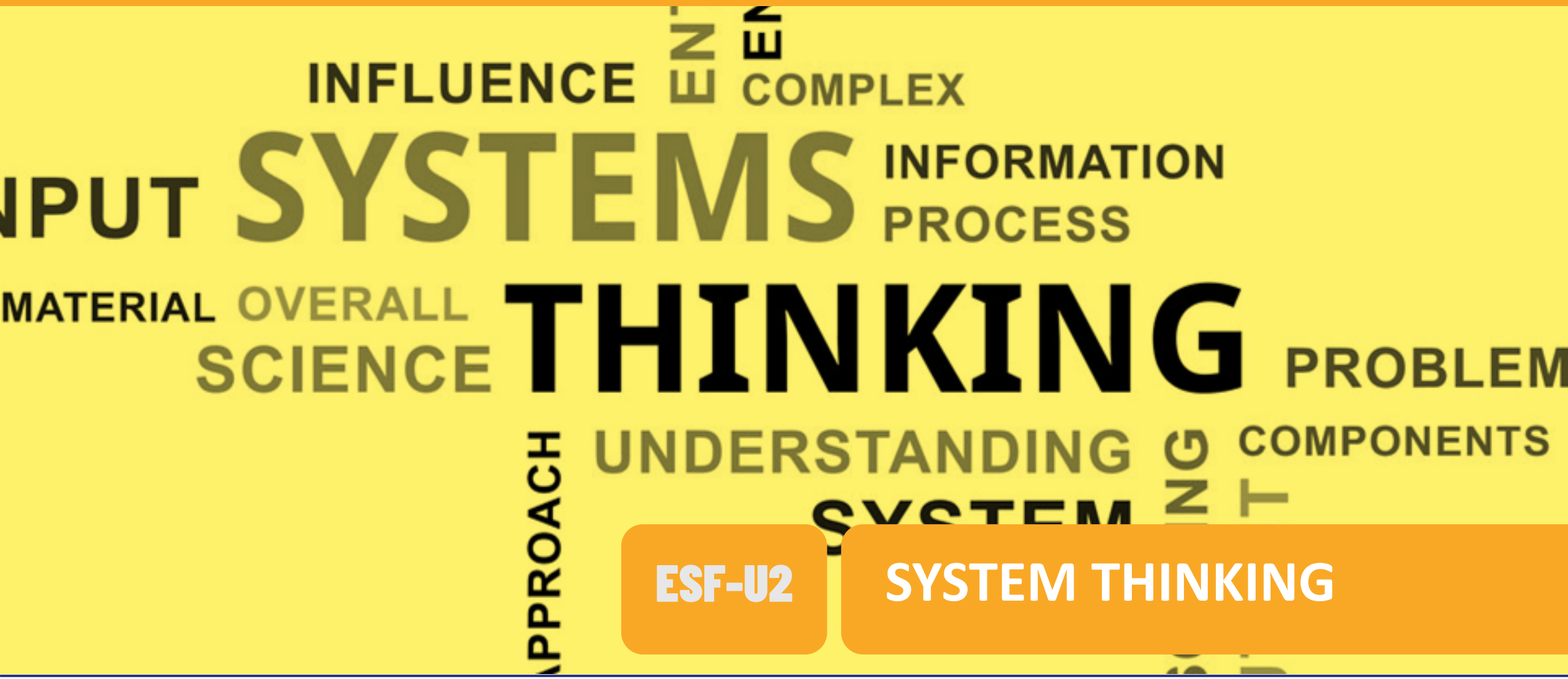

ESF-U2 SYSTEM THINKING

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NO MORE TIME.

- No more resources.
- The world is burning.
- Food is changing.
- We must change too.

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- **When** did the concept of System Think become popular?
- **What** does system thinking mean?
- **Who** does need a system thinking mindset?
- **How** does a “system thinker” act and work?
- **Where** should system thinking be applied?

But perhaps the most important question is:

- **Why** is system thinking an important competence?
- **WHY** do we need a system thinking mindset?

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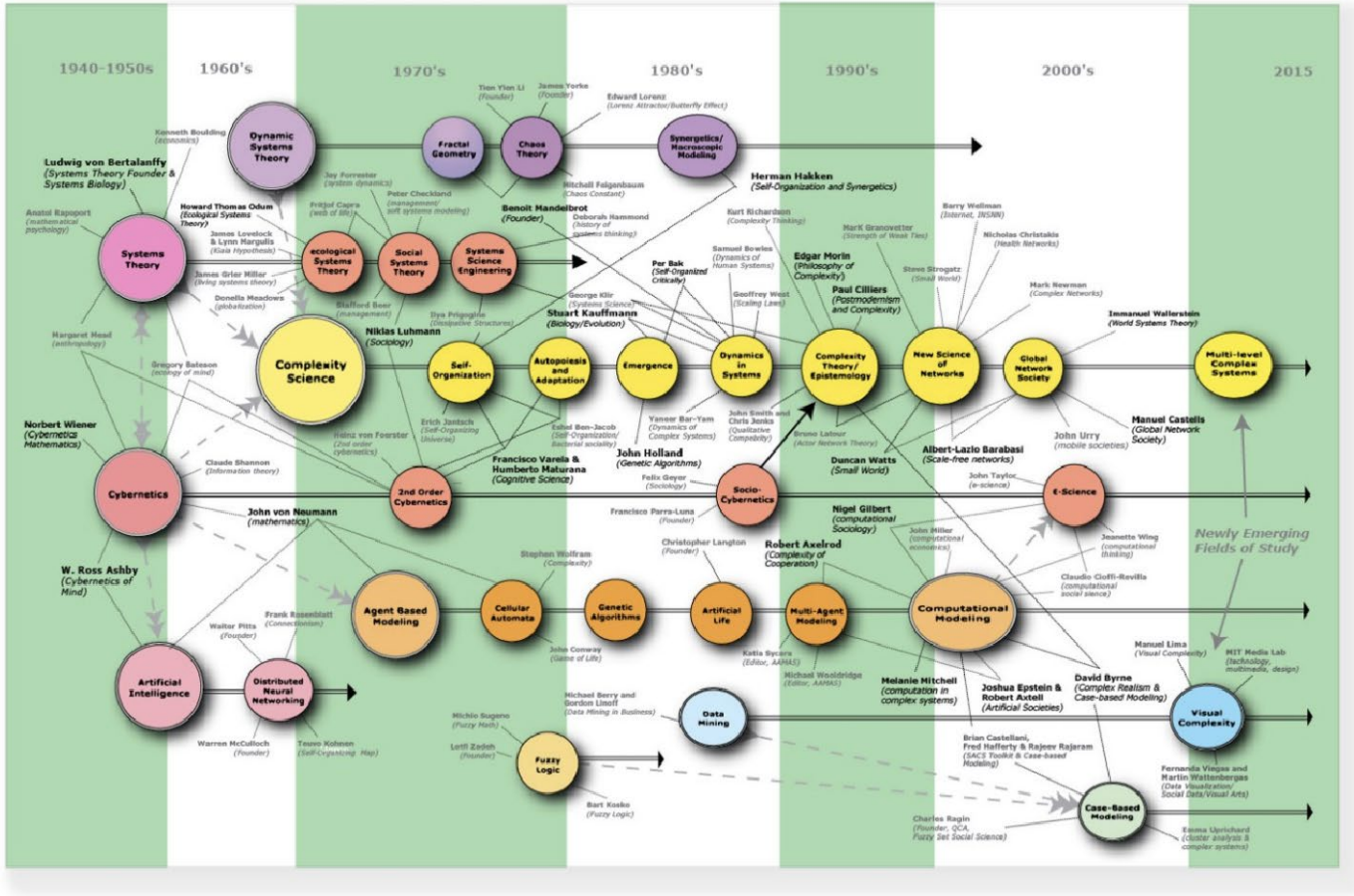
Biology, Mathematics and Computer Science, began to ‘think in systems’.
before World War II

‘Think in systems’



Source: Complexity Map, Brian Castellani, via Theory Culture Society
https://www.theoryculturesociety.org/brian-castellani-on-the-complexity-sciences/)

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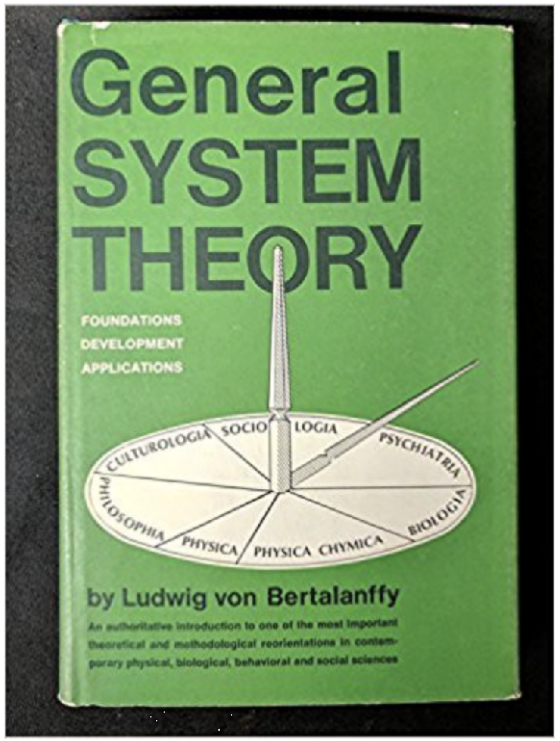
By the 1960s, **Systems Theory** was widely applied to many other fields, including Sociology, Management, Psychology, and Law.



via Amazon Canada https://www.amazon.ca/General-theory-Foundations-development-applications/dp/B0006BUUPI

*"We believe that the attempts to find a foundation for theoretical biology point at a fundamental change in the world picture. This view, considered as a method of investigation, we shall call "organismic biology" and, as an attempt at an explanation, "**the system theory of an organism.**"*
— Ludwig von Bartalanffy

His thoughts became more widely known through his later English-translated books, such as *General Systems Theory*published in 1968.

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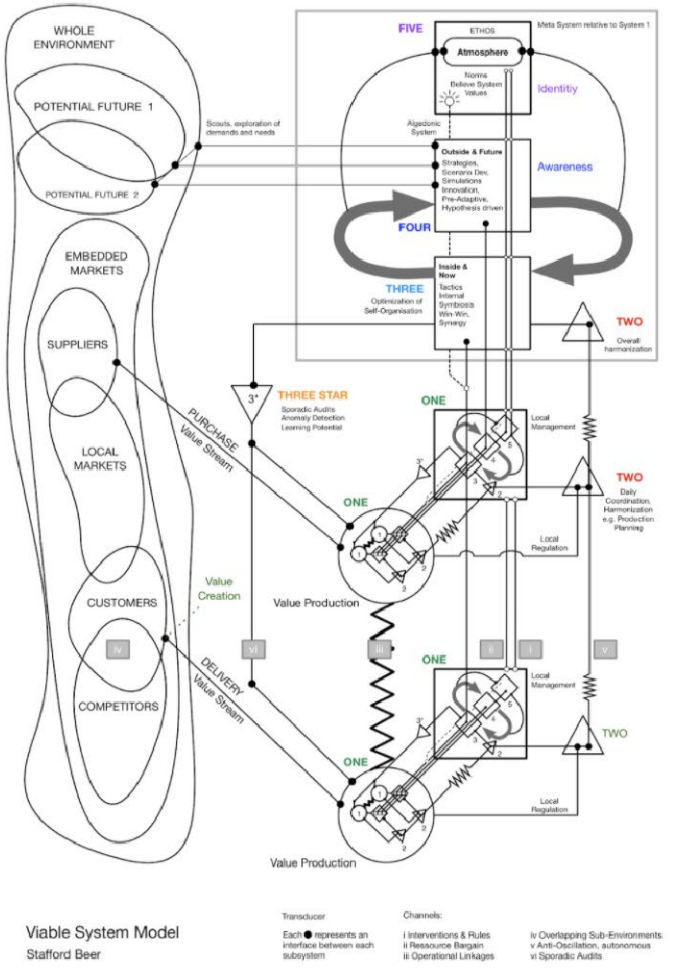
Cibernetics



Viable System Model by Stafford Beer

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System Dynamics
Theory at MIT

Jay W Forrester, in front of Whirlwind in the MIT Digital Computer Lab, is interviewed by Boston's Channel 7 in 1957. Via MIT Technology Review

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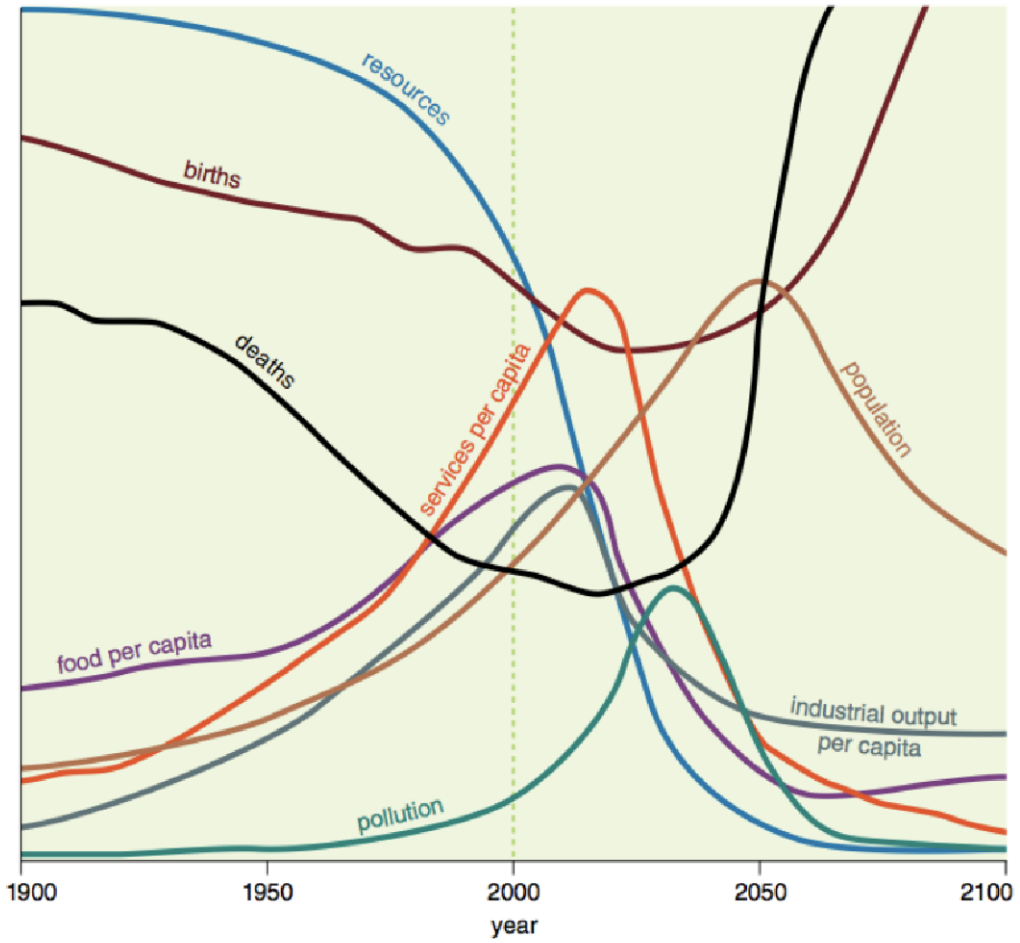
she used dynamic systems modelling to describe the relationship between human activity and the environment.

Ecology



Via Egan History, Limits to Growth, Donella Meadows:
https://eganhistory.com/2012/03/16/the-limits-to-growth/

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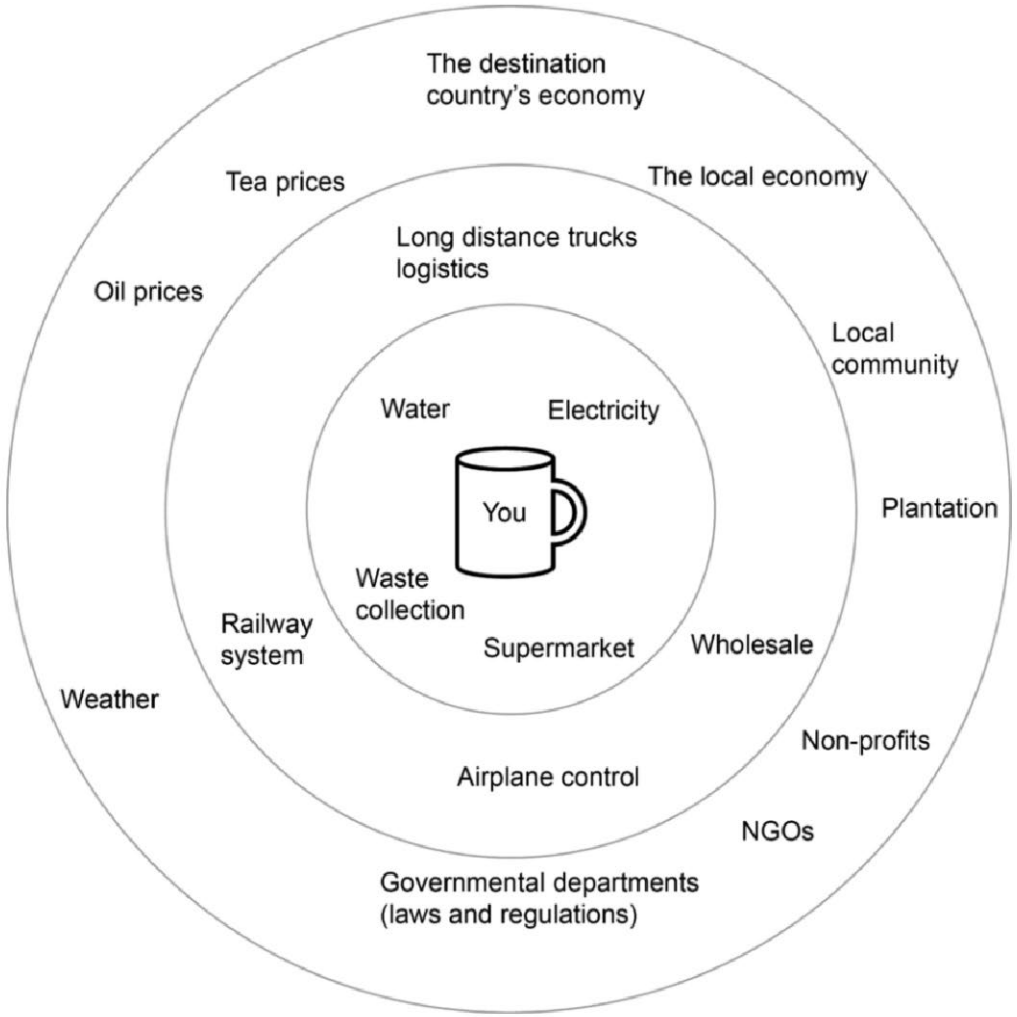

Example of a system: A cup of tea

Daily life.

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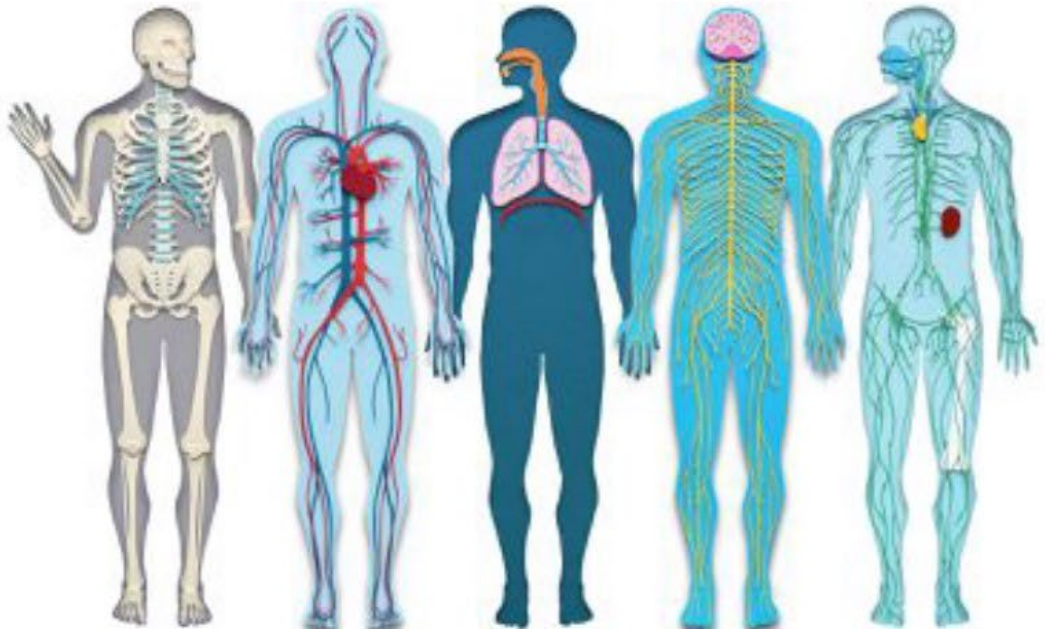

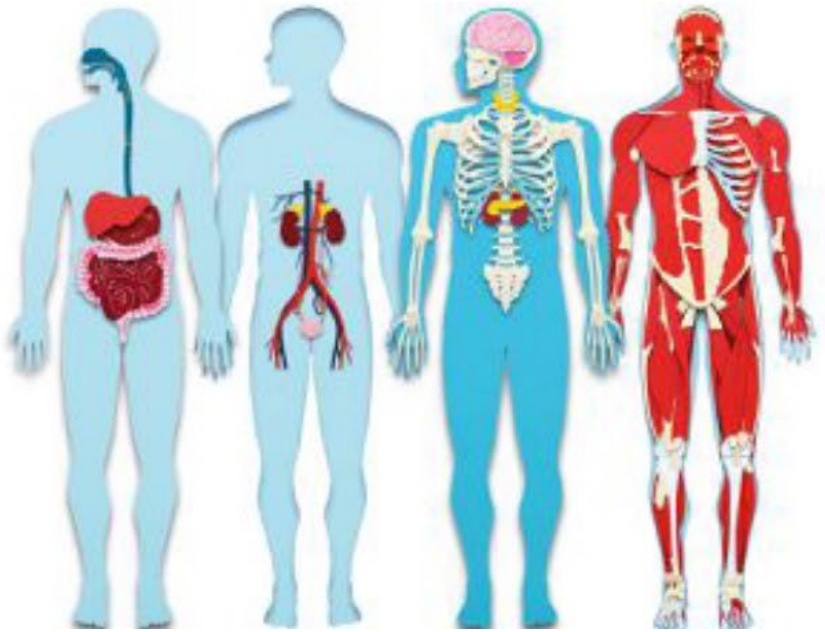

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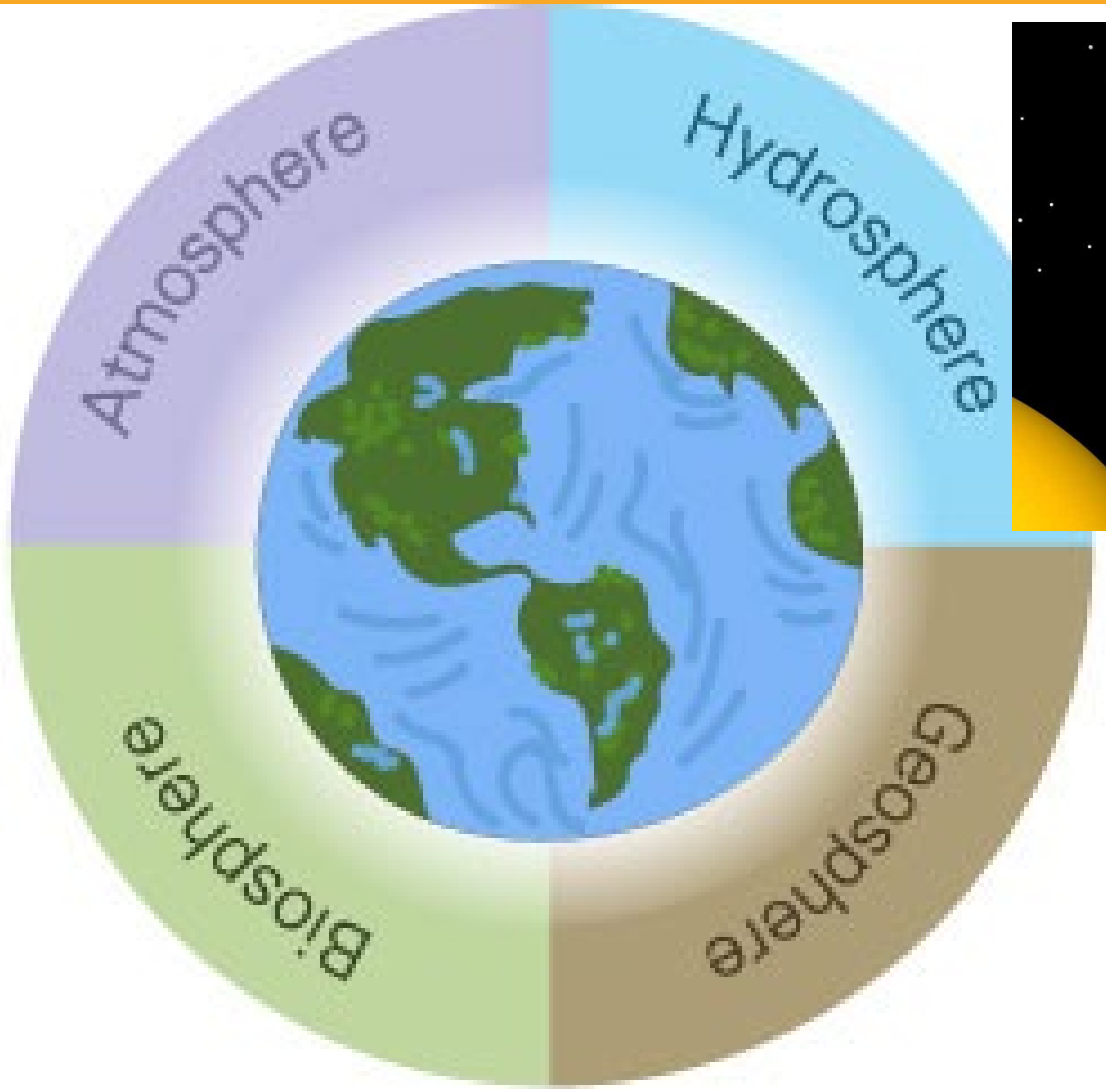

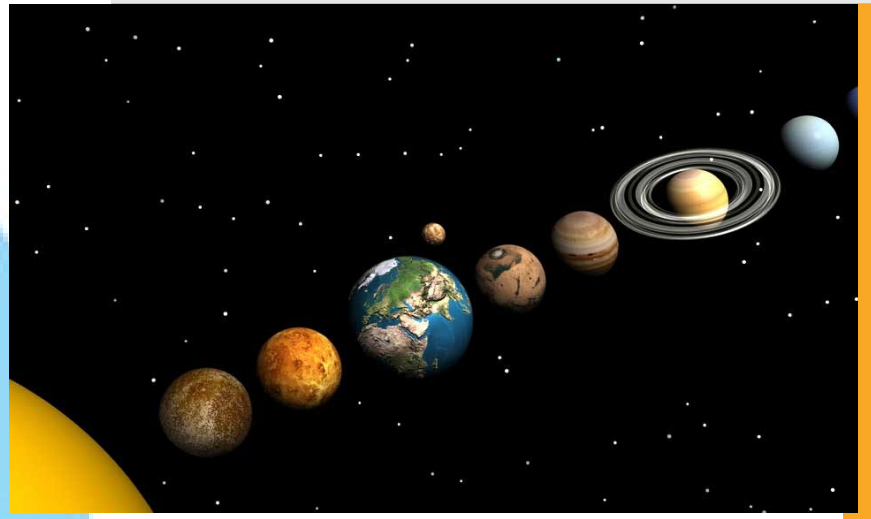

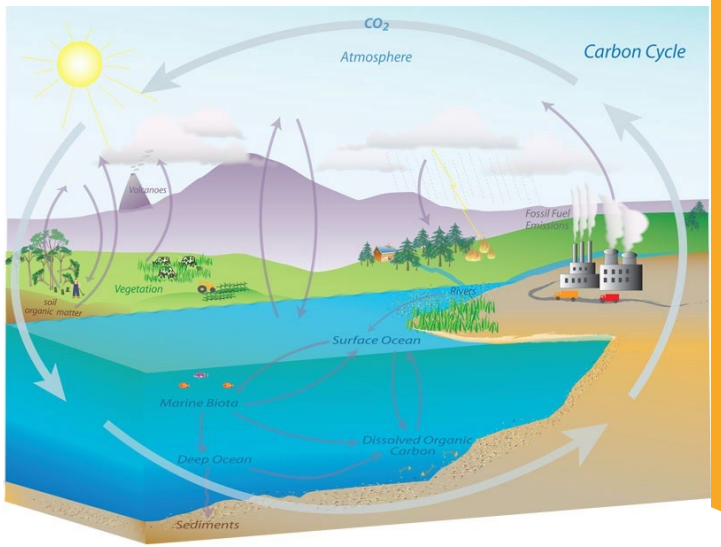

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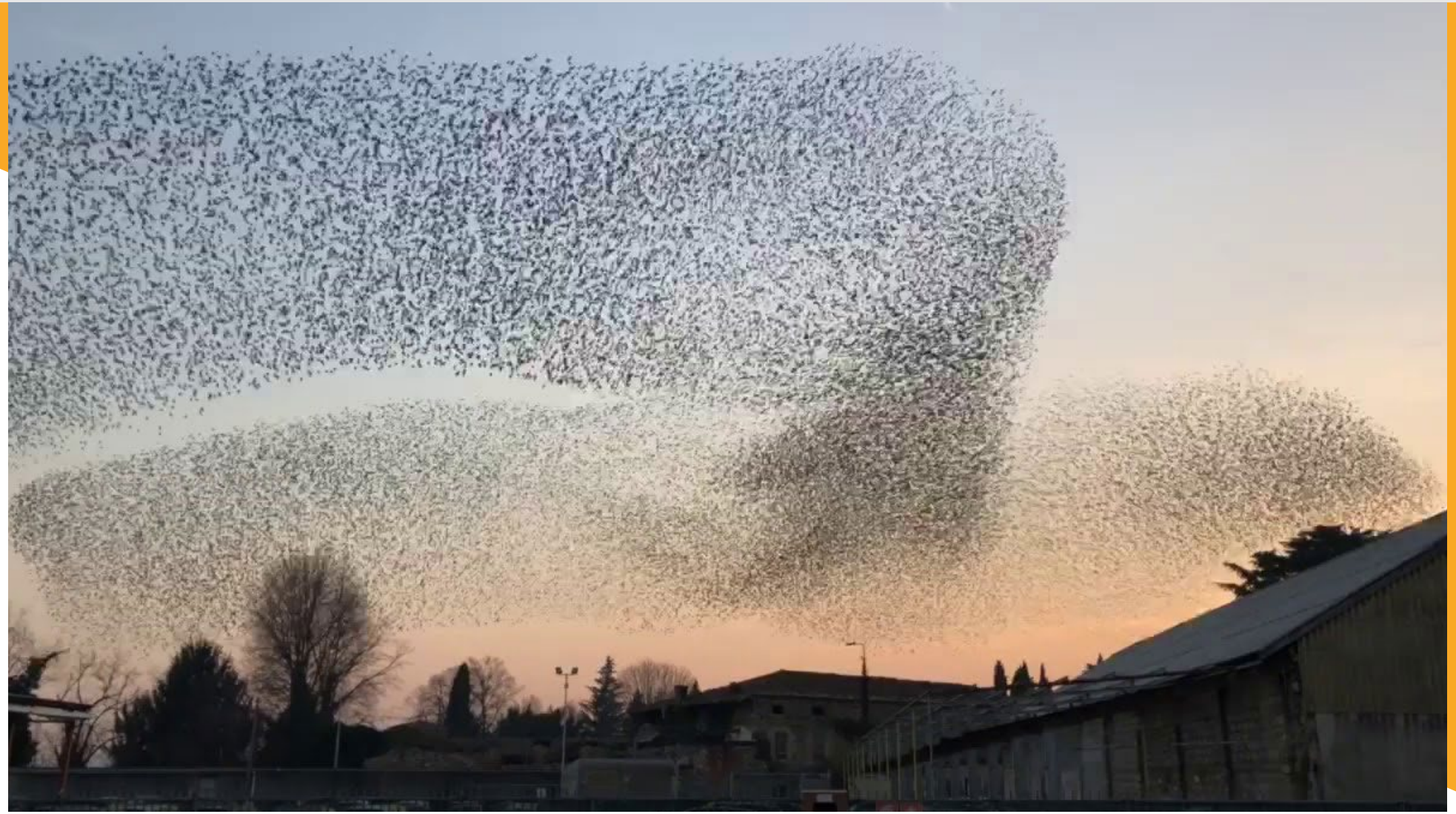

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We are surrounded by systems.

- Systems thinking looks at the whole and the parts, and the connection between the parts, studying the whole in order to understand the parts.

The Art of Systems Thinking -
Essential Skills for Creativity and Problem Solving

- The products, processes, and projects that we work on are increasingly complex and interrelated systems. Organizations are calling on you, their technical professionals, to drive and optimize complex projects under high-pressure conditions. (MIT)

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System thinking helps and supports

- System thinking (or “systems thinking”) helps to examine complexity and simplify it; recognize patterns, and create effective solutions to challenges. Understanding and approaching problems from a systems perspective in technical environments is an essential skill for your career (MIT)

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TOOLS OF A SYSTEM THINKER

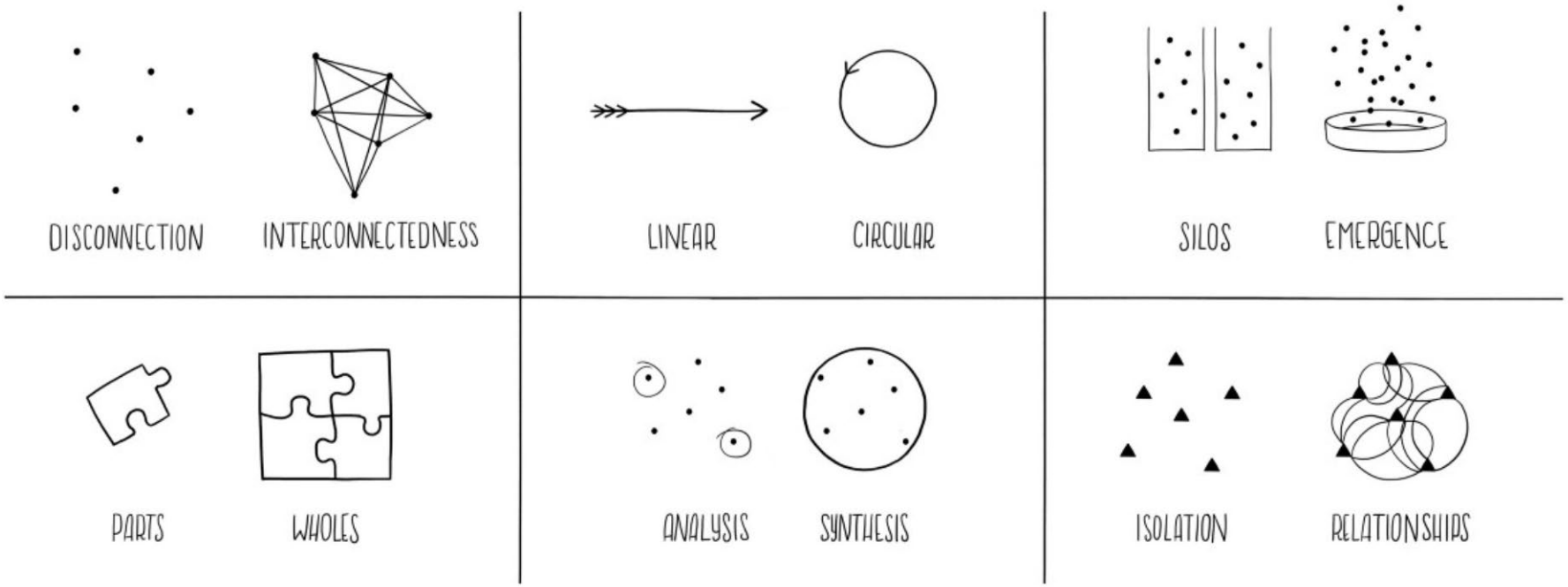

Photo credit: BY LEILA ACAROGLU

DISRUPT DESIGN

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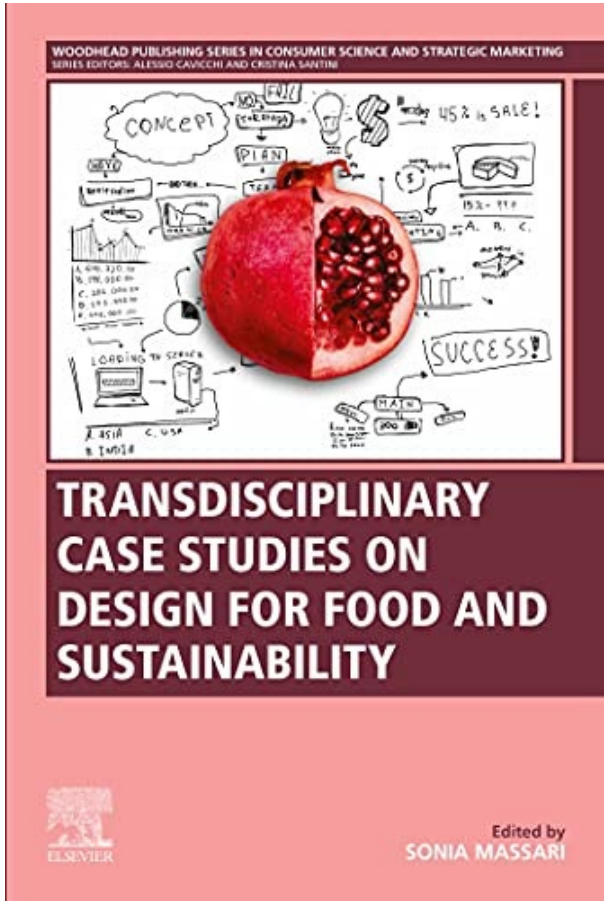

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SYSTEM THINKING MINDSET

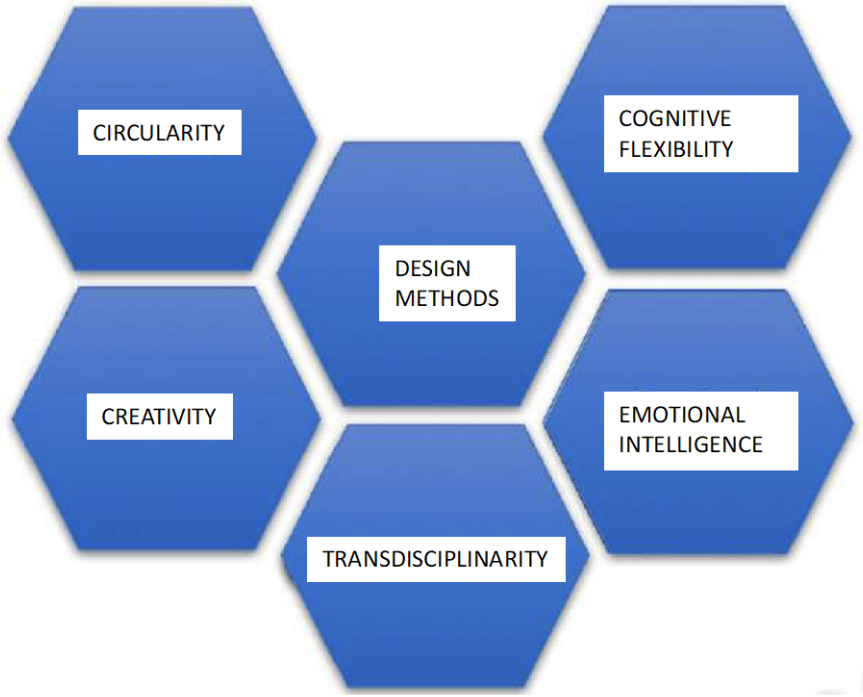

Fig. 19.2 The empathy-system thinking mindset.

Photo credit: Sonia Massari

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Circular Vision
Circularity

- No linear relationships and interactions
- Connecting the dots

Photo credit: http://www.foodsystemprimer.org

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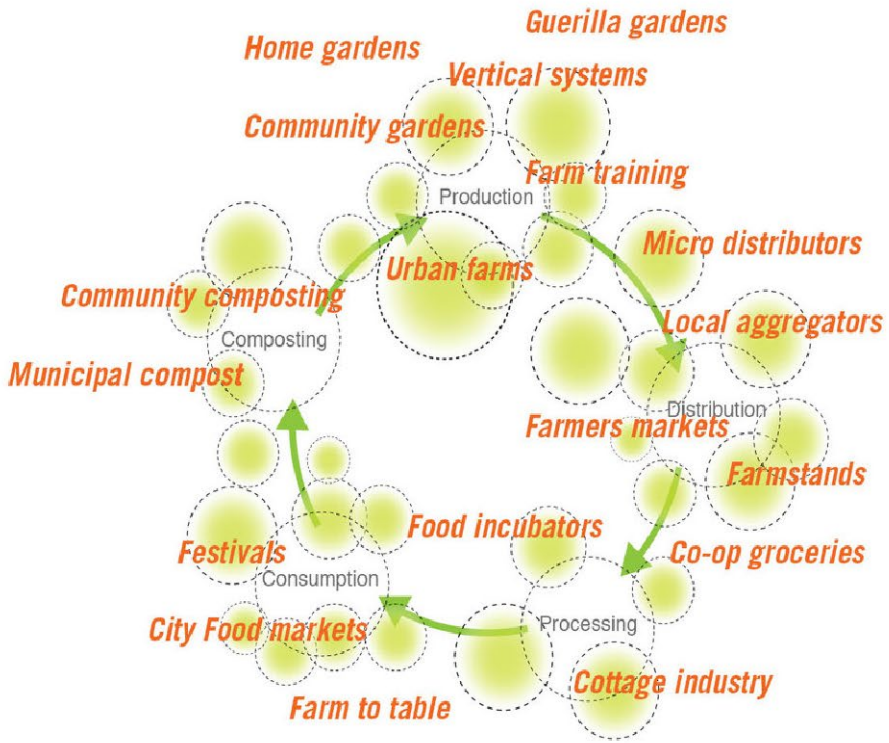

http://communityfoodlab.org

Fig. 19.1 A representation of the current food supply (from food experiences to systems of sustainable experiences).

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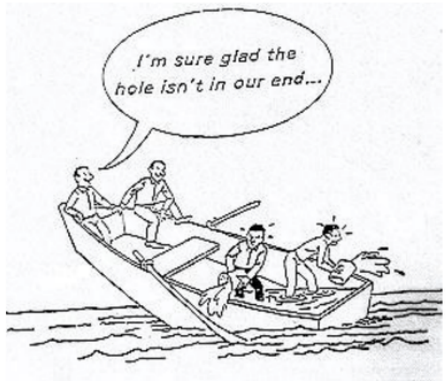
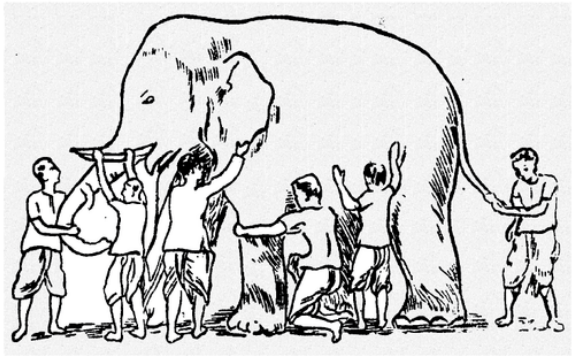
Cognitive Flexibility
(or Flexible Cognitivity)

- Best resources are those visible, but not seen.
- Changing pathways, finding solutions

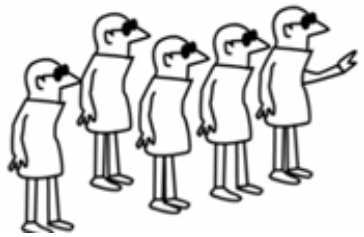
Systems Thinking

in sustainability, projects and communication





A Systems Perspective



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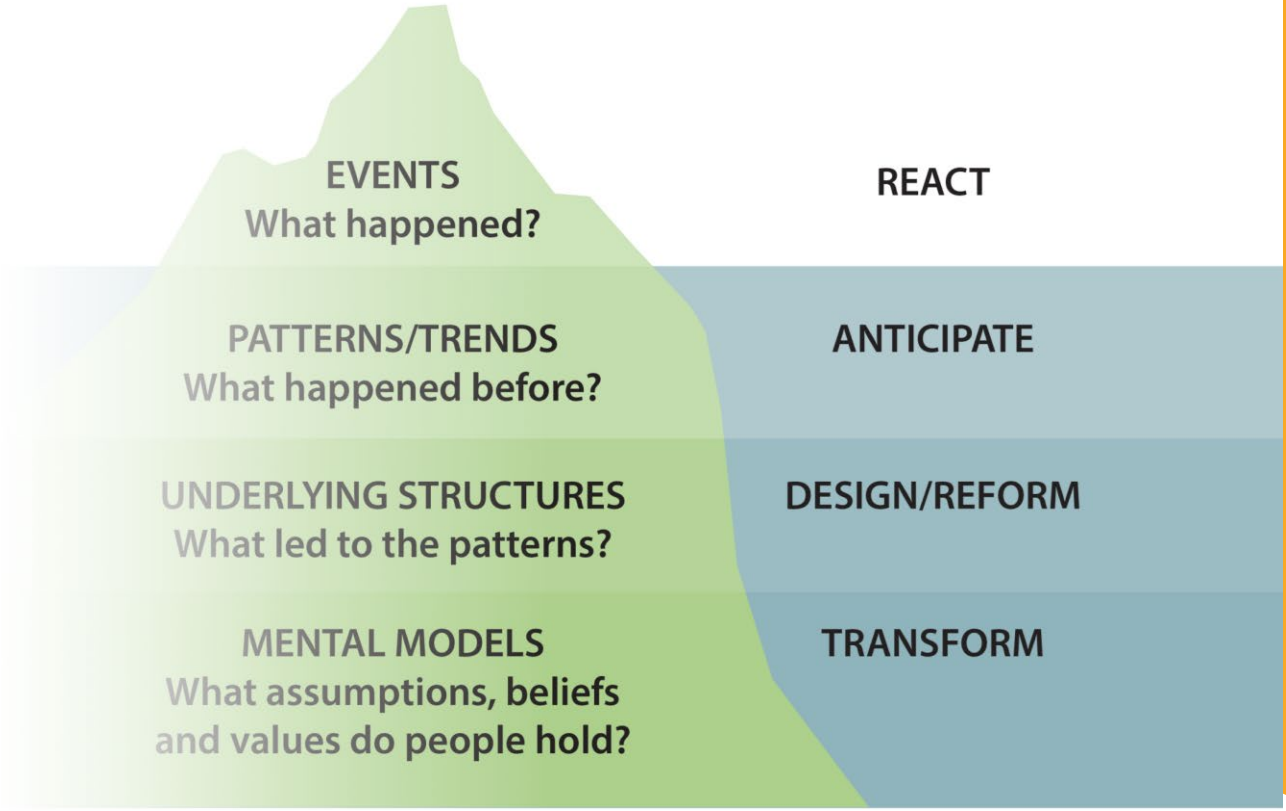
Emotional Intelligence

- Empathy
- Social abilities
- Agency
- Emotions

SYSTEMS THINKING MODEL (GOODMAN, 2002)



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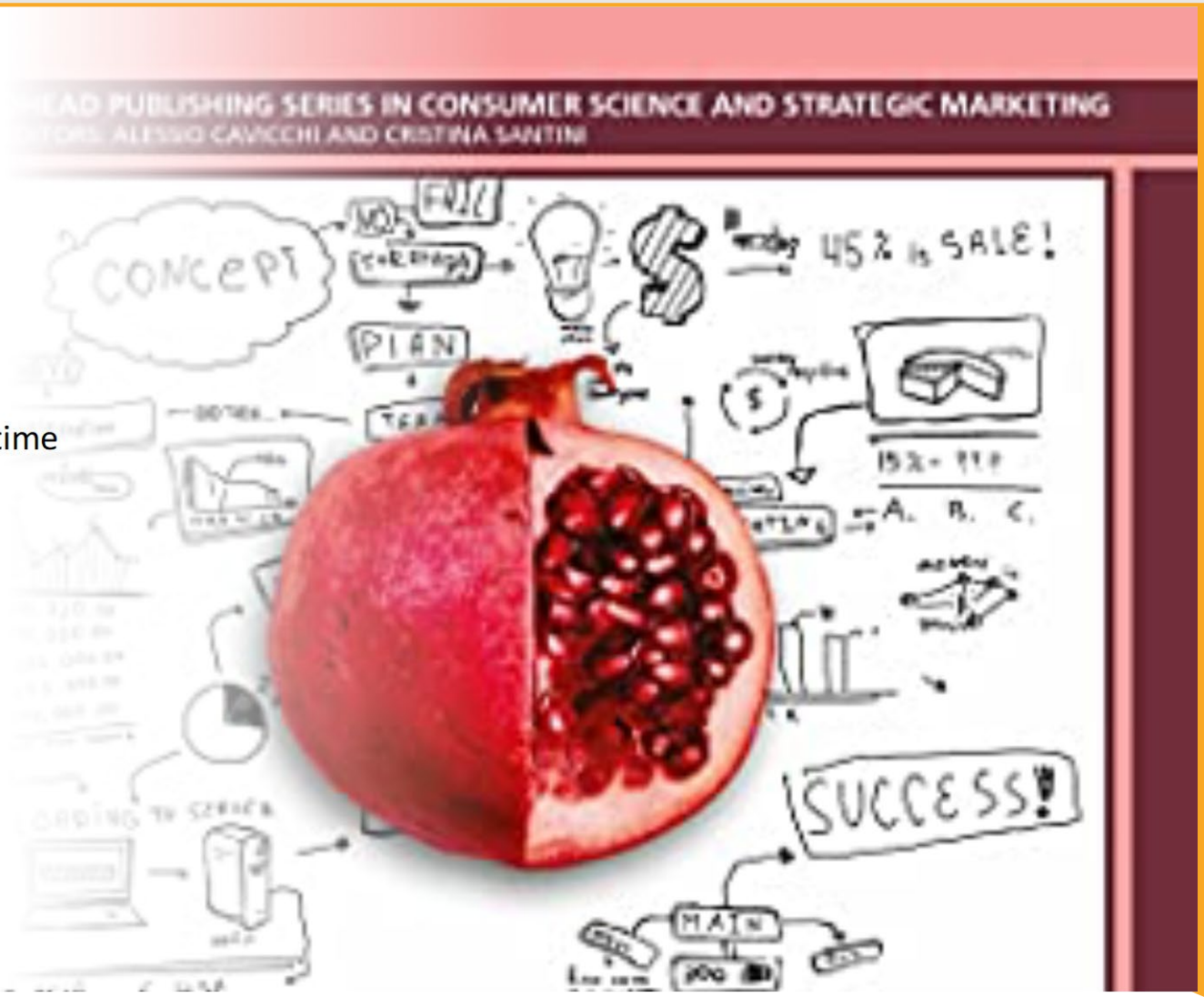
Trans-disciplinarity

- Sharing competences
- Different perspectives in time and space
- No borders, no limits

- NO **BORDERS**, NO **LIMITS**



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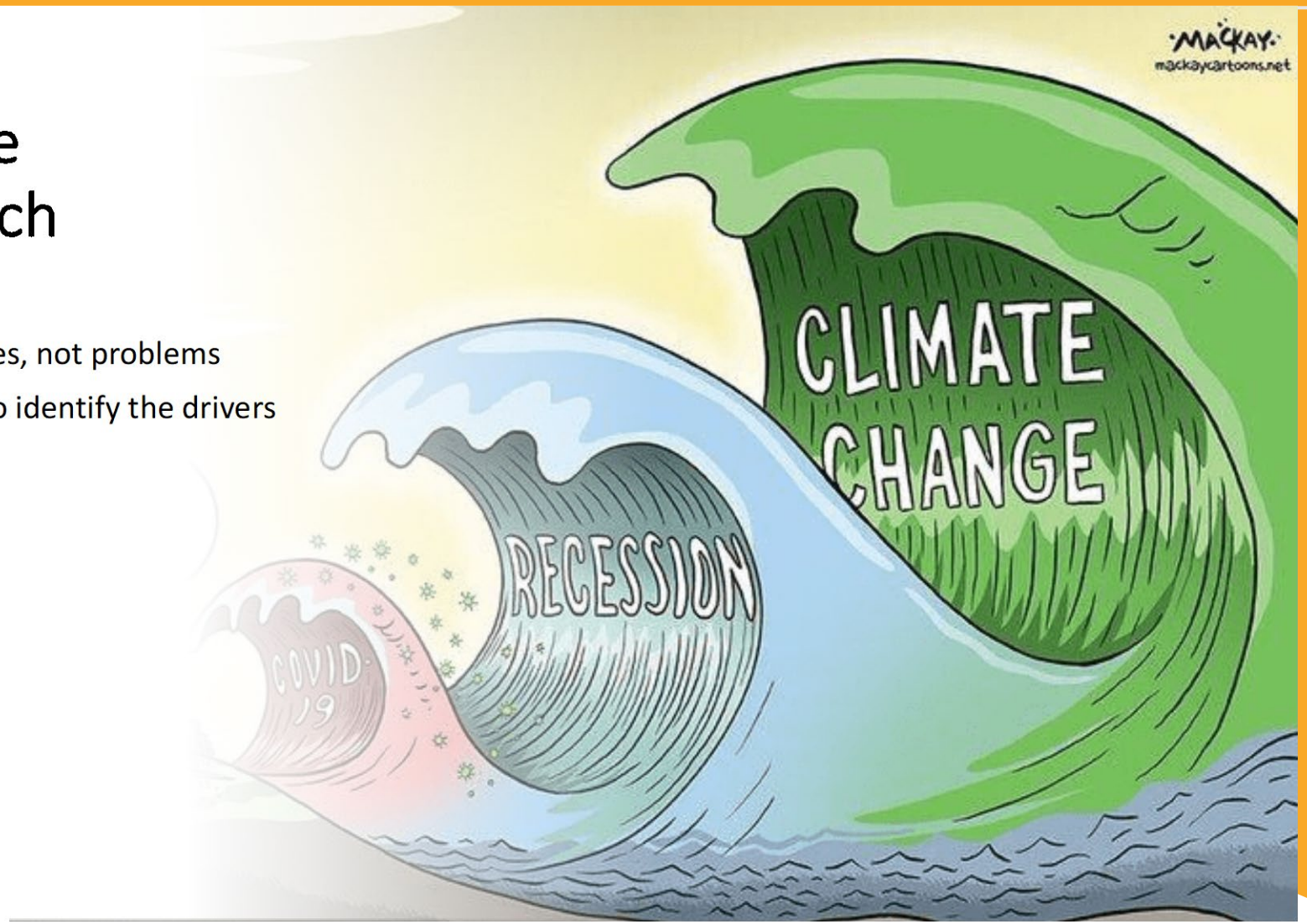
Creative Approach

- Opportunities, not problems
- Being able to identify the drivers of change



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Design method, ability and power

You are a system

We are a system

The Planet is a system

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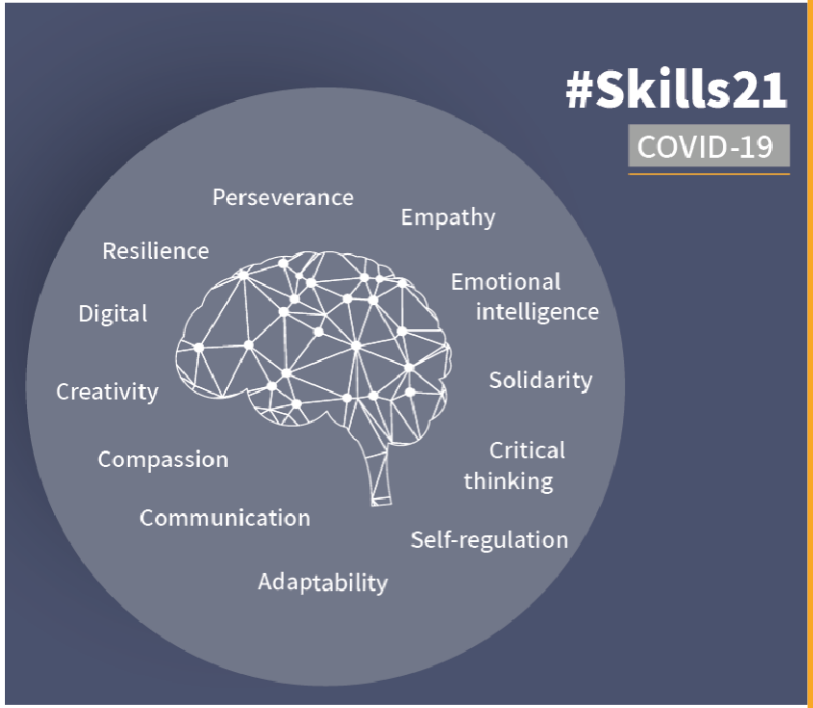
TAKEAWAYS FROM THIS MODULE

Systems thinking goes beyond individual actions.
We need to act together.

Systems are not external to us.
We are part of them and we can influence them.

System Thinking is a KEY competence! For now and the future
Why are #skills21 so important in the context of COVID-19? Because these skills contribute, not only to better navigate the crisis, but **to prepare for the aftermath,** when the health emergency is over.
Food & Sustainability are **complex systems**



Credits: WorldEconomicForum

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SOME REFLECTIONS

What struck you most about the contents of today's lesson?

Which of the skills of the systemic mindset would you like to improve? and on which one are you already prepared?

What systems do you see around you, in everyday life?

How you can apply systems thinking to improve the performance of your educational projects?

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Thanks to everyone

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