# *Hennovation: Practice-driven innovation supported by science and market-driven actors in the laying hen and other livestock sectors.*

*Innovative, Sustainable and Inclusive Bioeconomy" ISIB-2-2014/2015: Closing the research and innovation divide: the crucial role of innovation support services and knowledge exchange*

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This project is funded by the European Union

University of BRISTOL

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# Content

*Project background, objectives  and partners*

*Project activities and achievements*

*Remaining work and dissemination phase*

*Prospects, network sustainability and practical-oriented materials*

# How did it all start?

- Search for more effective methods and approaches for promoting practice change on-farm.
- Advisory systems successful in persuading farmers to change practice when the changes required are simple; when changes required are more complex farmers often seem reluctant.
- Despite large investment, there remains a gap between scientific research and adoption of applied science into farm practice.
- Recognised shared common problems in the laying hen sector amongst EU countries
  - ✓ feather pecking *‘ EU-wide beak trimming ban for hens’*
  - ✓ *low value of spent hens at end of lay.*

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# Farmer-led approaches

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## Danish Stable Schools for Experiential Common Learning in Groups of Organic Dairy Farmers

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**ABSTRACT**

The farmer field school (FFS) is a concept for farmers' learning, knowledge exchange, and empowerment that has been developed and used in developing countries. In Denmark, a research project focusing on explicit non-antibiotic strategies involves farmers who have actively expressed an interest in phasing out antibiotics from their herds through promotion of animal health. One way of reaching this goal was to form participatory focused farmer groups in an FFS approach, which was adapted to Danish conditions and named "stable schools." Four stable schools were established and went through a 1-yr cycle with 2 visits at each of the 5 or 6 farms connected to each group. A facilitator was connected to each group whose role was to write the meeting agenda together with the host farmer, direct the meeting, and write the minutes to send to the group members after the meeting. Through group focus interviews and individual semistructured qualitative interviews of all participants, the approach of the farmers' goal-directed work toward a common goal was judged to be very valuable and fruitful and based on a common learning process. Complex farming situations were the focus of all groups and in this context, problems were identified and solutions proposed based on each farmer's individual goals. In this article, we describe the experiences of 4 stable school groups (each comprising farmers and a facilitator), and the common process of building a concept that is suitable for Danish organic dairy farming.

**Key words:** organic dairy farming, animal health planning, farmer empowerment, common experiential learning

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# COMMENT



UK farmers in the Duchy Originals Future Farming Programme.

## Engage farmers in researc

A new wave of small-scale agricultural innovation will boost yields and protect the planet, contend **Tom MacMillan** and **Tim G. Benton**.

Climate change threatens a creaking food system in which harvests are already lagging behind rising demand[1,2]. A sustainable supply of food hinges on agricultural innovation, but current investments neglect a key area for improving yields.

Since the 1970s, agricultural research and development (R&D) has invested mainly in a few research institutes equipped with cutting-edge instruments. For example, the Biotechnology and Biological Sciences Research Council, responsible for much of the public research spending in food security in the United Kingdom, invested 27% of its 2010–11 budget in just three institutes. Multinational seed and agrochemical companies invest billions of dollars to develop products in hopes that they will be used by millions of farmers.

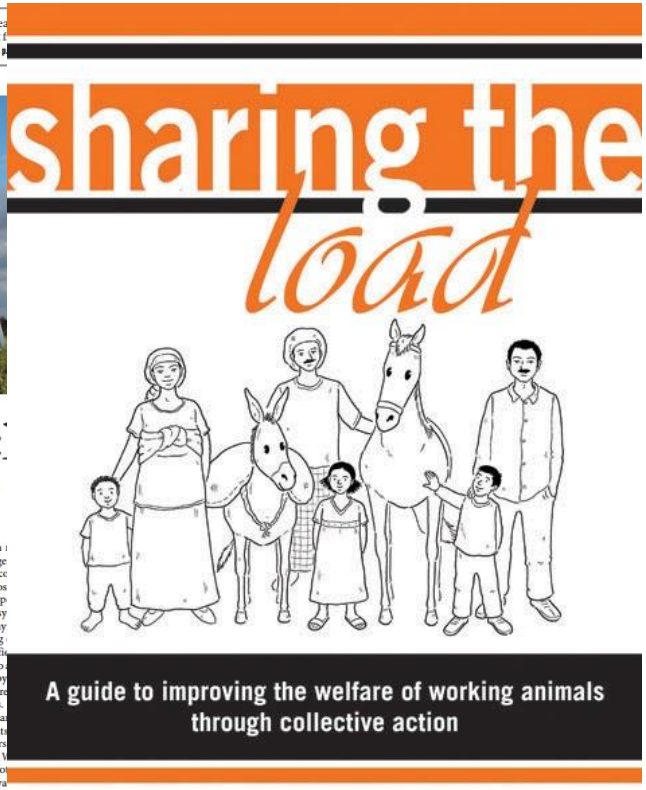
This one-size-fits-all approach has had qualified success. In a 2011 analysis[3], average global crop yields increased by 56% between 1965 and 1985, and by 20% from 1985 to 2005, underpinned by increasing inputs of non-renewable resources.

But advances are slowing. According to a 2013 study[4], yields have plateaued in some of the world's most important food-producing regions, including east Asia (for rice) and northwest Europe (for wheat). In some countries, yields have declined.

The next wave of innovation must be at smaller scales. What one farmer can do to boost yield or efficiency is not necessarily the same as for a farmer hundreds of kilometres away with different soil, microclimate, topology and methods. How well crops and livestock grow depends on the interaction of genes, management and environment. As weather patterns fluctuate, gains in production will depend ever more on innovating in context. Big knowledge flowing from institute to farm
complemented by local knowledge
Enhancing farmers' own R&D co
big rewards for minimal extra cos
ers everywhere are practical exp
talists who understand the idiosy
of their land[5]. Modern agronomy
out of practices such as rotating
rebuild soil nutrients, fertilizing fi
manure, and adding lime to soil to
Even technologies not invented by
— new kit, seeds or chemicals — are
by them to fit their circumstances.
Such essential contributions a
recognized in official assessment
cultural R&D. These count farmers
rather than makers, of knowledge.
US Department of Agriculture to
US$20 billion that the global priva
invests annually in agricultural R&
not include that done by farmers[6].







# Project consortium

*“ The consortium consists of seven participants (six universities and a consultancy company) from five countries. The participants complement each other well in terms of the work proposed. All participants have proven expertise in the livestock sectors, and in particular the laying hen sector.* ***A minor shortcoming of this proposal is the absence in the Consortium of key private sector players who have influence on production. However, this is largely compensated by the truly multi-actor approach taken****.”*

LIVESTOCK RESEARCH
WAGENINGEN UR

SLU
Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences
– kunskap för en hållbar utveckling

UNIVERSITAS VETERINARIA ET PHARMACEUTICA BRUNENSIS

ADAS

University of BRISTOL

UNIVERSITY OF EXETER

UAB
Universitat Autònoma de Barcelona

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# Project Advisory Board

| |
|---|
| Swedish University of Agricultural Sciences (PAB Chairman) |
| Federation of Veterinarians of Europe (FVE) |
| COPA-COGECA |
| Eurogroup for Animals |
| Spanish Association of Egg Producers (ASEPRHU) |
| HKScan Sweden |
| Steering Group Dutch research on mutilations in poultry (Avined) |
| British Egg Industry Council (BEIC) / European Egg Packers and Traders Association (EEPTA)/ European Union of Wholesale with Eggs, Egg Products and Poultry and Game (EUWEP) |
| Association of Poultry Processors and Poultry Trade in the EU countries (AVEC) |

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# Multi-actor involvement along the value chain

## Support actors

- Other value chain actors 3
- Industry representative organisations 2
- Farmers organisations 7
- Manufacturer of poultry housing systems & processing equipment. 2
- Scientists 15
- Animal welfare organisation and Farm assurance 3
- Veterinary and other advisors 10
- Feed companies 11


Retail 1

Wholesale 1

Processing (eggs & meat) 2

Export 1

Hen slaughter houses 3

Egg packing 4

Catching and transport 2

Egg production - laying hen farms 65

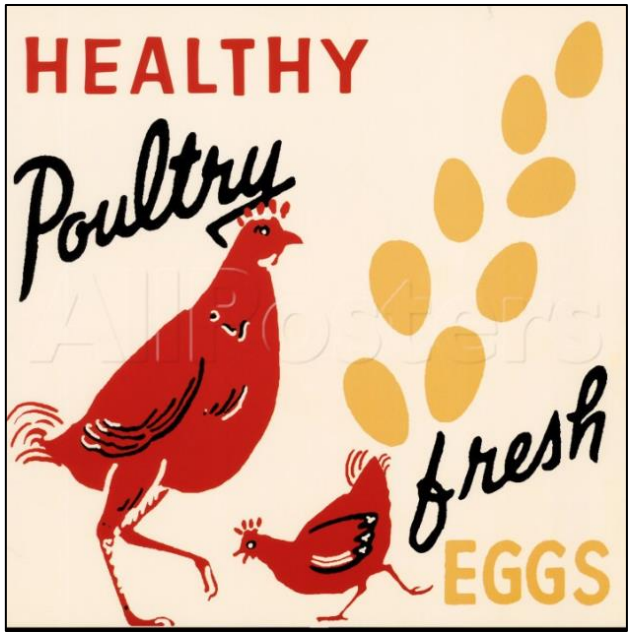
Rearing – pullet farm 3

Breeding - hatcher 1

Egg-production value chain

# *Hennovation: Practice-led innovation supported by science & market driven actors in the laying hen sector*

- Exploring and testing mechanisms to stimulate and facilitate practice-led innovation in sustainable animal welfare
- Multi-actors networks -> Innovation networks
- Pathway for use of existing and co-generation of new knowledge to increase resilience and sustainability of the laying hen sector
- Integrating science into practice

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# Practice-led innovation

A **bottom-up approach** for innovation in practice to solve problems using practical knowledge and creativity on farm, during transport and at the abattoir.

- Developing and testing a new product, a new idea or a better way of doing something based on ***practice, economics and scientific information***

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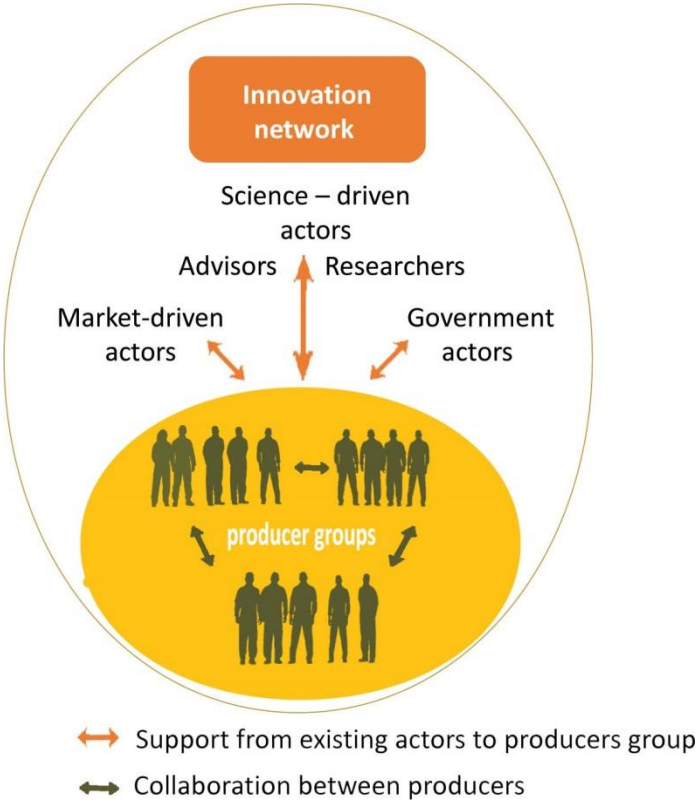
# Innovation networks

- 20 innovation networks
- 5 countries: United Kingdom, The Netherlands, Sweden, Czech Republic and Spain
- **On-farm** networks led by producers - feather pecking
- National and international **off-farm** networks led by transporters and hen processors - transport and handling of End-of-Lay hens
- Supported by scientists, veterinarian, egg packer, feed company, pullet rearer, catchers, processing industry and others

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Egg-production value chain

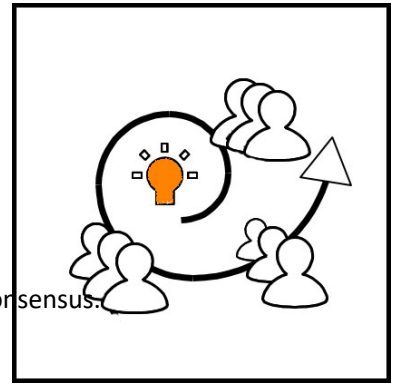
# Facilitating practice-led innovation

Facilitating a dynamic, practice-driven innovation process is at the heart of the project

- 11 facilitators from 5 different countries
- Facilitator reflection & action process to develop and implement the approach and reflect on its application
- Framework to support facilitation of practice-led innovation processes

# Facilitation framework practice-driven innovation processes

(*based on workshop exercises and adapted from ENRD, 2013)*



## Step 1 Innovation identification

1.1 Level of clarity of purpose and shared objective as a network.

1.2 Level of agreement on network function, e.g. decision making, common rules, reaching consensus.

1.3 Problem identified based on shared need. (Is there a clear common problem?)

1.4 Market or other actors value the problem (relevance?).

1.5 Capacity of network to find practical solutions to the problem identified (as perceived by the facilitator).

## Step 2 Generation( and assessment) of innovative ideas

2.1 Level of which the idea/solution is shared amongst the network.

2.2 Feasibility of the idea (including estimate of financial viability).

2.3 Level of diversity of knowledge used by the network: science, advisors' input, practical experience.

2.4 Capacity of network to test the practical solutions selected (as perceived by the facilitator).

## Step 3 Action planning & resource mobilization

3.1 Robustness of the action plan including timeframe and task division
(Everyone knows what is happening, when and by whom?)

3.2 Level of clarity on anticipated result and system/criteria in place for monitoring and/or measuring results.

3.2 Level of resources members within the network commit towards development/testing.

## Step 4 Practical development/testing of the idea on-farm, during transport or at the slaughter house

4.1 Level and rate of innovation. (Does the action plan leads to action?)

4.2 Willingness of members to discussed and shared within the network and learn from successes and failures.

## Step 5 Implementation and upscaling in practice

5.1 Level of satisfaction of members with regard to relevance and affordability of solutions developed.

5.2 Number of network members applying the innovation as common practice.

5.3 Network members' pride of what they achieved. (Are they wanting to share the idea with others)?

## Step 6 the wider dissemination of the innovation amongst the sector.

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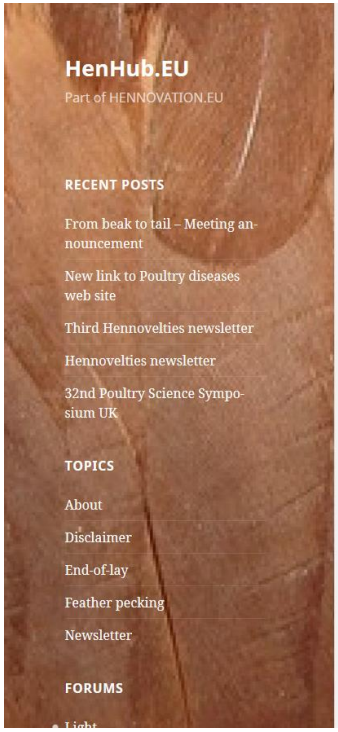
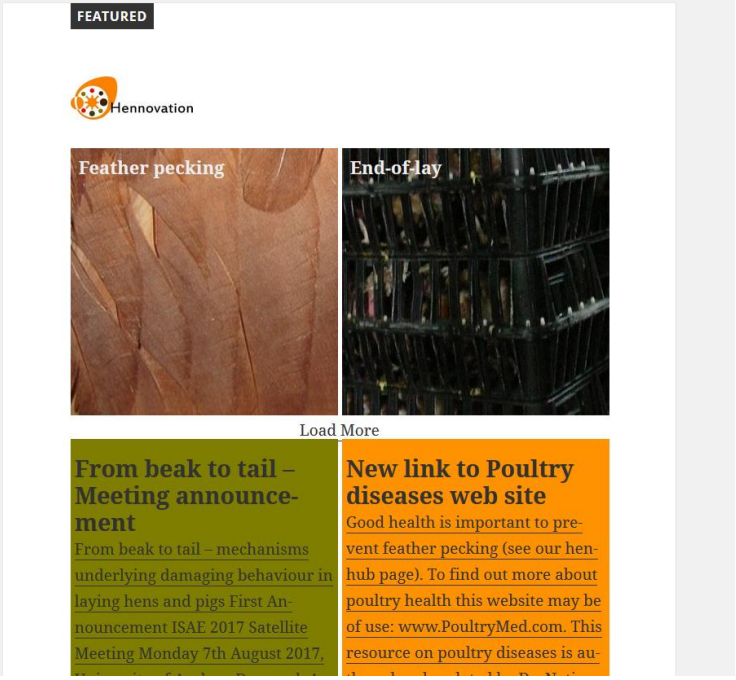
# Network support

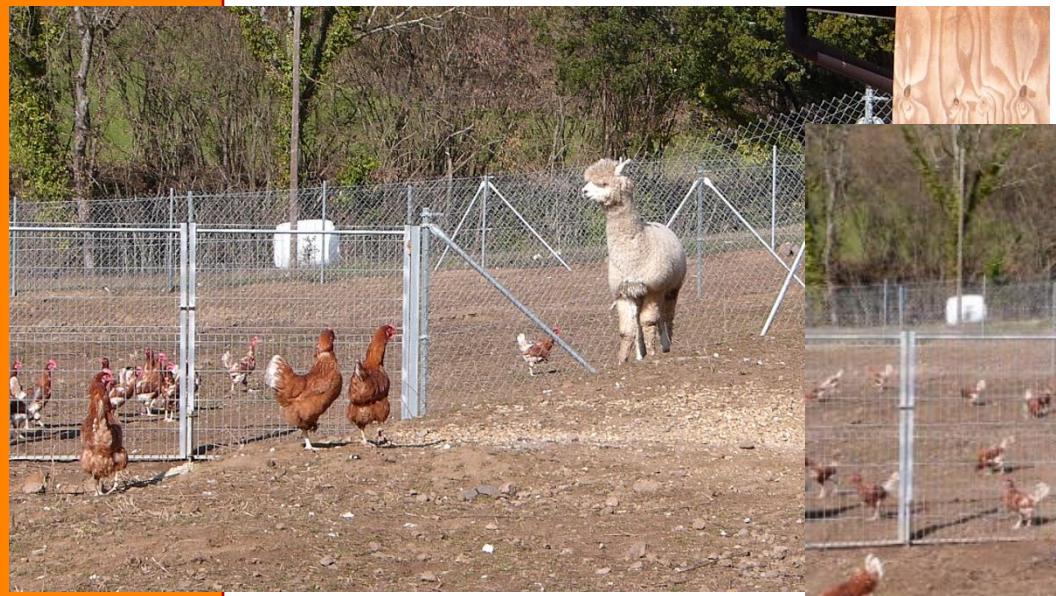
- Providing access to existing knowledge - integrating science into practice
  - ✓Hennovation wiki **www.henhub.eu**
  - ✓Advisors and scientist "*on demand*"
- Knowledge exchange workshops between networks within and between different countries.



# 'Hard' and 'Soft' hennovations: Products, Protocols and Processes

*Tested solution:* The use of alpacas as guardians of free ranging hens to reduce problems with predation.



Adrià and Floquet

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# Hennovations

*Tested solution:* The use of low costs traps to monitor the development of Poultry Red Mites in conventional systems and to elaborate a very practical fact sheet to show how to use those traps.

*Tested solution:* To identify whether sand as a different litter materials, can reduce stress and increase natural behaviour and consequently reduce of injurious pecking.

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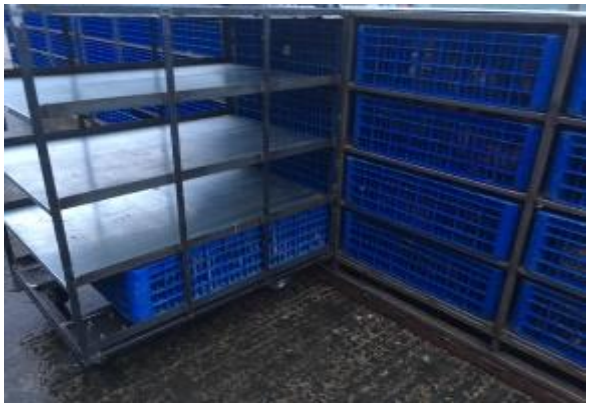
# Hennovations

*Tested solution:* The use of trolleys to load birds at their 'home' cage in the house and wheel this outside to transfer the drawers full of birds into the transport module .



Prototype trolley

Trolleys ready for use
in the full scale trial

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# Hennovations


*Tested solution:*
Organisation of a workshop with a chef, a tasting panel, industry representatives, researchers and the media with the aim to inspire the product development to increase the value of the raw material hen meat.

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# Lessons learned

- Networks are a good mechanism for generating innovation (or a certain kind of innovation) at the 'on-the-ground' level of farming practice.
- Network facilitation takes many forms but is critical in creating the capacity for achieving innovation, or moving towards innovation within networks
- The sorts of innovation generated through practice-based networks are different from the kinds of innovation emerging from science and more traditional top-down pathways of innovation delivery but are equally valid in practice
- Networks can be supported in a variety of different ways.



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# Remaining work

- Some networks still in innovation phase

-> delays due to Avian influenza (bird flu)

- National level Hennovations fairs in country May- June 2017
- Webinars for end-users
- End -of-Lay: international workshop 27th of March
- Training for advisors in innovation facilitation
- Online CPD – > extension module and guidelines feather pecking and EoL for advisors and veterinary students
- Evaluation of process with network members -> Learning Histories

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# Adding value to End-of-Lay

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**ADDING VALUE TO END-OF-LAY HENS**

A workshop to discuss innovative ideas

**Monday 27th March 2017**

at the University of Bristol, School of Veterinary Sciences, Langford, BS40 5DU UK

This participatory workshop will explore the innovative approaches that have been trialled by industry-led networks across Europe as part of the EU Horizon 2020 Hennovation project. Consumers increasingly expect hen welfare to be safeguarded throughout the birds' life and there is a demand for more sustainable use of end products. There is also scope to increase profitability by adding value to the carcass, finding new markets and improving efficiency of handling. We invite you to join us to share your ideas and experience. The workshop may identify opportunities for rollout, dissemination and possible relevance for codes of practice and legislation.

To join this workshop please register at Eventbrite:
https://www.eventbrite.com/e/adding-value-to-end-of-lay-hens-tickets-31879447285
or email to: hen-2017@bristol.ac.uk

50 participants including:

- farmers
- egg packers
- transporters & hen processors
- welfare organizations
- farm assurance
- retailers and restaurant,
- government,
- academic and
- poultry housing and processing equipment companies

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# Dissemination phase

- Peer to Peer exchange
- Practice Abstracts
- Policy recommendations to enhance uptake of interactive innovation approaches
- Facilitation training  for advisors
- Online CPD course for vets students and vets
- Academic papers and articles in professional magazine, Ranger, Poultry world etc.
- Conference, Industry meetings (CDG Animal products/Poultry and eggs ) trade fairs and national level events

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# www.hennovation.eu



@HennovationEU

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# Sustainability of process and results

- Network encouraged to form Operational Groups
- Other Operational Groups directly linked to the project - Laying Hen Welfare Forum
- Other funding opportunities – Innovate UK- to further develop innovative ideas: Ozone to reduce PRM
- Promoting practice-led innovation in other livestock sectors
- Collaboration with other projects e.g. SA Innovative Farmers & EU H2020 EURODairy project.
- Ensuring project outputs remain available beyond project life-span:
  - ✓ Extension guidelines online training tools -> UAB website
  - ✓ Hen Hub -> WU
  - ✓ Pratice abstracts on EIP Agri Website

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# Thank you !

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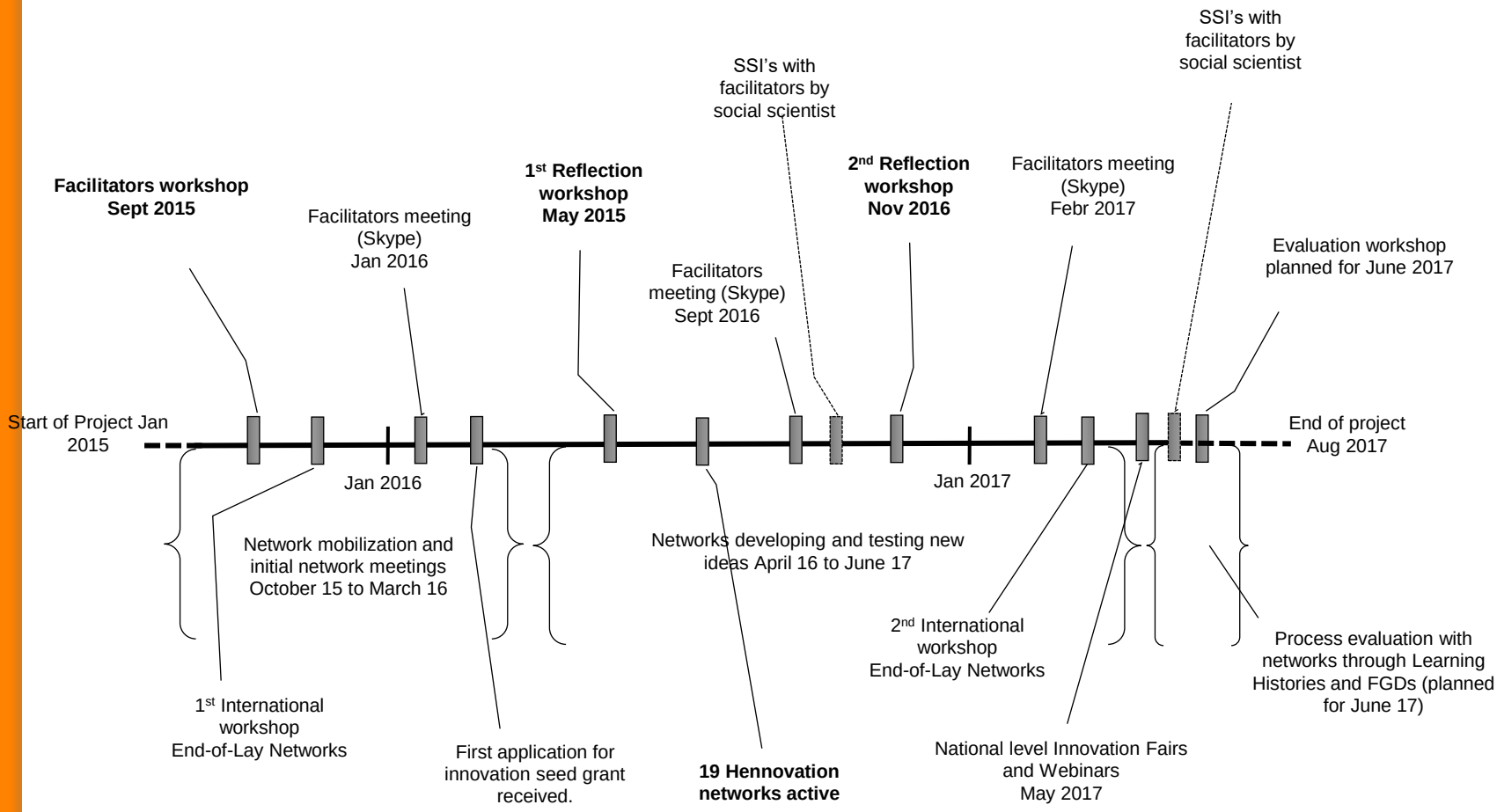
# Hennovation: implementation timeline

***Learning space 1 Facilitator reflection & action process*** *(Project level)*




***Learning space 2 Network co-learning process*** *(Network level)*

1st of January 2015 to 31st of August 2017

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# Practice-driven innovation process