

## Systems thinking game<sup>1</sup>

Purpose:	Illustrate how a complex adaptive system work and how small changes can have a big effect.
Summary:	This game works extremely well with groups of people in an open space. It is advised to play the game outside in the parking lot where there is a lot of space. Participants pick two other participants, and then try to position themselves midway between these people.
Context:	In any development context like a value chain or a local economy where the actors are part of a bigger system that affects their behaviour. It highlights the difficulty of fully understanding what is going on, and it raises awareness that of the non-linear character of systems. A small change can have a unpredictable and huge effect.

### How to play:

1. Get the group to stand in a bundle. Instruct everyone to close their eyes.
2. Instruct everybody to identify two people from the workshop. Tell them not to look at these people, and to concentrate on not forgetting the two faces.
3. With nobody talking, get the participants to position themselves exactly midway between their two targets. No talking permitted (although laughing is allowed). Chaos erupts as the group starts milling around. After some time it usually settles down. Usually there is a small cluster in the middle of the group.
4. Ask the group to describe what happened. Check to see if anyone could figure out who is following them? Ask some people directly to point to whom is following them.
5. Ask the group who is sure that nobody is following them.
6. Then take one or two people (I usually take the ones sure nobody is following them) and send them into opposite directions. Now instruct the group to adjust again. If nothing happens then take 2 more people.
7. Now again ask the group whether they could determine who is following who.
8. Instruct the group to be ready for a dynamic adjustment (real time). Take somebody in the middle of the group by the hand and run on the outside of the group, constantly instructing people to adjust their positions. As you run with the person let go of their hand, and grab somebody else. This really mixes things up.
9. Calm the group down. Ask for insights:

### Insights to explain to the group

- Starting conditions matter.
- The history of the system shapes the present and the future.
- Nobody in the system can comprehend the complete picture, and there are many different opinions about the system, the history and the future. It is not a homogenised system.

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<sup>1</sup> Described by Dr. Shawn Cunningham

- The properties of the system arise out of the relationships between the parts. All behaviours are part of the system and create incentives for the agents in the systems.
- The distance between actors is determined by incentives, relations, starting conditions and future perspective.
- Routines, artefacts, patterns and behaviour emerge spontaneously in a decentralised way.
- Because systems are spontaneous, it resists external interventions or responds in an unpredictable way. Smaller behavioural changes that are adapted by multiple agents can also be amplified in a viral way.
- Agents in a system make decentralised decisions based on local information and perspective. Therefore systems change dynamically over time. The result is that systems often reject or avoid external attempts to change the system.
- Agents learn from each other, and this leads to trends and patterns emerging.
- There are strong feedback loops and multiplier effects.
- Cause and effect is separated in time, and there are typically multiple cause and effects relations that are weakly connected but that influence each other.
- In complex systems, things are not mechanic (like a car brake system). Things are dynamic, you are never sure who is following who, and where they get their signals from. Therefore, careful analysis (self analysis) by the system is important to understand leverage points.



## Other variations

- Before explaining the insights ask participants to explain how a mechanic system works. Then facilitate a discussion on how complex or non-mechanical systems differ from mechanical or closed systems.
- Explain that when we stop the movement we get a snapshot view of the system. We can only use the past to try and predict the future, especially if we use data. Trying to get systems to become more aware, and to stay aware, provides a more dynamic analysis.

## Caution

- There are many different strands of systems thinking, like Systems Theory, Systems Approach, Complex Adaptive Systems and Cybernetics, etc. I usually try to stay away from such labels, and have taken some of the ideas from the different approaches to make the point about a more systemic perspective