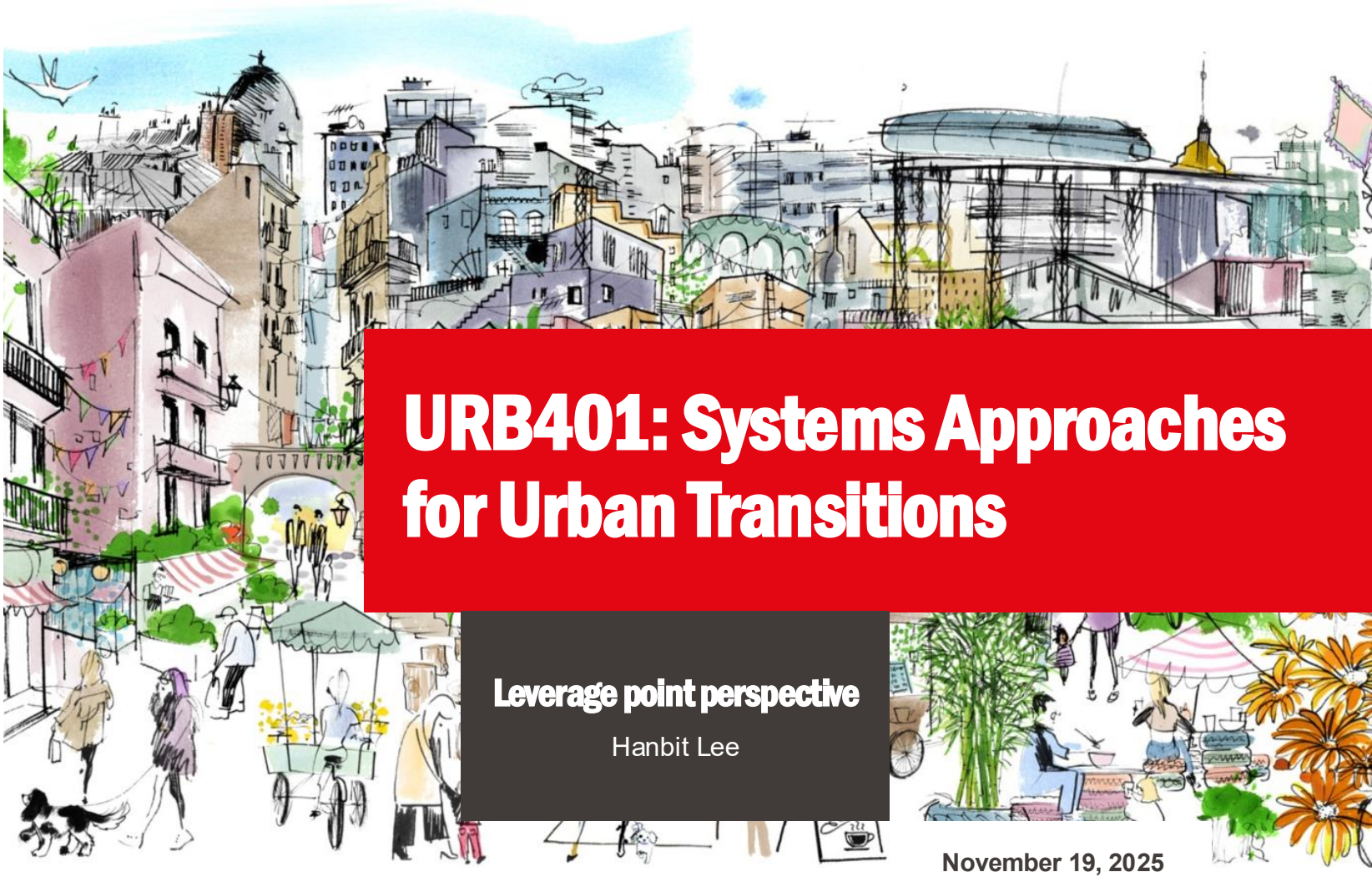


URB401: Systems Approaches for Urban Transitions

Leverage point perspective

Hanbit Lee

November 19, 2025

Courtesy of UN-Habitat and Global Utmaning

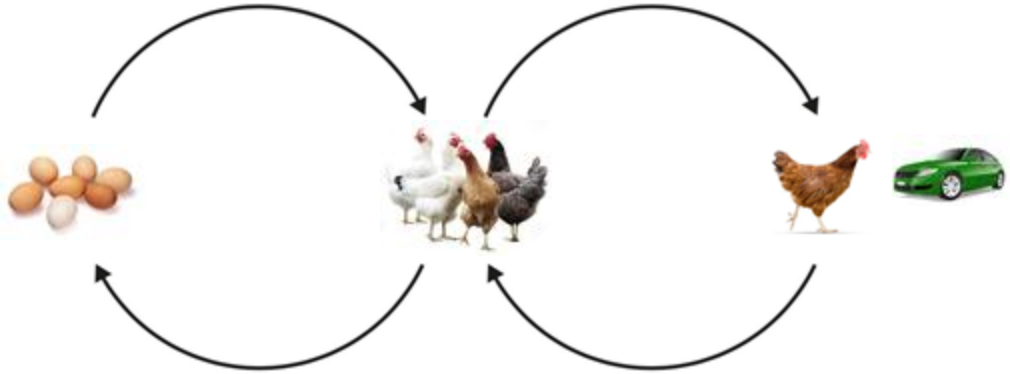
Learning objectives

- Suggest interventions to address your city's challenge
- Determine which leverage points are involved and justify why
- Reflect on the following questions:
  - Does the intervention tap into a low or high leverage point?
  - If the intervention taps into multiple leverage points, how are they related to one another?
  - To what extent does understanding the many leverage points available help you and others consider new ideas for changing systems?

Systems Thinking: Key concepts

What is a system?

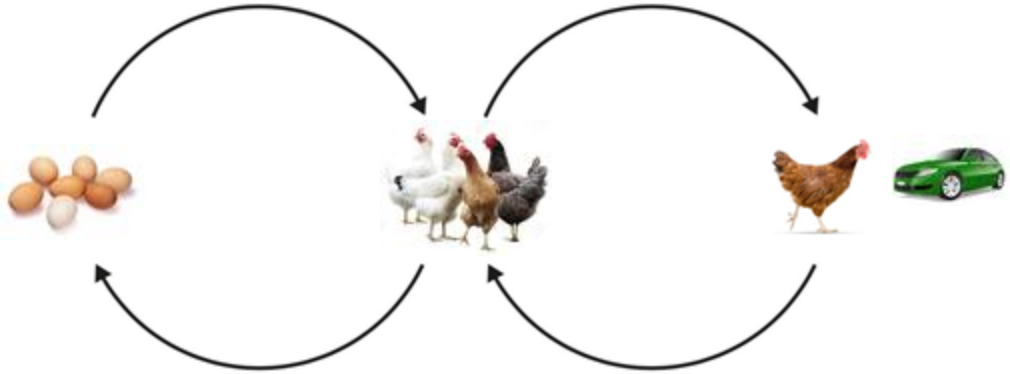
A set of things that are interconnected in ways that produce distinct patterns of behaviour.



Systems Thinking: Key concepts

What is a system?

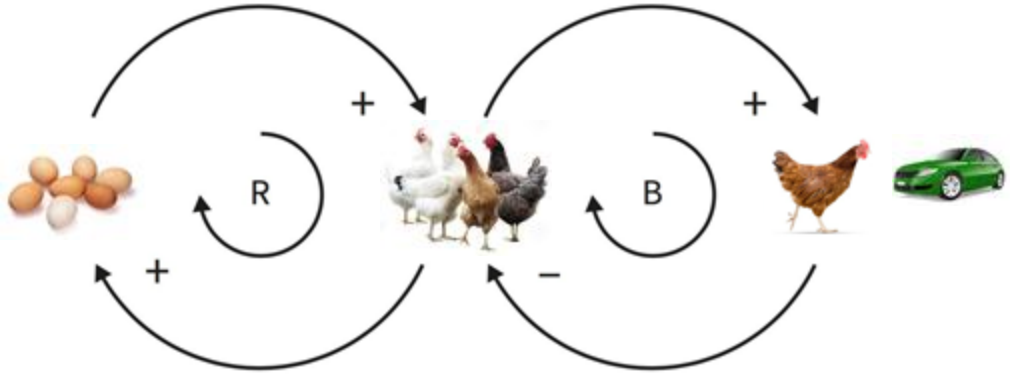
A set of things that are interconnected in ways that produce distinct patterns of behaviour.



Stocks and flows

The size of the stock (e.g., number of eggs or chickens) depends upon the balance between inflows and outflows

Systems Thinking: Key concepts

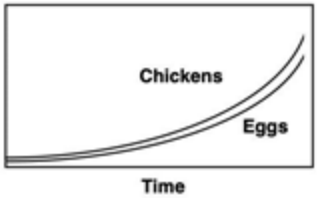


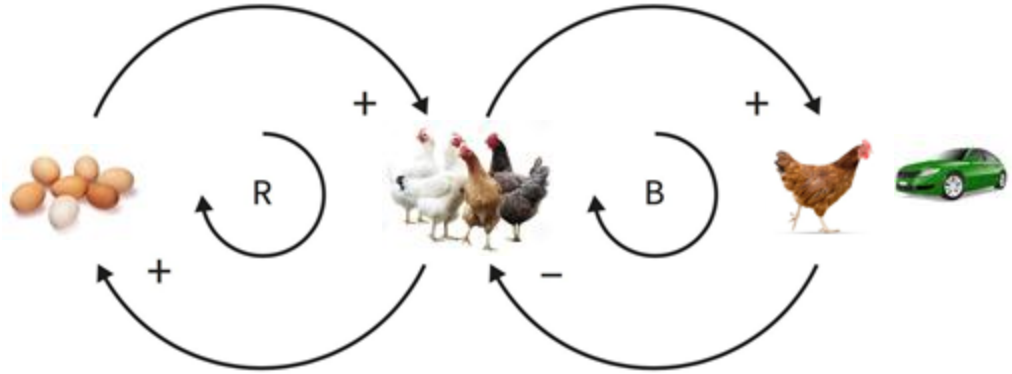
Systems Thinking: Key concepts

Reinforcing feedback

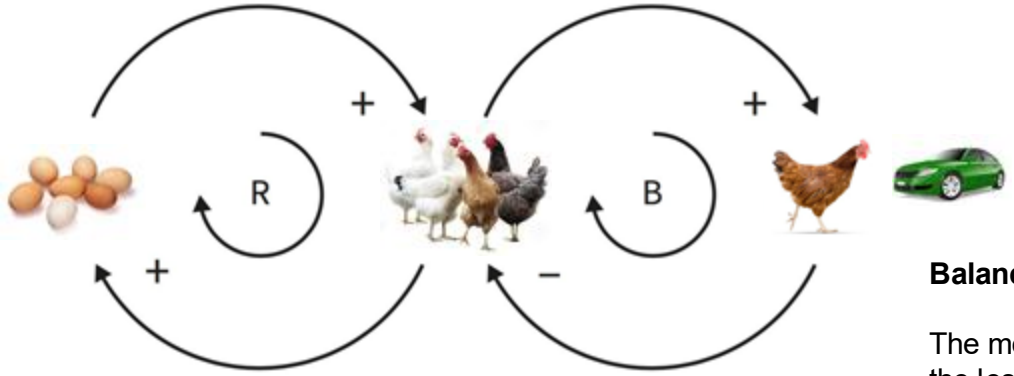
The more you have
the more you get.

Things spiral up & explode
or spiral down & implode.





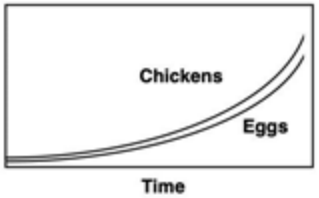
Systems Thinking: Key concepts



Reinforcing feedback

The more you have
the more you get.

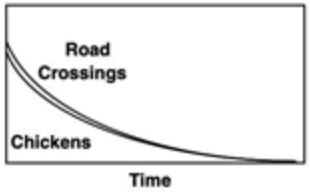
Things spiral up & explode
or spiral down & implode.



Balancing feedback

The more you have
the less you get back.

Things tend to level out
and remain steady.



Systems Thinking: Key concepts

Delay //

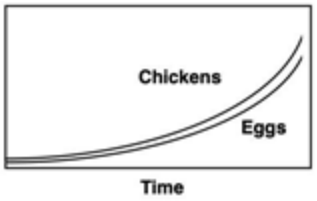
Time lag between change in one part of the system being reflected elsewhere.

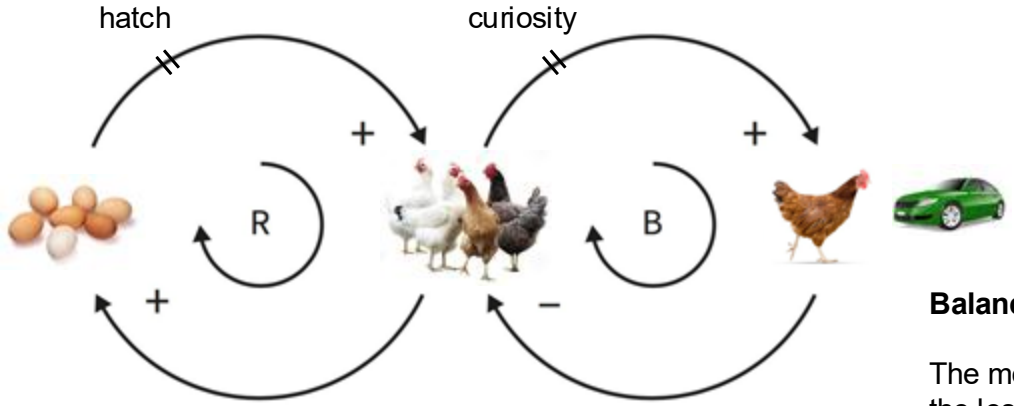
Stocks may rise or fall, with significant effects.

Reinforcing feedback

The more you have
the more you get.

Things spiral up & explode
or spiral down & implode.

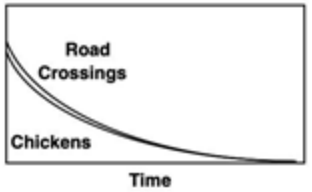




Balancing feedback

The more you have
the less you get back.

Things tend to level out
and remain steady.



Systems Thinking: Key concepts

Delay

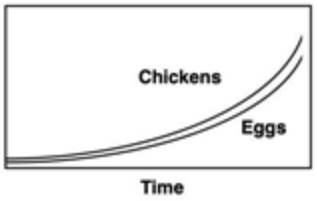
Time lag between change in one part of the system being reflected elsewhere.

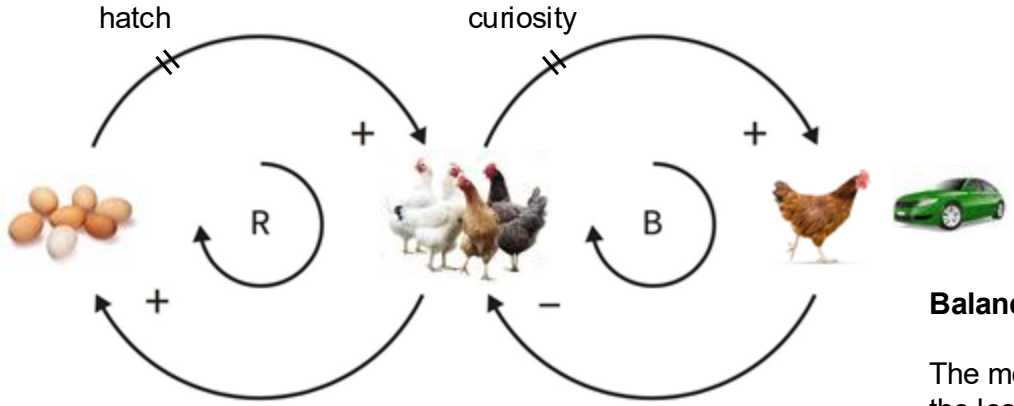
Stocks may rise or fall, with significant effects.

Reinforcing feedback

The more you have
the more you get.

Things spiral up & explode
or spiral down & implode.





Emergence

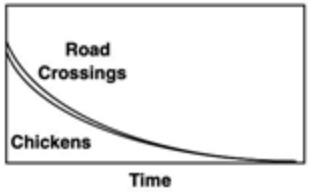
What happens when reinforcing and balancing feedbacks interact?
It depends upon:

- their relative strength
- the resulting size of stock
- the extent of delay
- any wider system changes

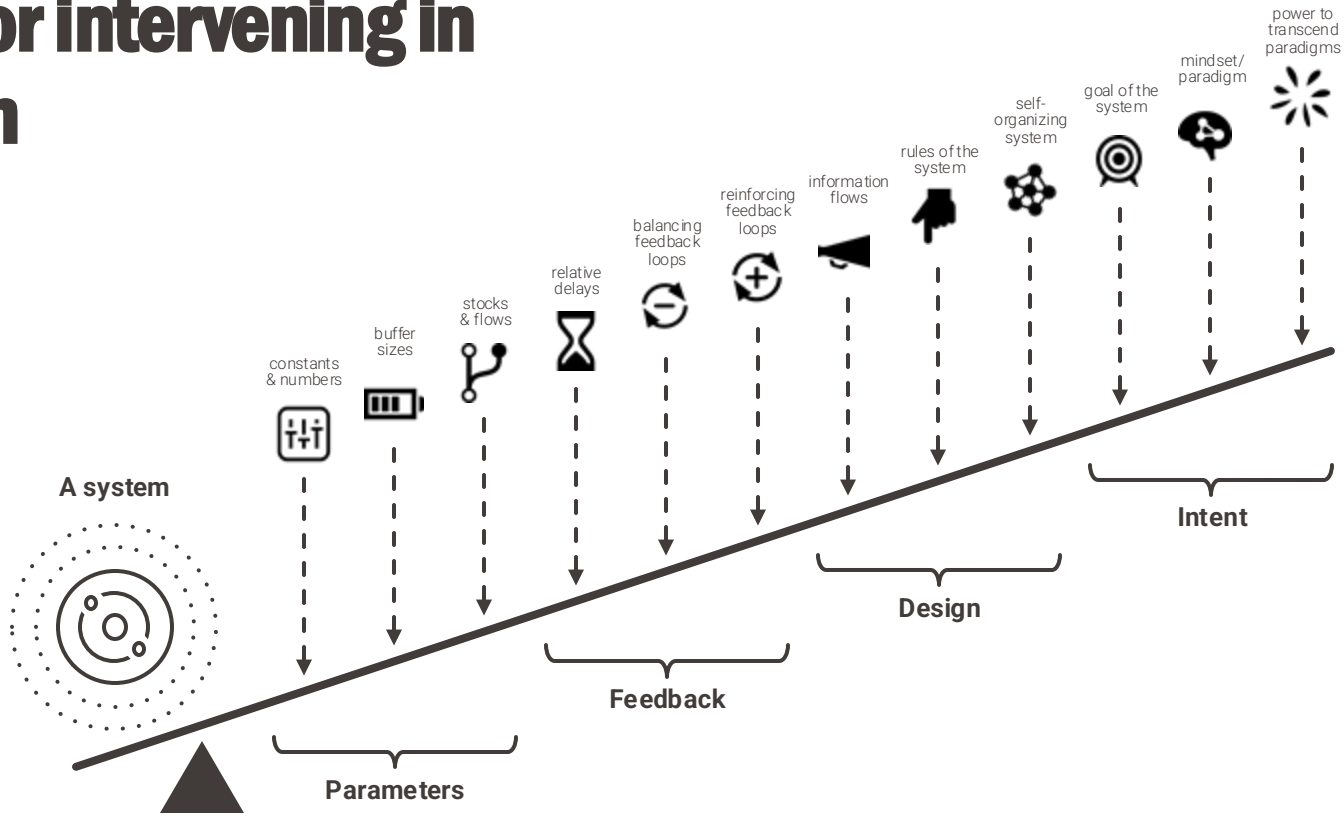
Balancing feedback

The more you have
the less you get back.

Things tend to level out
and remain steady.



Meadows' 12 leverage points for intervening in a system



Meadows (1999)

Hanbit Lee

Examples of leverage points in urban systems

Leverage Points	Urban Systems Example
12. Constants, Parameters, Numbers	Changing the speed limit on a city street from 30 mph to 25 mph.
11. The Size of Buffers	Increasing the number of police officers in a high-crime neighborhood.
10. The Structure of Material Stocks and Flows	Building more highways to relieve traffic congestion.
9. The Lengths of Delays	Shortening the time to approve a building permit.
8. The Strength of Negative Feedback Loops	Strengthening laws related to industrial pollution.
7. The Gain Around Positive Feedback Loops	Providing subsidies for electric vehicle purchases.
6. The Structure of Information Flows	Making neighborhood air quality data publicly accessible via a city app.
5. The Rules of the System	Introducing new zoning laws that require a percentage of affordable housing.
4. The Power to Self-Organize	Allowing neighborhoods to create and manage their own community gardens.
3. The Goals of the System	Changing the city's goal from "maximizing economic growth" to "improving resident well-being."
2. The Mindset or Paradigm	Shifting the mindset from urban nature as an aesthetic amenity to essential ecological infrastructure.
1. The Power to Transcend Paradigms	Moving from a "smart city" paradigm (technology as the sole solution) to a "responsive city" paradigm that empowers citizens and values adaptability.

Hanbit Lee

City Lab

1. **Select interventions for your system**
   Identify which part on the system is affected, who should instigate the intervention, and who should participate in the intervention.

2. **Discuss, and fill out how the intervention targets the 12 leverage points**
   Try to keep it specific to the system you are targeting, and the people participating. It is ok to decide that some leverage points are not changed.

3. **Arrange the leverage points in the order to which they change**
   Does the intervention target materials first, and then shift structures?

4. **What does the system look like after the intervention has been done?**
   Summarize the change on a final piece of paper and put it at the end of your leverage points. Collectively, you now have a narrative of change for your chosen intervention.

Contact

hanbit.lee@epfl.ch

References & Additional resources

- Meadows, D. H. (1999). *Leverage points: Places to intervene in a system*. Donella Meadows Institute. https://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/
- DEAL. 4 Get Savvy With Systems v.1. (2024, November): https://docs.google.com/presentation/d/1jbFGSFYXZNYiHoBVM-IDy91LPcYWJ-7Ae04AhmVH4jM/edit#slide=id.p3
- Gawande, A. (2013, July 29). *Slow ideas*. The New Yorker. https://www.newyorker.com/magazine/2013/07/29/slow-ideas