

Managing complexity with RRI and system thinking

Is Responsible Research and Innovation enough?

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Co-coordinator of the Barcelona "la Caixa" Living Lab

Cherries, September 2020

Our model of civilization is mainly defined by R&I

...and it is not sustainable



Respond to persistent & complex societal challenges



SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

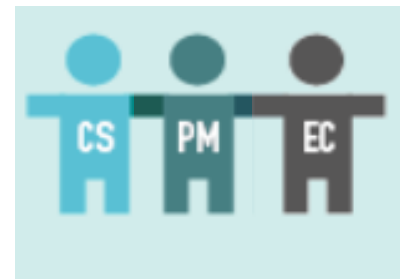
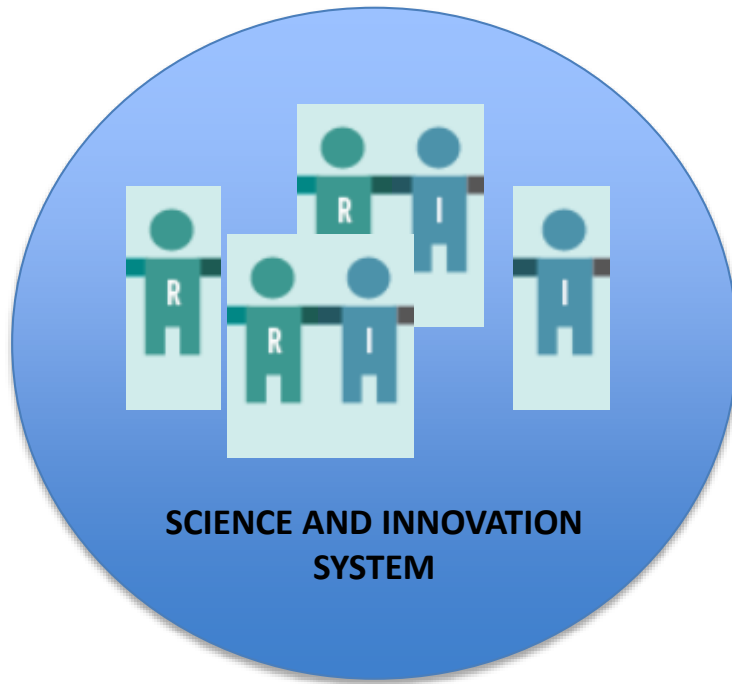


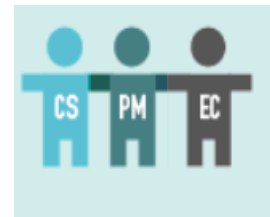
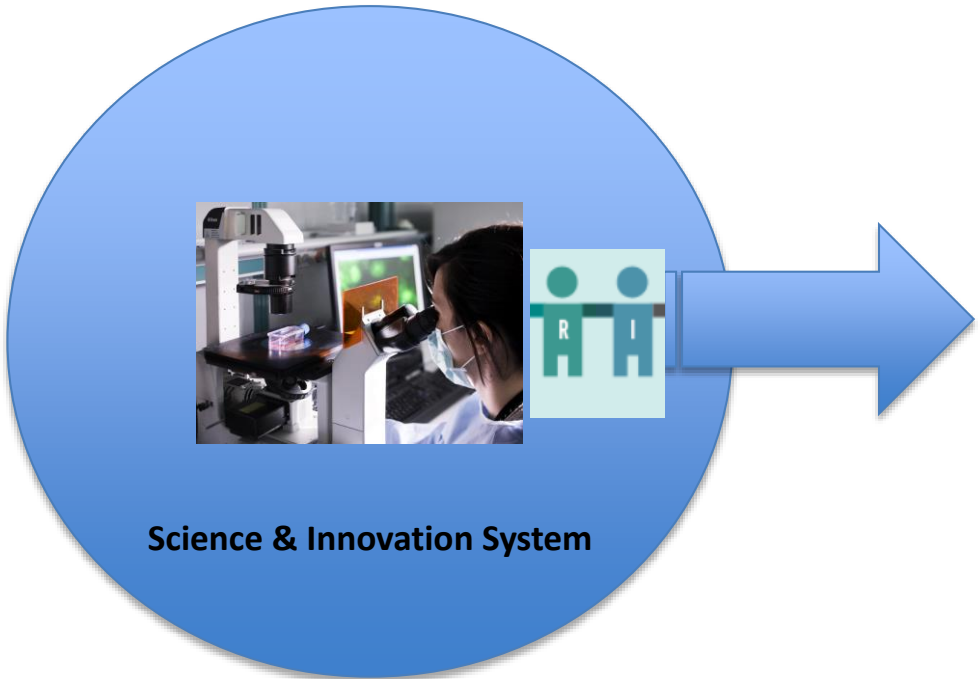
- Different solutions, different definitions of problem
- Involve different disciplines and stakeholders
- At local and global level
- Complexity at c-t level vs at c-t & social

CHANGE

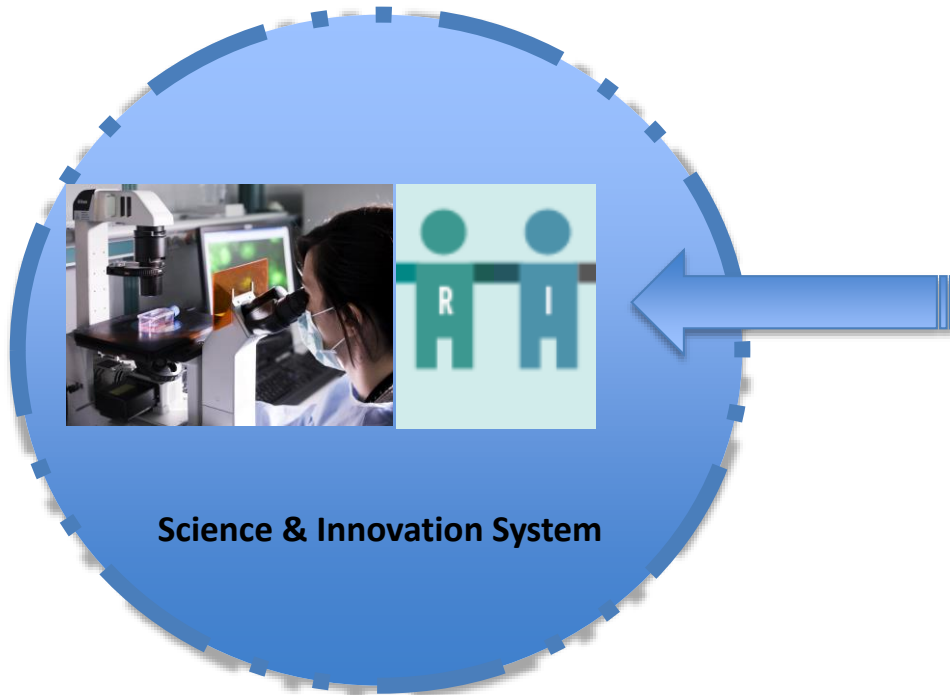
New form of problem solving

New model of relationship between R&I and stakeholders





Responsible Research and Innovation



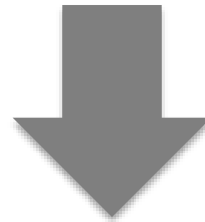
Science & Innovation System



SHARED RESPONSIBILITY
DURING THE R&I PROCESS
(DIALOGUE FOR HIGHER IMPACT)

Impact towards different stakeholders not only patients or citizens!

Intermediary structures between R&I and society

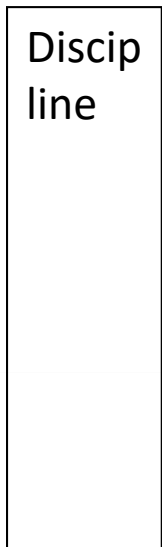


Social Impact

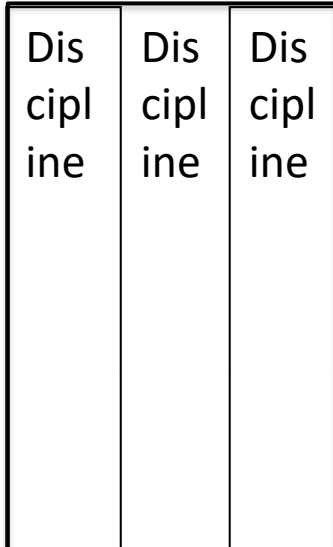


NEED FOR KNOWLEDGE INTEGRATION

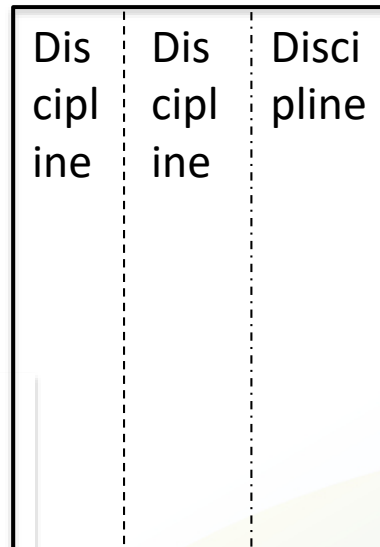
Mono-disciplinary



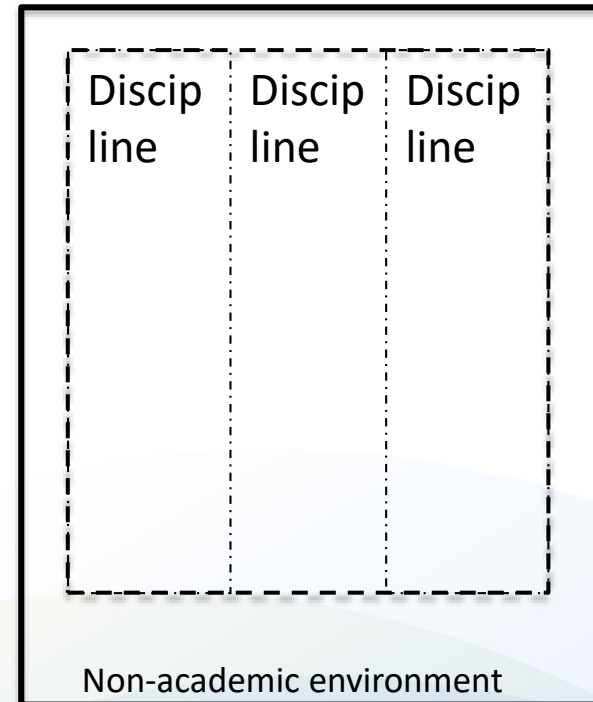
Multi-disciplinary



Inter-disciplinary



Trans-disciplinary



Patient Experience

Patient and Public Involvement in R&I (PPI)

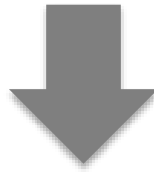
User engagement **Transdisciplinary research**

Open Science & Open Innovation

Science in Transition **Community Based Participatory Research**

Responsible Research & Innovation **Design oriented research**

Design thinking



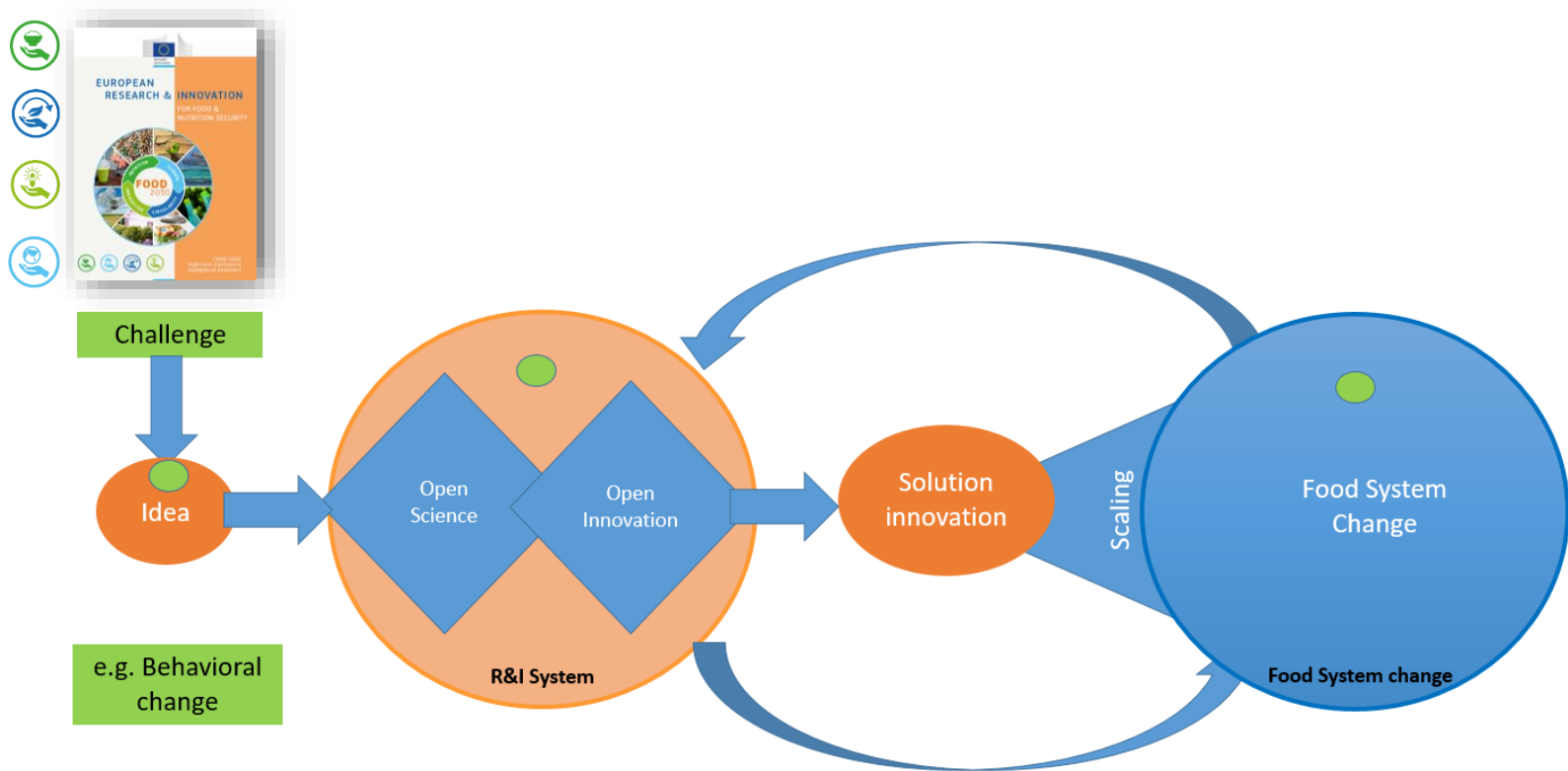
Social Impact

DEFICIT MODEL

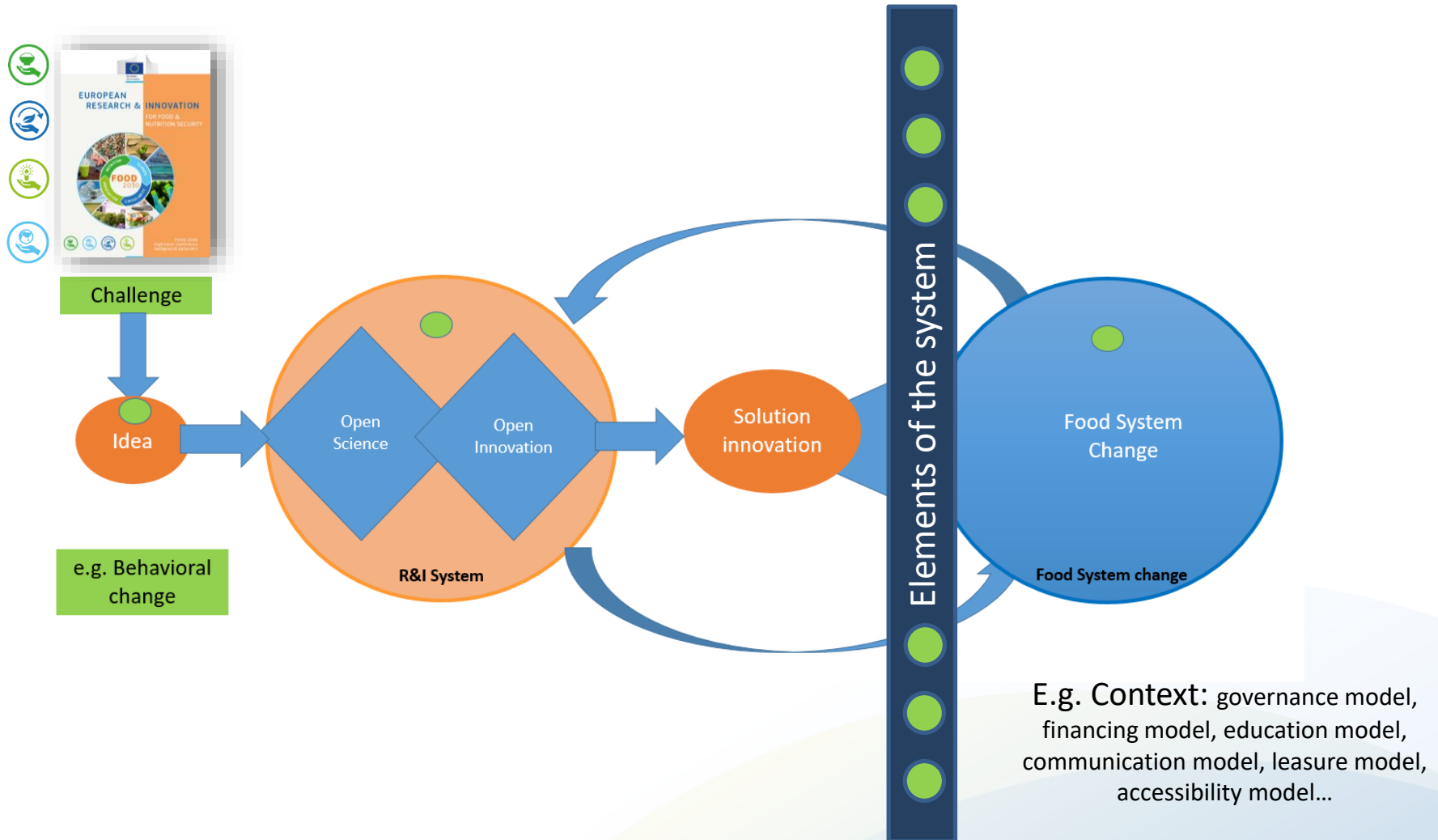
“We have **efficacy** at individual level and **inefficacy** at system level”

René Von Schomberg, EC, Bdebate, October 2018

The current paradigm: R&I with and for society



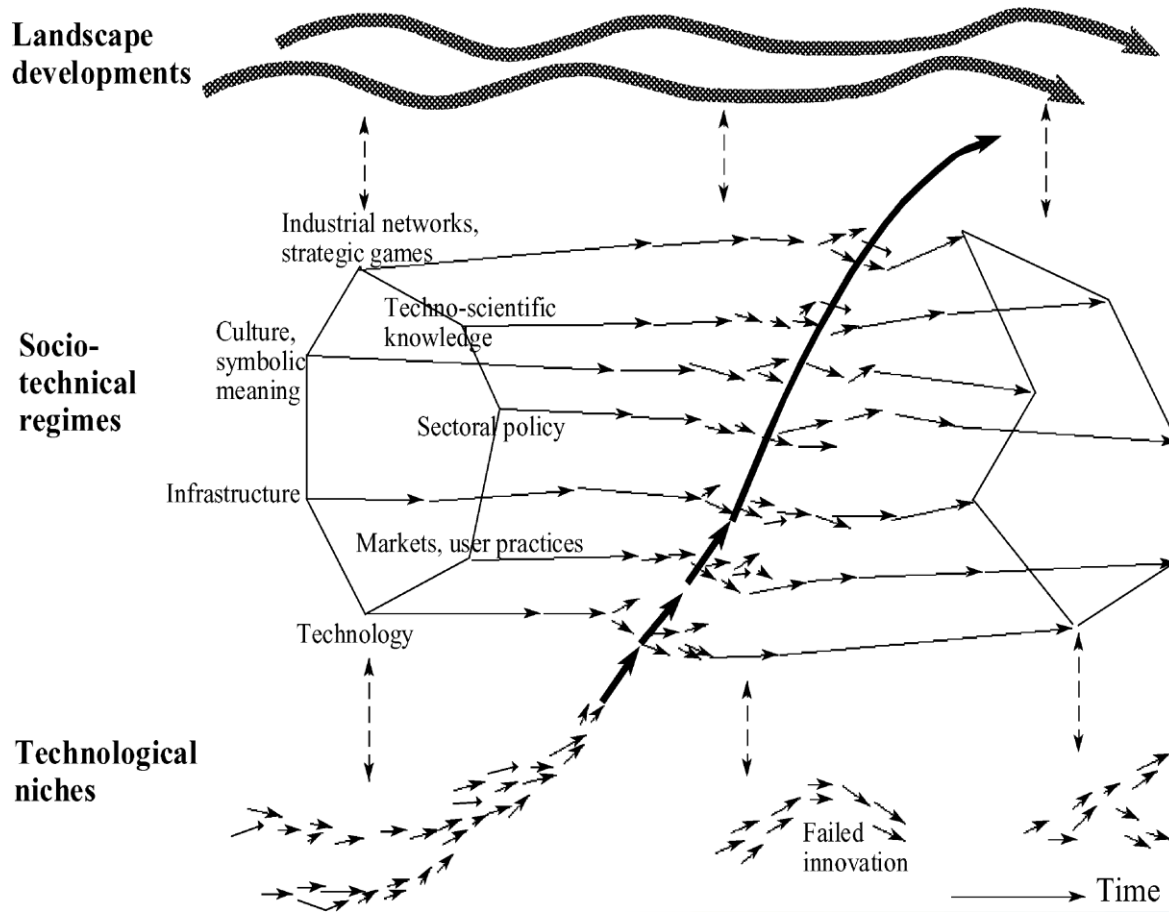
The current paradigm: R&I with and for society



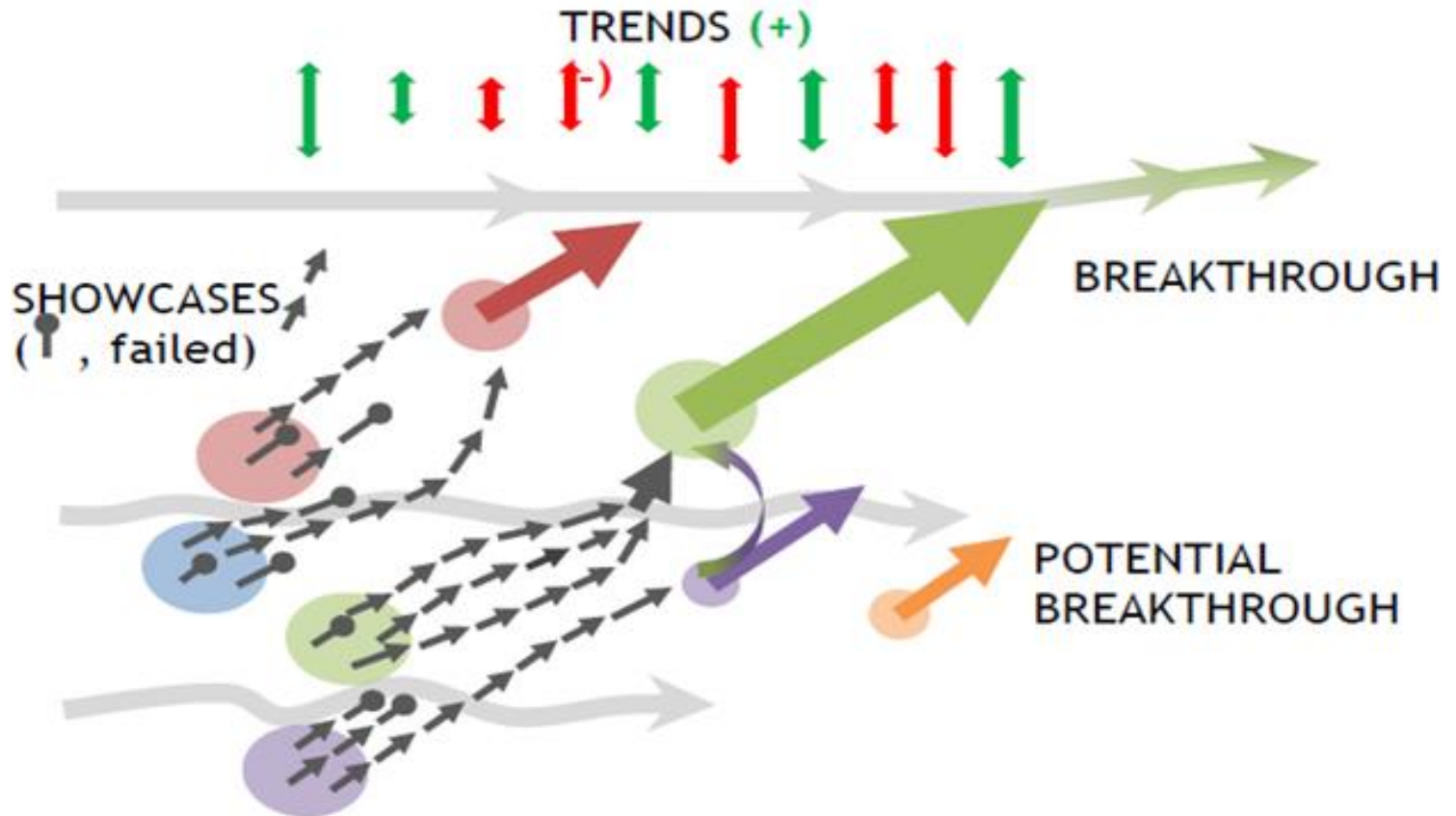
E.g. Context: governance model, financing model, education model, communication model, leisure model, accessibility model...

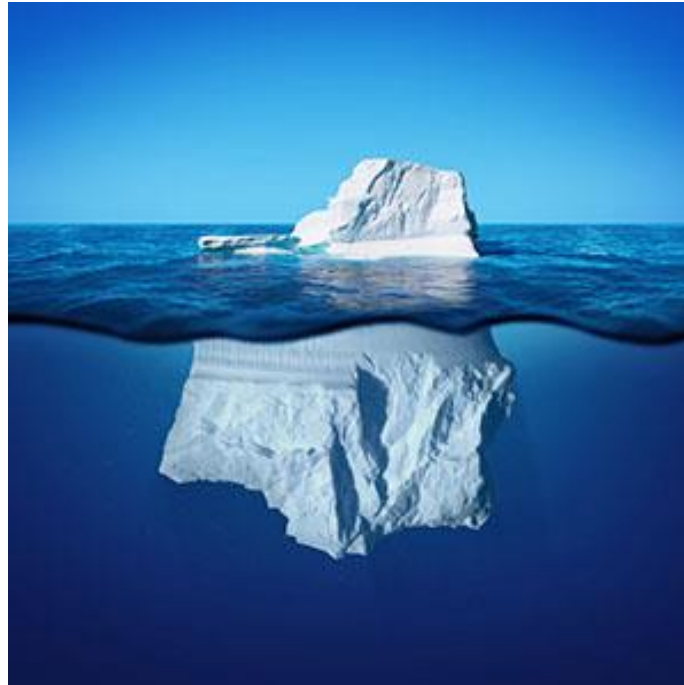
MULTI-LEVEL PERSPECTIVE IN TECHNOLOGICAL TRANSITIONS

Transdisciplinary complexity

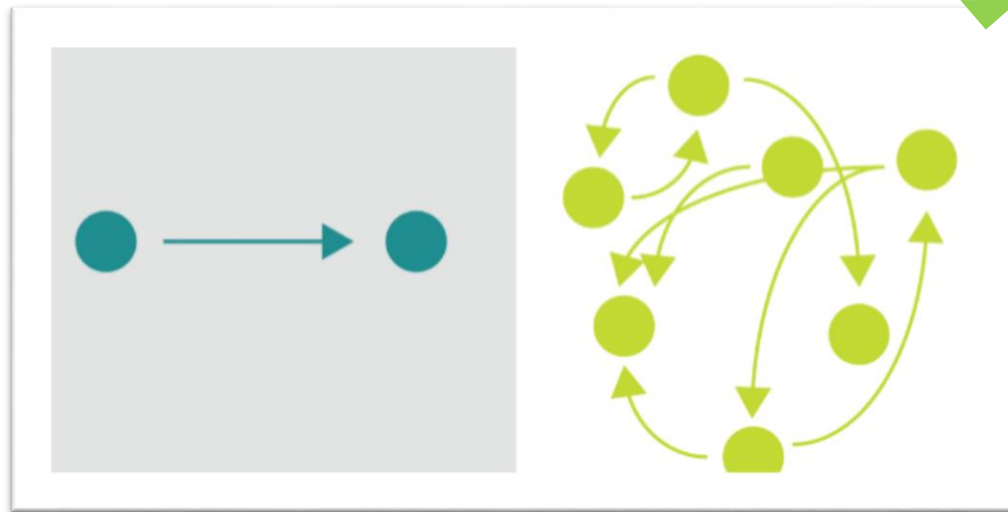


How is change happening within transitions?



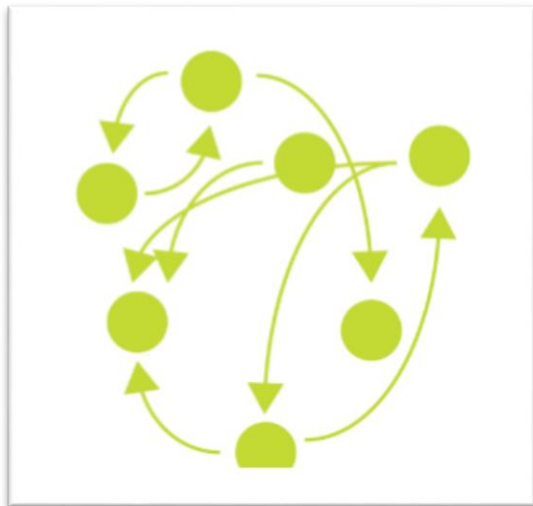


Complicated vs complex



Elements of the system

Complexity of the system



1.Challenges

2.Areas and phases

3.Geographical levels

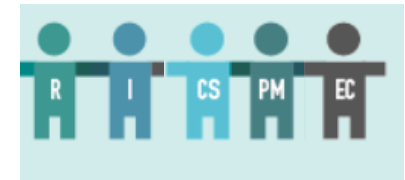
4. Organizational levels

5.Academic disciplines & R&I lines



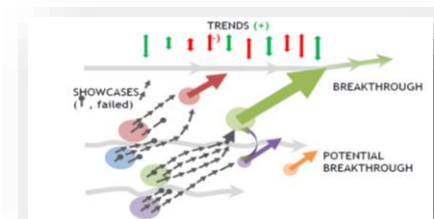
Stakeholders

Solutions



Change:

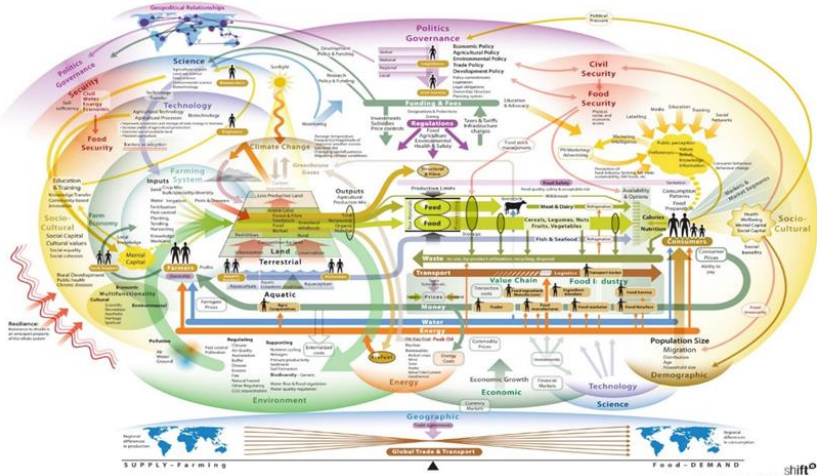
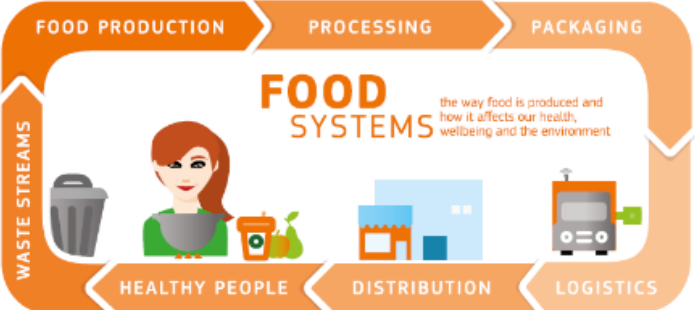
- Trends
- Showcases
- R&I



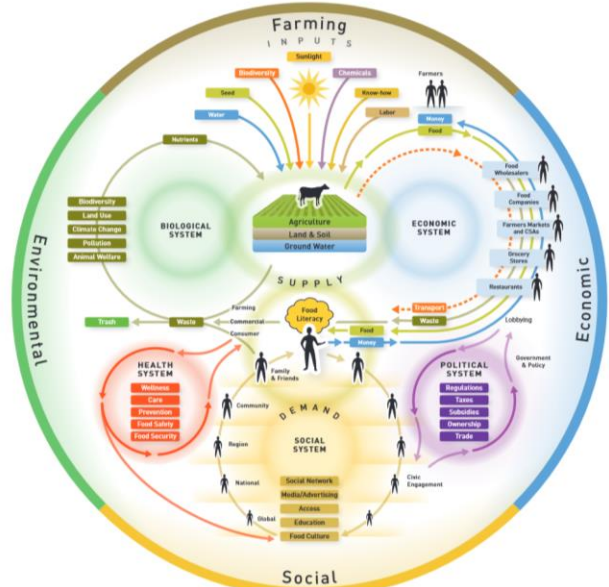
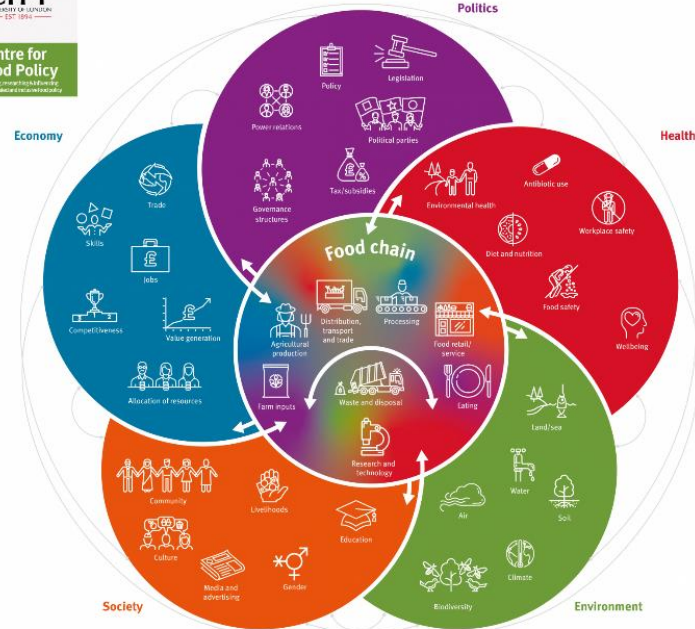
How can we manage complexity?



How can we explain complexity?



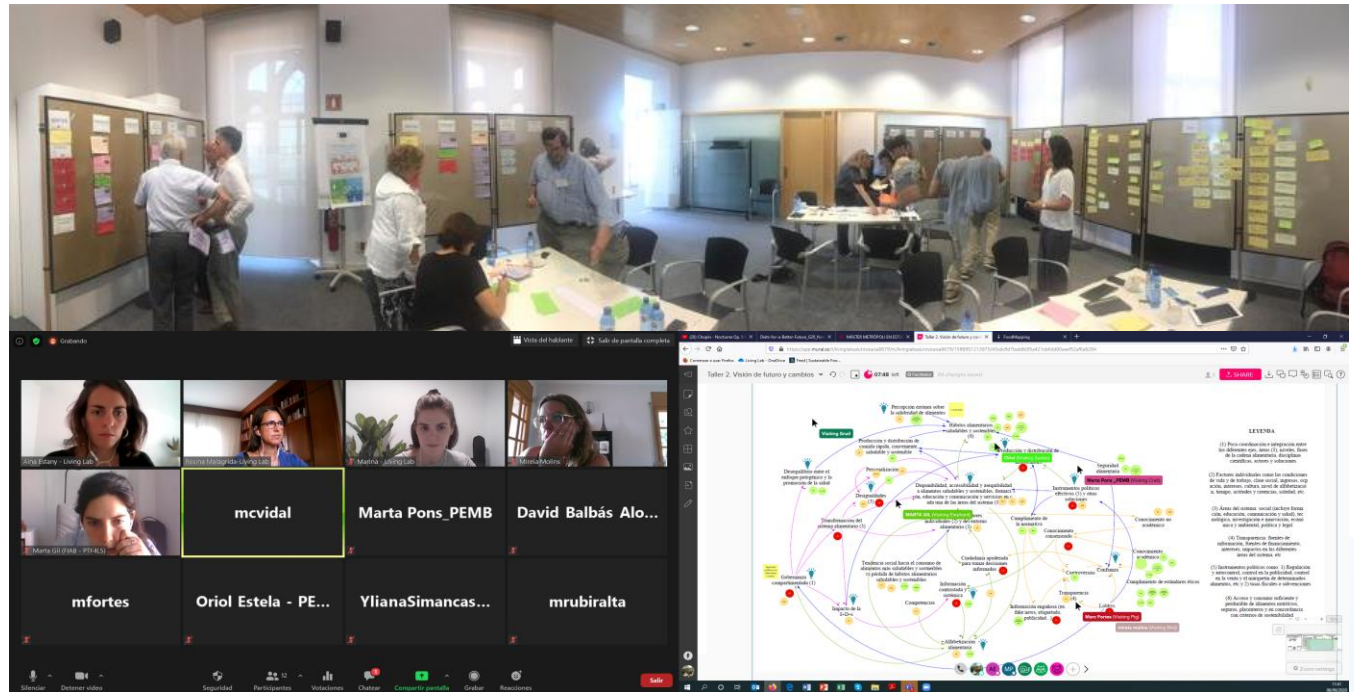
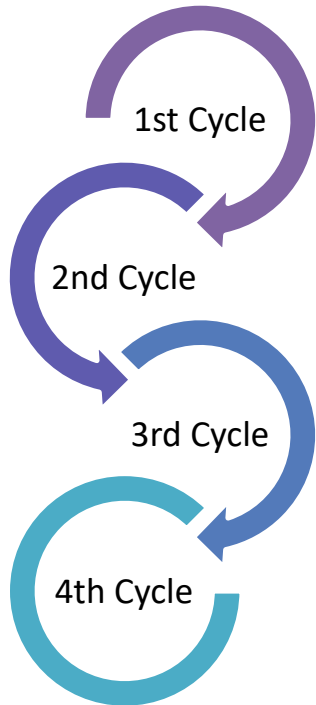
The food system



CHANGE

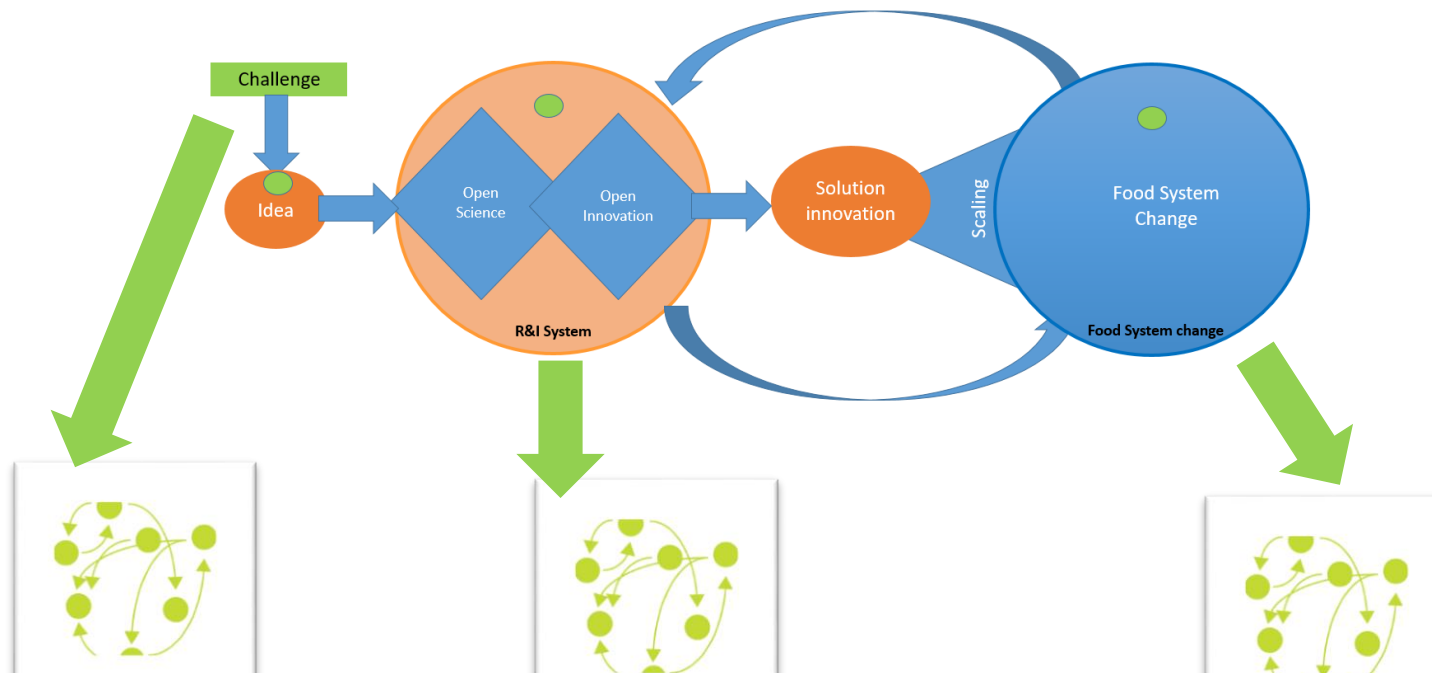
New ways of problem solving

COMMUNITY OF PRACTICE

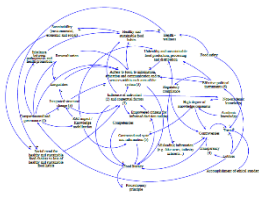


...

1. **Process:** dynamic, iterative, mutual learning around complexity
2. **Strategic reflection** at organizational and collective level
3. **Focus on systemic change:** Changes in strategies of organizations and collective strategies with more **systemic solutions**



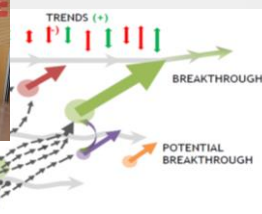
System knowledge



1. Why is it so difficult to solve the challenge?

Key factors and dynamics that hinder change

Transformation knowledge



3. Where is it necessary to promote change? How is change happening?

Changes in current strategies and collective strategies

Target knowledge



2. What do we want to achieve?

Future shared vision

SYSTEMIC INNOVATION



Nutritional interventions i.e. by pediatrics

Feeding centre

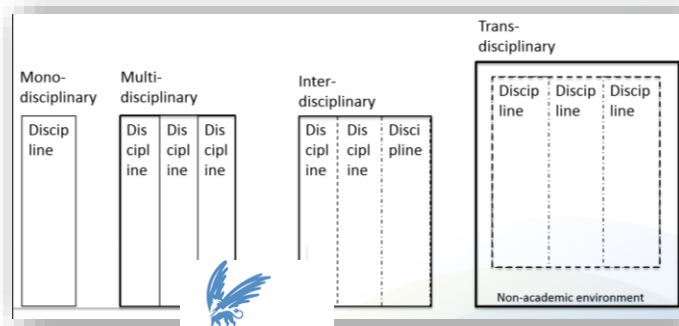
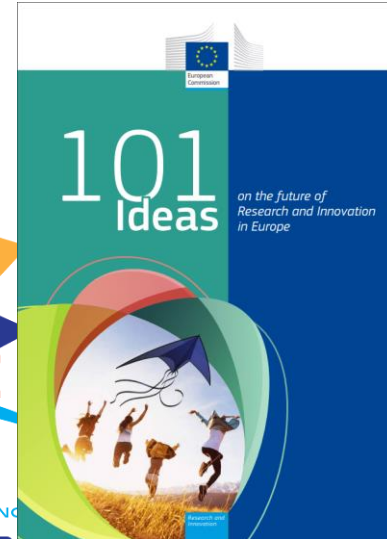
Communication channel

R&I

Changes in existing practices & new practices to take into account complexity

How to transform the R&I system?

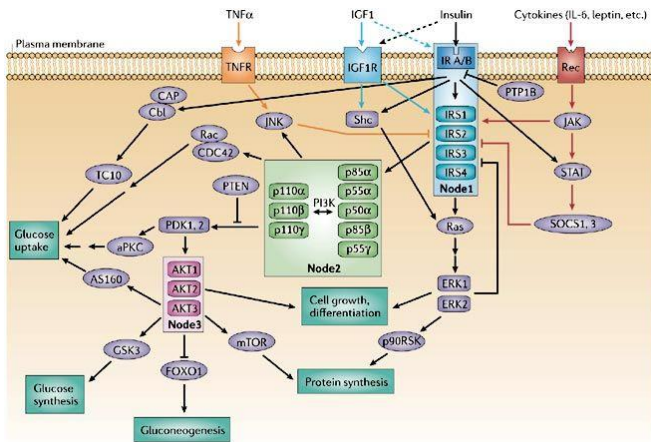
Inspiration from different movements...



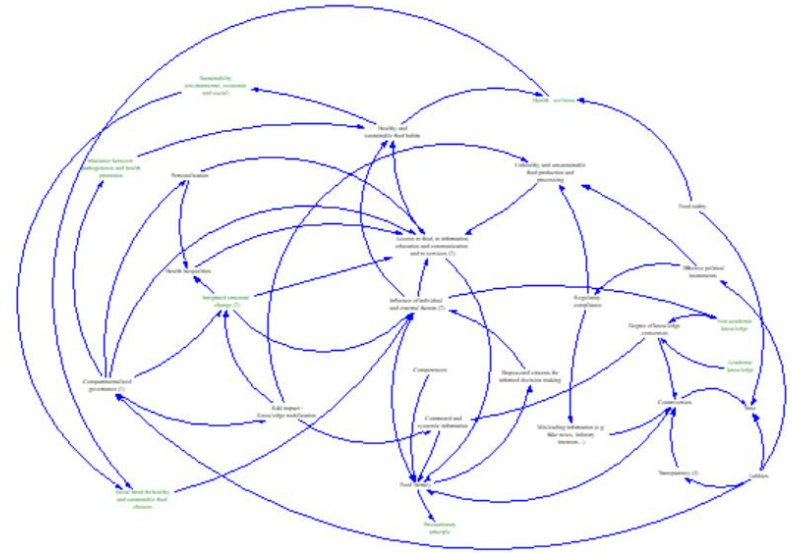
POLICY BRIEF 1

A SYSTEMS APPROACH TO RESEARCH AND INNOVATION FOR FOOD SYSTEM TRANSFORMATION

Mapping nature and mapping complexity for change (at TD)



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“Missions must include new conversations between **fundamental research, applied research and cutting-edge innovation**”, Mazzucatto, 2018.



Thank you!

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