



## Self-Organization

Take a quiet moment to contemplate the ubiquity of self-organization in the world.

Imagine any relationship in the natural world: bees pollinating flowers, predators and prey, food webs, ecosystems. All of it has developed over time through the natural order of self-organization, leading Donella Meadows to write, “The power of self-organization seems so wondrous that we tend to regard it as mysterious, miraculous, heaven sent.”

In self-organization, complex patterns arise out of simple interactions between the parts of a system. If you think of a complex pattern, what are the interactions between the parts that might produce that pattern?

Consider the following examples and think of interactions that could produce the patterns:

- Traffic
- Governance
- Cities

When you have reflected, go to the next page for some discussion.

## **Traffic**

When we drive, we follow a few simple rules that are not so different than those birds follow within the flock.

- We keep a certain distance away from other cars and obstacles.
- We try to maintain speed by driving in pathways where there are fewer cars.

Just these two rules create very complex traffic patterns in which many cars can fit in to very small spaces with surprisingly low numbers of collisions.

There are other things to consider, such as stoplights and traffic codes, but you get the idea of how complex patterns arise from simple interactions.

## **Governance**

Laws can feel like rules imposed on us. But how did the creation of laws and government come about?

At least in the case of democratic societies, it was self-organized. People decided to create shared agreements about how to live together.

Governance highlights how human beings are different from and much more complex than ants and birds: we have the cognitive ability to have a vision of the whole. We can interact based on that vision rather than just the yes/no of “am I going to crash into you?”

## **Cities**

Sometimes cities are planned, but for most of history, cities have simply arisen from the self-organizing interactions of people who want to live near each other, whether for protection, commerce, culture, or a whole host of other reasons.

As people are buying and selling goods, moving in and out of houses, traveling from one part of the city to the next, eating at restaurants and so on, their activities produce an extremely complex pattern that is a city.

Out of many interactions that happen over time, a city arises: first a smaller city, then a larger and larger one until there is a New York, London, or Tokyo.