

SYSTEMS THINKING

- A PREREQUISITE
FOR
SUSTAINABILITY,
PLANETARY HEALTH
AND WELL-BEING

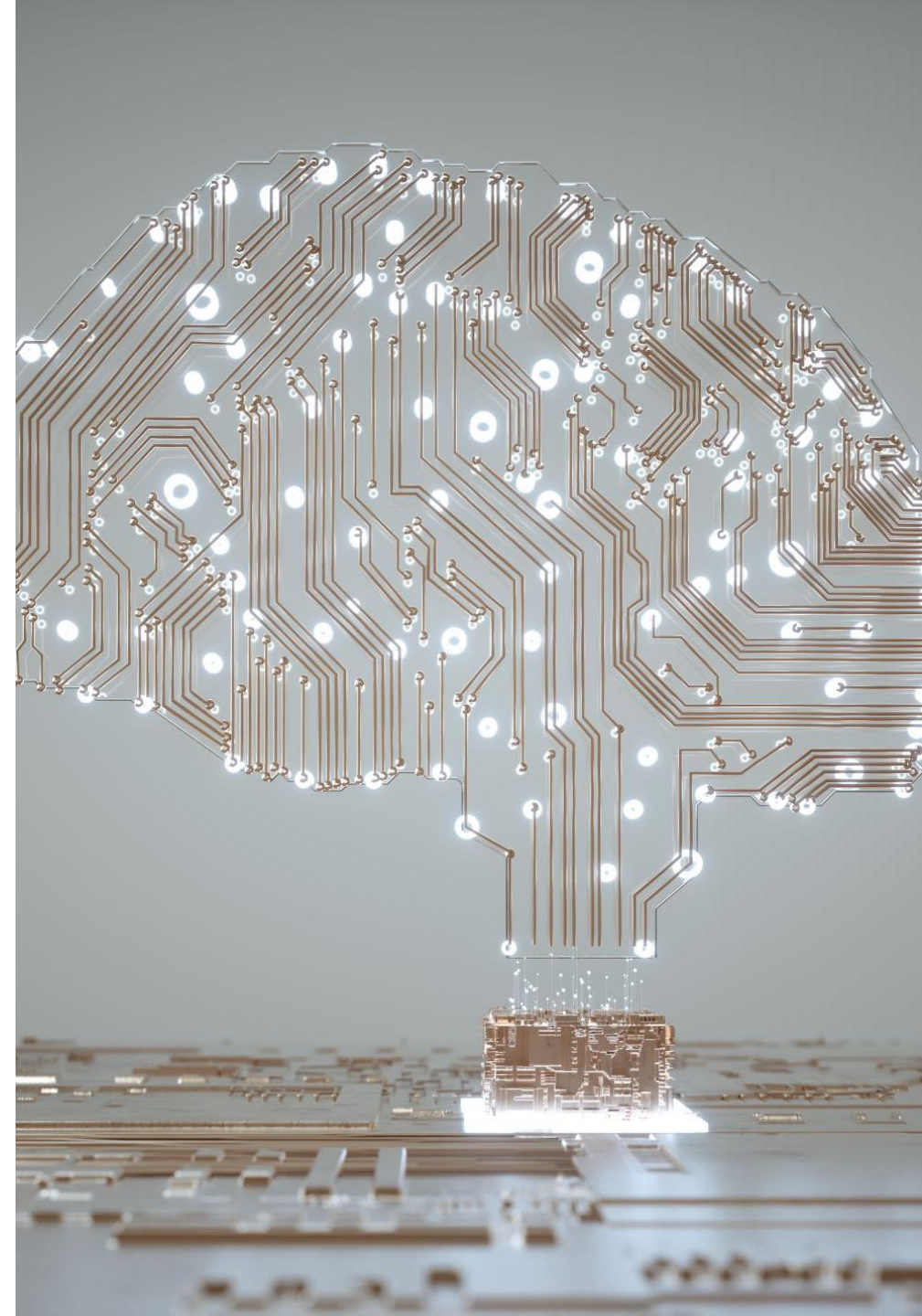
Maria Hofman-Bergholm
Licentiate of philosophy in
environmental education
RDI-Expert, Centria UAS



What is Systems Thinking?

System thinking means understanding how different systems in our environment are made up of several parts that influence each other.

It is about understanding how everything is connected and how one part of the system can influence both other parts but also the entire system.





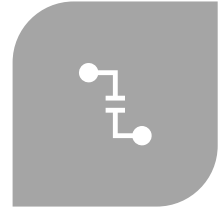
Systems thinking is a kind of thinking that raises your awareness of social, individual, economic and environmental perspectives in the development of the community.

By developing our systems thinking skills, we can gain a deeper understanding of how our daily actions and choices affect both ourselves, our environment and our community. We can learn how to act sustainable.

According to UNESCO, there are several skills that are particularly important for the development of a sustainable society. One of the most central skill is systems thinking.



SEVEN SYSTEMS THINKING SKILLS



• **RECOGNIZING
INTERCONNECTIONS**



• **IDENTIFYING
FEEDBACK**



• **UNDERSTANDING
DYNAMIC BEHAVIOR**



• **DIFFERENTIATING
TYPES OF FLOWS
AND VARIABLES**



• **USING
CONCEPTUAL
MODELS**



• **CREATING
SIMULATION
MODELS**



• **TESTING POLICIES**



CONCRETE WAYS TO PRACTICE SYSTEMS THINKING

Recognize interconnections:

- Choose a problem that has many interacting factors, such as climate change, flooding or traffic congestion. Identify the different parts of the system, their relationships, and how they affect each other.

Identify feedback loops:

- Look for feedback loops in the system, where the output from one part affects another part and thus affects the system as a whole. These loops can be reinforcing (where a change leads to more change) or balancing (where a change leads to an opposite reaction).

Understanding dynamic behaviour:

- Dynamic systems are systems where relationships between the variables are not proportional and inputs influence subsequent states, it is important to acknowledge continual change and advancement and to understand how changes in the system unfold over time.
- Participate in simulation games such as [FishBanks](#), where you have to manage a renewable resource within the framework of a complex system, which challenges decision-making and understanding of the system's behaviour.



Differentiating types of flows and variables:

- Visualize the system and its dynamics by using system models, such as flowcharts or the [iceberg model](#).

Using conceptual models:

- Using conceptual models in systems thinking involves creating simplified representations of complex systems to facilitate understanding, analysis, and problem solving. These models can be visual, graphical, or abstract, and help identify relationships, patterns, and dynamics within the system.

Creating simulation models:

- Creating simulation models in systems thinking involves building computer models that represent complex systems and their behaviour over time. This allows for testing theories, understanding dynamic interactions, and exploring potential outcomes of different decisions or changes within the system.

Testing policies

- You can use simulation models to test hypotheses about how the system works and how it might respond to different interventions or changes. By changing parameters and inputs in the model, you can explore different potential outcomes and understand the consequences of various actions.



Why is Nature Important – or is it?

(recognize interconnections)

- The question is if YOU understand the system? We are all dependent on that the ecosystems in our nature are functioning, also you and me!
- Every human being is dependent on nature for survival and well-being.
- Nature underpins both our economy and our survival, but how?!





Because Our Ecosystems Forms An Enormous Life-sustaining System

- The ecosystems on Earth can be seen as a kind of capital stock that provides us with a variety of goods like food, timber, fuel, carbon dioxide absorption, air purification, water purification, climate regulation, pollination, and so on.
- The air we breathe, the water we drink, and the food we rely on all come from intricate natural systems. Oxygen is produced through photosynthesis, while the carbon dioxide we exhale is absorbed by plants—maintaining a delicate balance essential to life.
- Our bodies depend on healthy ecosystems for hydration and nutrition, as nutrients are passed from soil to plants and, ultimately, to humans.



- With over half of global GDP moderately or highly dependent on nature, the health and stability of our economy is also inextricably linked to the health and resilience of the biosphere, in other words planetary well-being.
- From crop pollination that is vital for food production, and the cycling of the water to the regulation of the atmosphere and climate; nature underpins the systems that make life—and our economy—possible.



- Ecosystems also plays an important role in preventing the spread of disease and contribute genetic and medical resources to prevent or cure diseases.
- A healthy natural environment is also important for our subjective well-being! Contact with diverse nature enriches the human microbiome, protects against many diseases, and has a powerful impact on mental well-being.



What About Sustainability – How Does That Fit In?

- Fundamentally, sustainability is about maintaining the vital functions in the environment, such as **food production, energy, clean drinking water**, and a functioning cycle in the long term.
- In order to maintain these vital systems, we must take care of the Earth's ecosystems through **sustainable actions**.
- *Systems thinking is seen as the most central skill to understand how to act sustainable – for both our own well-being and the well-being of the planet so it can keep on serving us through vital functions in the future!*



All together
this forms the
concept of
Planetary Well-
being



- Planetary well-being is a concept based on the understanding of the interdependence between humans and the rest of nature.





PLANETARY WELL-BEING TIP CARDS



- Planetary well-being is a broad concept that raises questions about how you and I, through our actions, can influence various systems on Earth in our daily lives (systems thinking and sustainability).
- The Natural Resources Institute Finland has developed something called planetary well-being tip cards that offer easy-to-implement actions for enhancing well-being and making sustainable choices in everyday life.

I urge you to explore the tip cards to learn more about planetary well-being, sustainability and health:

[Planetary Well-being Tip Cards](#)

The cards are specifically designed to support well-being initiatives by guiding you toward the wellbeing benefits of nature and sustainable daily choices.



Now you have finished the material in Systems Thinking, but you still need to take a mandatory quiz to be finished with this future skill. The quiz contains 16 mandatory questions.

You need 12 points to pass the test. You can only answer the test 3 times (in different days).

Here is the link to the quiz.

<https://link.webropol.com/s/systemsthinkingquiz>

We need to collect some background information during the test that will be deleted in the end of the year. **We process your data in accordance with Centria's General Data Protection Statement. and Tietosuoja - Aimlearning**

