



Causal loop diagram

WHAT ARE CAUSAL LOOP DIAGRAMS?

A causal loop diagram is a “snapshot of all relationships that matter”. It is a visual representation of key variables (that exist within a complex system, including factors, issues and processes). Causal loop mapping shows how these variables are interconnected by indicating cause and effect relationships between different factors.

WHEN TO APPLY A CAUSAL LOOP DIAGRAM?

Causal loops diagrams is one of the systems mapping tools to help you illustrate cause and effect relationships that exist in a complex system. The goal is to provide an overview in a complex system by understanding and identifying the relationships between the key variables systematically.

HOW TO USE A CAUSAL LOOP DIAGRAM?

The structural elements in a causal loop diagram are as follows:

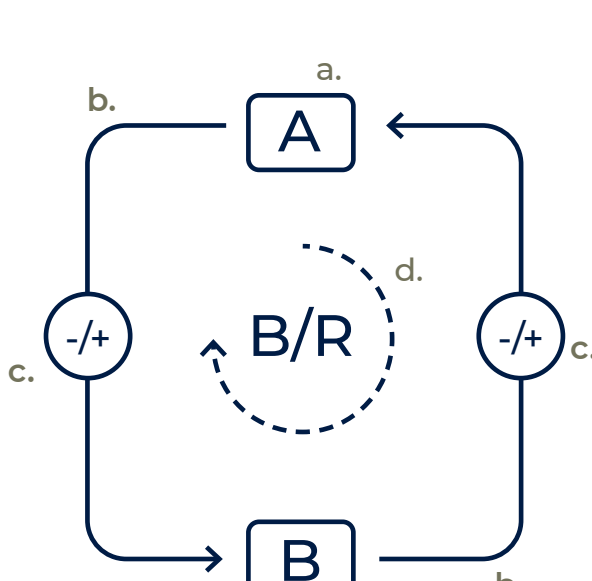
a. **Variables**

b. **Arrows indicating causal relationships**

c. **Polarity of causal relationship:**

Positive\same polarity: when the cause increases, the effect increases

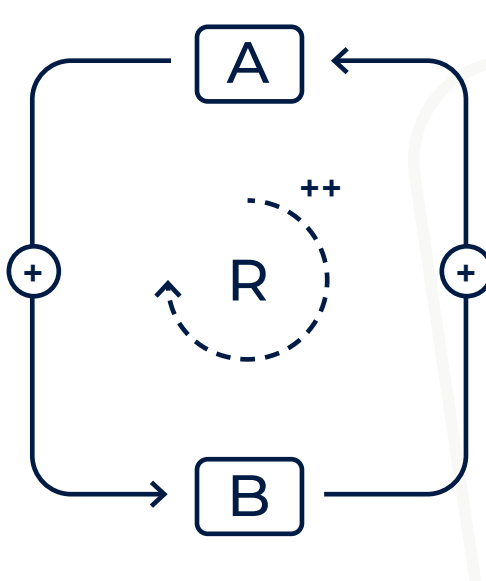
Negative\opposite polarity: when the cause increases, the effect decreases relationship between variables goes in the opposite direction



d. **Polarity of feedback loop** (feedback loop = a closed directed chain of variables in a cause-effect diagram):

1. **Reinforcing:** when both elements change in the same direction, e.g., plus-plus (++) or minus-minus (--)
2. **Balancing:** when elements go in different directions, e.g., plus-minus (+-) or minus-plus (-+)

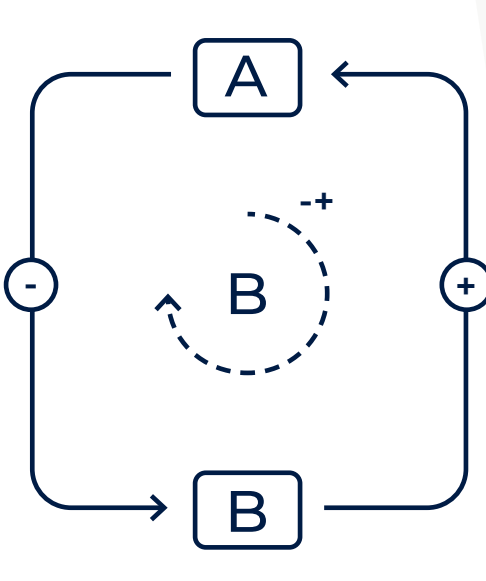
Examples of reinforcing and balancing feedback loops



1. REINFORCING

Example:
A = Procrastination
B = Sense of Guilt

Procrastination reinforces the feeling of sense of guilt which in turn leads to more procrastination until the inhibition level is reached and I no longer procrastinate.



2. BALANCE

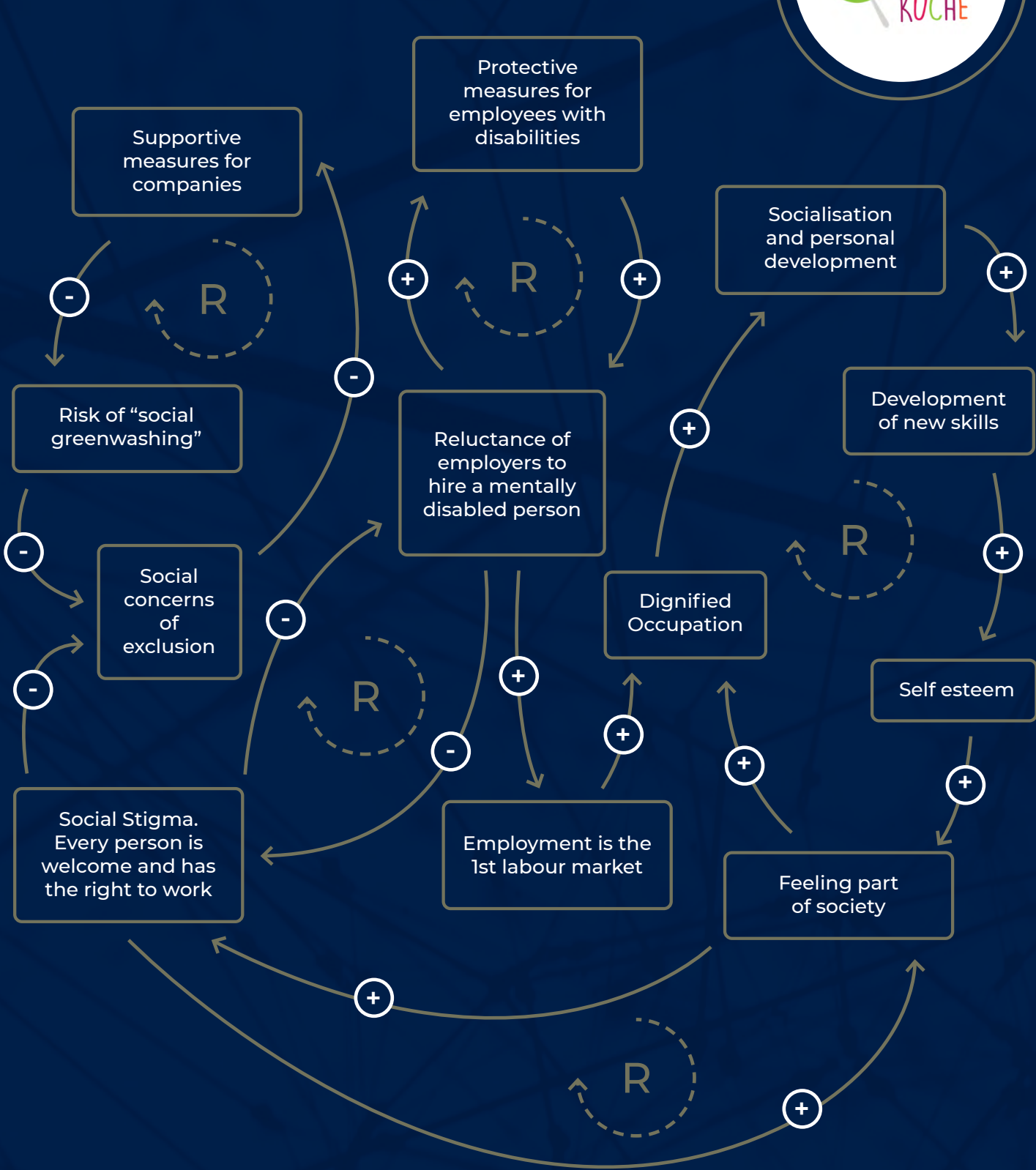
Example:
A = Stress
B = Coping Strategies

The more stress I have, the more I will look for coping strategies to balance my stress.

Once you learn how to apply a causal loop diagram, this allows you to begin a larger causal loop map displaying a wide range of factors and the interconnections and relationships that exist in the wider system.

Example

THE KUNST-WERK-KÜCHE THROUGH THE LENSES OF THE CAUSAL LOOP DIAGRAM



HELPFUL TIPS:

- 1) Show **feedbacks** as “circles”.
- 2) Use **meaningful nouns** as variables and, if necessary, provide them with units.
- 3) Draw **polarities of relationships** (“-”, “+”) and **delays** (“//”).
- 4) For a better understanding of the system, do not cross-relationship arrows and draw them as **circle segments** (“round”).
- 5) Use **colours sparingly** and only if it helps mapping the system easier for you and clearer for the audience to understand.
- 6) No “shopping lists”. Only include variables which indicate cause and effect relationships.
- 7) Make use of the **Kumu systems mapping software**, which is provided as part of your Map the System registration.

