The simple, and enlightening, story of systemic risk

5-minute read

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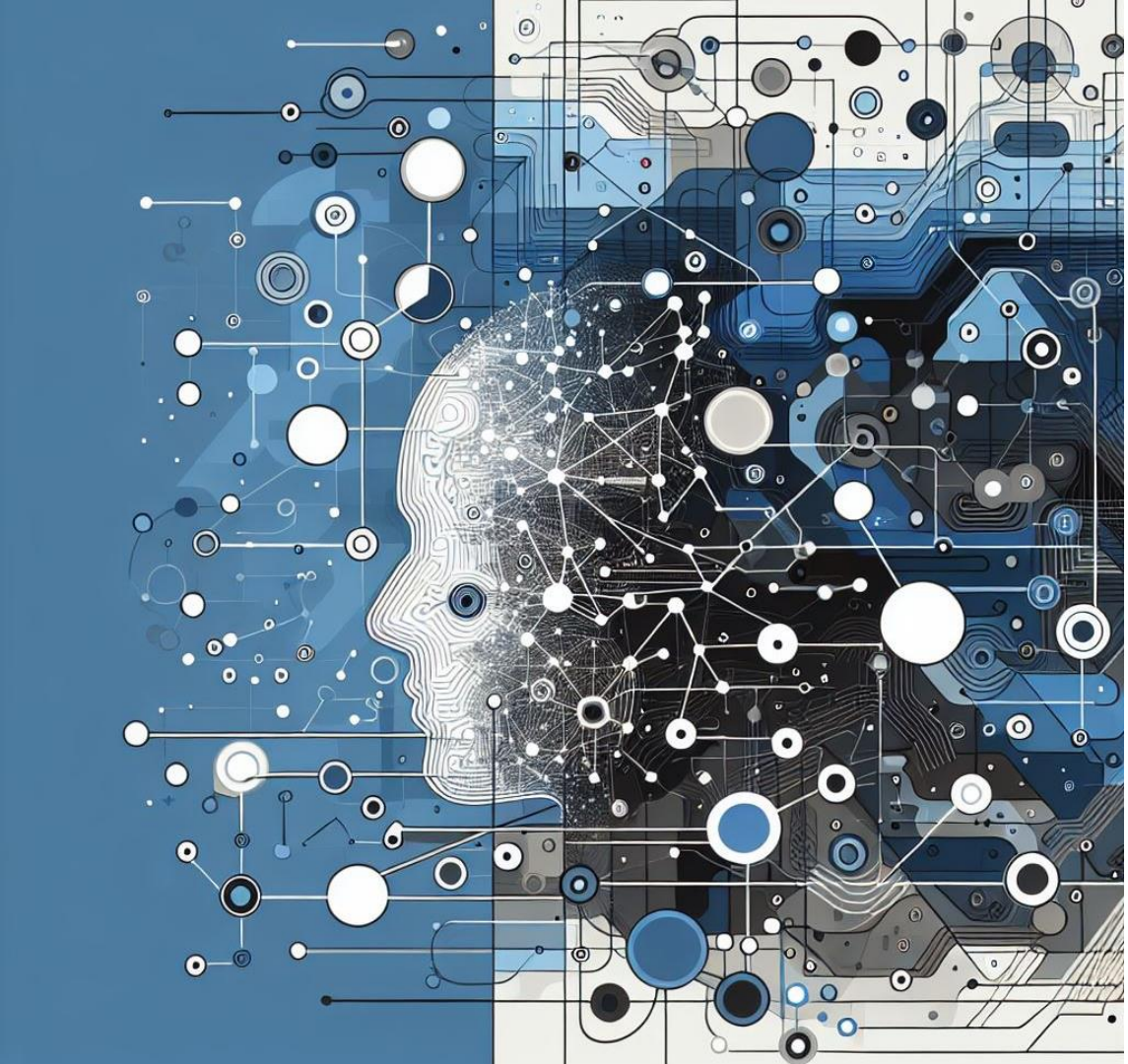

Reality is too complex to understand.

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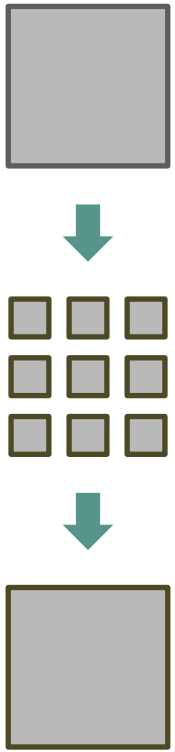
So, we build models – simplified versions of reality.

These models shape our thinking – and therefore our action.



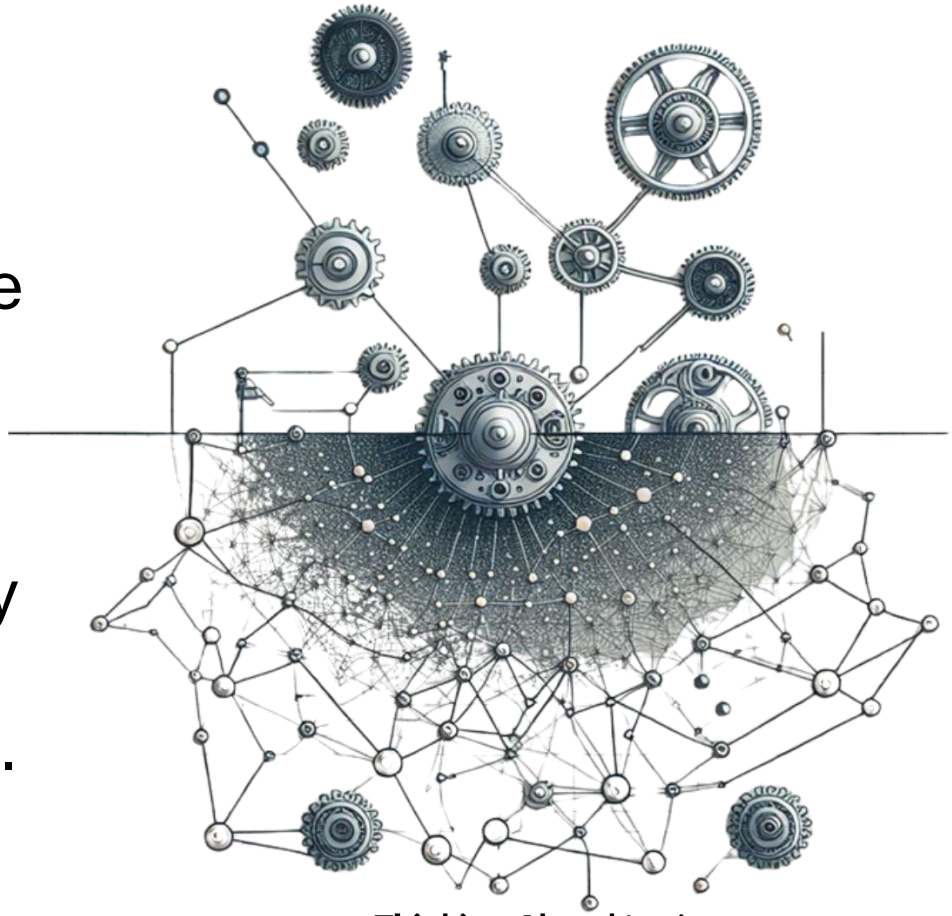
This way of thinking is called **reductionism**.

It's when we break things down into smaller **components** to understand them,

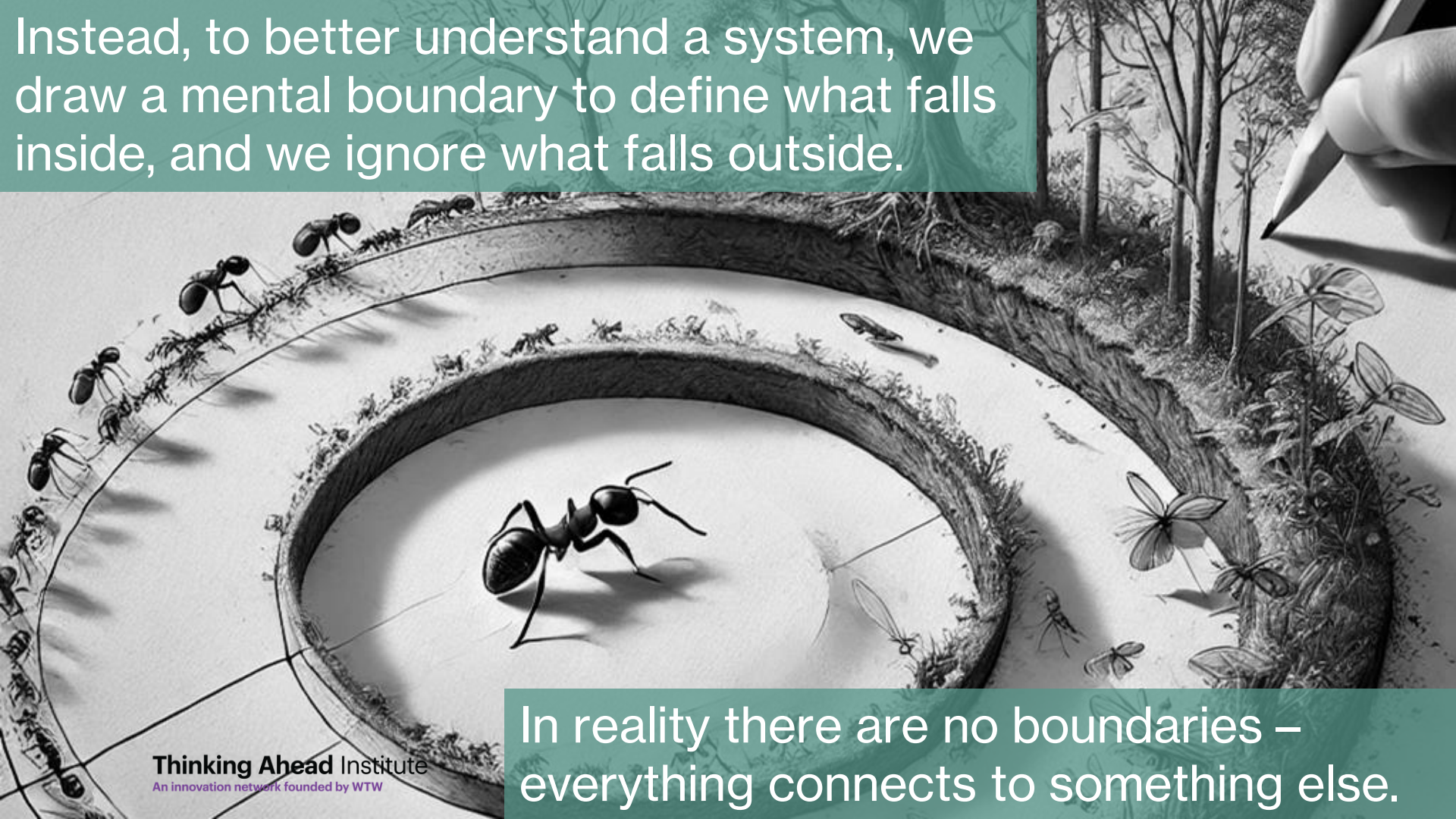
and then build back up to understand the **whole**.

Reductionism works brilliantly for mechanical systems where the laws of physics hold.

It does not work brilliantly for complex systems where every component is affected by changes in other components.



Instead, to better understand a system, we draw a mental boundary to define what falls inside, and we ignore what falls outside.



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In reality there are no boundaries – everything connects to something else.

Remember – reality is too complex to understand.

So, we *have* to draw boundaries.

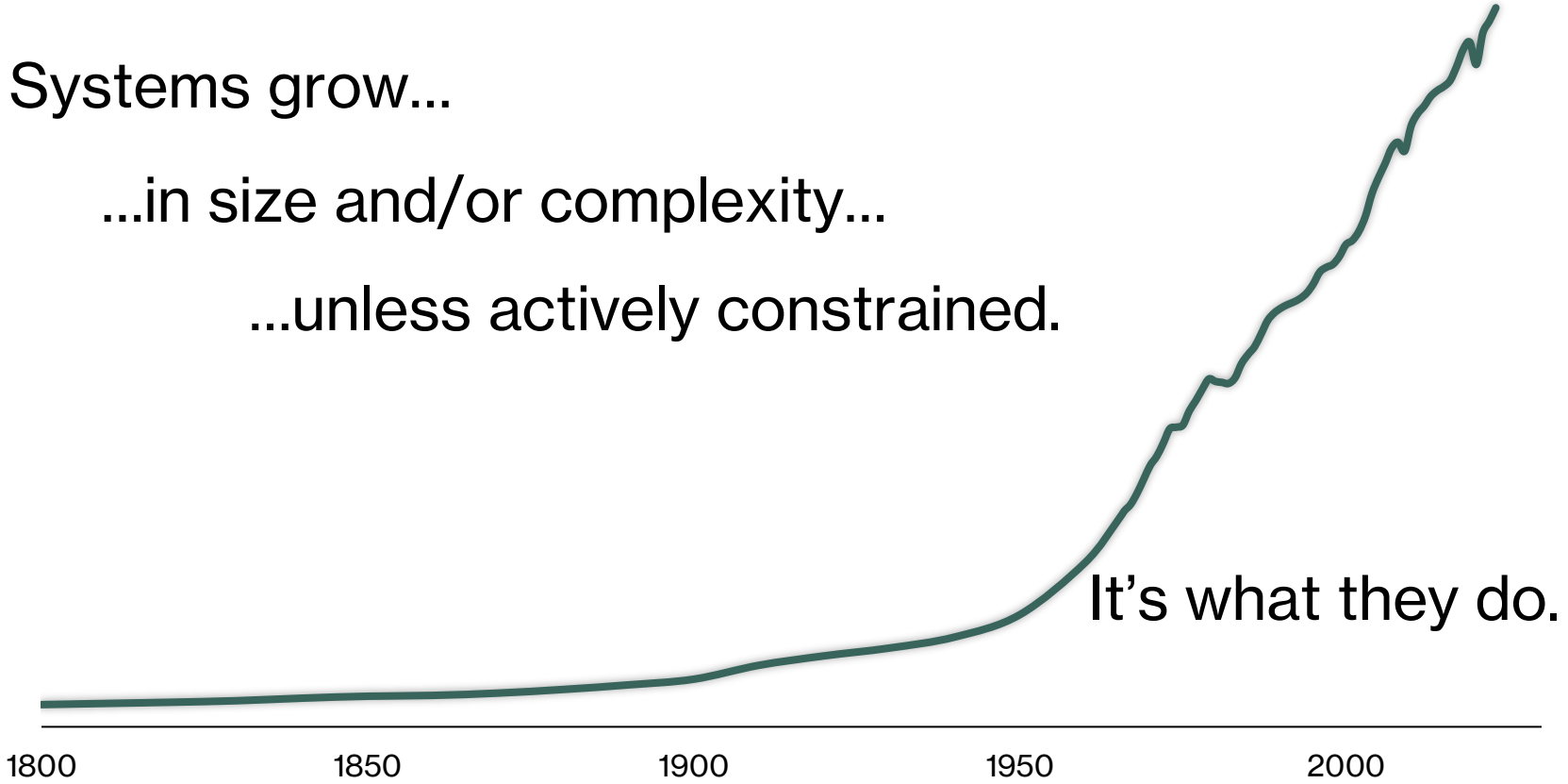
A boundary around a **system**, rather than a **component**, is a better approximation of reality.

Our new understanding of reality allows us to see that...

Systems grow...

...in size and/or complexity...

...unless actively constrained.



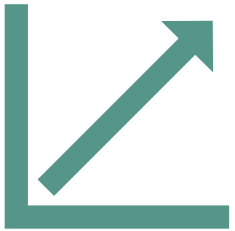
Source: Our World in Data

And that...

Systems require energy for...

...maintenance and repair

...information processing



...growth.

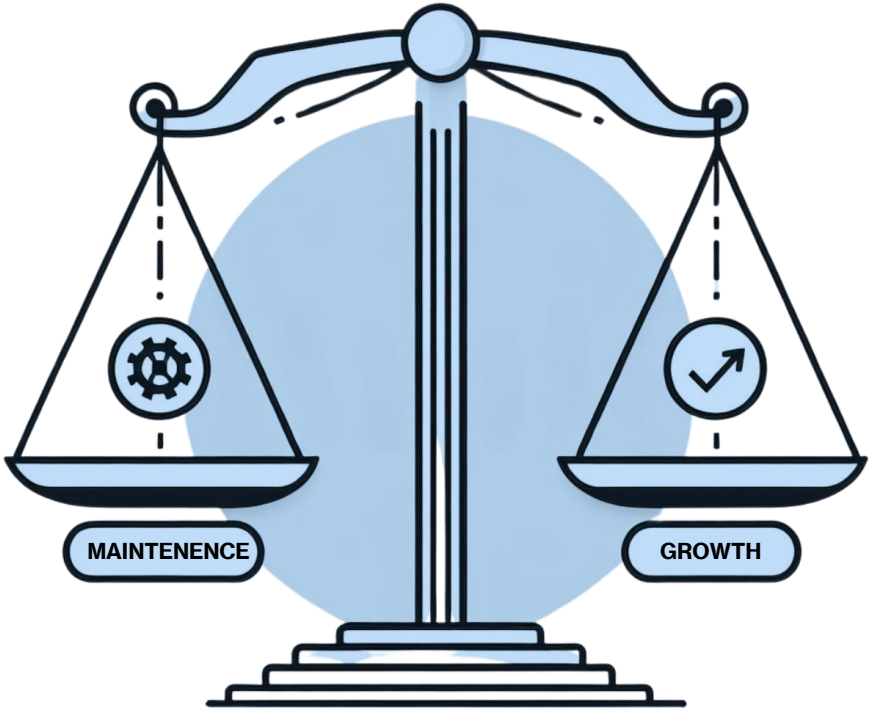
Therefore...

If energy is finite, a budgeting exercise is required...

...how much for maintenance?

...how much for growth?

Remembering that growth means bigger future maintenance demands.



It follows that...

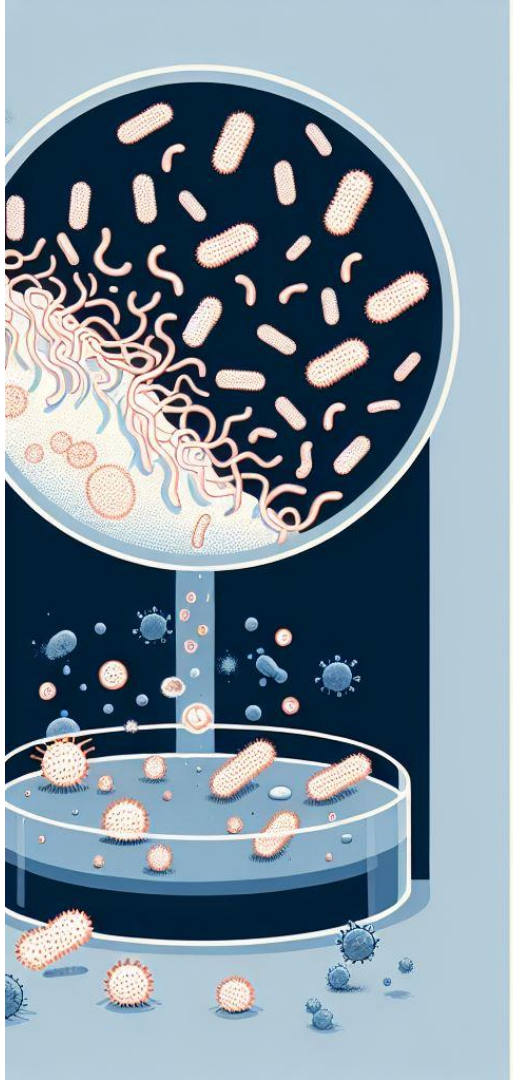
Sustainable systems are constrained to remain within energy (or resource) limits ... over time.

For example: the number of prey eaten will be balanced by the number of new offspring.

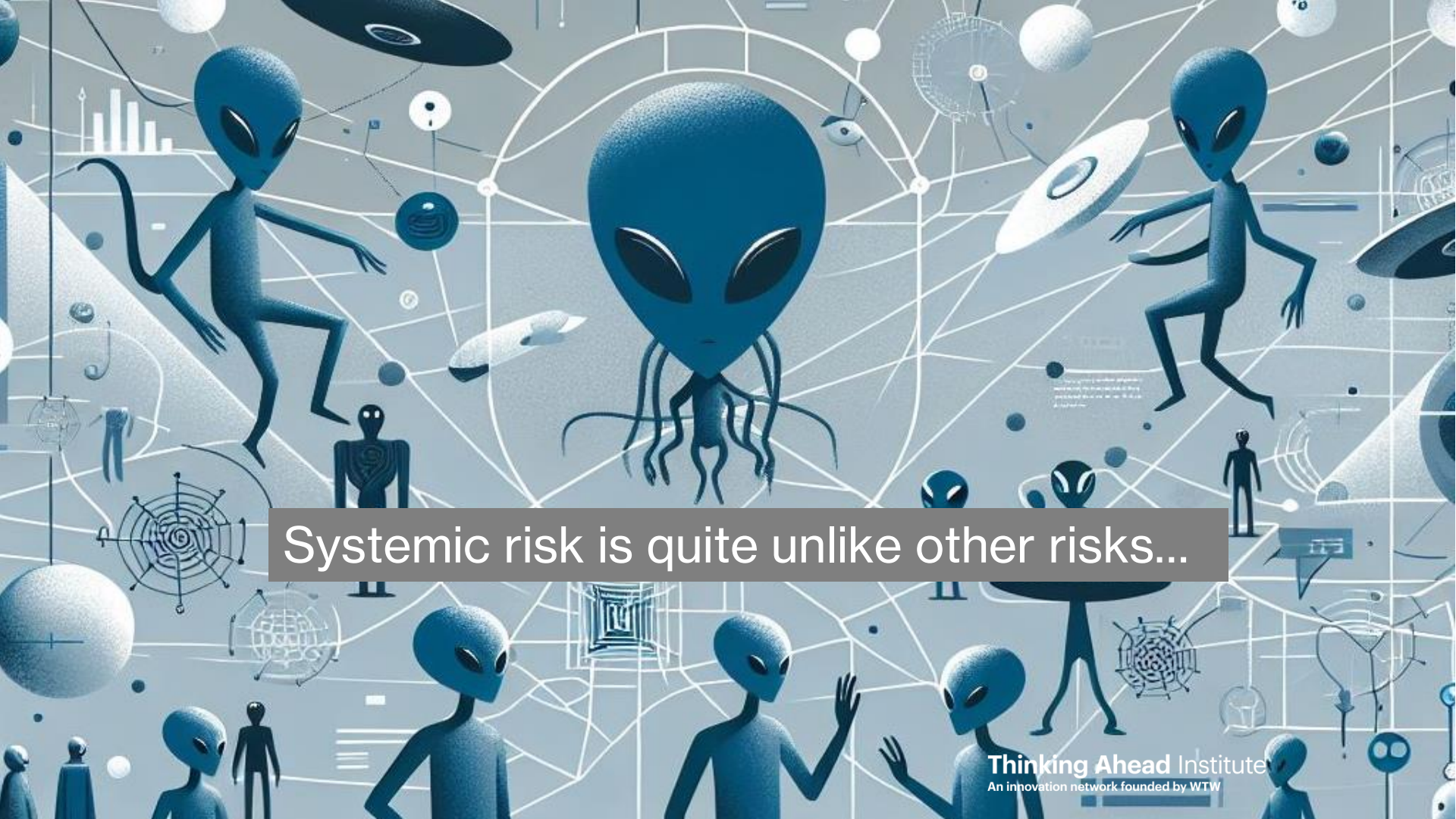
And...

Unsustainable systems collapse when they run out of energy (or resources).

For example: bacteria in a petri dish will grow quickly, then die off once the food is gone. Similarly, the society on Easter Island collapsed when they ran out of wood.



The collapse of an unsustainable system is the moment we get to see systemic risk.


Systemic risk is quite unlike other risks...
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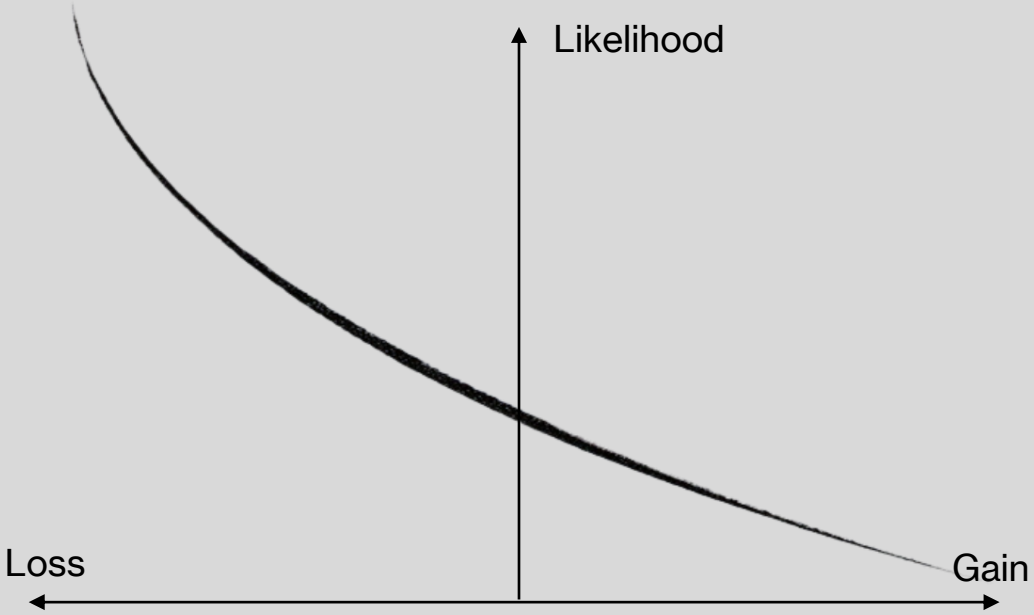
Systemic risk is the risk of malfunctions / breakdowns in an entire system,

...as opposed to breakdowns in individual parts or components of the system.

...systemic risk is not symmetrical.



Systemic risk can cascade from one system to another.

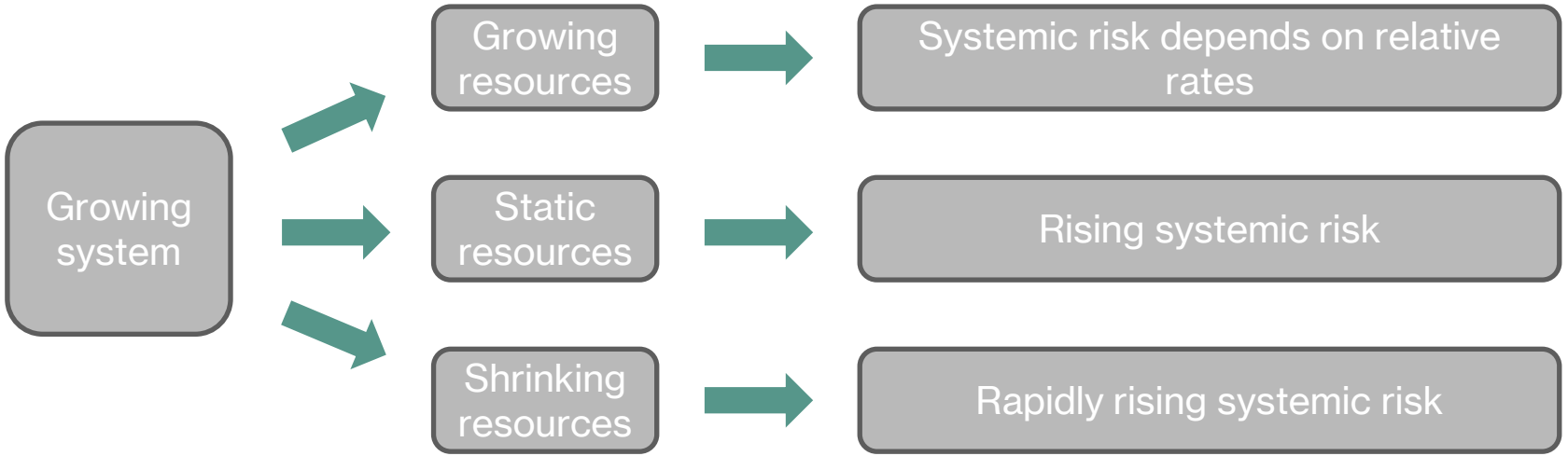
Systemic risk is endogenous – meaning it comes from inside the system.

And systemic risk is a property of the whole system ...

... either the system works the way we want it to, or it doesn't.

So, systems will grow if energy and resources are available.

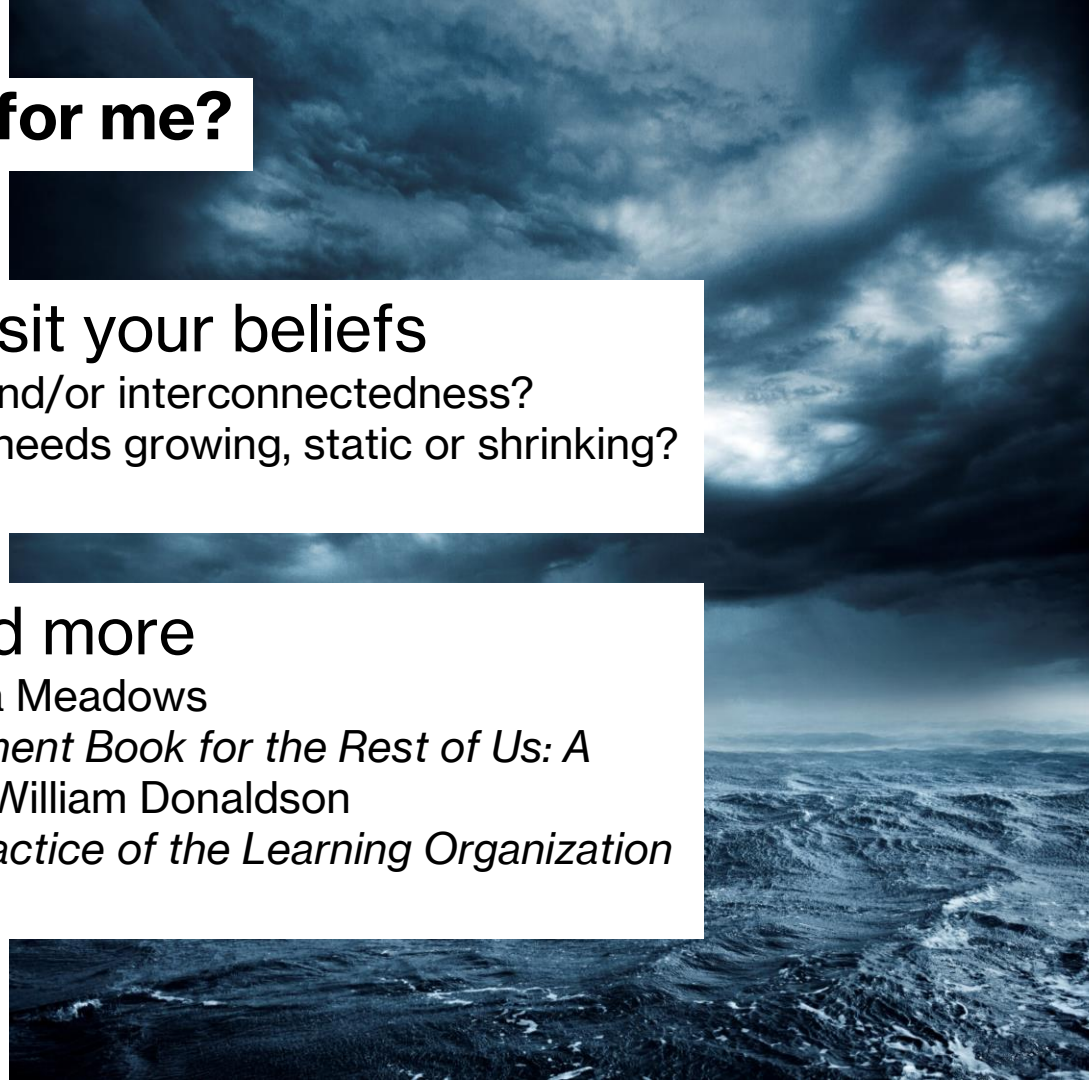
The level of systemic risk depends on the relationship between this growth rate and the availability of energy and resources.



Therefore, the management of systemic risk requires active management of the system – from within the system.

For finite resources, this will typically mean adding constraints.

So, what does this mean for me?



You might want to revisit your beliefs

- Is the system growing in size and/or interconnectedness?
- Are the resources the system needs growing, static or shrinking?
- Is systemic risk increasing?

You might want to read more

- *Thinking in Systems* by Donella Meadows
- *Simple Complexity: A Management Book for the Rest of Us: A Guide to Systems Thinking* by William Donaldson
- *Fifth Discipline: The Art and Practice of the Learning Organization* by Peter Senge

Or you might like to understand what this means for your investment organisation?

At Thinking Ahead, we work with investment professionals to understand systemic risk and what this means for their organisation's approach to risk.

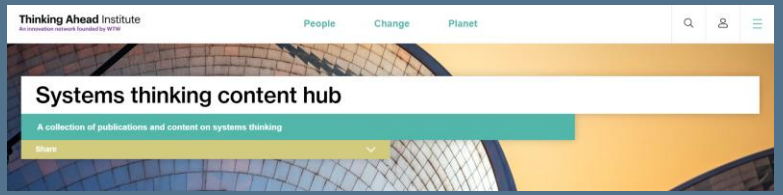
Learn more about the projects we can conduct with your organisation here

You might also like to check out these additional resources

If you would like to engage with this material at a deeper level, our paper *Systemic risk | deepening our understanding* is available here

If you would like to consider the application of this material to institutional investment, here is the link to our paper, *Systemic risk | adapting our practices*

Or there is a wealth of material to explore systems thinking more broadly on our Systems curriculum page and Systems thinking content hub



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The Thinking Ahead Institute is a global research and innovation network of the world's major investment organisations and aims to mobilise capital for a more sustainable future. Arising out of WTW's Thinking Ahead Group, formed in 2002 by Tim Hodgson and Roger Urwin, the Institute was established in January 2015 as a global not-for-profit group comprising asset owners and asset managers. Currently it has over 50 members with combined responsibility for over US$16 trillion.

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