Introducing Systems Thinking (ST) with practical examples

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KnowlEdge

System Thinking (ST)

"Systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static 'snapshots'...Today systems thinking is needed more than ever because we are becoming overwhelmed by complexity.

Perhaps for the first time in history, humankind has the capacity to create more ***information*** *than anyone can absorb,*
greater ***interdependency*** *than anyone can manage,*
accelerate ***change*** *faster than anyone's ability to keep pace."*

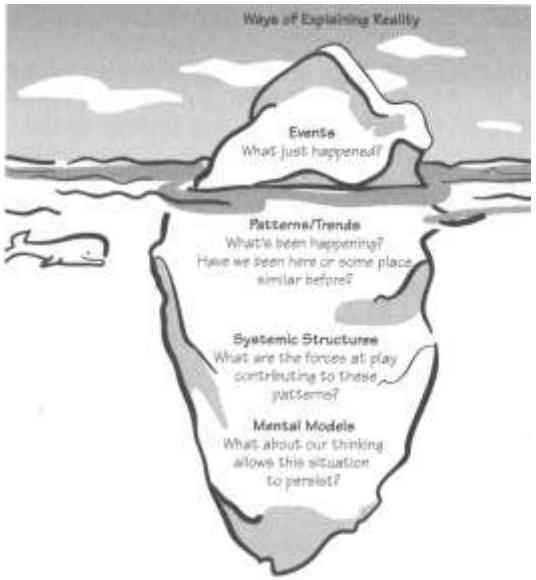
Peter Senge, The Fifth Discipline

System Thinking (ST)

- An approach for developing a shared understanding, based on the investigation of:
  - Events,
  - Patterns of behavior resulting in the events, and
  - The underlying structure responsible for the patterns of behavior.

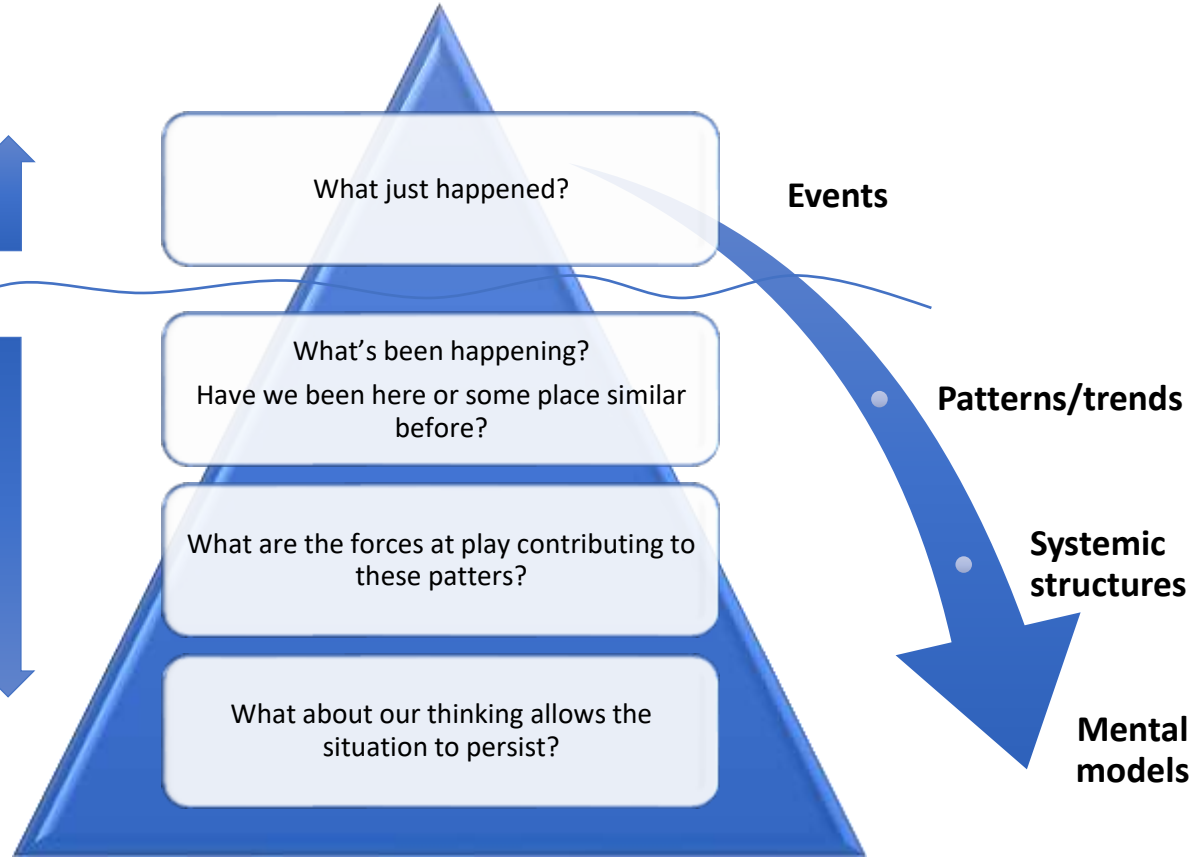
It is only through our **understanding** of the **underlying structure** that we will be able to **identify** the most appropriate **leverage points** to effect **change** within the system.

Systems Thinking (ST)



Above the surface

Under the surface



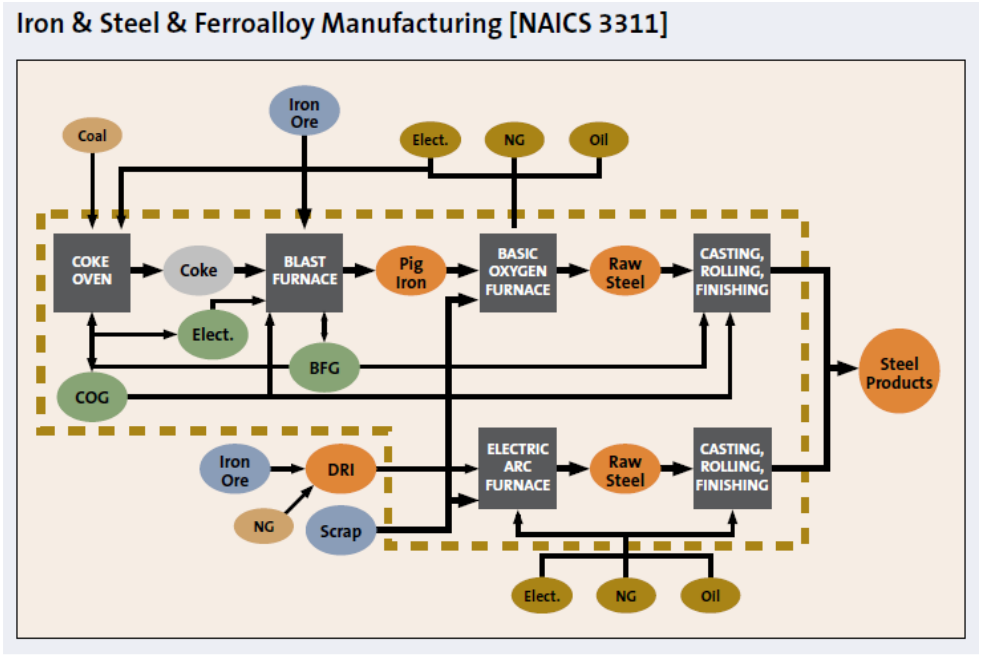
Events

Patterns/trends

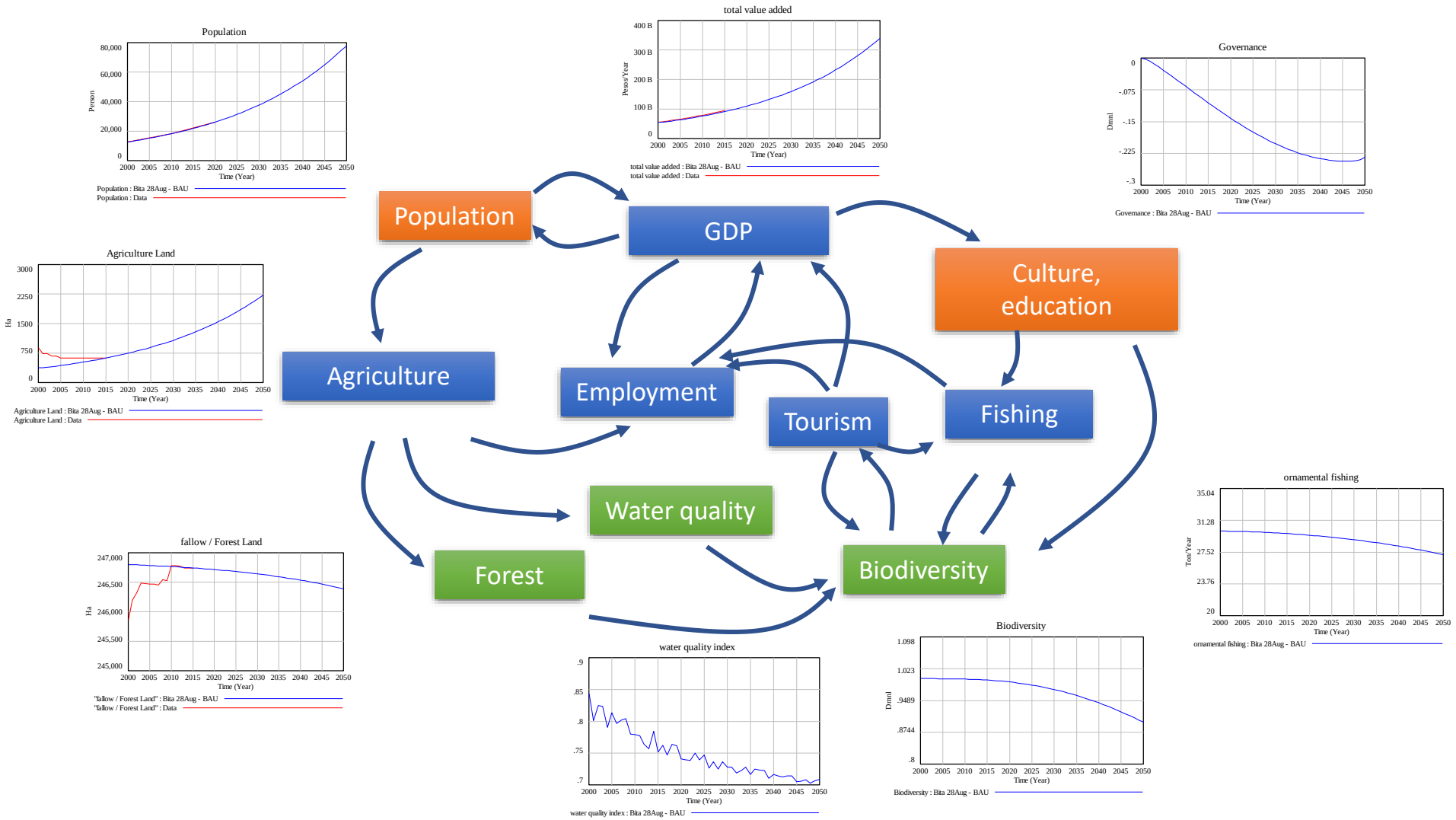
Systemic structures

Mental models

Detailed Complexity



Dynamic Complexity



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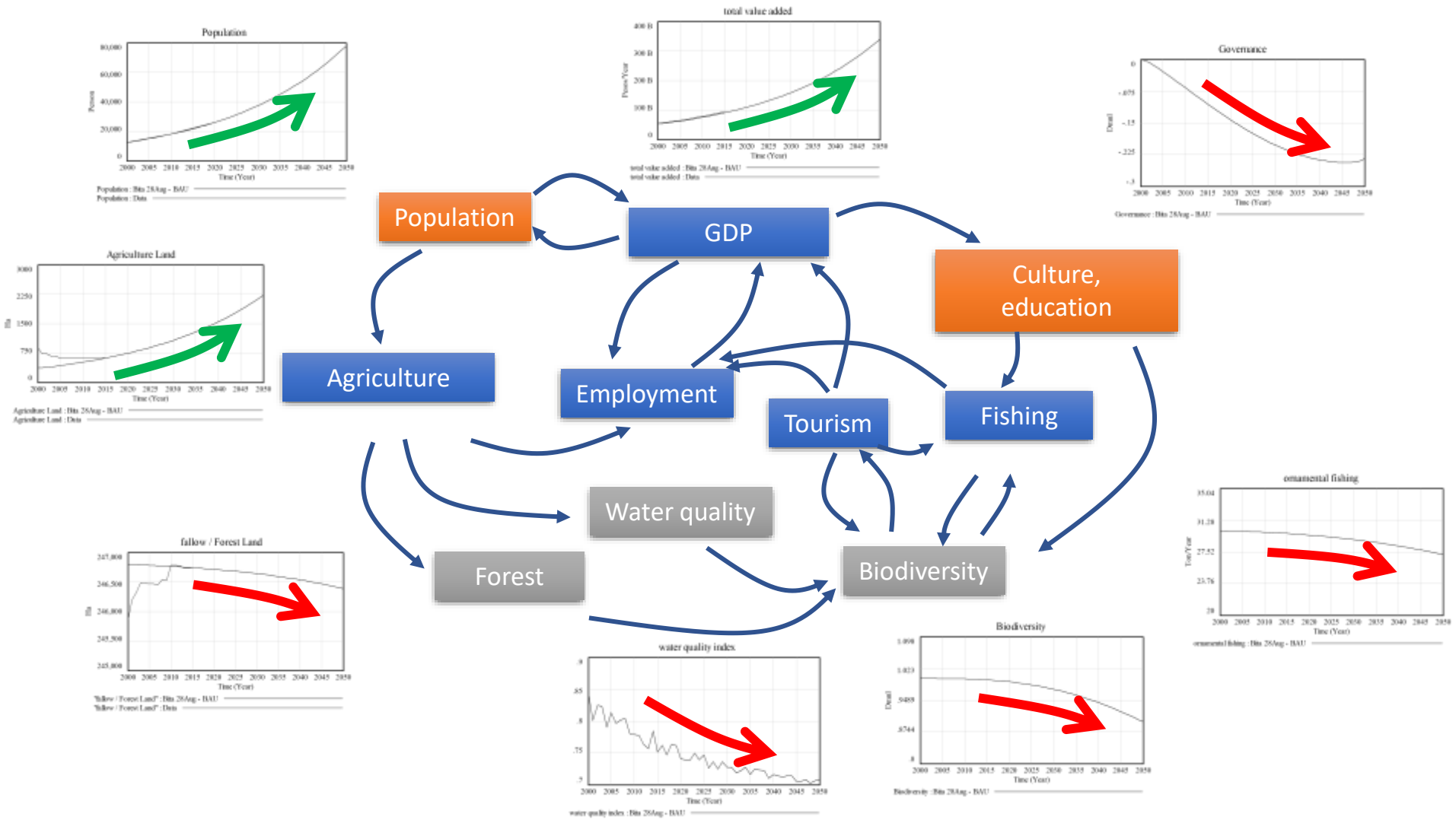
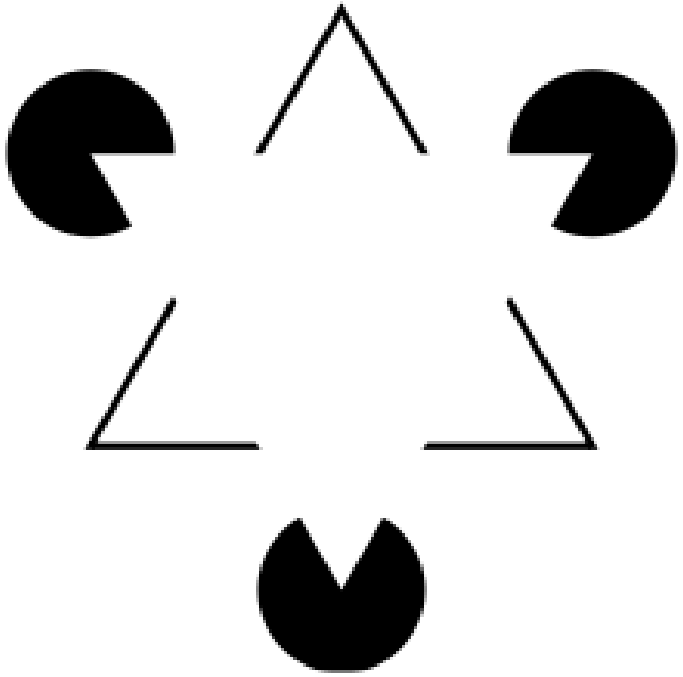


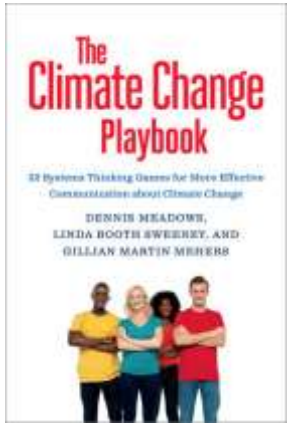
First journey: personal reflections

Why take a systemic view? (mental models - Kanizsa's Triangle)

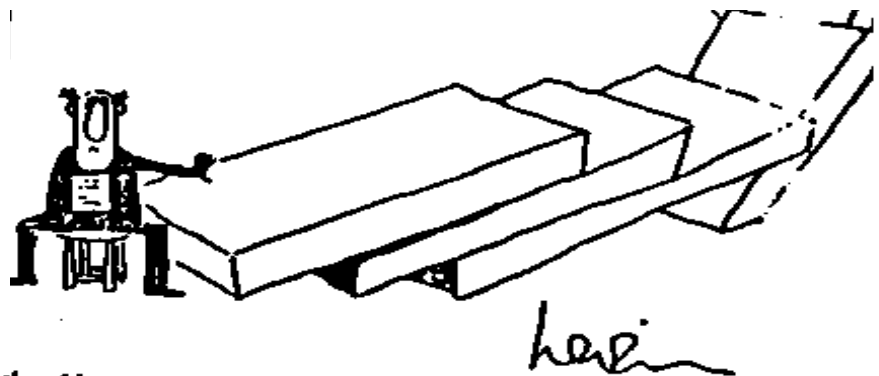


Other examples:

- Pen exercise
- 1-2-3 go
- Thumb wrestling



Key properties of systems: feedback



Drawing by Lorin; © 1978 The New Yorker Magazine, Inc.

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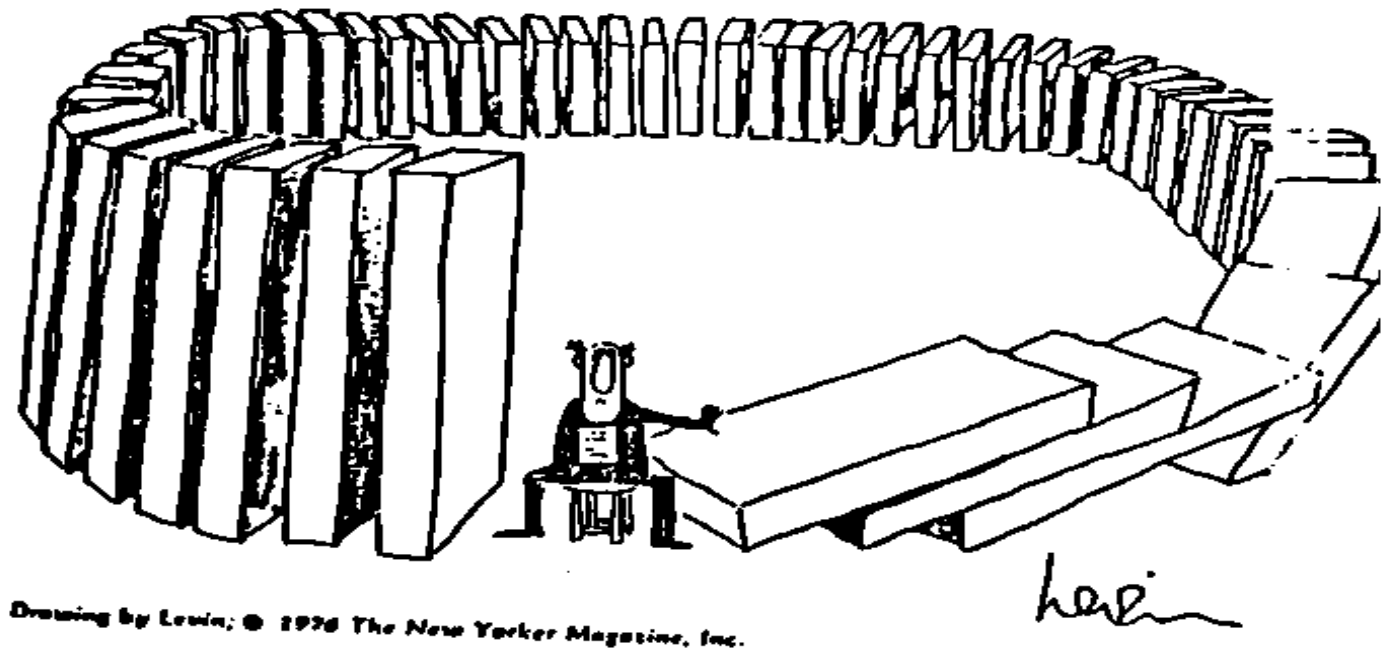
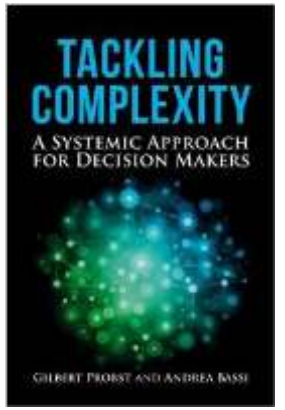


Key properties of systems: non-linearity

Second journey: problem solving

Where are we coming from?



We have been making -very frequently- six mistakes (Probst and Bassi, 2014).

These include the belief that:

1. Abundance of data allows us to find ultimate solutions and predict system behaviour;
2. Every problem is a direct consequence of a single cause;
3. We only need an accurate "snapshot" of the actual state of the system to find solutions;
4. The problem will be solved with the implementation of the intervention selected;
5. With a problem-oriented optimization, the solution will maximize benefits for all;
6. Monitoring and evaluation do not affect the decision-making cycle, they only evaluate the system performance.

Decision-making phases	Conceptual mistakes	What to do
1. Problem identification	#1 Abundance of data allows us to find ultimate solutions and predict system behavior	Delimit the problem, identify the causes and the effects
2. System characterization	#2a Every problem is a direct consequence of a single cause #2b We only need an accurate 'snapshot' of the actual state of the system to find solutions	Map the complexity and explore the dynamic properties of the system
3. Strategy/policy Assessment (ex-ante)	#3 The problem will be solved with the implementation of the intervention selected	Identify the 'learning' capabilities of the system
4. Decision making and implementation	#4 With a problem-oriented optimization, the solution will maximize benefits for all	Evaluate the proposed solution using different perspectives and assess the impacts across sectors and actors
5. Monitoring and Evaluation (ex-post)	#5 Monitoring and evaluation do not affect the decision-making cycle, they only evaluate the system performance	Assess the effectiveness of the implemented interventions and the system responses to redefine the top priorities and the need for further action

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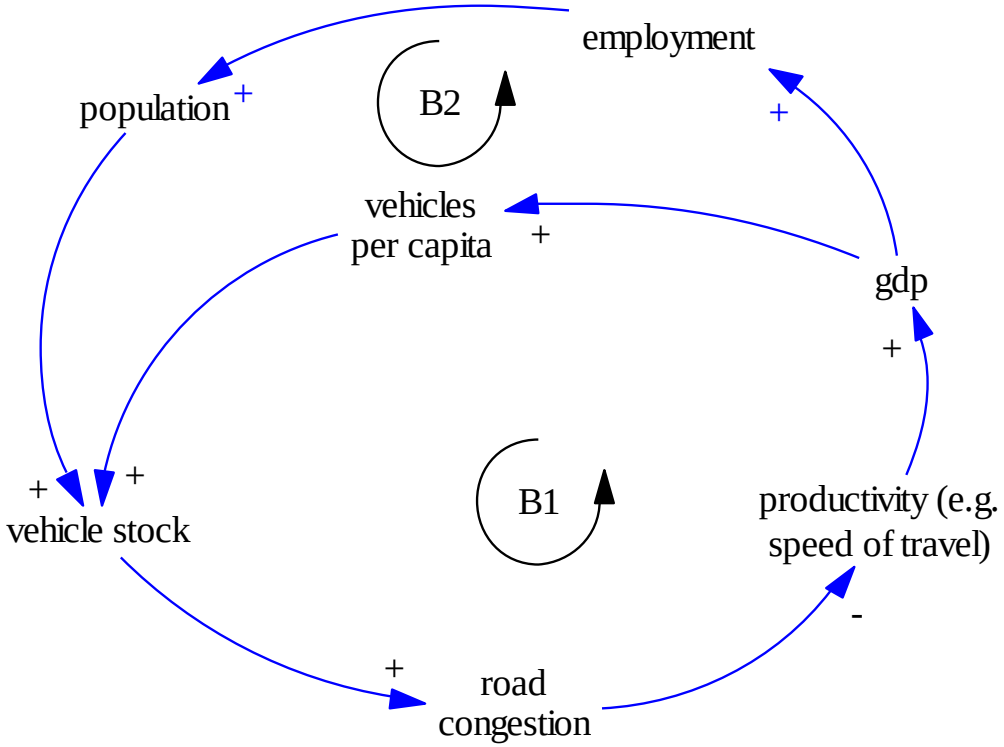
Causal Loop Diagram (CLD)

- Represents the feedback structure of systems
- Captures:
  - The hypotheses about the causes of dynamics
  - Mental models of individuals or teams
  - The important feedbacks driving the system
- Critical aspects:
  - Think in terms of cause-and-effect relationships
  - Focus on the feedback linkages among components of a system
  - Determine the appropriate boundaries for defining what is to be included in the CLD

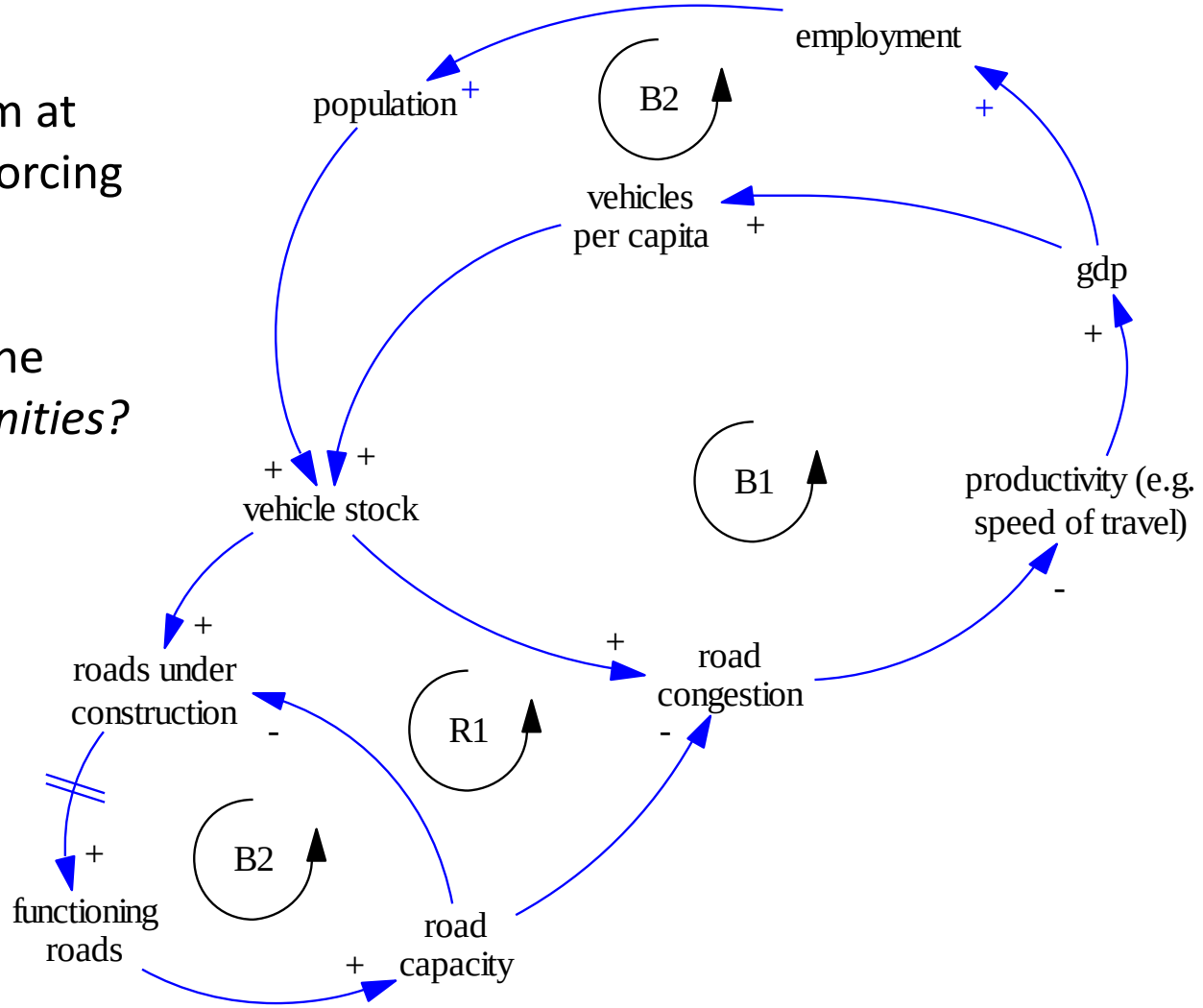
Why feedback analysis?
To implement effective interventions



Why feedback analysis?
To implement effective interventions

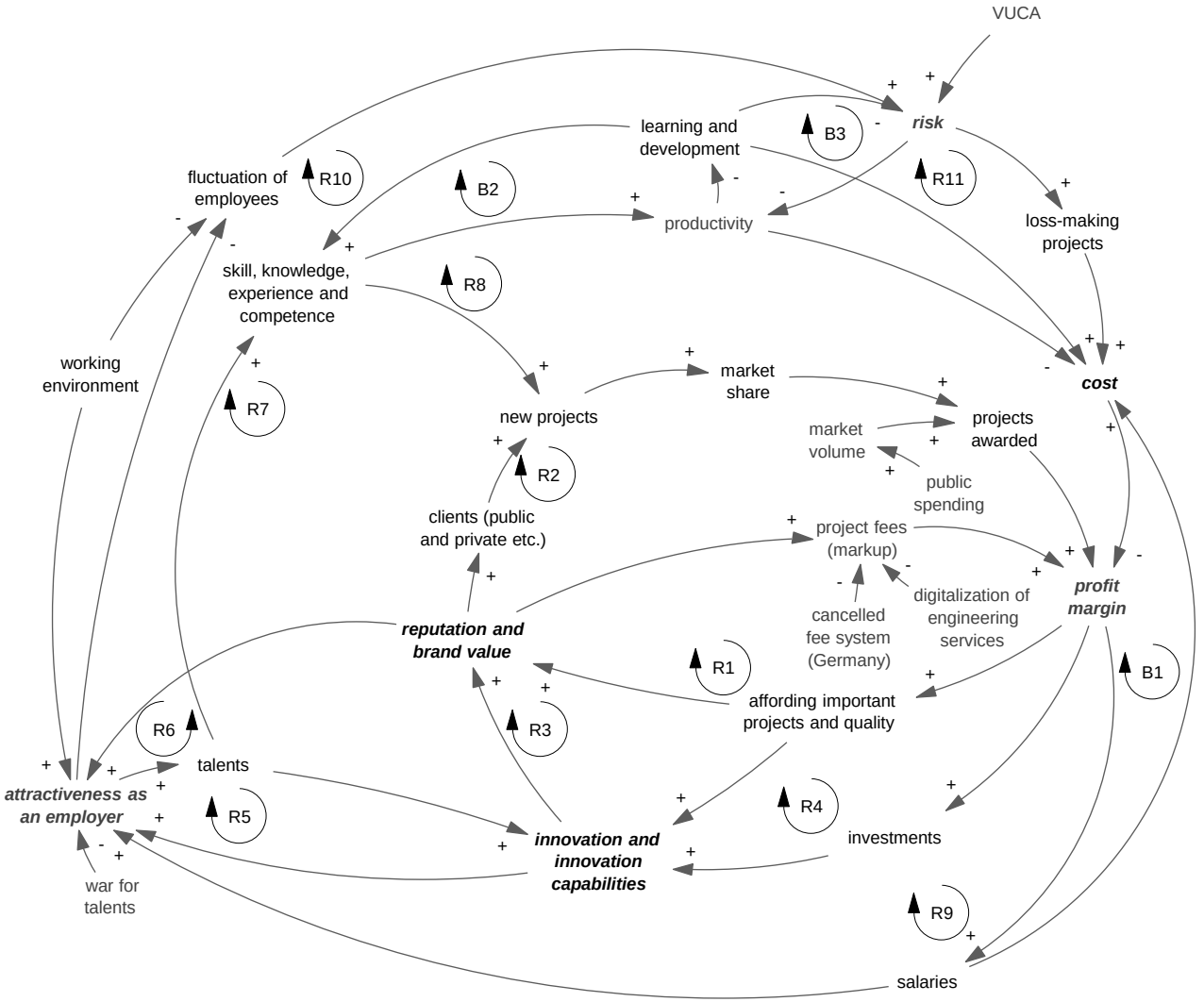
Should we still aim at strenghtening Reinforcing loops?

How do we define *Sustainable Communities?*

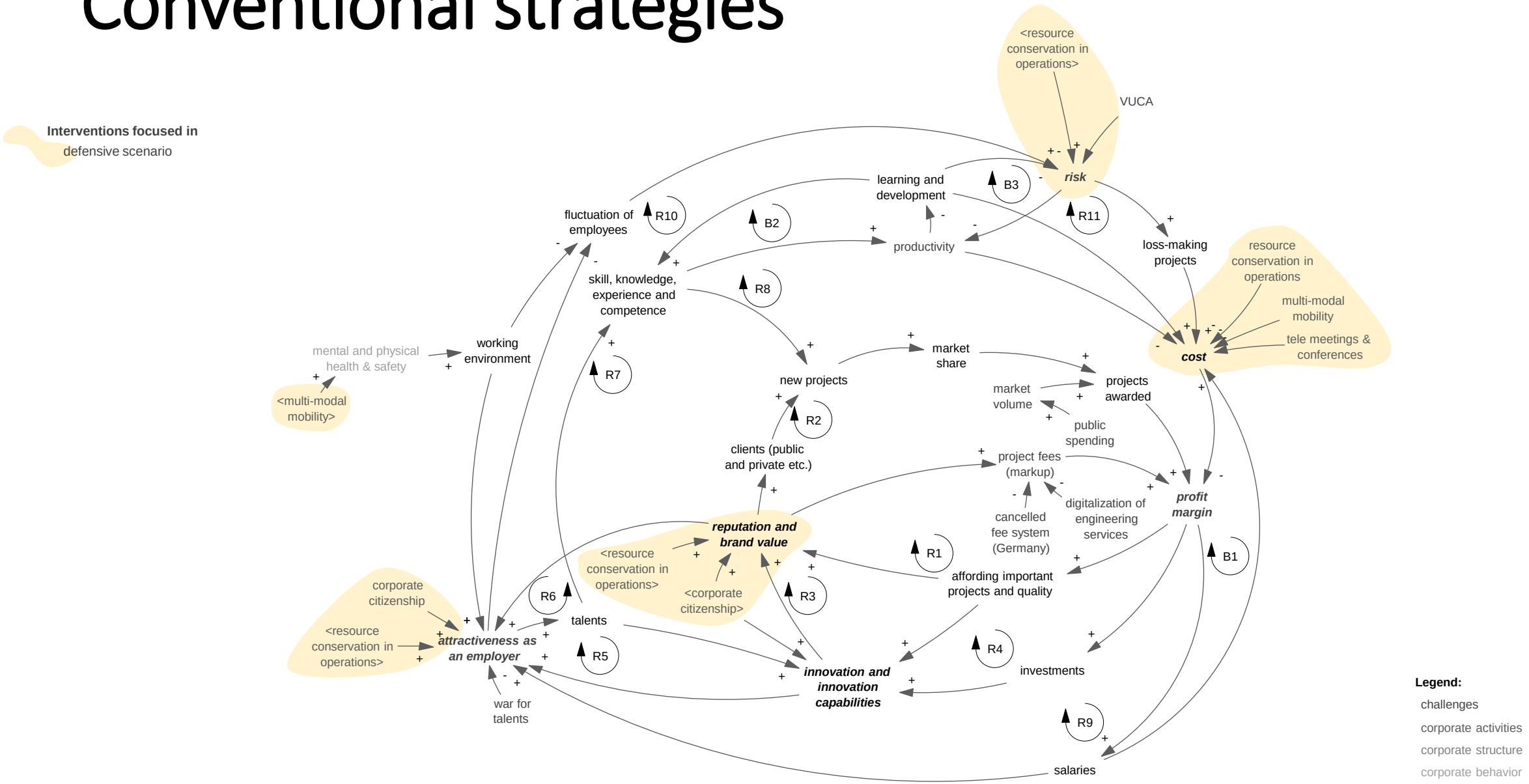


Third journey: learning organizations

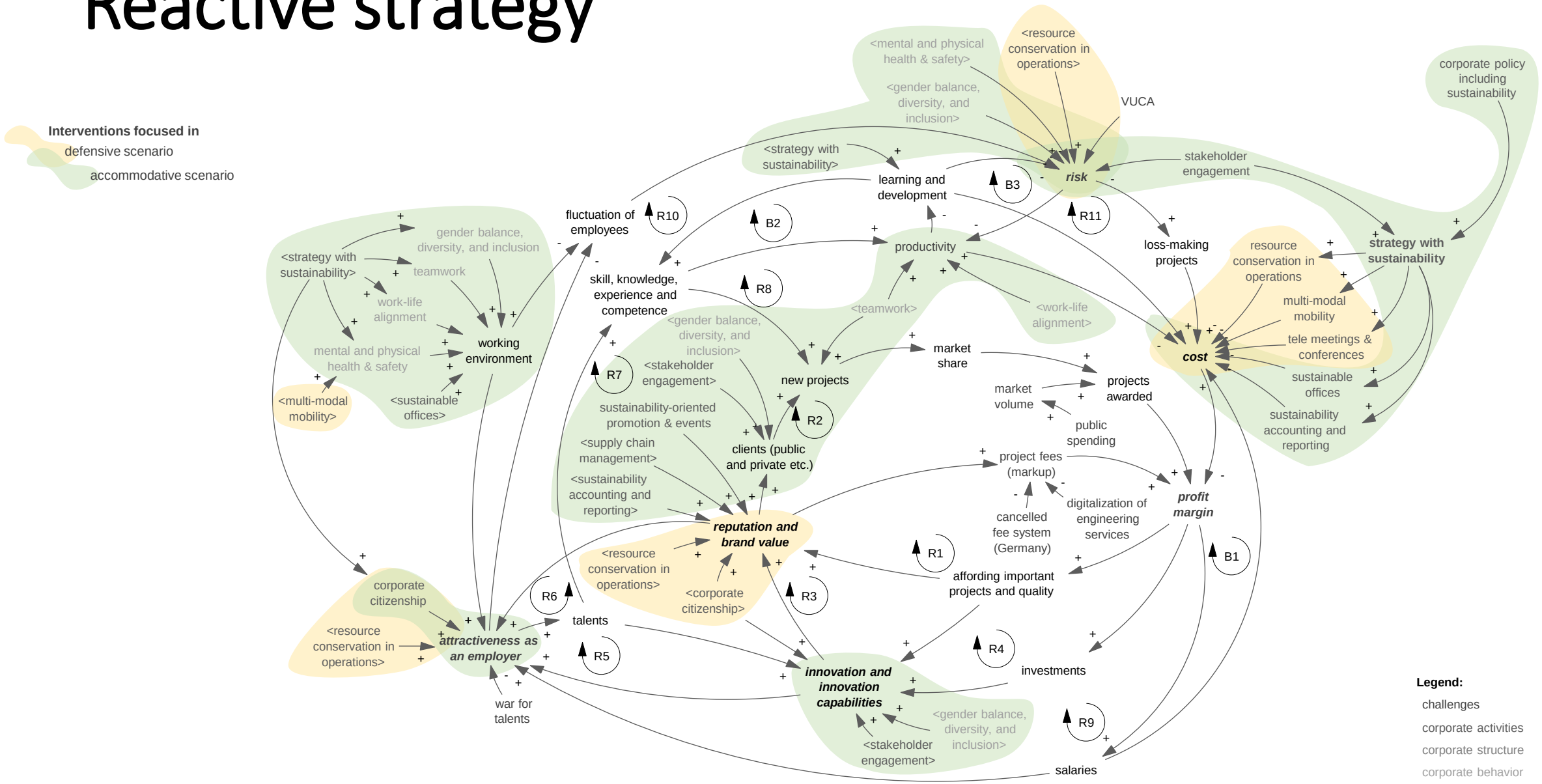
Representing the dynamics of a company



Conventional strategies

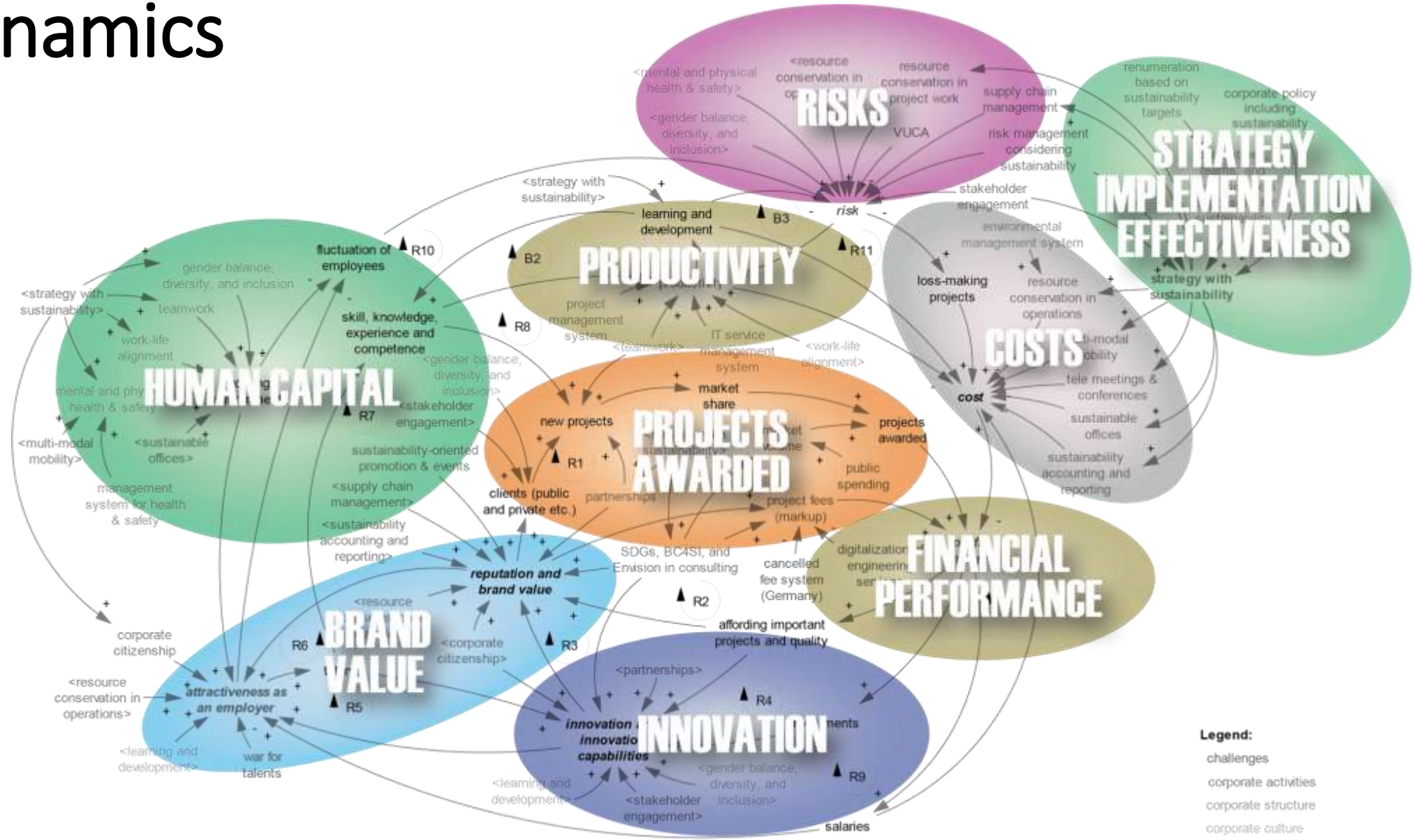


Reactive strategy



Proactive strategy

Key dynamics

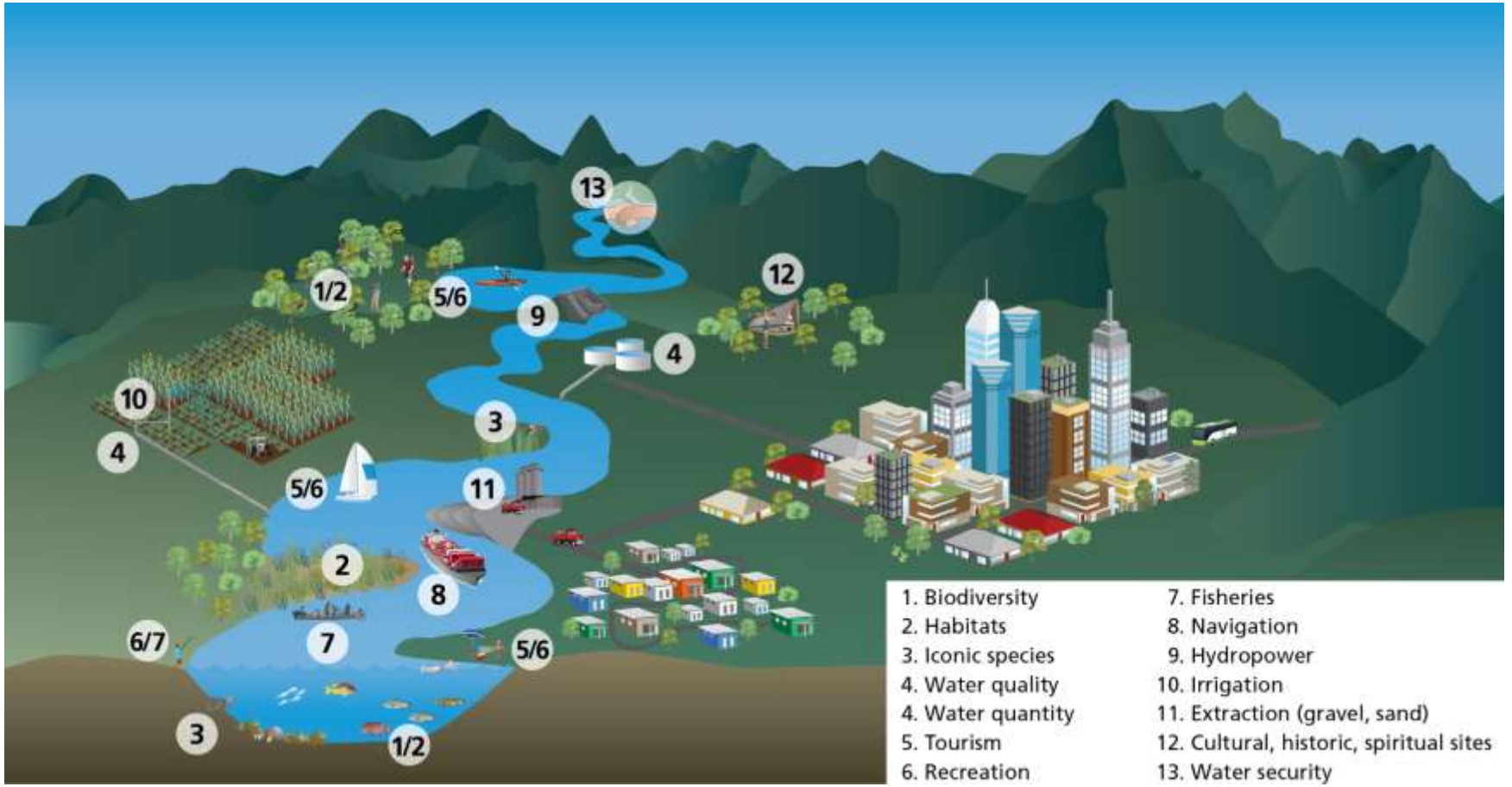


Fourth journey: sustainability

Sustainability emerges from interactions

Sustainability emerges from interactions

From global to local, systems always matter



From global to local, systems always matter

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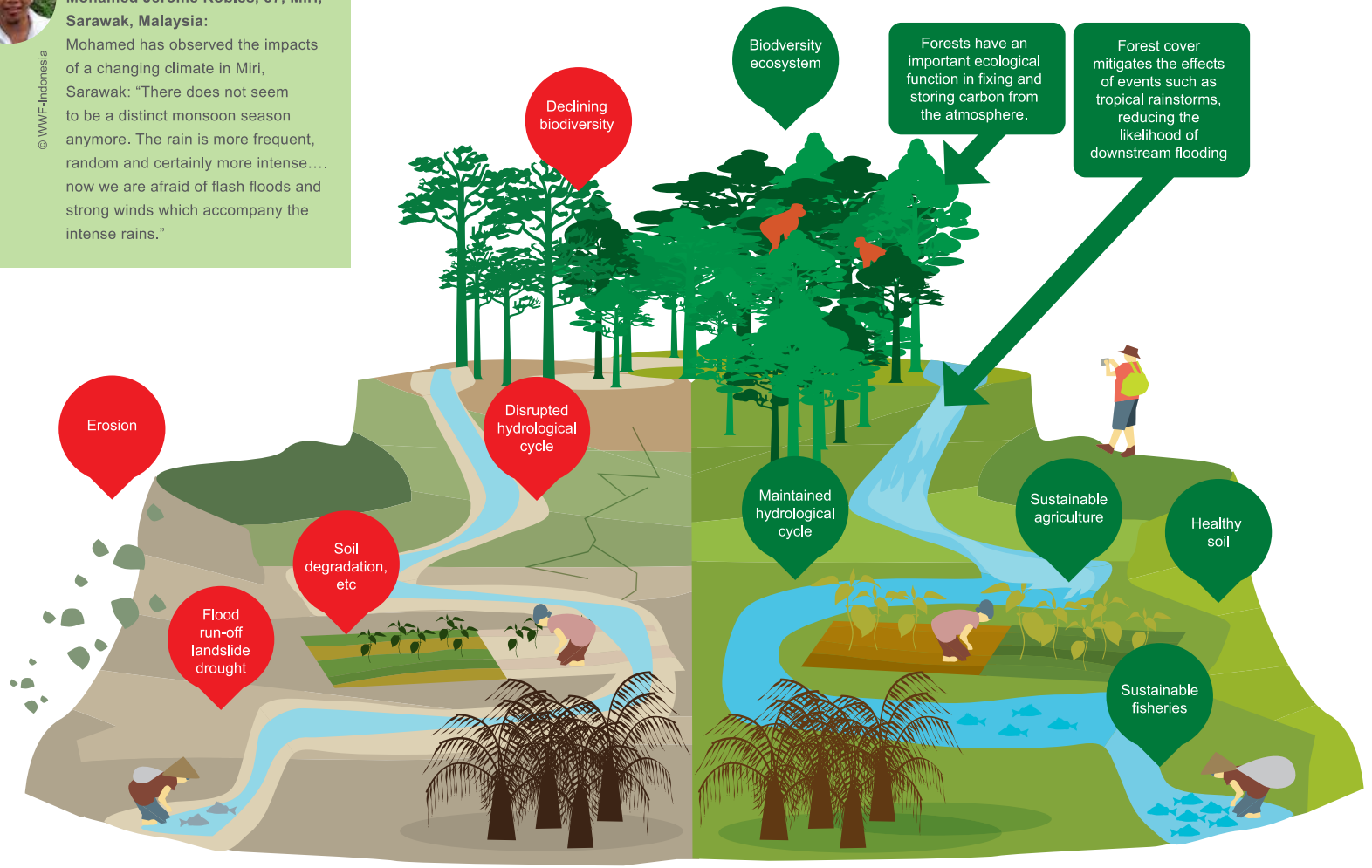
Mohamed Jerome Robles, 37, Miri, Sarawak, Malaysia:
Mohamed has observed the impacts of a changing climate in Miri, Sarawak: "There does not seem to be a distinct monsoon season anymore. The rain is more frequent, random and certainly more intense…. now we are afraid of flash floods and strong winds which accompany the intense rains."



Concluding, when to use Systems Thinking?

- Complex problems that involve helping many actors see the “big picture” and not just their part of it.
- Recurring problems or those that have been made worse by past attempts to fix them.
- Issues where an action affects (or is affected by) the environment surrounding the issue, either the natural environment or the competitive environment.
- Problems whose solutions are not obvious.

Thank you!

For more information you can find me at:

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KnowlEdge

Applying Systems Thinking to Strategy Development at WFP – Annmarie Isler

19 December 2024

Unlocking Sustainable Solutions through Systems Thinking: Cases from Southern Africa

Author: Annmarie Giselle Isler, Leigh Hildyard, Manuela Zierau and Andrea Bassi.

Reports | Sustainable development goals | Food systems | United Republic of Tanzania | Malawi | Madagascar | Lesotho | Democratic Republic of the Congo

The World Food Programme (WFP) is actively engaged in reducing hunger and malnutrition, aligning its efforts with the Sustainable Development Goals (SDGs), particularly emphasising SDG 2 (Zero Hunger) and SDG 17 (Partnerships). Recognising the complexity of global and regional challenges, WFP has adopted a multifaceted approach tailored to individual countries.

Download "Unlocking Sustainable Solutions through Systems Thinking: Cases from Southern Africa"

PDF | 2.98 MB

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