





Roadmaps for the future R&I breakthroughs of the food system



Jonas Lazaro Mojica Hugo de Vries 25 November 2020



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What are breakthroughs?

Why breakthroughs are relevant?

What were the most relevant outputs from FIT4FOOD2030 regarding breakthroughs?

What are the tools and materials available?

For whom are they intended?

Can we have an example on how to use them?



Challenges ahead







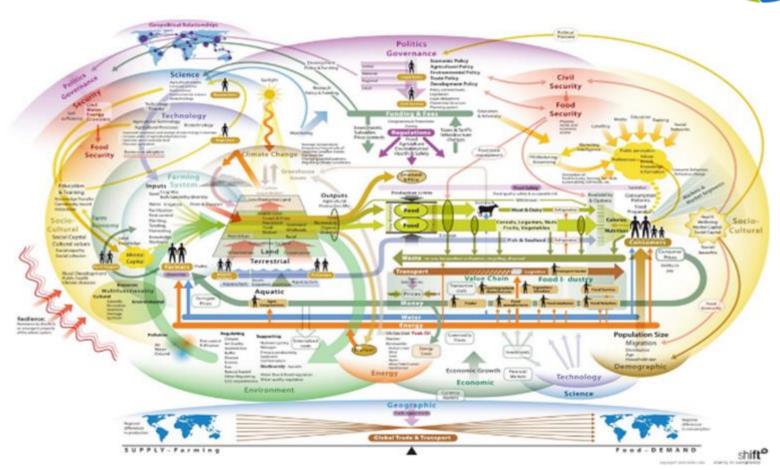
R&I will be a critical enabler to deliver more sustainable solutions

An increased Research and Innovation ambition is needed more than ever



Food systems

Solving problems through research and innovation in food systems...





R&I policies







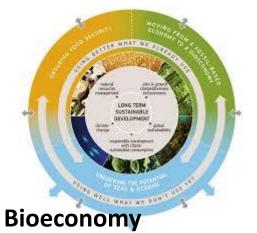




Farm to Fork Strategy

For a fair, healthy and environmentally-friendly













Fit4Food2030

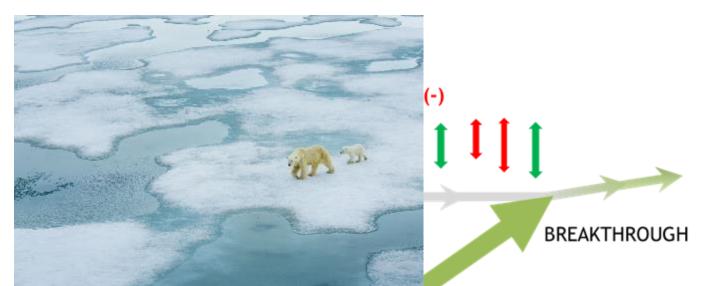
Objective:

The overall aim of FIT4FOOD2030 is to support the European Commission (EC) with the development and implementation of the <u>FOOD 2030</u> research & innovation policy framework, to future-proof the European food systems.

Breakthroughs



FIT4FOOD2030 has defined R&I breakthroughs as potential, significant achievements that may lead to an increased impact of the current initiatives in the field of FNS and a step towards/radical change of the food system, making it more sustainable and resilient.









The multi-level perspective applied to the FIT4FOOD2030 project (D4.1 Fit4Food2030)



Results from the project (WP4)



4.1

- A look at the past to find common drivers
- Survey on future R&I breakthroughs
- Inventory of breakthroughs
- Link with trends and showcases

4.2

- City Labs engagement on Breakthroughs.
- Workshop on identification of Critical Success factors.

4.3

- Workshops on position paper
- Position paper

4.4

- Recommendations
- The "breakthrough cards"













A look at the past...





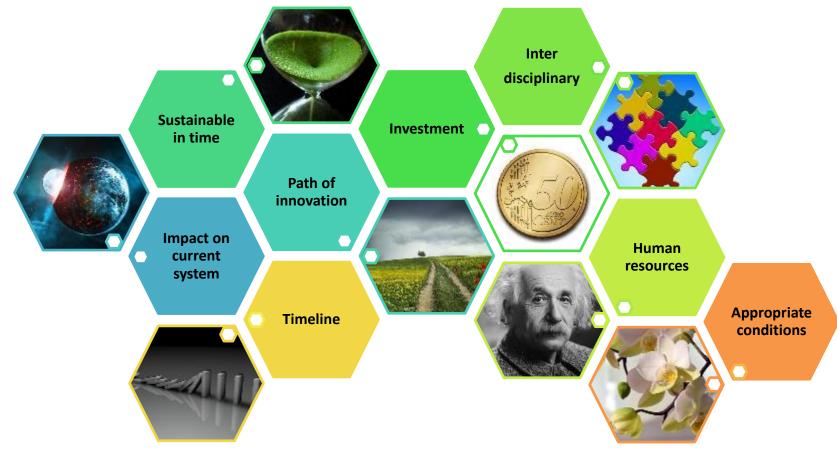






Factors







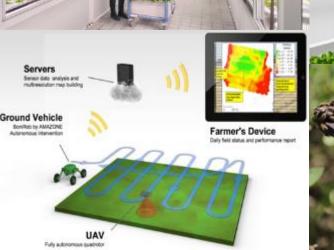




The new approach of primary food production and distribution

Breeding - New Techniques and applications
Smart farming
Non-conventional production systems
Reduction of impact of production

New value systems New aquaculture





An engaged and healthy consumer

Empowered consumer Change of dietary habits New tools to improve nutrition and health New methods in education













The tools of a future proof food system

Logistics - New systems Smart traceability in the food supply chain A novel approach to biotechnology Information and Communication Technologies (ICT) applied to Food System Food Industry 4.0 - Novel and efficient food processing Sustainable packaging Diversity on the diet The global food analysis









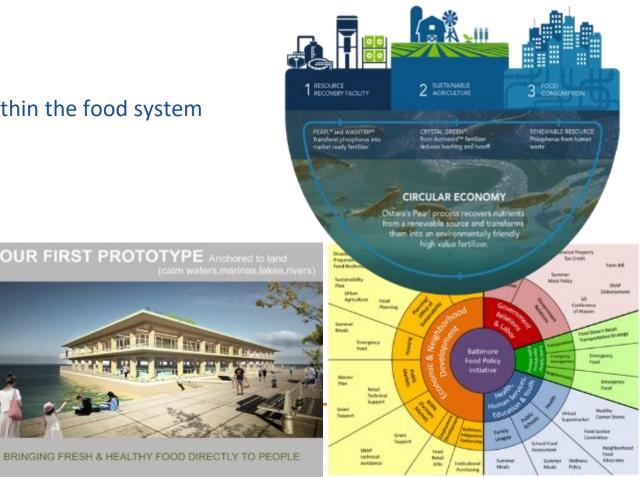






A sustainable and dynamic value-based food system

Circularity in food systems
Efficient use of resources
Food for society
Policy and management within the food system





Breeding – New techniques and applications



2. Smart farming



3. Non-Conventional production systems



4. Reducing the impact of production enhancers



5. New Value Systems



6. New aquaculture



7. The Empowered Consumer



8. Change of dietary habits



New tools to improve nutrition and health



10. New methods in education



11. Logistics - New systems



12. Smart traceability in the food supply chain



13. A novel approach to biotechnology



14. Information and communication tech. (ICT)



15. Food Industry 4.0 – Novel and efficient food processing



16. Sustainable packaging



17. Diversity in the diet



18. The global food analysis



19. Circularity in food systems



20. Efficient use of resources



21. Food for Society



22. Policy within the food system









https://fit4food2030.eu/inventory-of-possible-ri-breakthroughs-in-food-systems/



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Inventory of possible R&I breakthroughs in Food Systems

Webinars



Inventory of R&I breakthroughs related to food systems



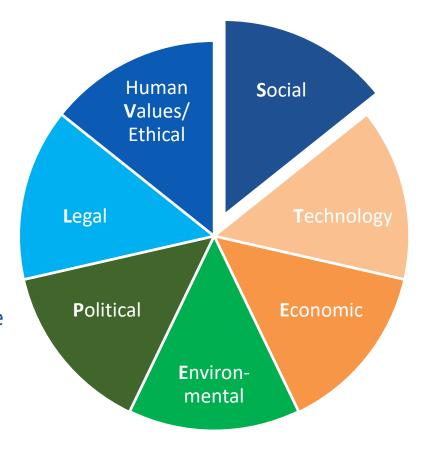




Success factors and barriers



- Imagine the goal of the breakthrough has been successfully achieved:
- Which factors were decisive for the achievement? Consider all STEEPV
 - Who were the focal actors?
 - Who/what were driving forces? Which incentives were helpful?
 - Which barriers had to be overcome?
 - Which new relations/interactions were necessary?



Success factors and barriers

Exercise for Identifying potential R&I breakthroughs





Knowledge hub:

potential R&I breakthroughs

Exercise for Identifying

SHORT EXERCISES

Exercise for identifying potential R&I breakthroughs



In a nutshell

Exercise to support the identification of potential R&I breakthroughs

To explore and understand the food system. To work with communities (to run a Lab)

For whom?

Policy makers, Researchers, Eusinesses, Funders, Non-Governmental Organisations / Civil Society Organisations, Professionals

75 minutes

Created by

Athena Institute, Oslo Metropolitan University, Austrian Institute of Technology, InsiCaixa, ZonMw and ECSITE

Something to share?

Leave us a comment about this tool on the platform. You can also contact fit/food2030.beta@vu.nl

This tool was developed as part of FFF6F0002090 project, see this tool and others on the FFFAF00002090 Knowledge Hub.

Date of creation: May, 2018

https://knowledgehub.fit4food2030.eu/resource/exercise-for-identifyingpotential-ri-breakthroughs/

Outcomes: Tools and materials

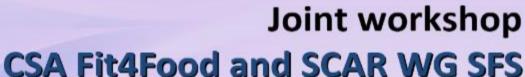


- Inventory of R&I breakthroughs (<u>link</u>).
- Knowledge hub: Exercise for Identifying potential R&I breakthroughs (link).
- Policy Brief: Cultivating Breakthroughs for a healthier and more sustainable food system (<u>link</u>)
- Deliverables of the project (<u>link</u>)

Practical case







Utilising scenarios to prioritise possible future R&I breakthroughs in Food Systems (FS)

Hugo de Vries (INRAE-FR, SCAR WG FS),

Jonas Lazaro Mojica (FoodDrinkEurope, EU)

Niels Halberg (DCA, DK)







The joint **objectives** of the workshop **have been**:

- Objective 1: getting some insights and experience in working with scenarios;
- SCAR Food Systems
- Objective 2: understand how scenarios can be utilized to prioritize possible future R&I breakthroughs in FS;
- Objective 3: consider utilizing it in own context (country).

What is the goal of scenario thinking?

Scenario's are made to better understand current options (e.g. R&I programs) in view of potential futures

* Adopted from Shell, Wageningen UR and INRAE scenario development thinking



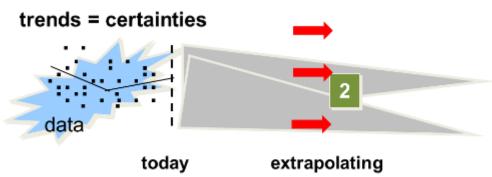
2

In general, two options to consider the 'future':









optimistic

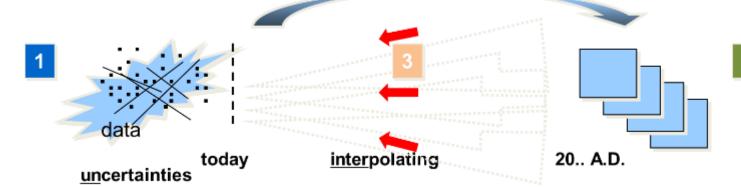
realistic

pessimistic

20.. A.D.

Backcasting / scenarios





What are scenarios? (Characteristics)

- Plausible: Logical, consistent and believable
- Relevant: highlight key challenges and dynamics of the future
- **Divergent:** differ from one another in strategically significant ways
- Challenging: challenge fundamental beliefs and assumptions of people concerned
- Scenarios should provoke thinking rather than provide answers AND should guide us.
- Scenarios should be contrasting in order to face potential extreme futures and not being biased by only searching for positive options.
- Scenarios should be evidence-based and thoroughly discussed by experts in the field.

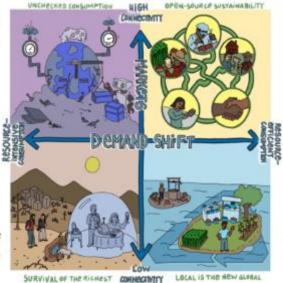
Recognize that the "real" future will not be any of the scenarios, but that it will contain elements of all of our scenarios





Many scenarios, but which are relevant for you?

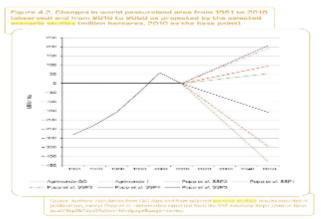
Unchecked consumption



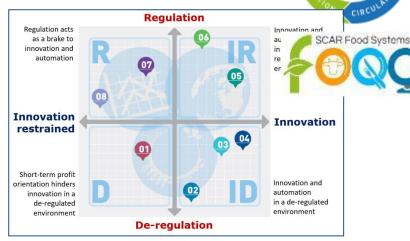
Open-source sustainability

Survival of the richest Local is the new global

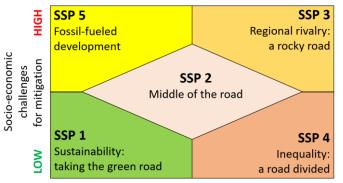
Scenarios of the World Economic Forum (with Deloitte Consulting LLP) produced a scenario analysis on the future of global food systems (**WEF, 2017**)



Agrimonde-Terra: De Olivier Mora, Marie de Lattre-Gasquet, Chantal le Mouël



"The map for the future". Eight scenarios for the German (Bavarian) food industry in 2030 (from ScMI AG, 2017).



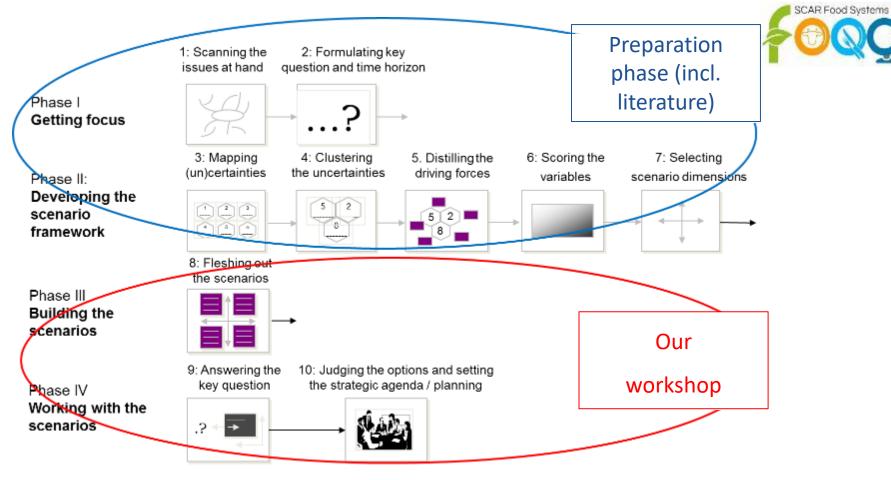
LOW Socio-economic challenges for adaptation HIGH

The three (plus one variant) scenarios of **Global Land Outlook** (UNCCD, 2017)



Building relevant scenarios, the long version:







Building and utilizing scenarios, short version:

- 1. A core question is posed to which the scenarios refer to.
- **2. Two axes** (horizontal and vertical) are defined which are relevant to answer the core question.
- 3. Three: the two axes allow **positioning of contrasting scenarios**: see figure.
- 4. Utilize scenarios to prioritize possible options (windtunneling)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Option 1		0		+
Option 2	+	++	++	0
Option 3	++	+++	+	-
Option 4	++		+++	
Option 5				0
Option 6	+++	++	0	-

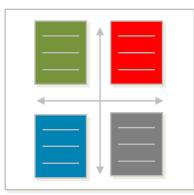




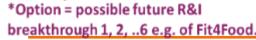
This is a key reflection because it teaches us why there is a fit, what to do & how to act to make it fit!







Scheme with 4 contrasting scenarios





Strategic Potential R&I Breakthroug!

How did we act? (at the workshop)

- 1. Each group **reflected on** the Core Question provided by the moderator and modified it.
- 2. Each group (re-)defined 2 axes and 4 scenarios provided by the moderators.
- 3. The four scenarios discussed, named and visualized.
- **The groups worked** with the scenarios to validate R&I Breakthroughs
 - Listed the 4 scenarios next to each other
 - Selected a set of possible future R&I breakthroughs
 - Checked if each R&I breakthrough either fits well, neutrally or i strong conflict with the scenarios
- 5. **The groups checked** if such an option (= possible 'R&I breakthrough') explored in the countries represented by the participants.





The following example served as illustration:

How will I consume **sustainably a healthy** Mediterranean fresh dish in Scandinavia, today and tomorrow?

PS. Or of course the other way around for a typical Nordic diet dish





1. For the core question and scenarios think in images



4 scenarios with 2 axes for 1 core question:

Please remind the core question: How will I consume sustainably a healthy Mediterranean fresh dish in

Scandinavia, today and tomorrow?

Tomorrow (Boat)





Shop a little GREEN, at ANY COST

(Added value, as fresh and convenient as possible in Modified Air Package and conventionally shipped





Focus on LONG TERM

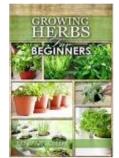
(New biodegradable packaging and solar-energydriven storage and transport containers for healthy and convenience Mediterranean Products)

(unlimited) Budget

GLOBAL & CONVENIENCE lifestyle first

(A delicious convenience & health Mediterranean meal at your table directly at your demand)





Planet (first)

Favour **LOCAL PRODUCTION** in your own garden

(Due to climate change and COVID-19, Scandinavia starts to produce the fresh Mediterranean ingredients themselves except for labeled 'origin' products (not allowed)

Today (airplane)

Note: there are many options, for example alternative axes could be:

- **Local versus global** (or: local sourcing versus global transport)
- Public versus private (or: governmental guided versus market guided)



Prioritized R&I breakthroughs in 4 scenarios:





Options = we have 'selected' the following R&I breakthroughs

from the Fit4Food list

Breakthrough	
R&I	
Potential	
egic	

Fit4Food list						
	Scenario 1 'Global Convenience	Scenario 2 'little Green at any cost'	Scenario 3 'Long term'	Scenario 4 'Local production'		
Reduction of impact of production enhancers		0	+++	+++		
2. Change of dietary habits	++	+ +	++	++		
3. Smart traceability in the food supply chain	+ +	+ +	+++	-		
4. Food Industry 4.0 - Novel and efficient food	+++	+++	+++	0		
5. Circularity in food systems		+	+++	+++		
6 Policy & management in the food system		+	+++	+++		

Objective of windtunneling:

Use the scenarios to priorize possible future R&I breakthroughs in FS (= options)

Strong fit	Neutral	Strong conflict	This is a key reflection because it learns us why there
+ + +		-	
+ +	0		is a fit, what to do and how to act to make it fit!
+			



Suppose the core question is different:

'How to create corona-virus-resilient sustainable food subsystems in 5 EU regions?'





Europe

Network of resilient agri-food clusters

(tracing & tracking of safety (viruses), inter-region trade and markets, best cases in fighting against crisis, green logistics, ...)



AEti Green Deal

European food sovereign alliance

(overall resilience, setting standards, fair & just in Europe (and global), prevention measures, valorizing EU food cultures, shared goals, co-funded virus research, EU Partnership in sust food systems, ...)

Public

Private

Agro-industrialecology park

(virus-resilient production, selfsufficiency, closed circles, bio-diverse production (less vulnerable), multiactors / local jobs, nature friendly,..)







TOGETHER RESILIENCE

_ rabiic

Local sovereignty

(crisis-adaptive solutions, support for green initiatives locally, citizen participation, short circuits, focus on social-environmental benefits, transparency in risks / benefits, ...)

Local



Or other core questions as elaborated at our workshop (you may like to define your own questions):



- Question 1. How will European urban citizens eat healthy and sustainably tomorrow?
- Question 2. How to develop sustainable agrifood systems with limited resources and facing extreme conditions?
- Question 3. How to enhance the contribution of food value chains to sustainable territorial development?
- Question 4. How to create corona-virus-resilient sustainable food subsystems in 5 EU regions?
- Question 5. How will I reduce the food waste by half in my country in 2030?

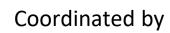
Conclusions from the workshop



- The methodology has been considered as useful, pragmatic, engaging all participants, and evoking creative thoughts
- The short version is **appropriate for 2 times ½-day** workshop.
- The main objective of the workshop to become acquainted with the process of developing and utilizing scenarios has been reached
- The **in-depth** development of scenarios, their utilizing for prioritizing R&I programs (or policy measure or living labs or..) takes **much more time**; a **disclaimer** will be put on results of the workshop.
- Even though, the first sets of 4 scenarios and prioritized R&I breakthroughs for a specific core question already revealed interesting outcomes for further elaboration by the SCAR WG on food systems or by participants in their own context.

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Partners































Towards FOOD 2030

future-proofing the European food systems through Research & Innovation

> www.fit4food2030.eu #FOOD2030EU