



# **WG2 Transformation and transition steps towards zero pesticide based value chains**

**Danilo Christen, Agroscope, Switzerland**

CA21134, WG2 webinar, 19.6.2023

# **WG2 – Transformation and transition steps towards zero pesticide based value chains**

## Agenda

- **Getting to know each other, introduction and reminder of the aims of WG2**
- **Theoretical basis of transformation and agro-ecological transition**
- **Concrete examples of transformation and agro-ecological transition**
- **Preparation of the 2-days scientific seminar next November**

**Goal of a COST Action is to meet each other and to support young scientists !**



# WG2 – Transformation and transition steps towards zero pesticide based value chains

According to the MoU, 3 tasks:

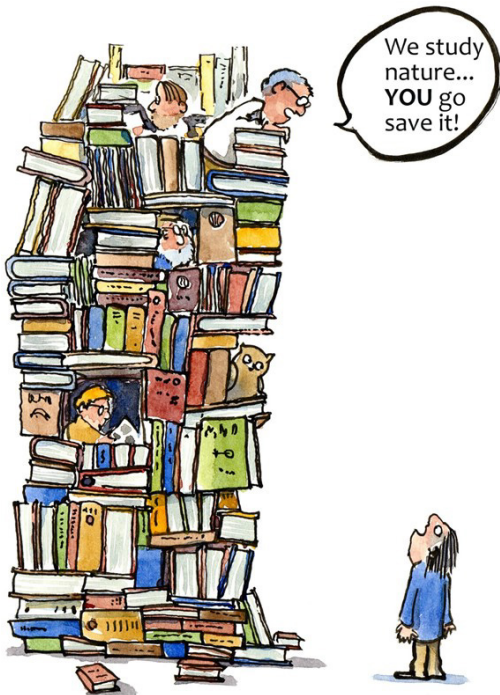
1. Task 2.1 Describe the **theoretical perspective of transformation**: concepts, approaches, Methodologies (literature review, scientific seminar, scientific opinion paper (D2.1), international scientific conference)
2. Task 2.2 Using a **Transformation Lens** to develop suitable economic and ecological methodological approaches applied to the two studied supply chains (scientific synthesis paper (D2.2.1), commentary and information brochure (D2.2.2)).
3. Task 2.3 **Transfer** the created knowledge to future generations of researchers (Training School on transition towards zero pesticide agriculture, STSMs)

# Connecting worlds – rethink the collaborative innovation

Researcher  
ivory tower

SMEs profit  
tower

Citizen  
imagination tower



www.hikingartist.com



Value Proposition Design ©2014,  
Osterwalder et al., Wiley Publishing



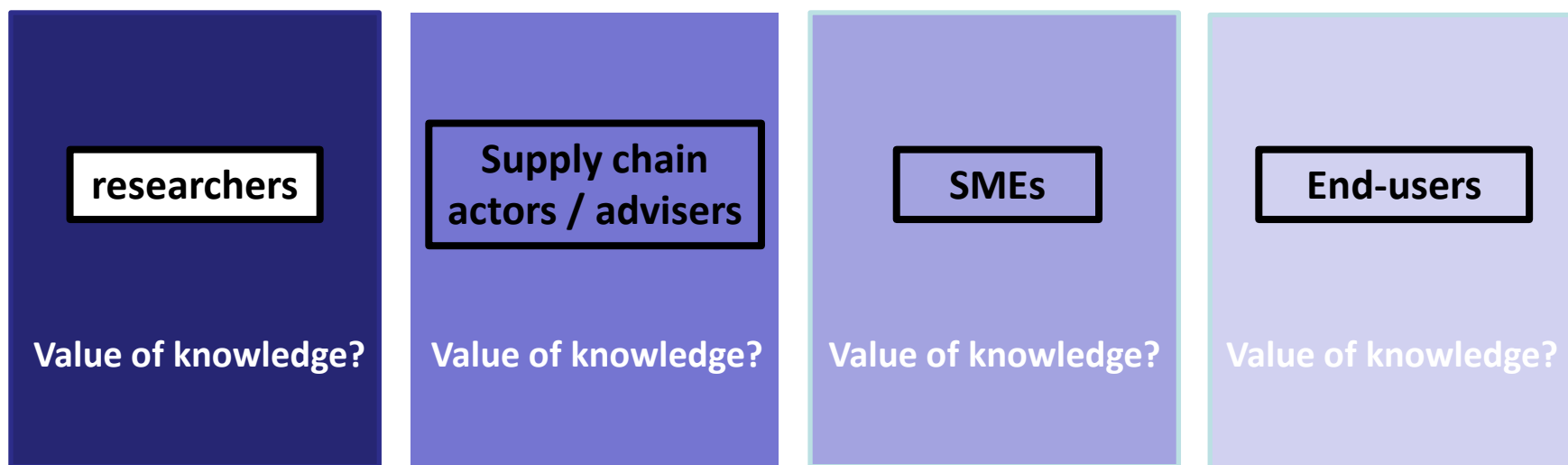
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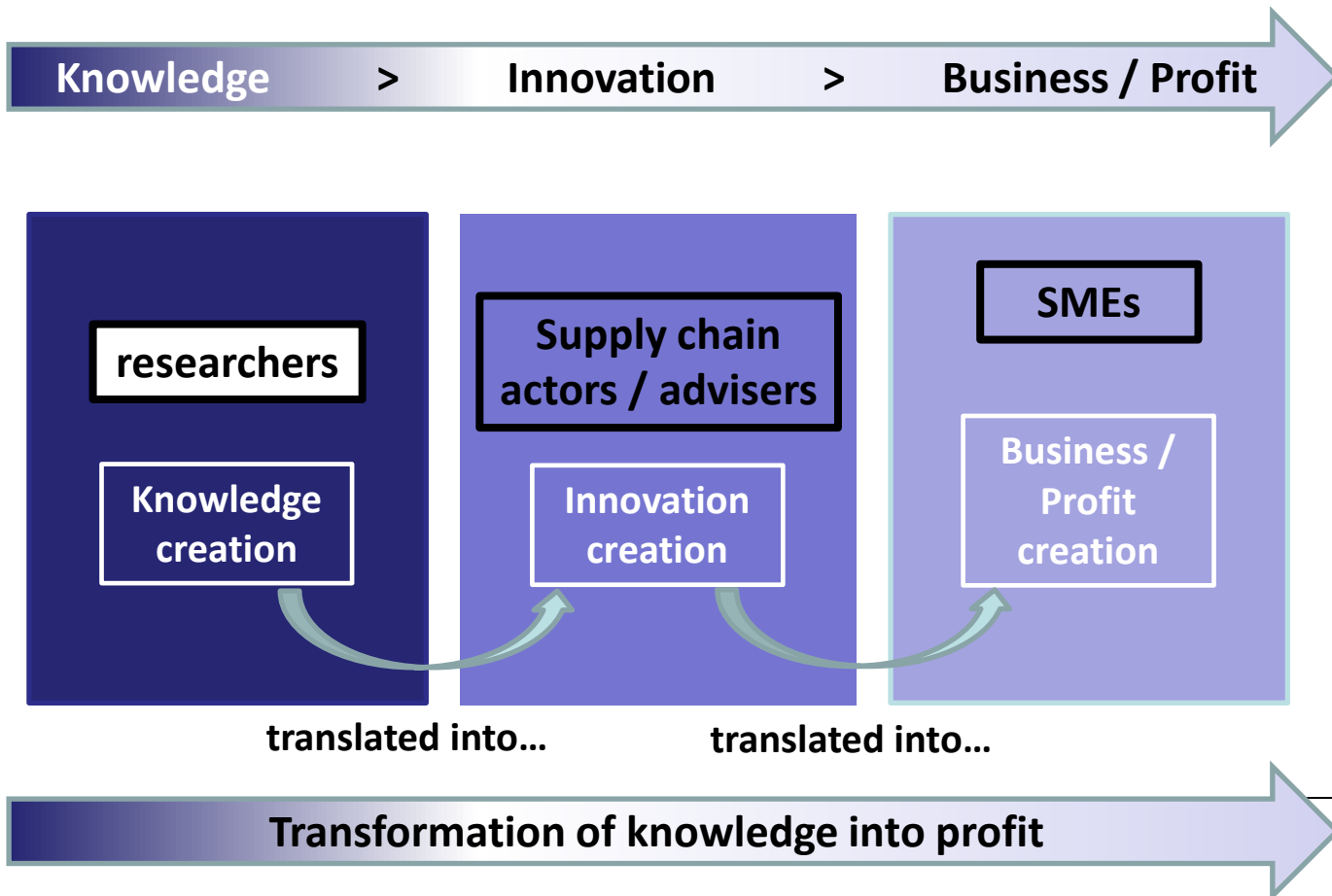
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# 🇨🇭 What is the value of a knowledge?

- The same specific knowledge or innovation has not the same value for researchers, for SC actors/advisers, for SMEs/farmers and for end-users

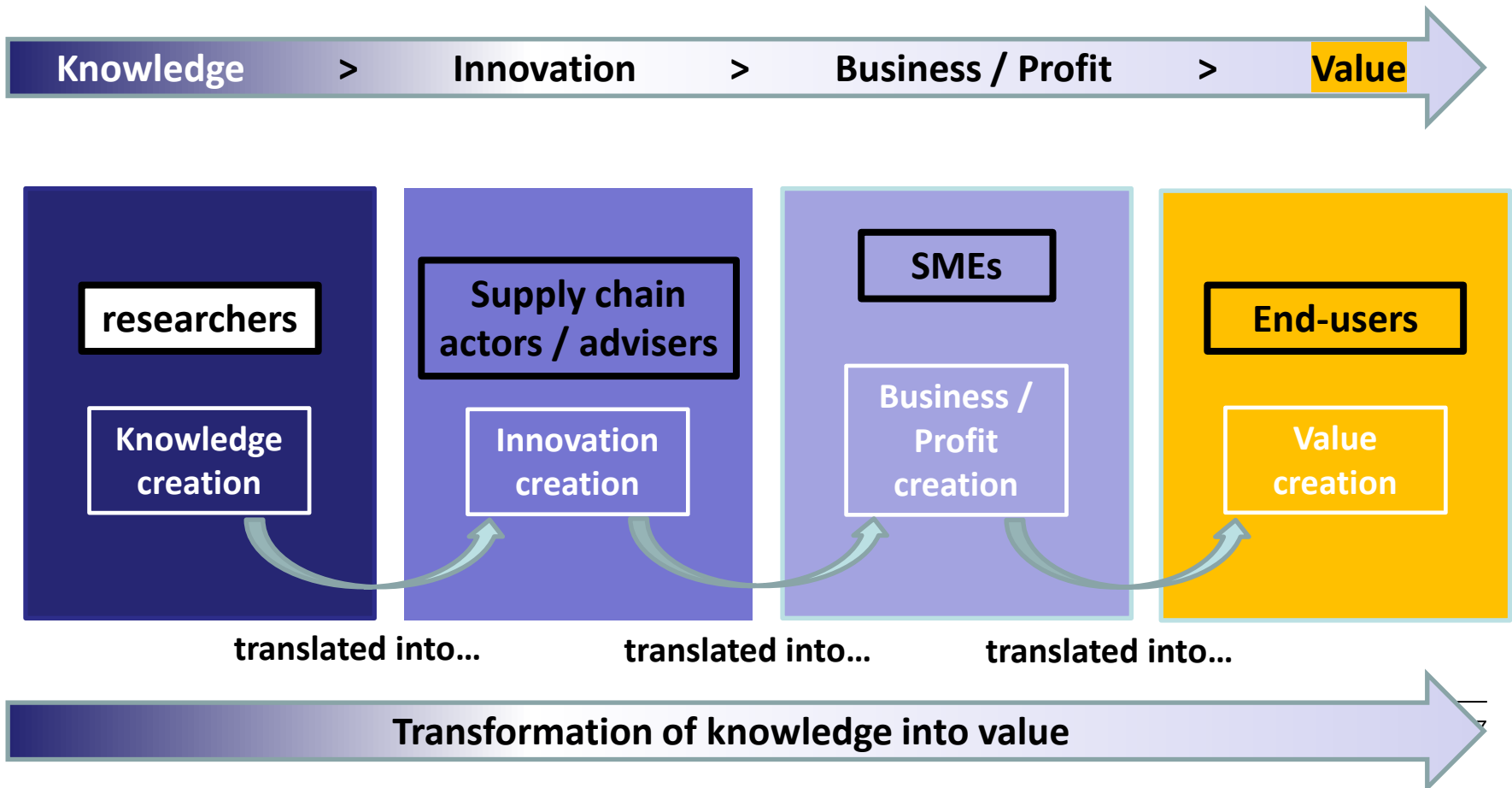


# Translation of knowledge “in a perfect world”



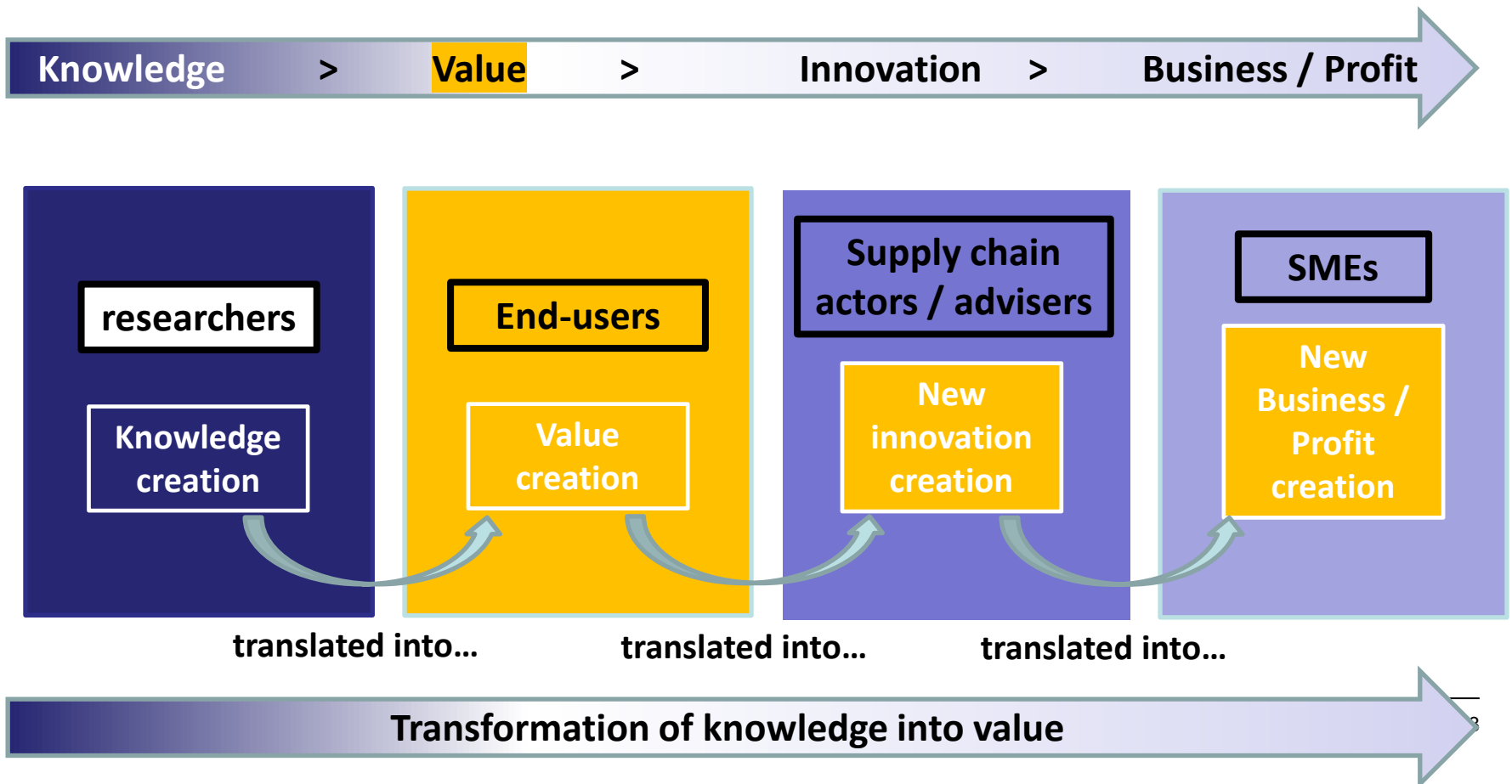
# Translation of knowledge “in a perfect world”

Try to find a value for our products/business



# Translation of knowledge “in a perfect world”

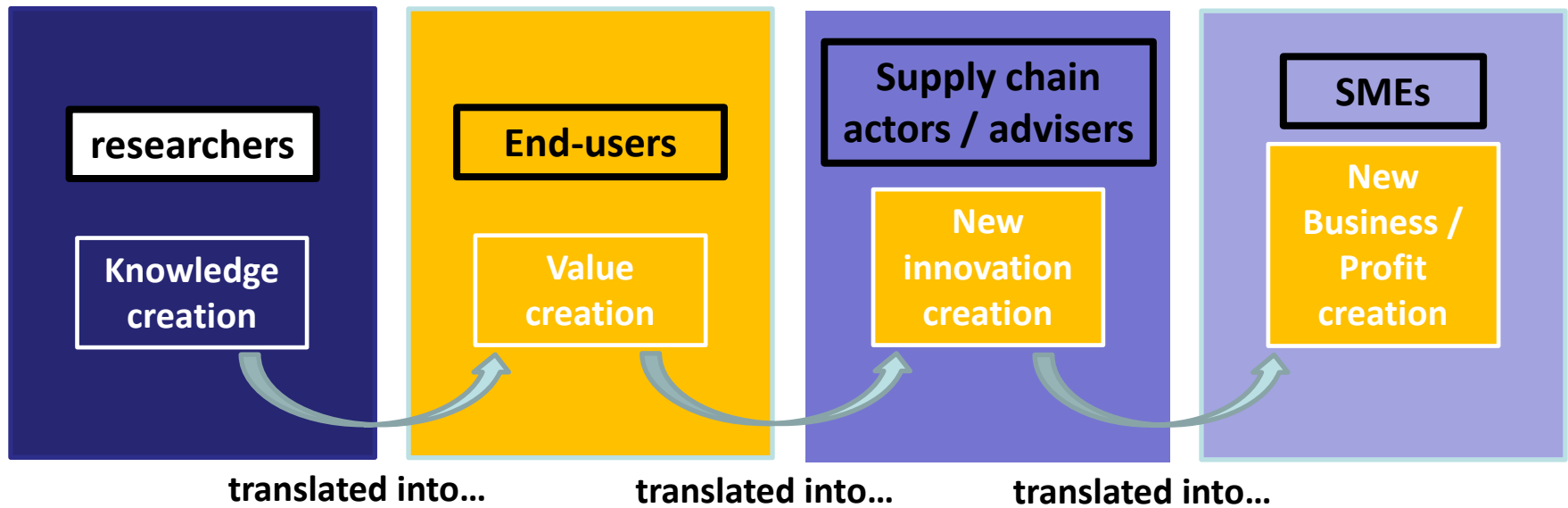
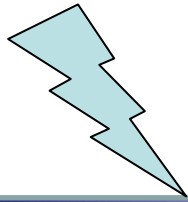
- Move from product-oriented to value-oriented approach
- Think about the value and choose the appropriate innovation that is easier to implement





# Translation of knowledge “in a perfect world”

Approaches  
Methods



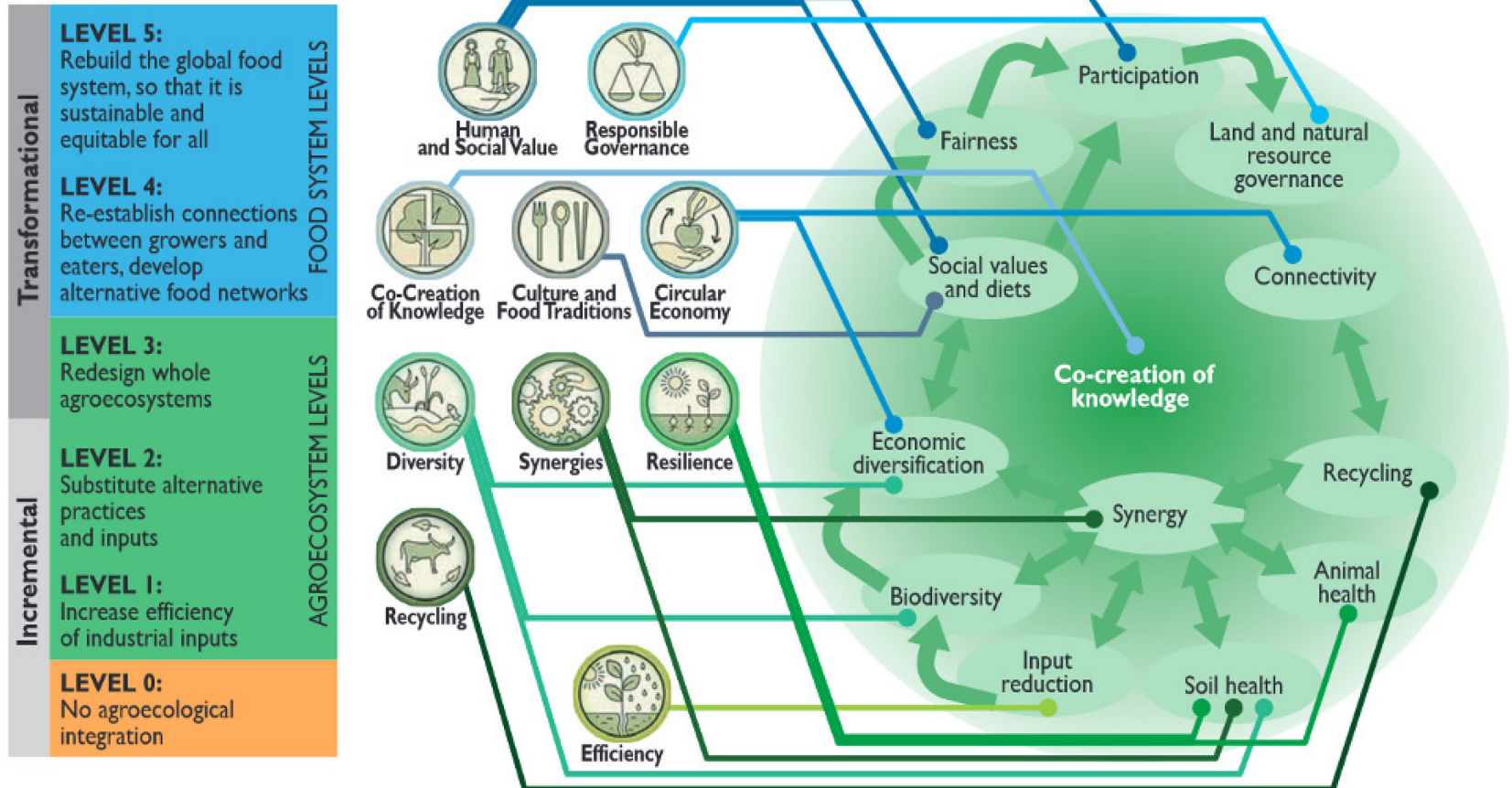


# Approaches and methods

5 Gliessman's levels

10 FAO elements

13 HLPE principles



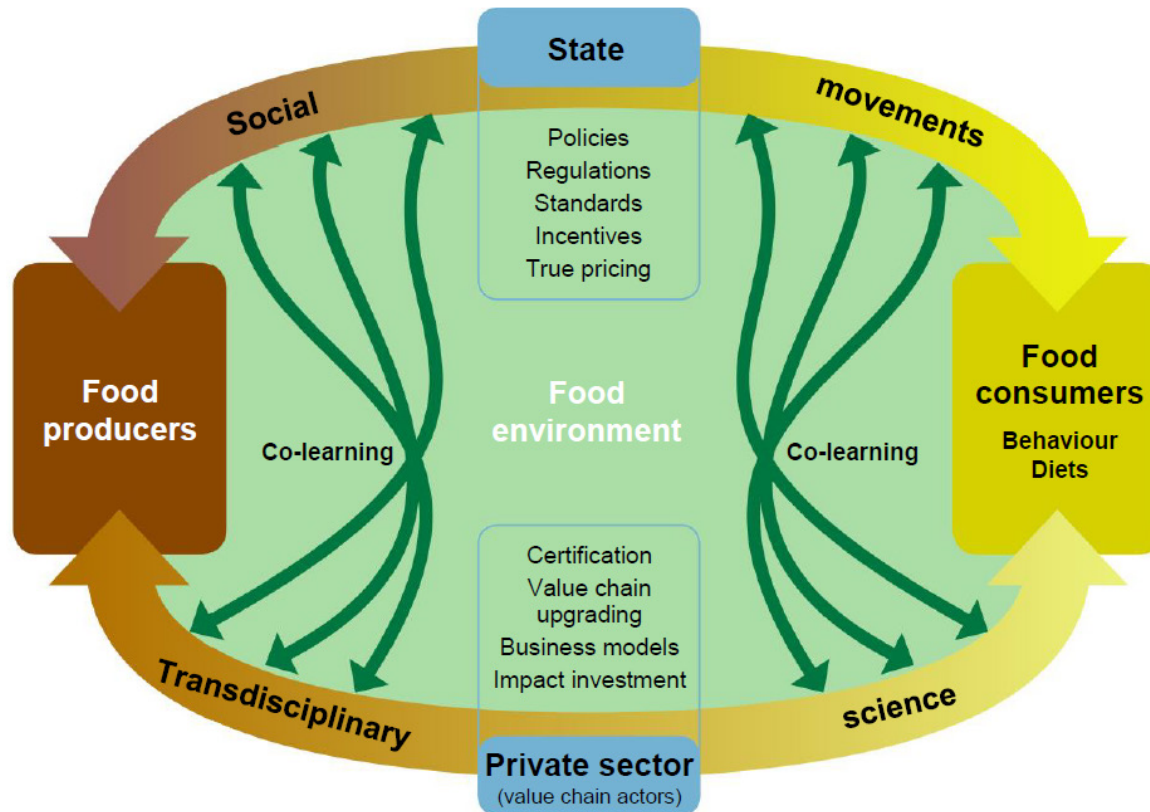
▲ Linking FAO's 10 elements, Gliessmann's 5 levels of food system transformation and the 13 HLPE principles



# Approaches and methods (HLPE)

## ➤ Importance of public policies (vs. private sector)

Figure 7 Coordination between public and private stakeholders for knowledge generation and co-learning to foster innovation towards SFSS



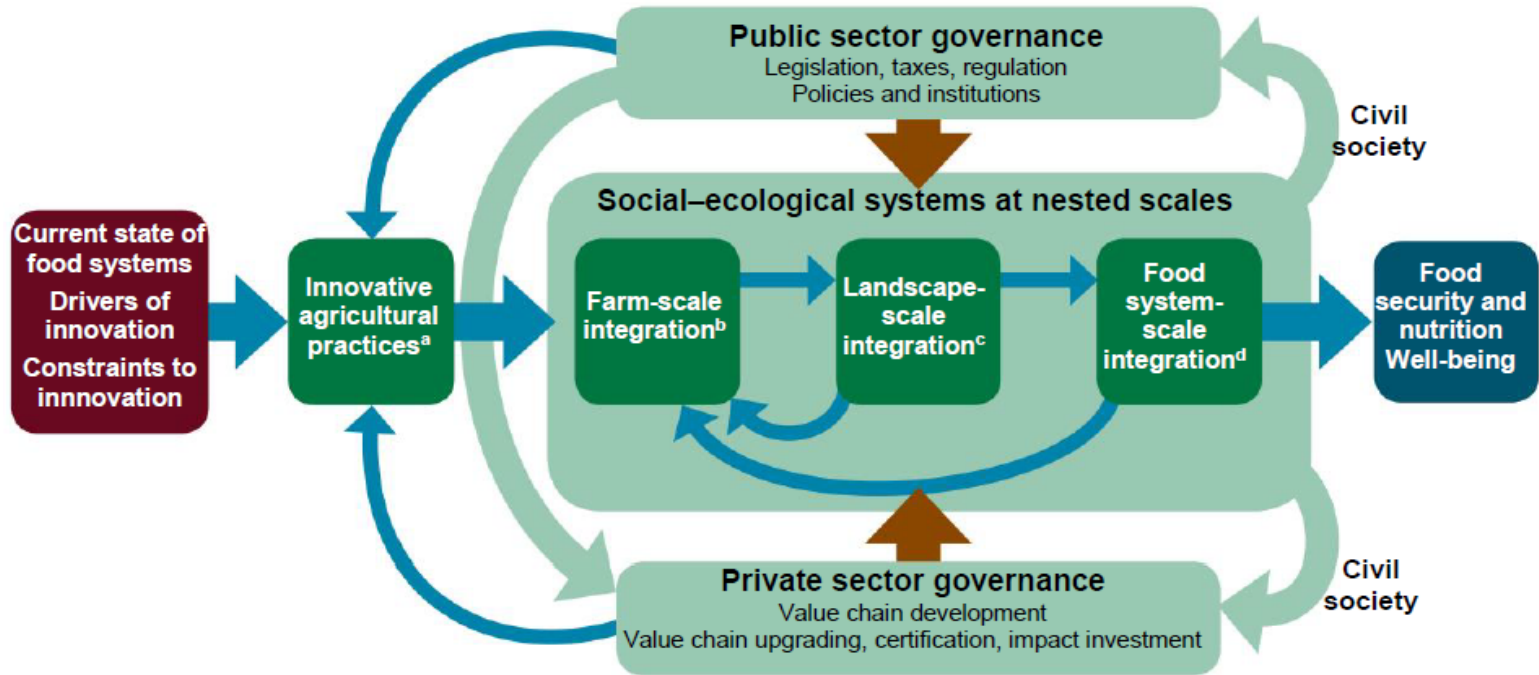
HLPE. 2019. Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition. A report by the **High Level Panel of Experts** on Food Security and Nutrition of the Committee on World Food Security, Rome.



# Approaches and methods

## ➤ Importance of scale and participation (MAA, LLs)

Figure 8 Influence of public and private sector governance mechanisms on innovation



<sup>a</sup>With performance measures related to their purpose, evaluated across contexts

<sup>b</sup>Total factor productivity and resilience of livelihoods

<sup>c</sup>Provision of multiple ecosystem services – land equivalent ratio multifunctionality

<sup>d</sup>From production through to consumption – ecological footprint

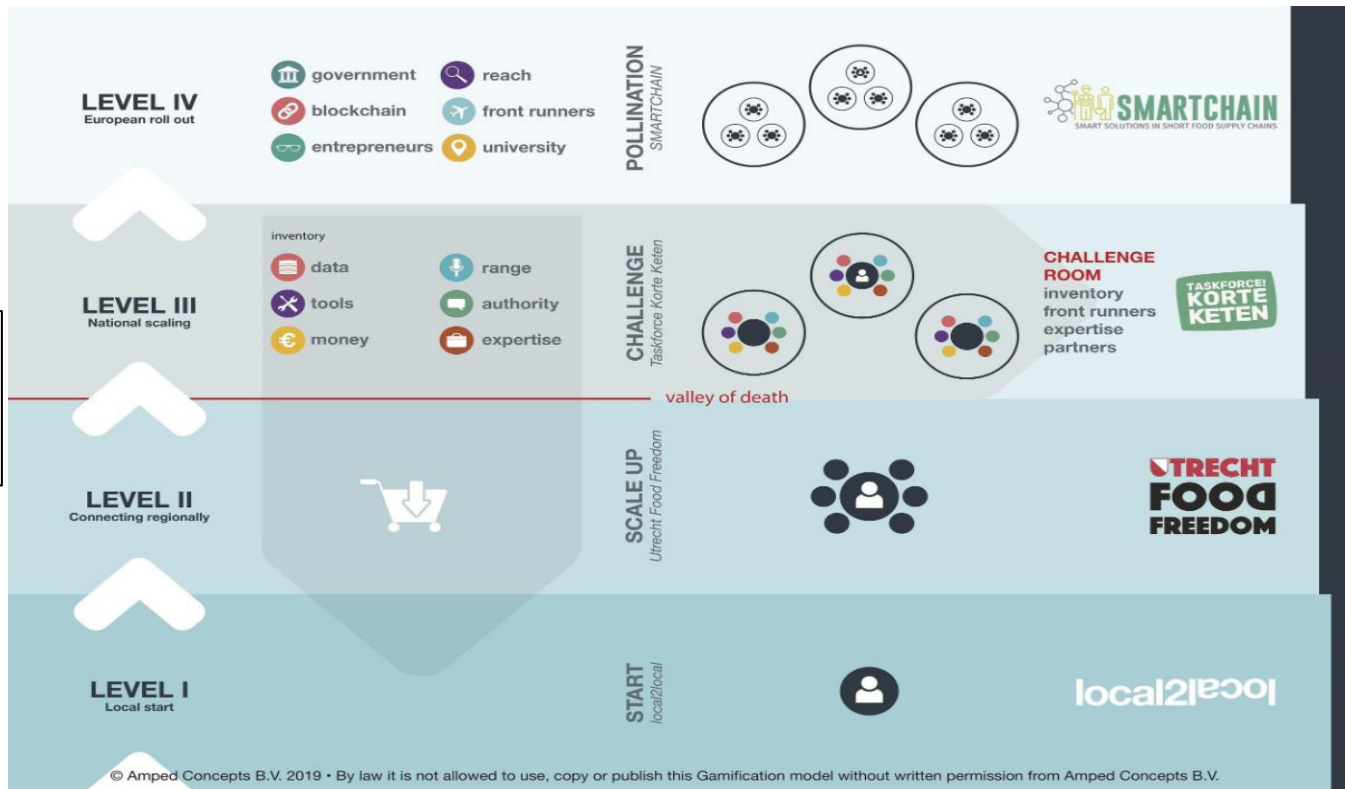
Source: Adapted from Sinclair et al. (2019).

# Upscaling the Living Labs – from local to national level (example of the Netherlands)



## GAIN Model

**Valley of death**



# Approaches and methods

## Playing with the SAFA Guidelines

SAFA =  
Sustainability  
Assessment of  
Food and  
Agriculture  
systems  
(FAO, 12.6.2012)

**Table 1.** SAFA sustainability dimensions, core sustainability themes (left) and sub-themes (right).

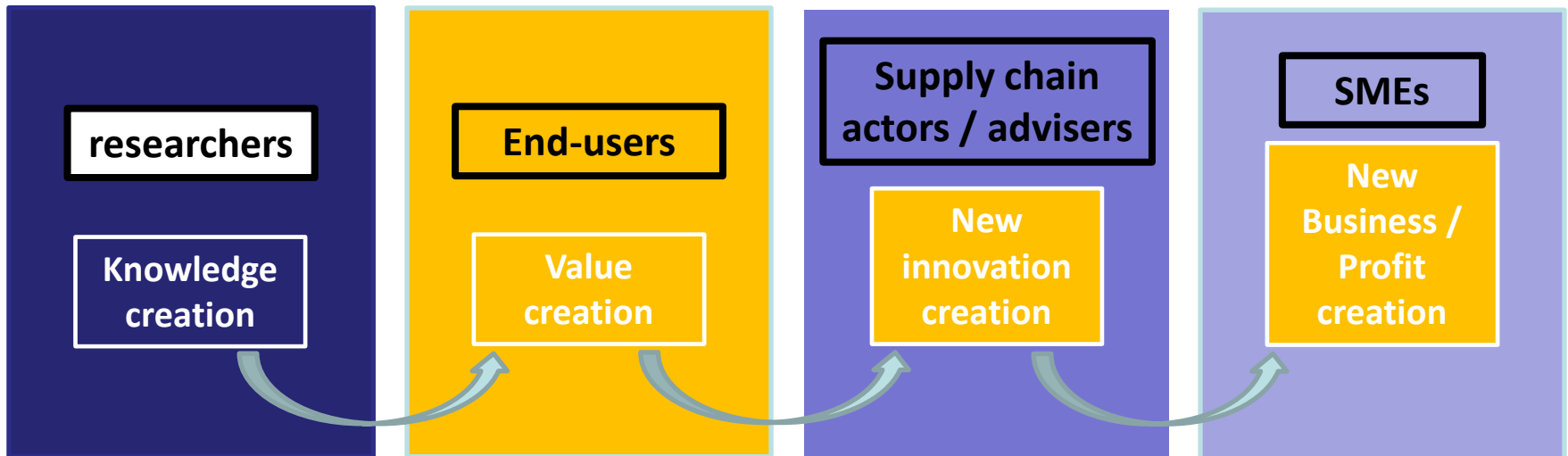
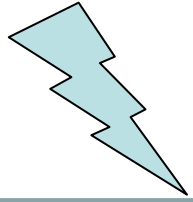
<b>GOOD GOVERNANCE</b>	
<b>G1 Governance structure</b>	Corporate ethics; Due diligence
<b>G2 Accountability</b>	Holistic audits; Responsibility
<b>G3 Participation</b>	Stakeholder dialogue; Grievance procedures; Conflict resolution
<b>G4 Rule of law</b>	Commitment to fairness and legitimacy; Remedy, restoration and prevention; Co-responsibility; Resource appropriation
<b>G5 Holistic management</b>	Sustainability in quality management; Certified production and sourcing; Full-cost accounting
<b>ENVIRONMENTAL INTEGRITY</b>	
<b>E1 Atmosphere</b>	Greenhouse gases; Air pollution
<b>E2 Freshwater</b>	Water quantity; Water quality
<b>E3 Land</b>	Organic matter; Physical structure; Chemical quality; Land degradation and desertification
<b>E4 Biodiversity</b>	Habitat diversity and connectivity; Ecosystem integrity; Wild biodiversity; Agricultural biodiversity; Threatened species
<b>E5 Materials and energy</b>	Non-renewable resources; Energy supply; Eco-efficiency; Waste disposal
<b>E6 Animal welfare</b>	Freedom from stress; Species-appropriate conditions
<b>ECONOMIC RESILIENCE</b>	
<b>C1 Investment</b>	Internal investment; Community investment; Long-ranging investment
<b>C2 Vulnerability</b>	Stability of supply; Stability of marketing; Liquidity and insurance; Employment; Stability of production
<b>C3 Product safety and quality</b>	Product information; Traceability; Food safety; Food quality
<b>C4 Local economy</b>	Value creation; Local procurement
<b>SOCIAL WELL-BEING</b>	
<b>S1 Decent livelihood</b>	Wage level; Capacity building
<b>S2 Labour rights</b>	Employment; Forced labour; Child labour; Freedom of association and bargaining; Working hours
<b>S3 Equity</b>	Non-discrimination; Gender equality; Support to vulnerable people
<b>S4 Human health and safety</b>	Physical and psycho-social health; Health resources; Food security
<b>S5 Cultural diversity</b>	Indigenous knowledge; Food sovereignty

# Approaches and methods

➤ **Feel free to propose other approaches and methods**

# Translation of knowledge “in a perfect world”

Value Proposition  
design



translated into...

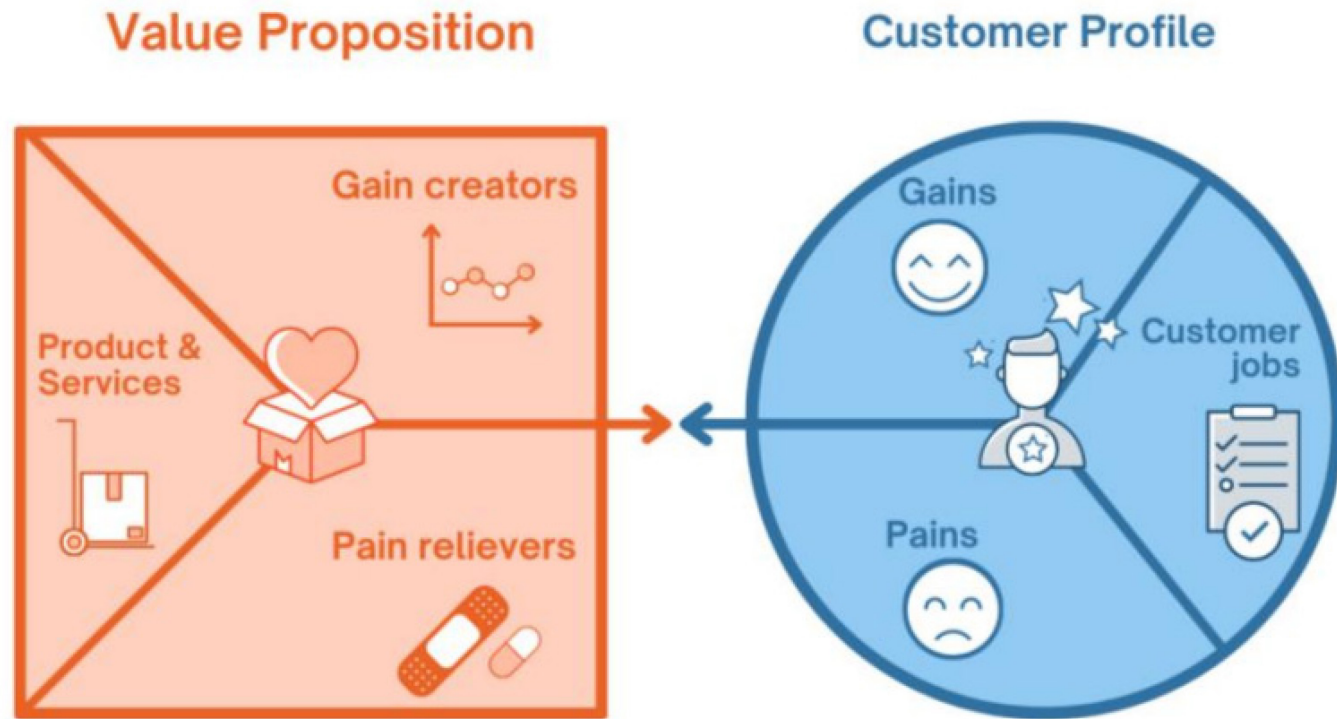
translated into...

translated into...





# Value proposition design



*Osterwalder & Pigneur (2010)*

**Identify value propositions that can satisfy these activities**

**Identify specific customer activities (functional, social, emotional, support)**





# Value proposition design

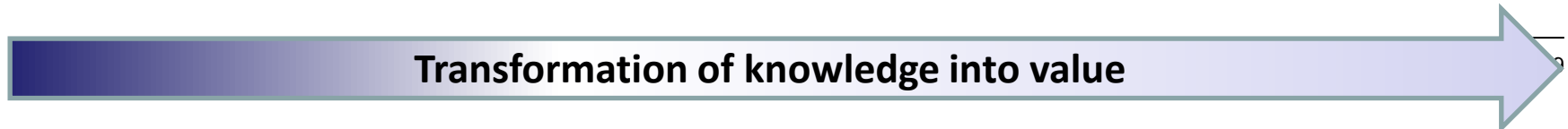
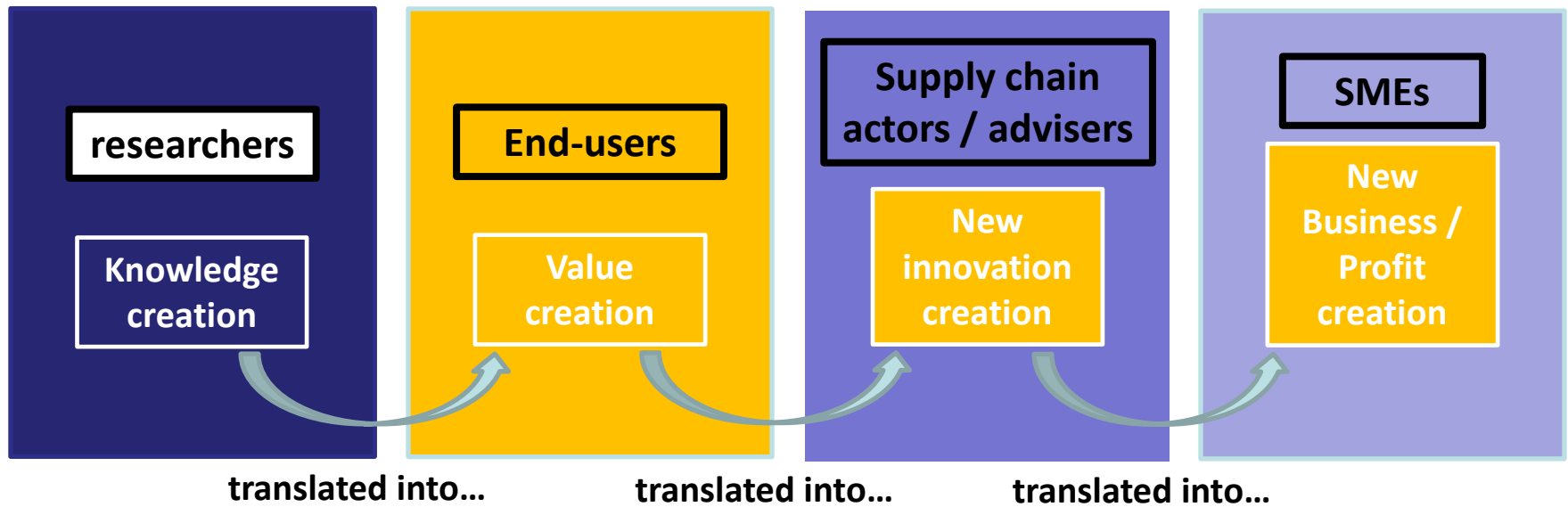
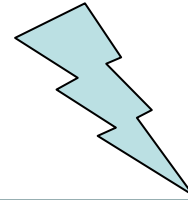
## Objectives

- **Identify specific customer activities (functional, social, emotional, support)**
- **Identify value propositions that can satisfy these activities**
- **Improve products and services (define innovation according to the values)**
- **Rethink your business model (and make profit)**

*Osterwalder & Pigneur (2010)*

# Translation of knowledge “in a perfect world”

Disruptive innovation  
Implementation matrix





# Successful implementation of an innovation?

## Technological feasibility

- Need for new resources (materials, ingredients, packaging, etc.)
- Need for new infrastructure (equipment, IT, size, minimum production/packaging/sales volume, etc.)
- Need to outsource or combine with other players

## Financial feasibility

- Sufficient financial resources? External or internal?
- What investment is required?

## Organizational aspects

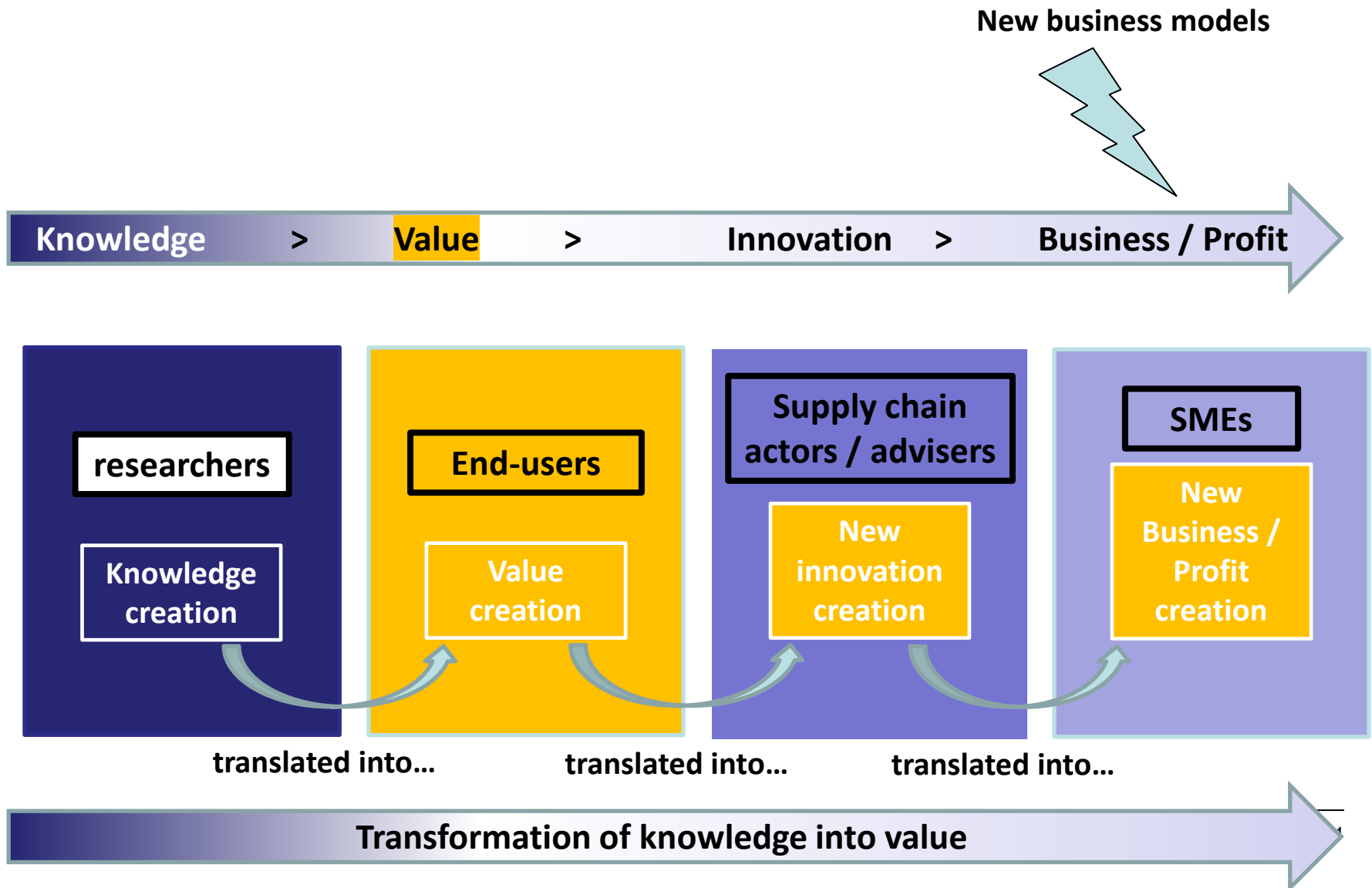
- Need for new skills and knowledge?

Sustainability: social, environmental, ethical, economic suitability?

Practical applicability (with minor or major adjustments, etc.)

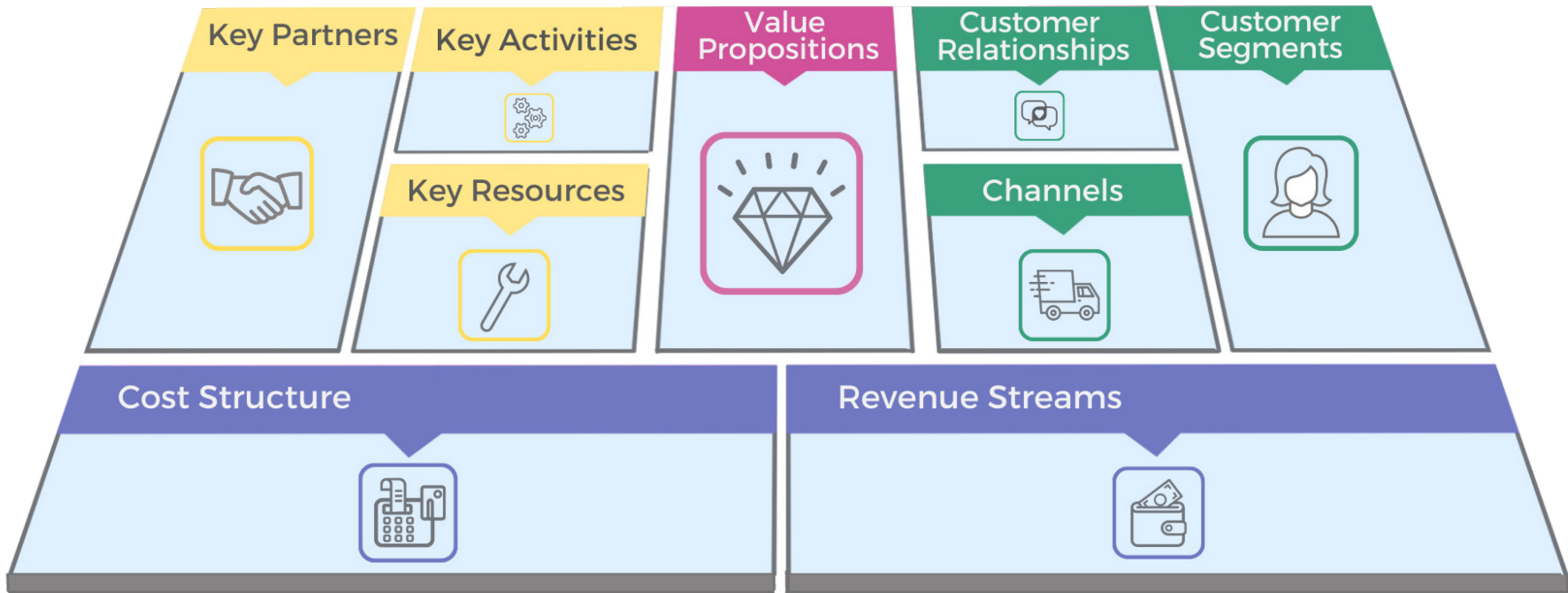
## Improving the company's competitiveness

# Translation of knowledge “in a perfect world”





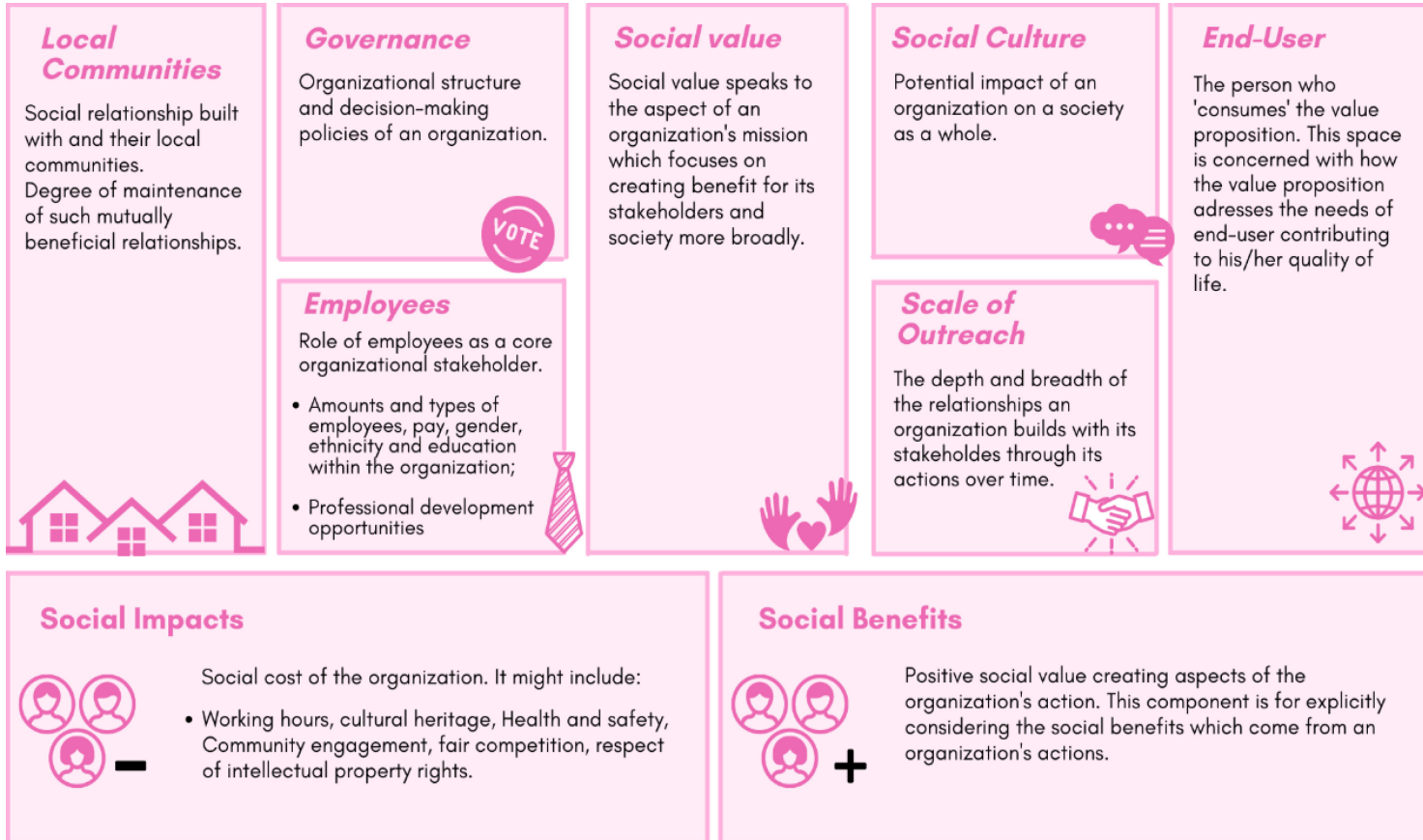
# Business Model Canvas



Osterwalder & Pigneur (2010)



# Business recommendations and advices on social aspects



Based on Joyce A., Paquin R.L.:(2016)



# Business recommendations and advices for environmental aspects

## Supplies and Out-sourcing

Supplies and out-sourcing represent all the other various material and production activities that are necessary for the functional value but non considered 'core' to the organization.



## Production

Actions that the organization undertakes to create value. They are at the core of the organization and have an environmental impact.



## Materials

Bio-physical stoks used to render the functional value. Organization's key materials and their environmental impact.



## Functional value

Focal outputs of a service (or product) by the organization under examination.



## End-of-Life

Issues of material reuse of product. This component supports the organization exploring ways to extend its responsibility beyond the initially conceived value of its products.



## Use Phase

Impact of the client's partaking in the organization's functional value, or core service and/or product. This includes maintenance and repair of products when relevant; and should include some consideration of the client's material resource and energy requirements through use.



## Distribution

Physical means to ensure access to its functional value. In the environmental layer, it is the combination of the transportation modes, the distances travelled and the weights of what is shipped.



## Environmental Impacts



Ecological costs of the organization's actions:

- bio-physical measures such as CO2e emissions, human health, ecosystem impact, natural resource depletion, water consumption.

## Environmental Benefits



Ecological value the organization creates through environmental impact reductions and even regenerative positive ecological value.

Based on Joyce A., Paquin R.L.:(2016)





# WG2 – Transformation and transition steps towards zero pesticide based value chains

## Concrete examples of transformation and agro-ecological transition

Country	Name	Title
Czech Republic	Dr Iva Smykalová	Agroecological trials at AgriTech (CZ)
Germany	Dr Cornel Adler	Options to avoid or control stored product insects in grains with zero pesticides
Germany	Prof. Ramona Weinrich	Consumer acceptance of pesticide-free food products in Germany
Hungary	Dr Riho Marja	Examples of agroecological transition in Hungary
Latvia	Andrei Shishkin	Using of household-, agro- and food- wastes for soil improvement/remediation products development: a case studies



# WG2 – Transformation and transition steps towards zero pesticide based value chains

## Concrete examples of transformation and agro-ecological transition

Country	Name	Title
Turkey	Prof Hatice Ozaktan	Some examples of biocontrol and biotechnical measures for pest/disease control in Turkey
Turkey	Sukru Esin	MED4PEST: a project for novel, effective, ecologically-based Rodent Management
Spain	Javier Arizmendi	The Future of Organic Products and Zero Residues
Serbia	Prof. Bojan Srdjevic	Agro-ecological transformation and transition Example: Natural Reserve 'Koviljsko – Petrovaradinski rit'

# **WG2 – Transformation and transition steps towards zero pesticide based value chains**

**Webinars will be organized from September 2023**

- **Every 2 weeks for all WGs**
- **Please propose topics that are relevant for WG2 (e.g. from short presentation today)**

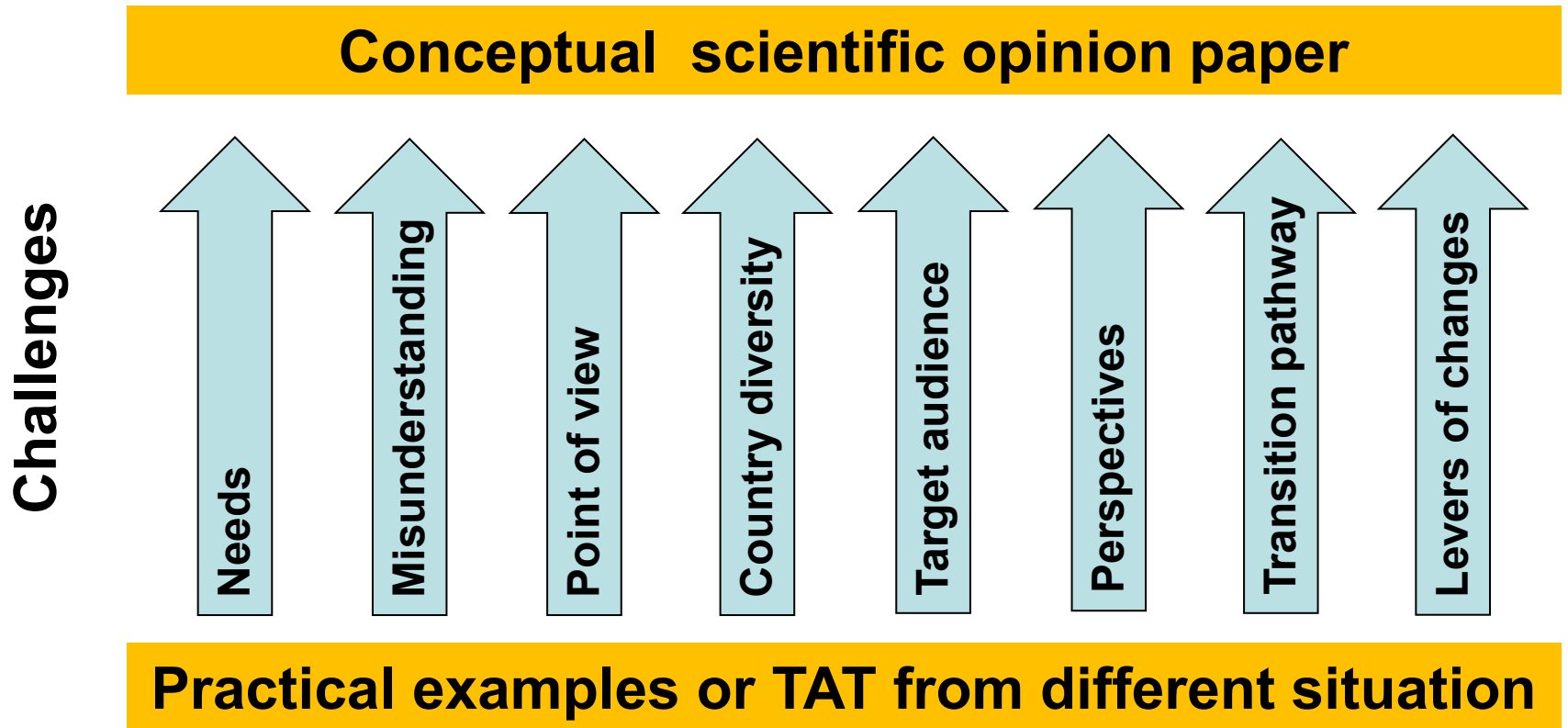


# WG2 – Transformation and transition steps towards zero pesticide based value chains

## Challenges for the scientific opinion paper

- Avoid misunderstanding: e.g. zero pesticide is not zero residue
- From practice to theory: make the link between concrete examples and the theoretical concepts
- Align different point of view: science, practice and social driver for change
- Multi-dimension perspective: define the dimension (technical, organizational, legal, business...)
- Target audience: define the 'final users' and their specific needs
- Multi-scale perspective: define the scales (farm, geographic, agri-food systems...)

# **WG2 – Transformation and transition steps towards zero pesticide based value chains**



 **WG2 – Transformation and transition steps  
towards zero pesticide based value chains**

**SAVE THE DATE**

**2-days scientific seminar, 21-22 November 2023**

**Agroscope Changins, Nyon, Switzerland**

**Participants: WG2 applicants and MC members**



# WG2 – Transformation and transition steps towards zero pesticide based value chains

SAVE THE DATE - 2-days scientific seminar (21-22.11.2023)

## Draft program

### Block 1 Policy – The governance and empowerment perspectives on agroecological transitions

*Financial incentive for organic conversion and encouragement for good agricultural practices: examples from Switzerland (Olivier Félix, Head of Sustainable Plant Protection sector, FOAG, Switzerland)*

- **Open for example from your countries. Proposition speaker?**

*How to influence policy and support political courage towards zero pesticide agriculture? (Bernard Lehmann, Chair HLPE)*

*How to reform maladapted policies and to address market failures (Invited speaker) -> Please send me propositions*



# WG2 – Transformation and transition steps towards zero pesticide based value chains

SAVE THE DATE - 2-days scientific seminar (21-22.11.2023)

## Draft program

### Block 2 Success stories in transformation and agroecological transition in different EU countries

*Choose 2 examples from WG1 (D1.1.1, Mugur?) or from WG2 applicants*

- **Open for example from your countries. Proposition speaker?**





# WG2 – Transformation and transition steps towards zero pesticide based value chains

SAVE THE DATE - 2-days scientific seminar (21-22.11.2023)

## Draft program

### Block 3 Theoretical perspective of transformation and agroecological transition. What kind of assessment tools for evaluating the transition to zero pesticide agriculture?

*Review on agroecological transition and transformation concepts (based on D1.2) (Jitea IONEL MUGUREL, University of Agricultural Sciences and Veterinary Medicine, Cluj, Romania)*

*The flexibility of SAFA guidelines: concept and practical example (SAFA=Sustainability Assessment of Food and Agriculture systems) (Dominique Barjolle, Faculty of Geosciences and Environment, UNIL, CH)*

*The multi-level perspective on sustainability transitions (Christian Huyghe, INRAE, Paris, France)*



# **WG2 – Transformation and transition steps towards zero pesticide based value chains**

**SAVE THE DATE - 2-days scientific seminar (21-22.11.2023)**

## **Draft program**

- **Future activities of WG2 (according to deliverables) and involvement of applicants**
- **Preparation of implementation ‘Living Labs’ specific to supply chains (successful tools for transformation) (LL1=small grain, LL2=wine) -> with other WGs???**
- **Visit agroecological trials at Agroscope**

# **WG2 – Deliverables (D) and activities**

<b>Task</b>	<b>Deliverables/activities</b>	<b>Timing (moving)</b>
<b>Task 2.1</b>	Scientific seminar	Q4 -> <b>21-22.11.2023</b>
	<b>D2.1</b> Scientific opinion paper	Q6 -> <b>postpone until June 2024</b>
	International scientific conference	Q8 -> <b>Nov. 2024</b>
<b>Task 2.2</b>	<b>D2.2.1</b> Scientific synthesis paper	Q8 -> <b>Nov. 2024</b>
	<b>D.2.2.2</b> Commentary and information brochure	Q9 -> <b>Feb. 2025</b>
<b>Task 2.3</b>	Training School on transition towards zero pesticide agriculture STSMs	Q9 -> <b>Feb. 2025 (with other WG?)</b> Q10 -> <b>move forward to Jan. '24</b>

## **WG2 – Deliverables (D) and activities**

**CA21134 website will be activated soon !**

- **Inform about CA21134 related activities in your country**
- **Email to Silke DACHBRODT-SAAYDEH**

**[silke.dachbrodt-saaydeh@julius-kuehn.de](mailto:silke.dachbrodt-saaydeh@julius-kuehn.de)**

# **WG2 – Deliverables (D) and activities**

## **We need your involvement...**

- **Propose speakers for scientific seminar in November 2023**
  - **Email to me [danilo.christen@agroscope.admin.ch](mailto:danilo.christen@agroscope.admin.ch)**
- **Propose WG2-relevant topics for webinars**
  - **Email to Renata BAZOK [rbazok@agr.hr](mailto:rbazok@agr.hr)**
- **Use the STSMs (e.g. for D2.1 scientific opinion paper)**
  - **Email to Elisabete FIGUEIREDO [elisalacerda@isa.ulisboa.pt](mailto:elisalacerda@isa.ulisboa.pt)**  
**and Christian HUYGHE [christian.huyghe@inrae.fr](mailto:christian.huyghe@inrae.fr)**

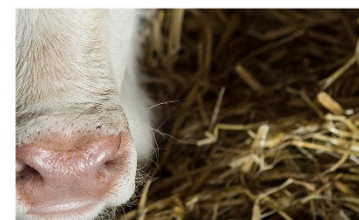
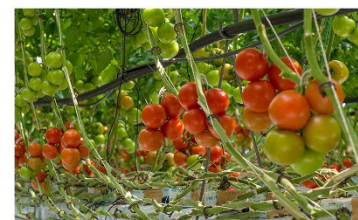
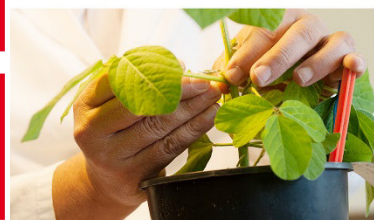
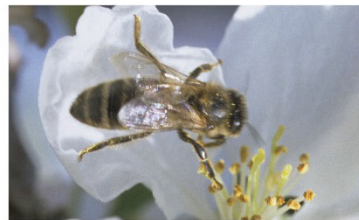
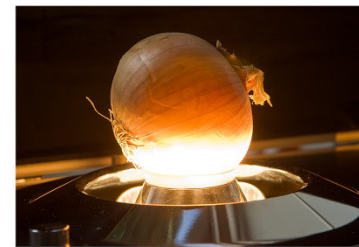


# Thanks for your attention

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# WG2 – Transformation and transition steps towards zero pesticide based value chains

SAVE THE DATE - 2-days scientific seminar (21-22.11.2023)

## 1. Strategic objectives

### - Research Coordination Objectives:

RO2. To assess how to achieve an agroecology-based transition of farming and food systems, in which pesticide use is marginal and only when all other options for securing crop health have been implemented.

RO3. To analyse the state of the art in the different scientific fields at the forefront of providing revolutionary innovations for zero pesticide agriculture.



# WG2 – Transformation and transition steps towards zero pesticide based value chains

SAVE THE DATE - 2-days scientific seminar (21-22.11.2023)

## 1. Strategic objectives

### - Capacity-building Objectives:

CO1: To bridge separate fields of science and technology to create a strong scientific community with a broad representation across Europe (including 10 Inclusiveness Target Countries) oriented to develop research solutions for a zero pesticide agriculture.

## 2. Operational objectives

- Future activities of WG2 and involvement of applicants
- Deliverables, International scientific conference in June 2024, STSM