



AGRICULTURAL KNOWLEDGE: LINKING FARMERS,  
ADVISORS AND RESEARCHERS TO BOOST INNOVATION

## AGRILINK'S MULTI-LEVEL CONCEPTUAL FRAMEWORK

### THEORY PRIMER: 27) TRIGGERING CHANGE

Coordinated by **The James Hutton Institute**  
Author: **Lee-Ann Sutherland**



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# AgriLink

## Agricultural Knowledge: Linking farmers, advisors and researchers to boost innovation.

### *AgriLink’s multi-level conceptual framework*

Theory primer: 27) Triggering Change

The elaboration of this Conceptual Framework has been coordinated by **The James Hutton Institute**, leader of AgriLink’s WP2.

List of contributors:

- **Lee-Ann Sutherland** (WP lead), **Pierre Labarthe**, **Boelie Elzen**, **Anda Adamsone-Fiskovica**,
- with the support and contributions of Chris Blackmore, Marianne Cerf, Danielle Galliano, Alberto Lafarga, Andy Lane, Catherine Laurent, Livia Madureira, Carla Marques, Cristina Micheloni, Geneviève Nguyen, Katrin Prager, Jaroslav Prazan, Herman Schoorlemmer, Egil Straete, Sandra Sumane, Talis Tisenkopfs, Freddy van Hulst



This document presents the multi-level conceptual framework of the research and innovation project AgriLink. It is a living document.

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It has gone through a transdisciplinary process, with implication of both practitioners and researchers in writing, editing or reviewing the manuscript. This participation has been organised within AgriLink’s consortium and beyond, with the involvement of members of the International Advisory Board of the project, including members of the Working Group on Agricultural Knowledge and Innovation System of the Standing Committee on Agricultural Research of the European Commission.





## Theory Primers

The purpose of the primers is to provide AgriLink consortium members with an introduction to each topic, which outlines the key points and identifies options for further reading. The primers have also served to demonstrate the wide range of expertise in the consortium, and to highlight the specific research interests of consortium members. Primers are intended to act as a **foundation for academic journal articles, and an early opportunity for collaboration between consortium members.**

## 27) Triggering Change

Author: Lee-Ann Sutherland

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### 1.0 General Overview of the Approach

#### 1.1 Summary of the Approach

Farmers typically maintain the status quo, making incremental changes, and giving limited attention to new opportunities and innovations, owing to path dependency. Major changes in farming trajectory occur largely in response to trigger event(s) (e.g. crop failures, low commodity prices, succession, retirement). In response to these trigger events, farmers become more active knowledge seekers, choosing and implementing a new course of action. If successful, these new actions become part of a new path dependency.

#### 1.2 Major authors and their disciplines

The 'triggering change' model was developed by Sutherland et al. (2012), using social psychological approaches (Petty and Carpaccio, 1986, the 'elaboration likelihood model'). The conceptualisation was derived inductively from multiple UK-based empirical studies. The concept of 'path dependency' has been developed – and challenged – primarily by economists (e.g. Arrow, 1963; Haydu, 2010, McGuire, 2008, Orderud and Polickova-Dobiasova, 2010; Chehetri et al. 2010, Liebowitz and Margolis (1995)). Changing farming trajectories have also been developed by Wilson (2007, 2008). The approach thus brings together social psychology and economics, but can also be linked to complexity theory (e.g. Holling and Gunderson's (2002) four-stage 'adaptive' cycle of creative destruction).

To date, the triggering change has been narrowly developed – there is a substantial literature using the elaboration likelihood model, but this has had limited application to agriculture. However, triggering change was developed specifically in relation to farming trajectories.

#### 1.3 Key references

Dwyer, J., Mills, J., Ingram, J., Taylor, J., Burton, R., Blackstock, K.L., Slee, B., Brown, K.M., Schwarz, G., Matthews, K.B., Dilley, R., 2008. Understanding and influencing positive behaviour change in farmers and land managers - a project for Defra., Final report submitted to DEFRA.

Petty, R. E., Cacioppo, J. T., 1986. Communication and Persuasion: Central and Peripheral Routes to Attitude Change. New York: Springer-Verlag.

Sutherland, L.-A., Burton, R.J.F., Ingram, J., Blackstock, K., Slee, B., Gotts, N., 2012. Triggering change: Towards a conceptualisation of major change processes in farm decision-making. *Journal of Environmental Management* 104, 142-151.



#### 1.4 Brief history of how the theory has developed and been applied:

The approach was developed initially in 2008 (the Dwyer et al. publication above) and then further developed and formally published in 2012 (Sutherland et al. publication above). It focuses specifically on application to farm-level decision-making, particularly in relation to agri-environmental innovations (e.g. organic farm conversion).

The triggering change model was specifically developed in relation to farmers, but not in relation to AKIS per se. Triggering change is specifically identified within the AgriLink grant agreement as an approach that will be developed.

#### 1.5 Basic concepts

The model draws on social psychology theory (the ‘elaboration likelihood model’ – Petty and Carpaccio, 1986) to demonstrate that while farmers are locked in path dependency, they engage largely in ‘peripheral route processing’ of new information – giving it superficial attention but storing it for potential later use. Changes are incremental. Following a ‘trigger event’ (which can range from the gradual integration of a successor or recognition of long-term financial losses to more sudden shifts such as loss of staff or the emergence of new market opportunities), farmers more actively seek and assess information using ‘central route processing’, which leads to more durable change. New changes are implemented but take time to develop and consolidate, and if unsuccessful, the period of active assessment continues; if successful, the changes become the new norm and farmers become path dependent on using the new innovation.

1. Path Dependency: All components of the new system are working together and the system has demonstrated its resilience. Investment in skills, knowledge and technology is integrated into cultural capital, tying the farm manager(s) to this particular approach and limiting the incentive for major change. Incremental change may occur along the existing trajectory. Farmers access new information but largely through ‘peripheral route processing’, where it is given limited attention and potentially stored for possible, later in-depth consideration. The farm system remains in this state for indefinite periods of time.
2. Trigger Event: The farm manager of the existing ‘path dependent’ system encounters or anticipates one or more triggers (e.g. changes in the farm household through succession, injury or sudden death, new market opportunities or failures) leading to a ‘trigger event’: the realisation that system change is necessary to meet farm management objectives, and/or exploit new opportunities.
3. Active Assessment: Routine scanning for information intensifies, becoming actively focused on available options (‘central route processing’). This is an iterative process, including practical assessment of options and current farm and farm household resources, which may involve testing of options (e.g. experimentation) and networking/talking to other farmers or advisors. The farm manager explores the economic, managerial and social implications of changing the system.
4. Implementation: A choice is made and implementation of a ‘new system’ begins. This not only commits the farm manager to financial investments in structural change, but also to developing new skills, knowledge and establishing new social and business networks around the new system.
5. Consolidation: New knowledge, skills and networks are developed, and the success of the new system in addressing issues resulting from identified triggers, are evaluated. If the new approach is deemed unsuccessful, the farm manager returns to Stage 3.

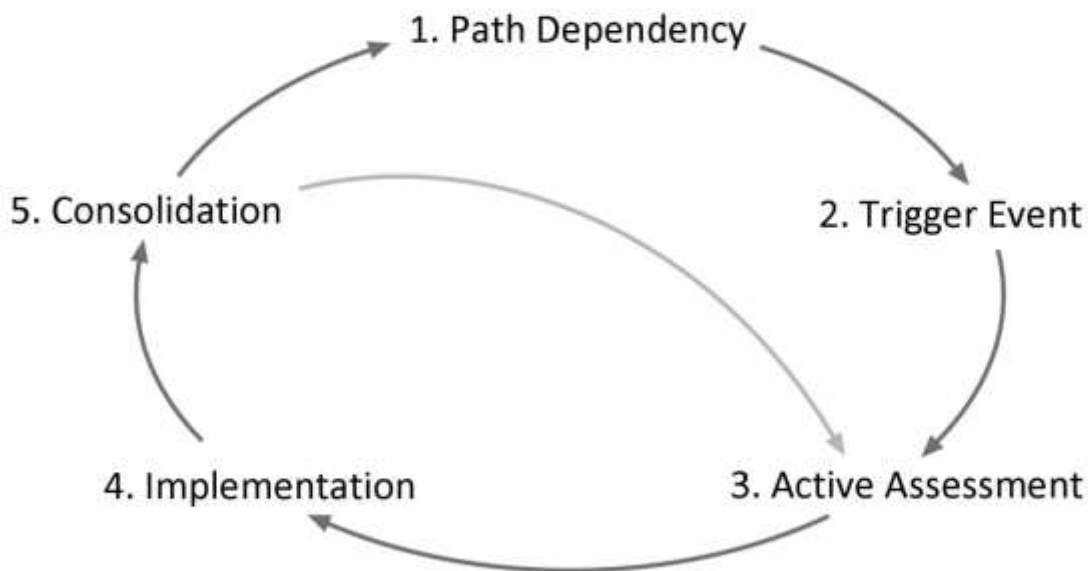
However, the investment undertaken during implementation may weaken the ability of the farm manager to implement further new changes.

- 6. Path Dependency: If the new system is deemed successful, return to Stage 1.

It is important to note that the triggering change conceptualisation represents an idealised process. Triggers are often unpredictable, and thus may occur at any stage in the change process, or may indeed be removed. This can result in deviations from the process as outlined. (Source: Sutherland et al, 2012, pp. 144).

**Diagrams**

**THE ‘TRIGGERING CHANGE’ CYCLE**



Source: Sutherland et al., 2012, p. 144

**2.0 Application to the analysing the role of farm advisory services in innovation**

**2.1 Relevance to AgriLink Objectives**

[tick relevant]	AgriLink Objectives
✓	Develop a theoretical framework utilising a multi-level perspective to integrate sociological and economic theories with inputs from psychology and learning studies; and assess the functions played by advisory organisations in innovation dynamics at multiple levels (micro-, meso-, macro-levels) [WP1];
✓	Assess the diversity of farmers’ use of knowledge and services from both formal and informal sources (micro-AKIS), and how they translate this into changes on their own farms [WP2];
	Develop and utilise cutting edge research methods to assess new advisory service models and their innovation potential [WP2];



	Identify thoroughly the roles of the R-FAS (regional FAS) in innovation development, evaluation, adoption and dissemination in various EU rural and agricultural contexts [WP2];
	Test how various forms of (national and regional) governance and funding schemes of farm advice i) support (or not) farmers' micro-AKIS, ii) sustain the relation between research, advice, farmers and facilitate knowledge assemblage iii) enable evaluation of the (positive and negative) effects of innovation for sustainable development of agriculture [WP4];
	Assess the effectiveness of formal support to agricultural advisory organisations forming the R-FAS by combining quantitative and qualitative methods, with a focus on the EU-FAS policy instrument (the first and second version of the regulation) and by relating them to other findings of AgriLink. [WP4].
	At the applied level, the objectives of AgriLink are to:
	Develop recommendations to enhance farm advisory systems from a multi-level perspective, from the viewpoint of farmers' access to knowledge and services (micro-AKIS) up to the question of governance, also recommending supports to encourage advisors to utilise specific tools, methods to better link science and practice, encourage life-long learning and interactivity between advisors [WP5];
	Build socio-technical transition scenarios for improving the performance of advisory systems and achieving more sustainable systems - through interactive sessions with policy makers and advisory organisations; explore the practical relevance of AgriLink's recommendations in this process [WP5];
	Test and validate innovative advisory tools and services to better connect research and practice [WP3];
	Develop new learning and interaction methods for fruitful exchanges between farmers, researchers and advisors, with a focus on advisors' needs for new skills and new roles [WP3];
	Guarantee the quality of practitioners' involvement throughout the project to support the identification of best fit practices for various types of farm advisory services (use of new technologies, methods, tools) in different European contexts, and for the governance of their public supports [WP6].

## 2.2 How this can be applied/developed in AgriLink

The Triggering Change cycle represents an idealised process, simplifying farmer decision-making into a single process: in reality, decision-making is messier, with farmers making decisions on multiple issues, and integrating information on different topics, at the same time. Understudied areas in this model include the complexity for farmers to access, sort and evaluate knowledge and evidence in emerging innovation areas, and the specific processes they undertake to acquire and adapt this knowledge. This is partly due to the increasing fragmentation of AKIS and the increasing complexity of innovation areas, as well as the rapid growth of ICT. AgriLink will further develop the information access and processing aspects of this model through application in the 8 innovation topics considering how farmers actively assemble information and knowledge on each topic; the different individuals and organisations farmers draw on for information, and how these are prioritised; the role of technologies in these knowledge acquisition processes (i.e. the practices of information access).

The diversity of micro-AKIS and triggering change cycle is of course determined by farm characteristics and by farmers' attitude towards the innovation areas studied. To account for



this AgriLink will analyse the micro-AKIS of a diversity of farms. It will include pioneers farms in innovation areas, but also farms who could not (or chose not to) implement them. Change cycle may also be framed by the types of services offered in a given region by various advisory suppliers, and by the type of intervention proposed (e.g. face-to-face interactions, use of ICTs, collective dimension of advice). Particular emphasis will be placed on the role of ICTs in accessing information directly and for mediating farmer/advisor interactions.

### **2.3 Research questions relevant to AgriLink:**

- What is the role of knowledge in farmer up-take of innovations?
- How do farmers integrate different types of knowledge into day-to-day practices?
- How does farmer knowledge-seeking behaviour and receptivity change over time?
- What role do different types of advisors play in farmer up-take of innovations?
- How can input from advisory services be targeted to increase impact?

### **2.4 Methodological implications**

The Triggering Change model was developed using a form of grounded theory (i.e. inductive research), which was then grounded in existing theories of information processing and path dependency. The data utilised was primarily based on questions about farming history. In AgriLink WP2, we will be interviewing farmers who have and have not adopted specific innovations. It will be appropriate to ask how these innovations fit in with other activities, and if there were particular events or reasons that they developed, took up or adapted the identified innovations at specific points in time.

### **2.5 Strengths and weaknesses**

The Triggering Change model is particularly useful for understanding farm-level decision-making and path dependency. It draws attention to the different periods of time in which farmers are particularly open to making changes on their farms, and the different ways they process information. The Triggering Change model also recognises that lock in can be technological, financial, social, cultural and knowledge based (i.e. farmers may be limited by their education and knowledge access about what options they are willing to consider).

The Triggering Change conceptualisation has not yet been developed for knowledge systems, or in relation to multiple decisions (i.e. it has simplified decision-making to be about a single issue). It also focuses on major transitions (i.e. noticeable changes in farming trajectory); it has not yet been developed in relation to incremental transitions. It does not address governance or advisory services. It also focuses on individual farms, rather than system – level changes

### **2.6 Potential operational problems**

This model has been used in in-depth qualitative interviews. It has not been used in combination with social network analysis. The two in combination may prove to be quite labour intensive.

### **Optional Section 3: Practical example**

The triggering change model has been used to understand major changes in farming trajectory, particularly from conventional to main stream production. Using this theory



demonstrated that farmers seek and digest new information differently depending on the stage of the cycle their farm is in – most of the time, they passively assess information, but during periods where they're actively considering making a change, they are much more active. So a farmer may have been receiving information about organic farming passively for years, but it's not until something happens (a 'trigger' event, like farm succession, several years of financial loss, a health crisis like BSE) that the farmer (and household) start to actively consider options for making a change. This means that the same information (in the same format etc) will have different levels of up-take at different points. The authors therefore recommended that efforts to engage farmers with innovations be targeted to farm households who are likely to be actively considering changes (such as farms with identified successors, farms which are thought to be at high financial risk owing to low commodity prices etc).

#### **Optional Section 4: Recommended further reading**

Not applicable to this theory, as it's had limited development to-date.

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