, according to farming practices:

- direct sowing
- cover crops
- ≠ land tillage
- association of crops
- etc.

Research Factsheets

Visual soil Assessment



Innovative Arable Cropping

Progressively constructed a set of new specific questions focusing in on soil assessment

A Decision Support Tool -a step by step guide to establishing oilseed rape that can be easily conducted by farmers themselves

With an in-field method to assess soil quality

















Conclusions: Stakeholder-driven methodology



Mobilises farmers to assess and address their innovation demands and capture their knowledge

for integration into ask-Valerie.eu

ask-Valerie.eu is developed with user input – suited to users' needs

Co-innovation -combines stakeholder experiences with utilising existing research outputs

Assumption that stakeholders articulate concrete research questions and science provides immediate solutions is **simplistic**— requires continued **dialogue**, **repeated interaction and problem analysis**

Translation processes- identification, prioritisation, articulation, evaluation, searching, extraction – refining, testing -stakeholders progressively construct a set of specific questions and test solutions

A transferable model for translating research

Co-innovation multi actor research Agricultural Innovation projects, operational **System Markets** groups Agro-Research Processors System Producer **Organizations** Producers Input Suppliers **Farmers** Advisory **Education** Supply chain Services **System System** Land Agencies



Government Policy & Regulatory Framework

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