



22 September 2020 Session One

Introduction to Multiple Capitals

what is the function of capital in complexity?



the traditional view of capital

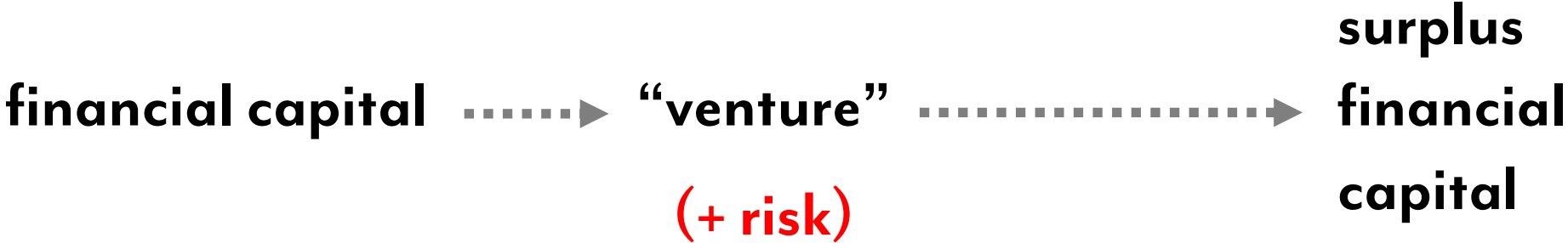


“

**...that part of man's stock which he expects to afford him
revenue.**

”

- Adam Smith









ingredients→ **cooking**→ **meal**



a view of capital in complex systems



a revolution in our view of capital



“

He discovered that capital is not a thing, but a social relation between persons, established by the instrumentality of things.

”

- Karl Marx



a revolution in our view of power



“

The individual, with his identity and characteristics, is the product of a relation of power exercised over bodies, multiplicities, movements, desires, forces.

”

- Michel Foucault



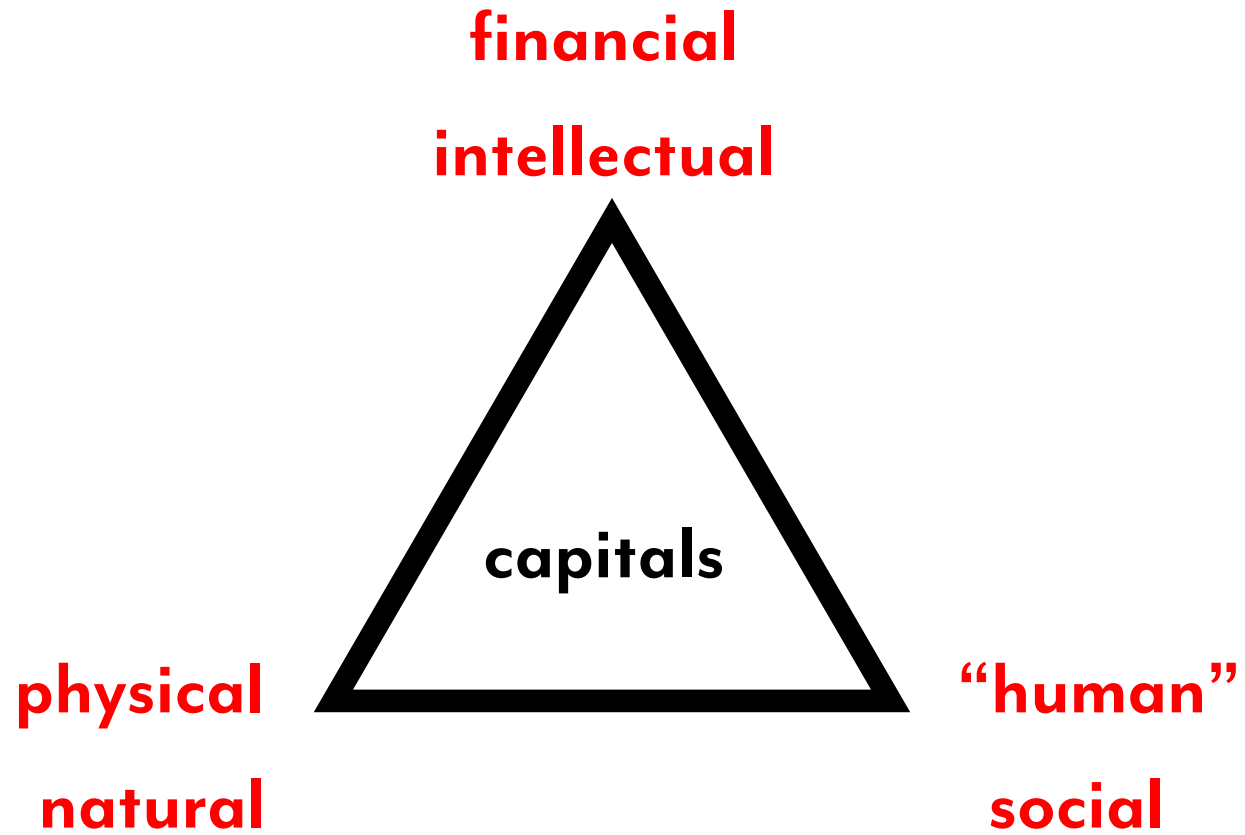
axiom 1

capital is a social relation between people, mediated by multiple instruments and tools



axiom 2

there are multiple forms of capital





axiom 3

linear process do not exist

even though we like to pretend they do



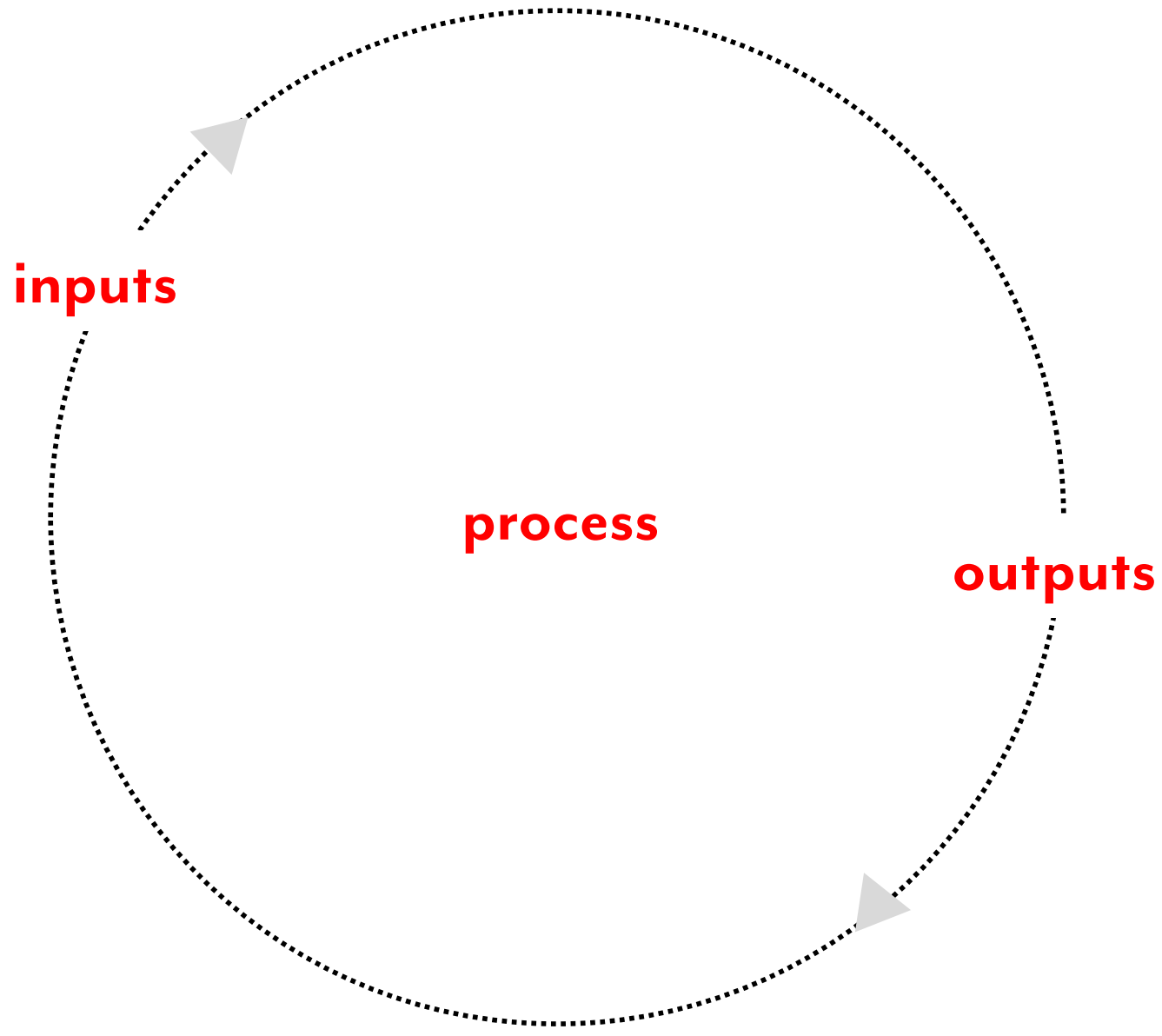
inputs



process

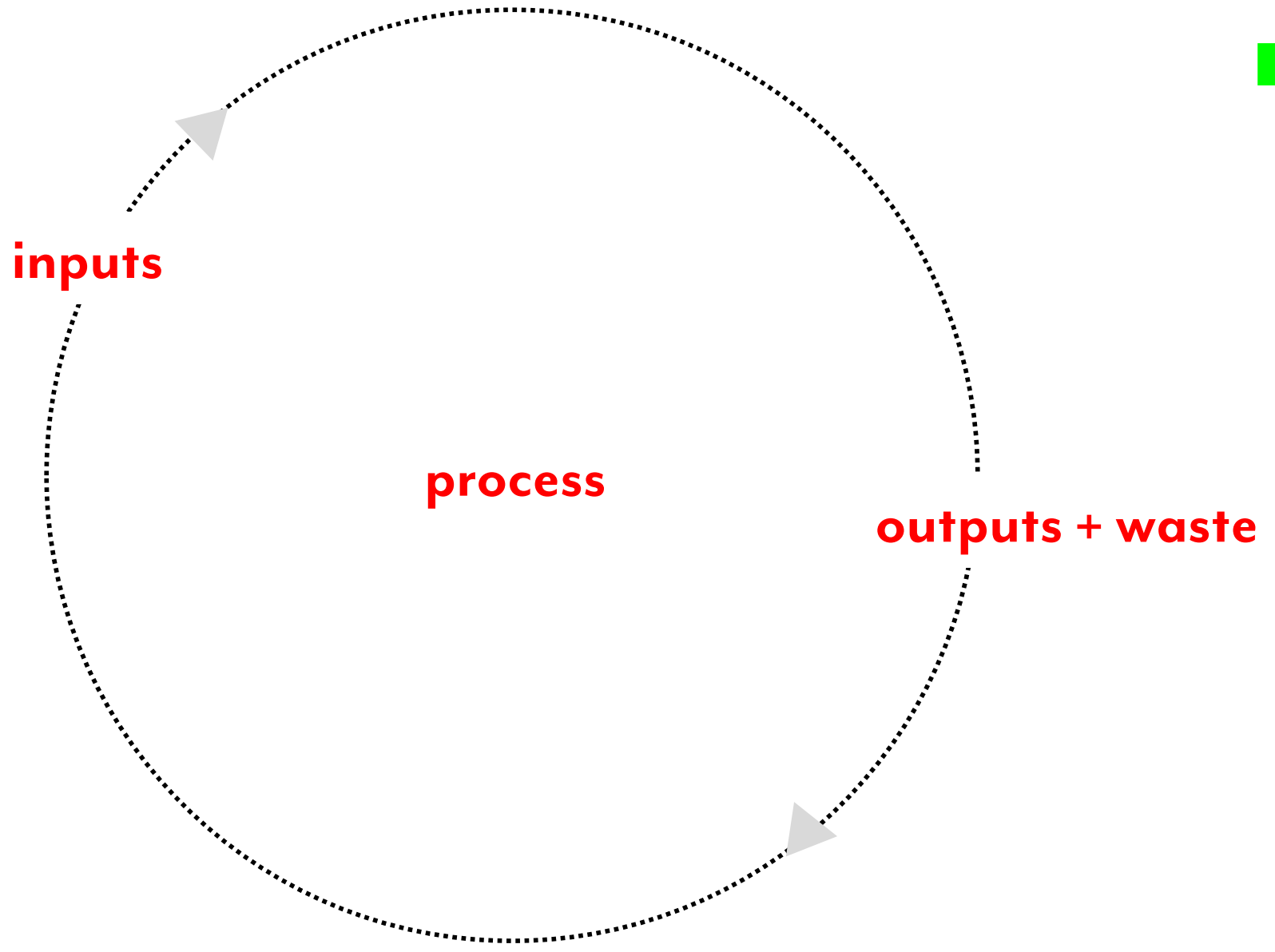


outputs





**there is no such thing as “waste” in nature (other than heat)
but human-designed processes typically generate “waste”**



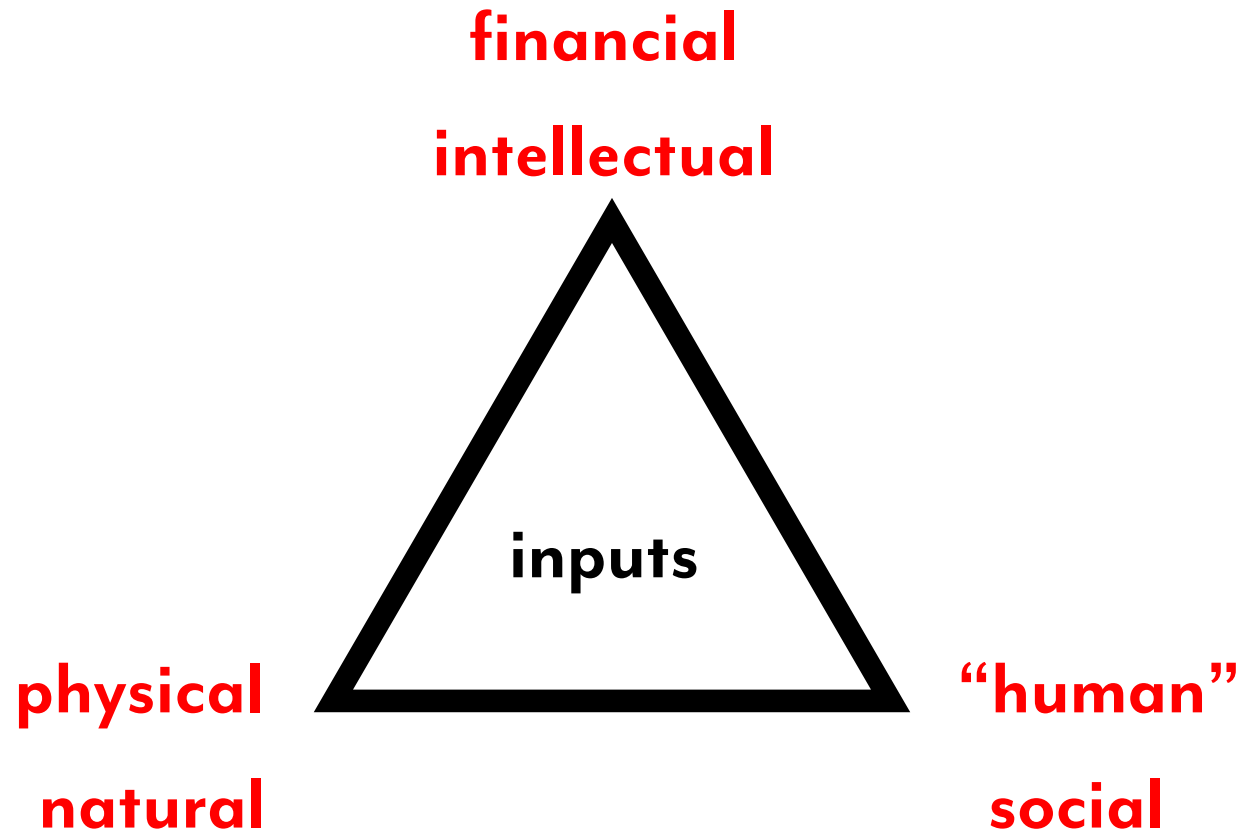


**sustainability means “closing the loop” = all outputs
are “recycled” to become “inputs” with minimal “waste”**



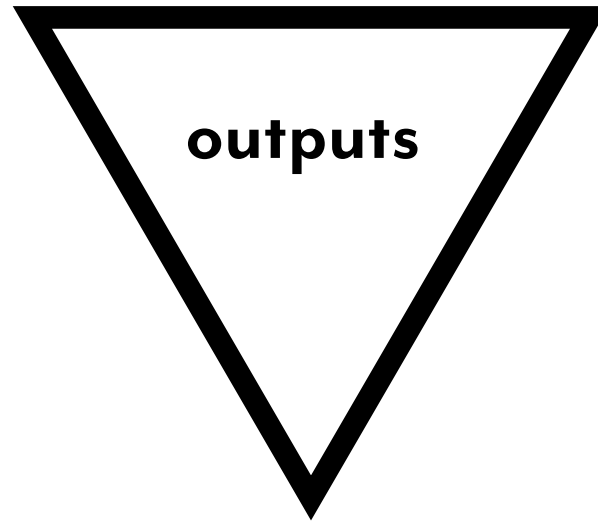
axiom 4

in any healthy system inputs and outputs are balanced





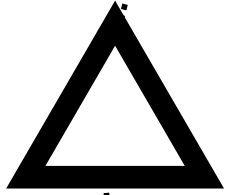
physical
natural



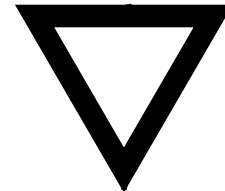
“human”
social

financial
intellectual

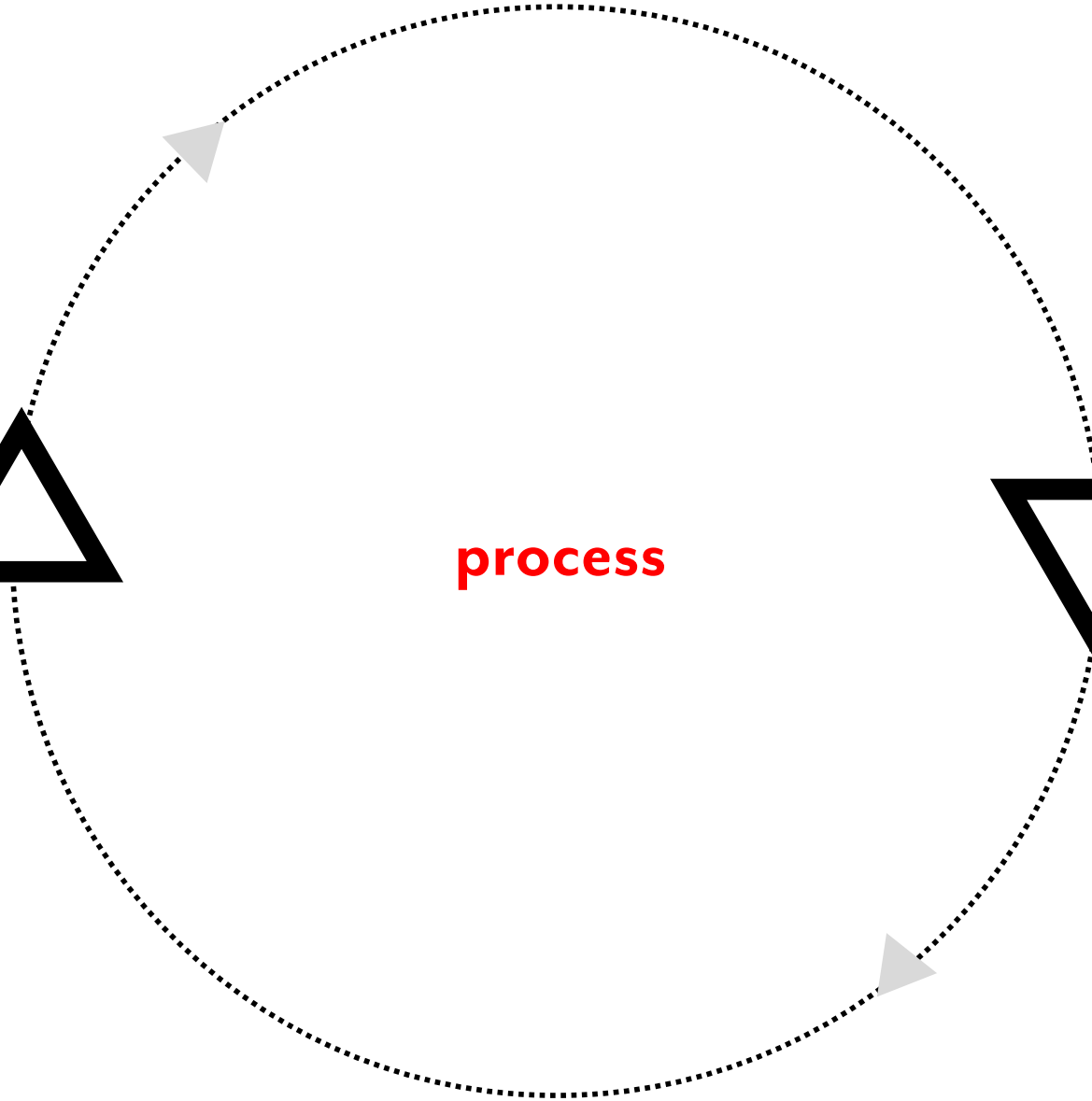
inputs



process



outputs

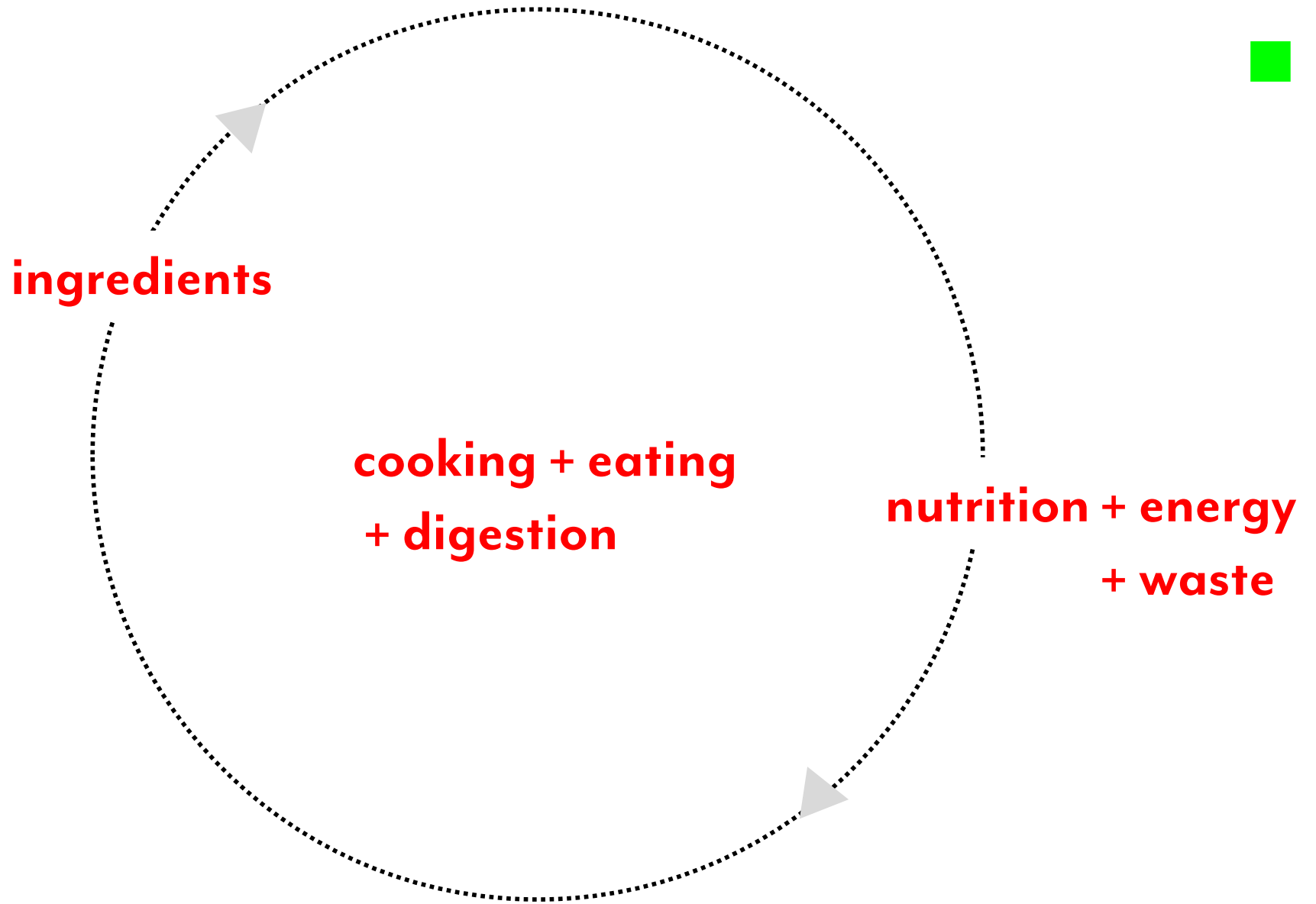




**all processes using energy generate “waste” while
efficient processes only generate heat as “waste,”
inefficient processes generate “wastage”
ie. outputs that are not, or cannot be, re-used**



what does it mean to eat “sustainably”?





adults need between 2000-2500 calories per day



2500 calories



what does it mean to eat “sustainably”?



2500 = 2500 calories = maintenance



2500 < **2500 calories** = **?**



2500

<

2500 calories

=

starve



2500 > **2500 calories** = **surplus**



**what happens when you can't use the energy in
your system?**



you get sick

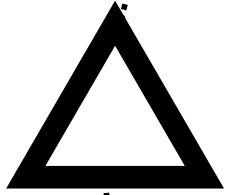


it's exactly the same with capital

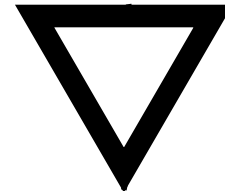


it's exactly the same with capital “calories”
= multiple forms of capital

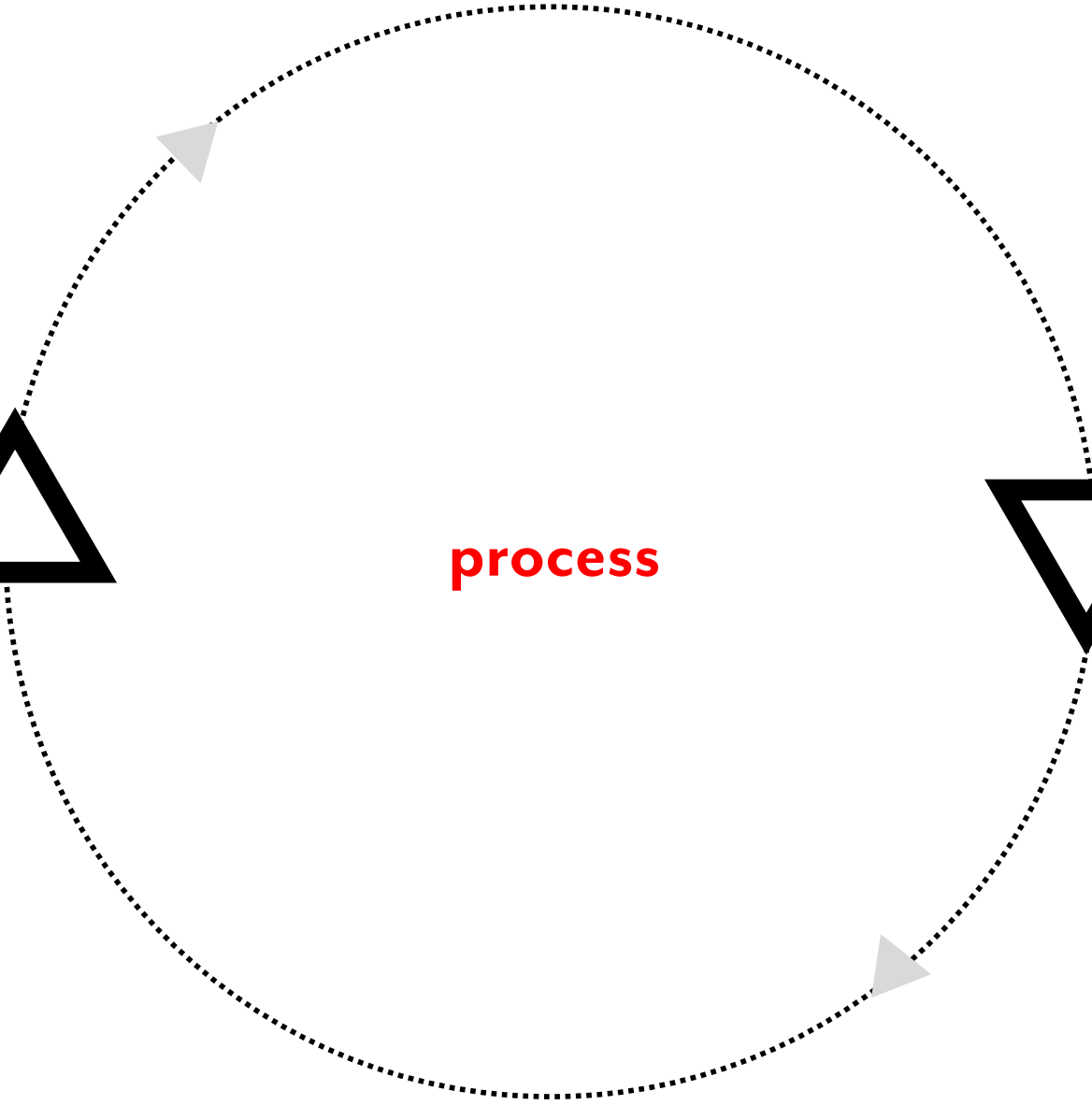
inputs



process



outputs





**all complex organisms require energy, the more complex
the more energy they need**

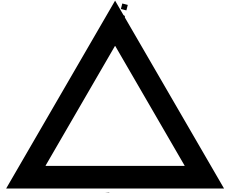


**we have built high-growth complex societies with
high energy needs**

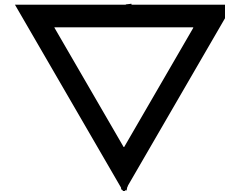


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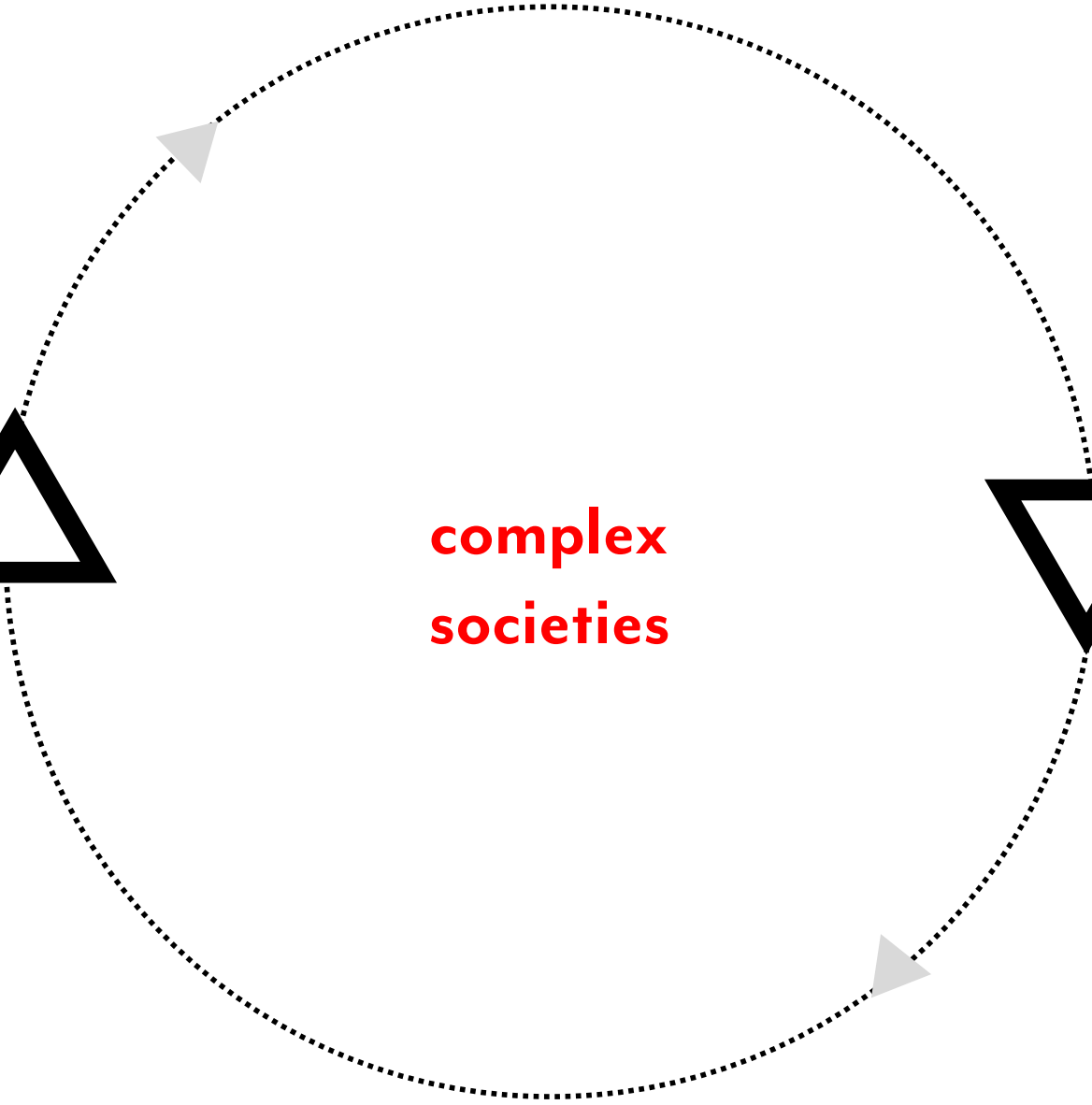
inputs



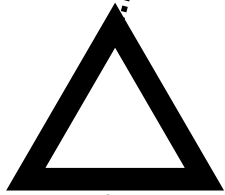
**complex
societies**



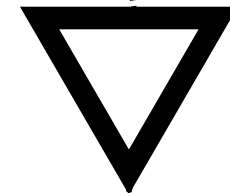
**outputs
+ waste**



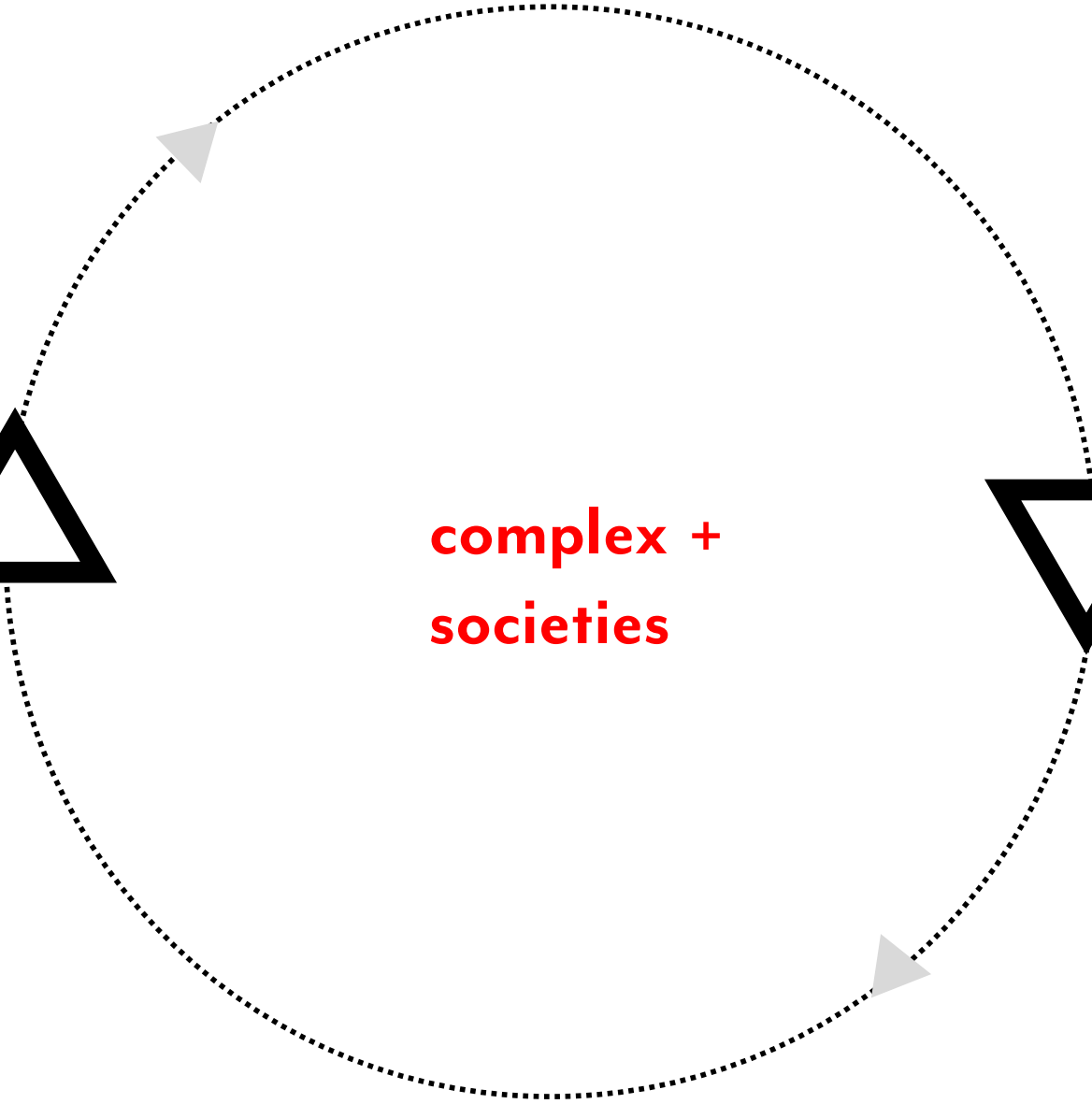
+ inputs



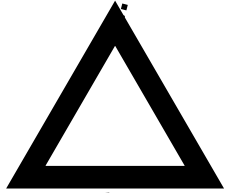
**complex +
societies**



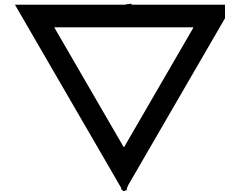
**outputs
+ waste +**



++ inputs

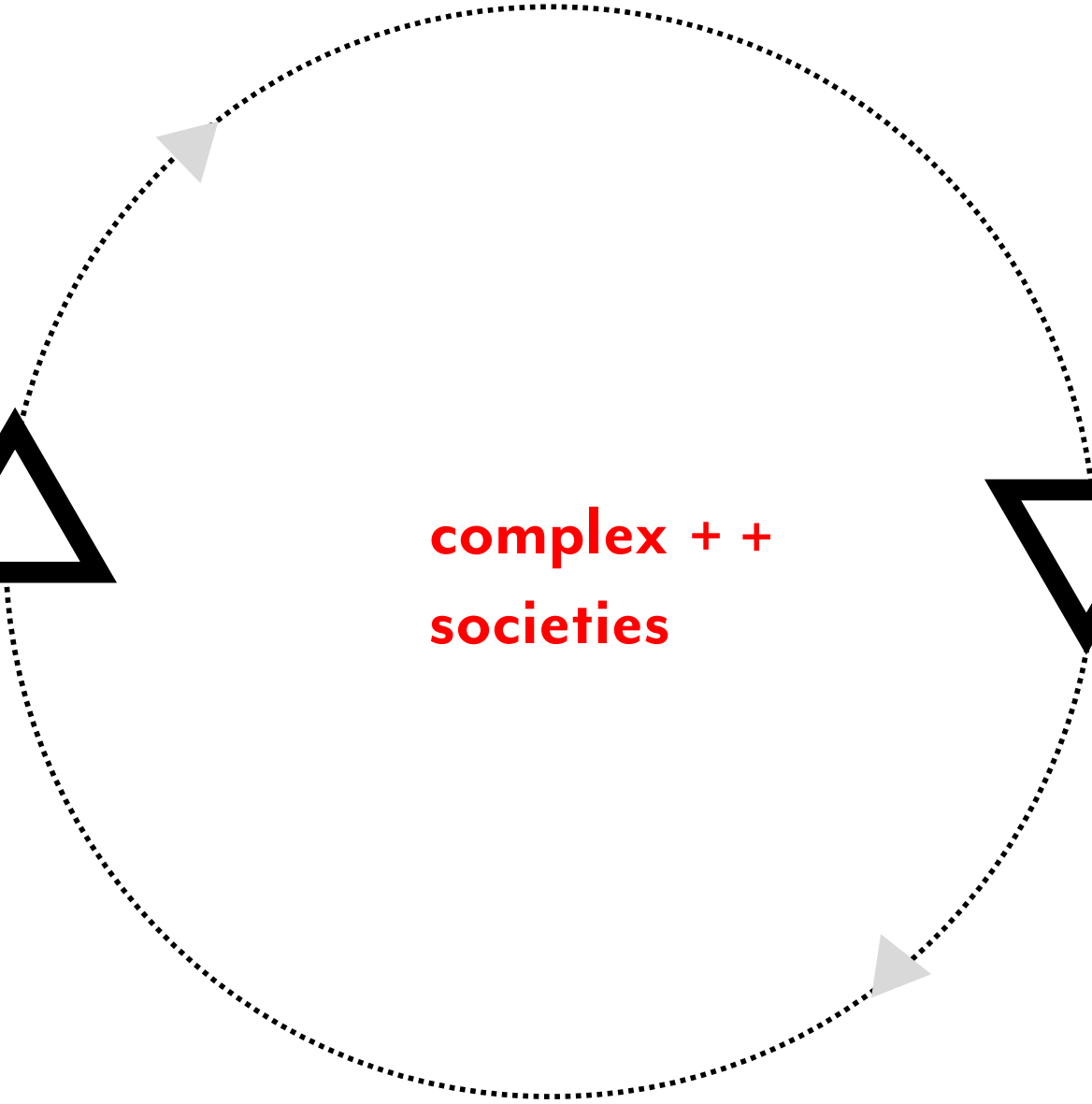


**complex ++
societies**



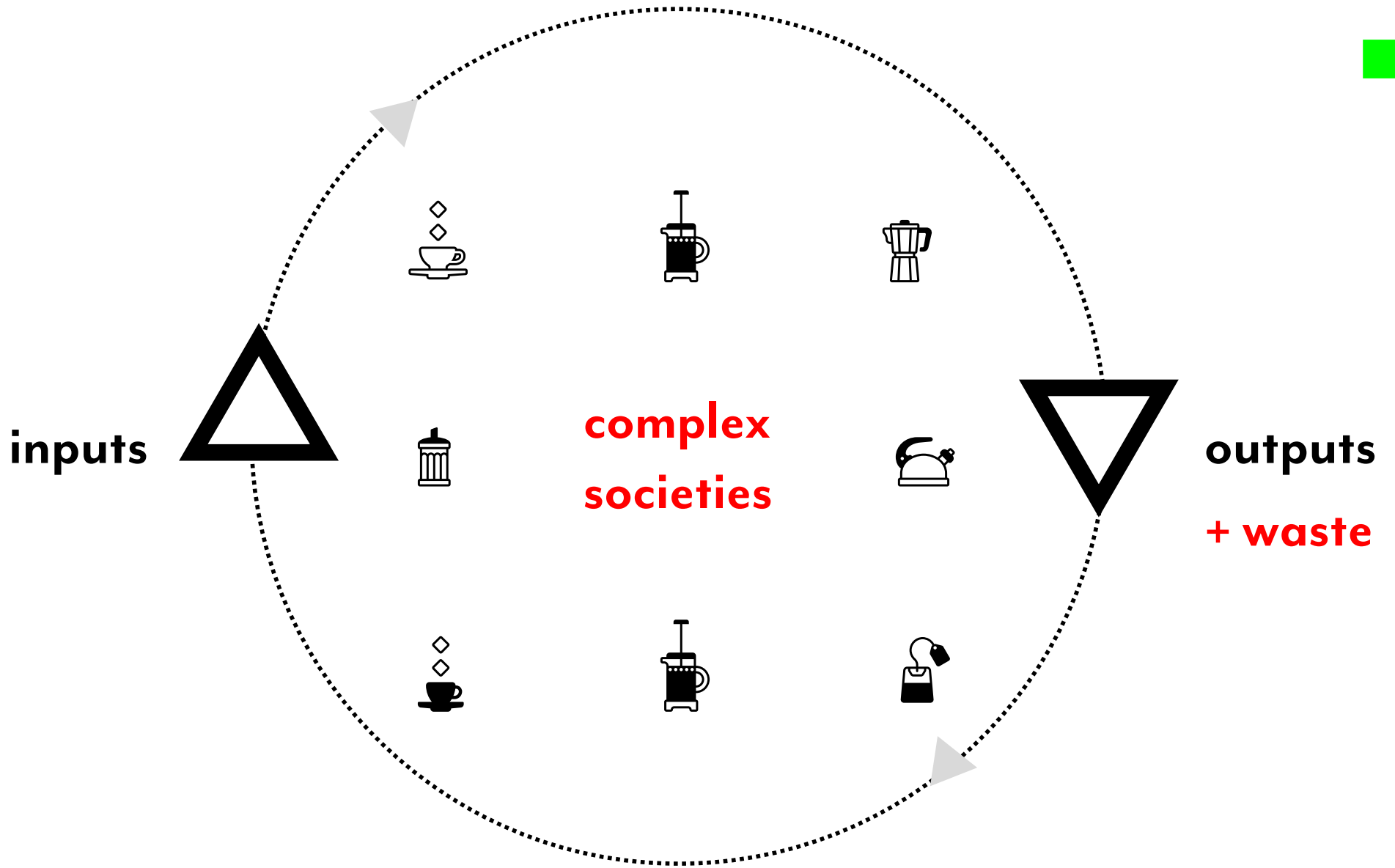
outputs

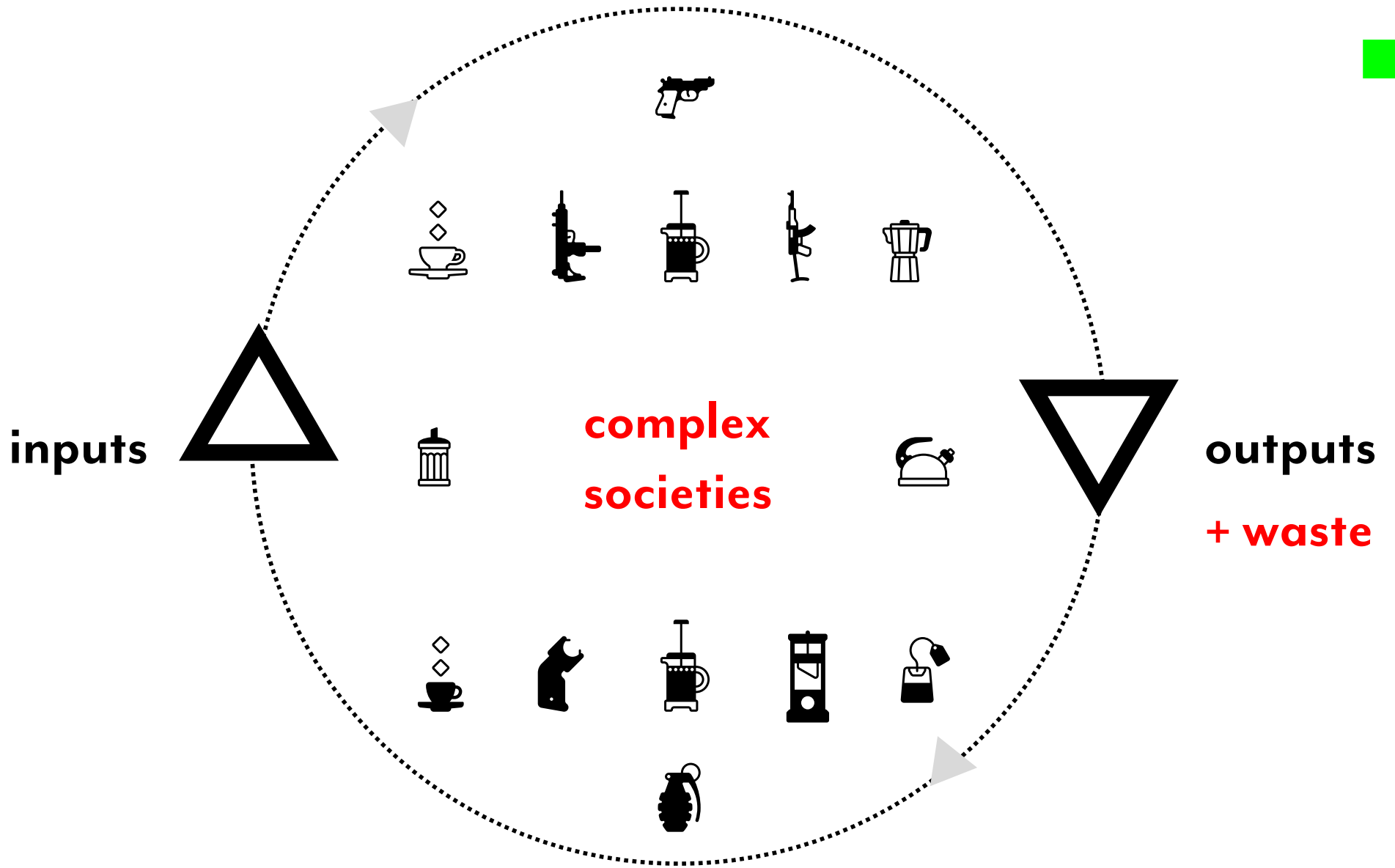
+ waste ++





**one view is that societies grow too complex to maintain,
they collapse**







**one view is that societies grow too complex to maintain,
then they collapse, this is called a “maintenance crisis”**



> **“2500 calories”** <



“sick”

>

“2500 calories”

<

collapse



“sick”

>

“2500 calories”

<

collapse



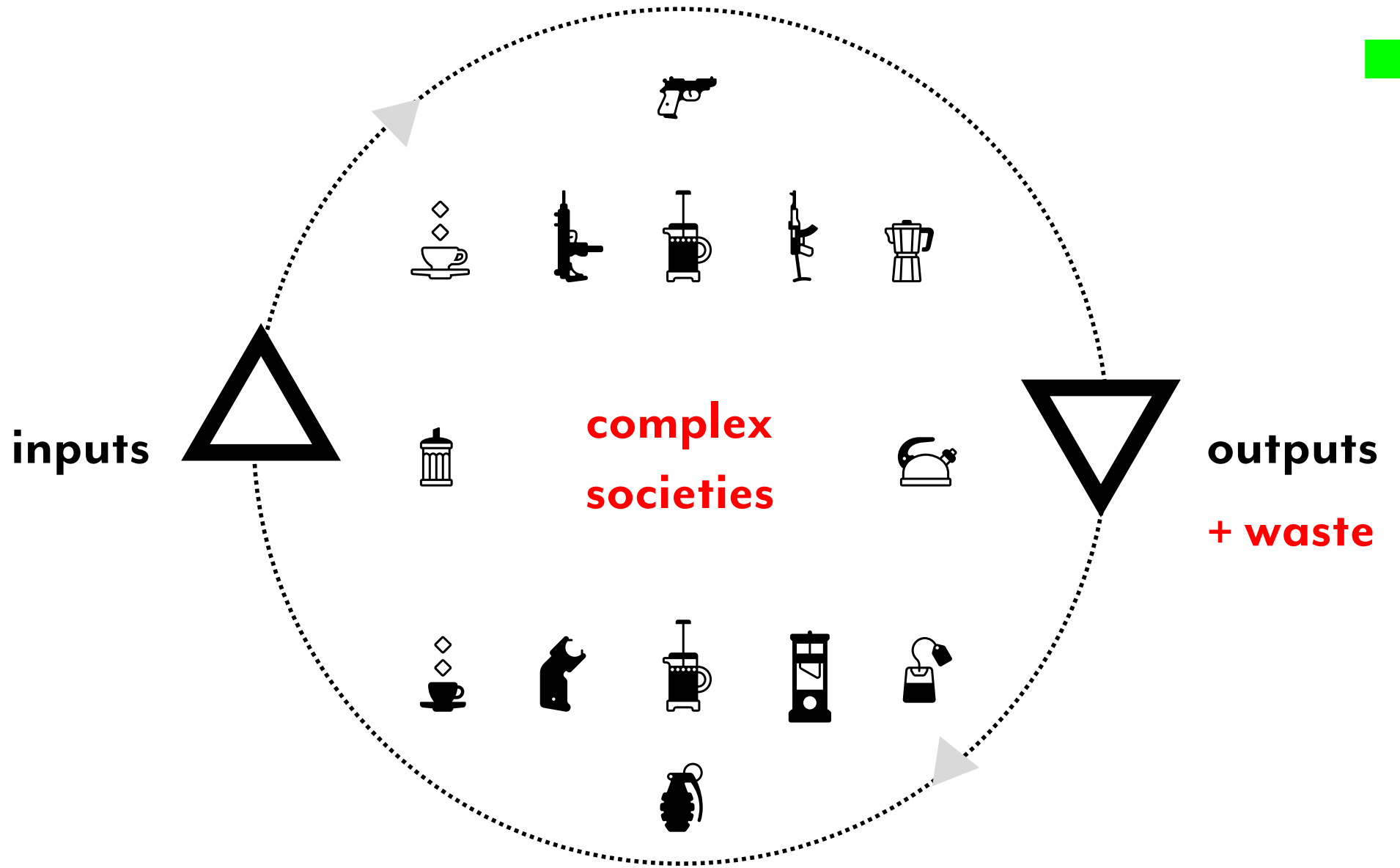
**anabolic
growth**

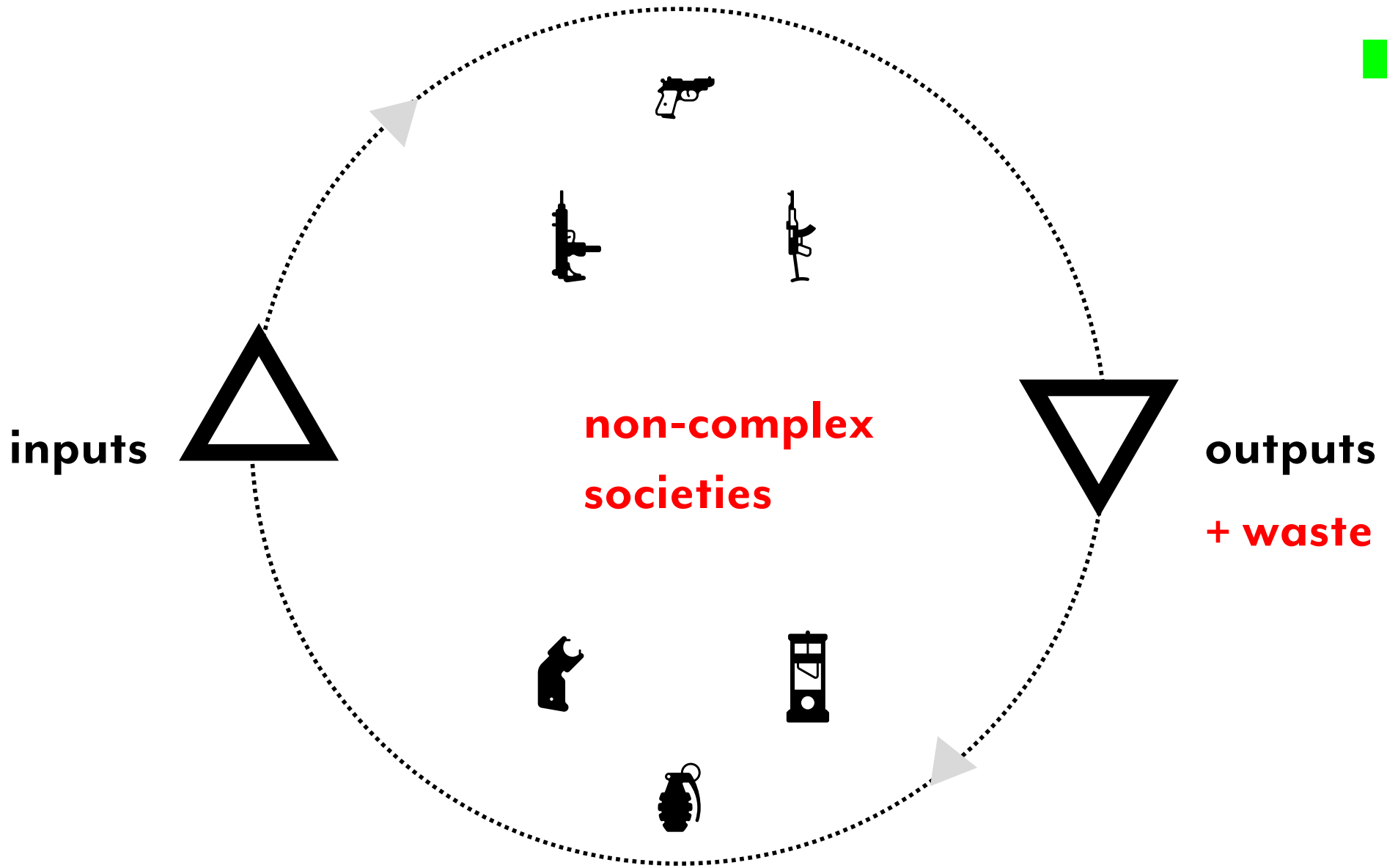
>

“2500 calories”

<

**catabolic
collapse**





inputs

non-complex
societies

outputs
+ waste





some parts of society has massive capital surpluses



while others have **depreciating capital stocks**



this is a relationship - we are the product (of this relationship)



“sick”

>

“2500 calories”

<

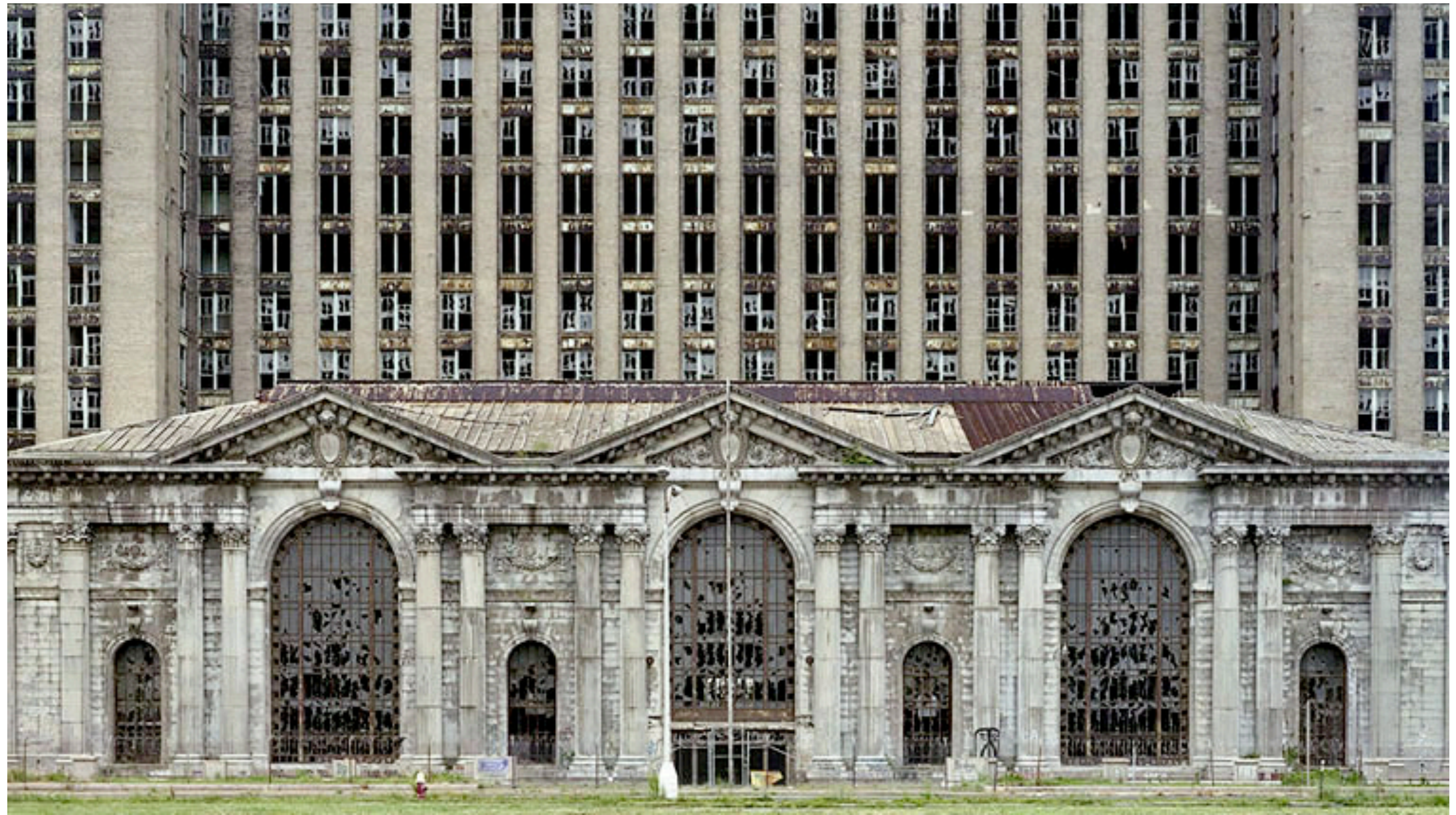
collapse

HIGHLAND PARK, Mich. — When the sun sets in this small city, its neighborhoods seem to vanish. In a deal to save money, two-thirds of the streetlights were yanked from the ground and hauled away this year, and the resulting darkness is a look that is familiar in the wide open cornfields of Iowa but not here, in a struggling community surrounded on nearly all sides by Detroit.

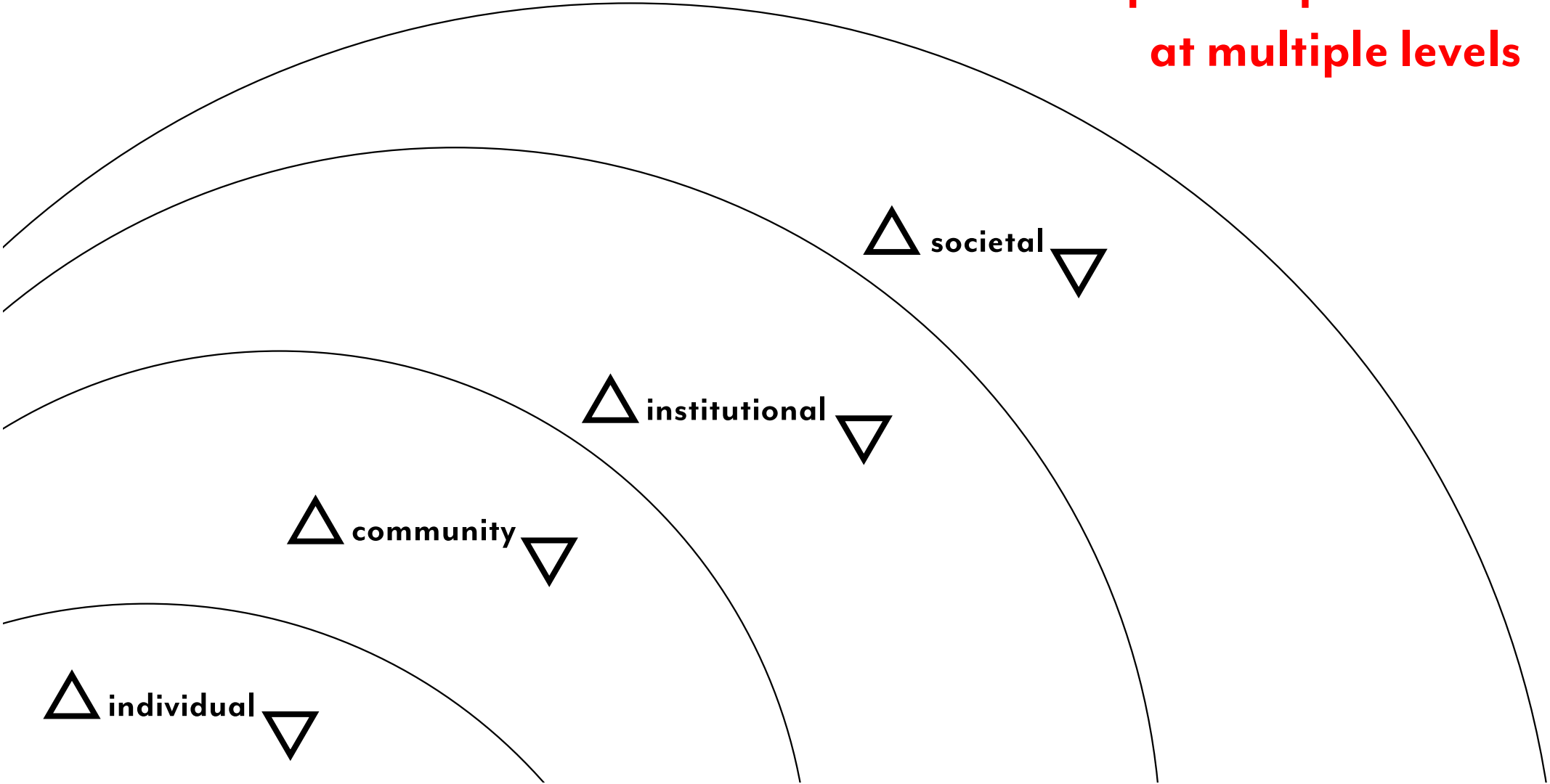
Highland Park's circumstances are extreme; with financial woes so deep and long term, it has extinguished all but 500 streetlights in a city accustomed to 1,600, utility company officials say. But similar efforts have played out in dozens of towns and cities, like Myrtle Creek, Ore., Clintonville, Wis., Brainerd, Minn., Santa Rosa, Calif., and Rockford, Ill.

**Darker Nights as Some Cities Turn Off the Lights,
New York Times, Dec 29, 2011**





**capital requirements
at multiple levels**





axiom 5

**financial capital alone will never be sufficient to “buy”
our way out of collapse
ie. there will never be sufficient financial capital**



why does this matter?



what are the practical implications?



axiom 6

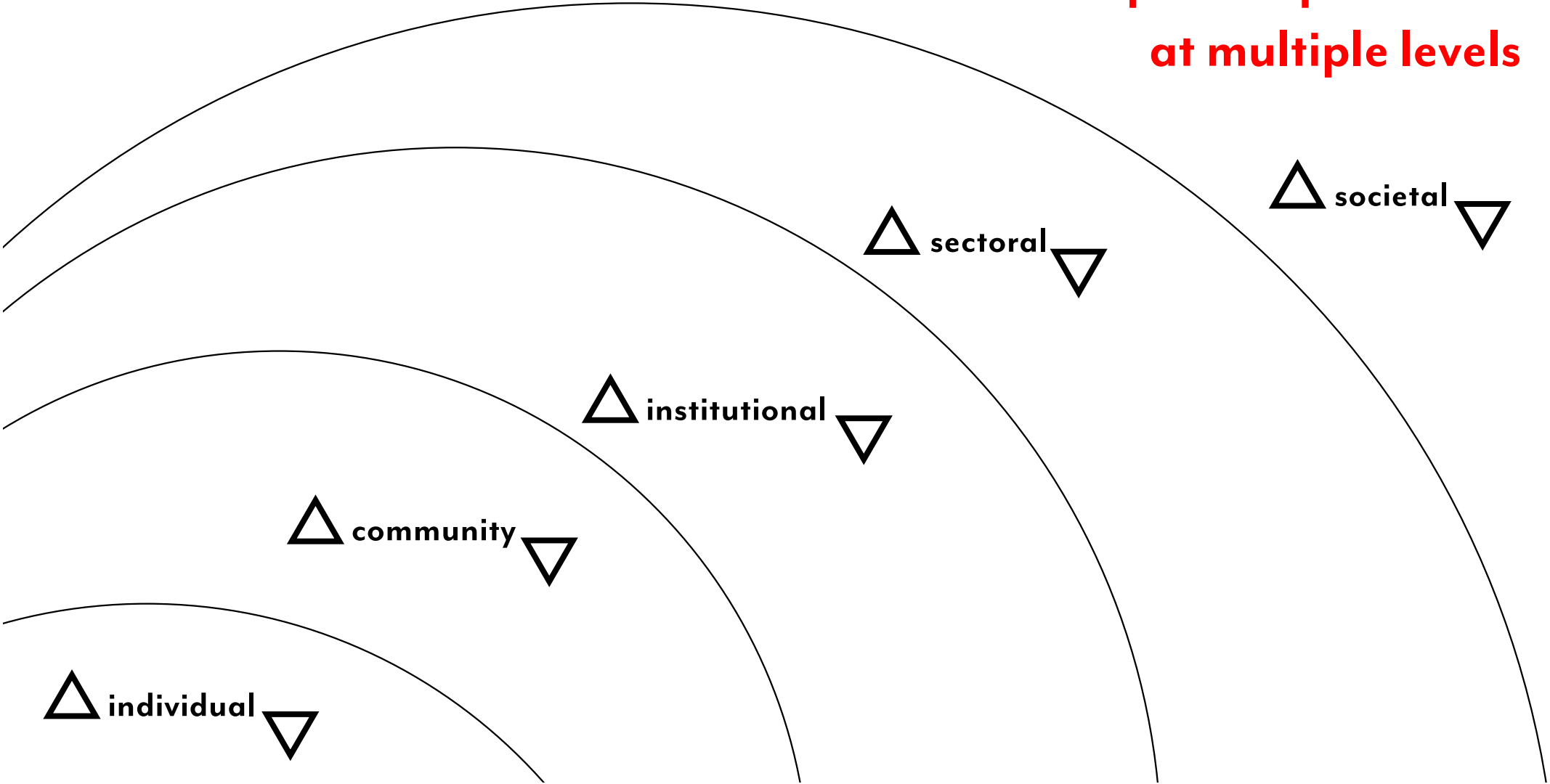
tackling complex challenges require deliberate multiple capital strategies



23 September 2020 Session Two

Introduction to Multiple Capitals

**capital requirements
at multiple levels**



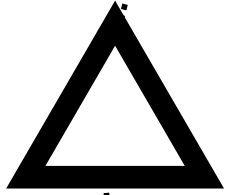


each level has a capital surplus re-cycling mechanism

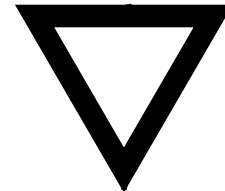


each level has a capital surplus re-cycling mechanism
each level provides inputs to other levels

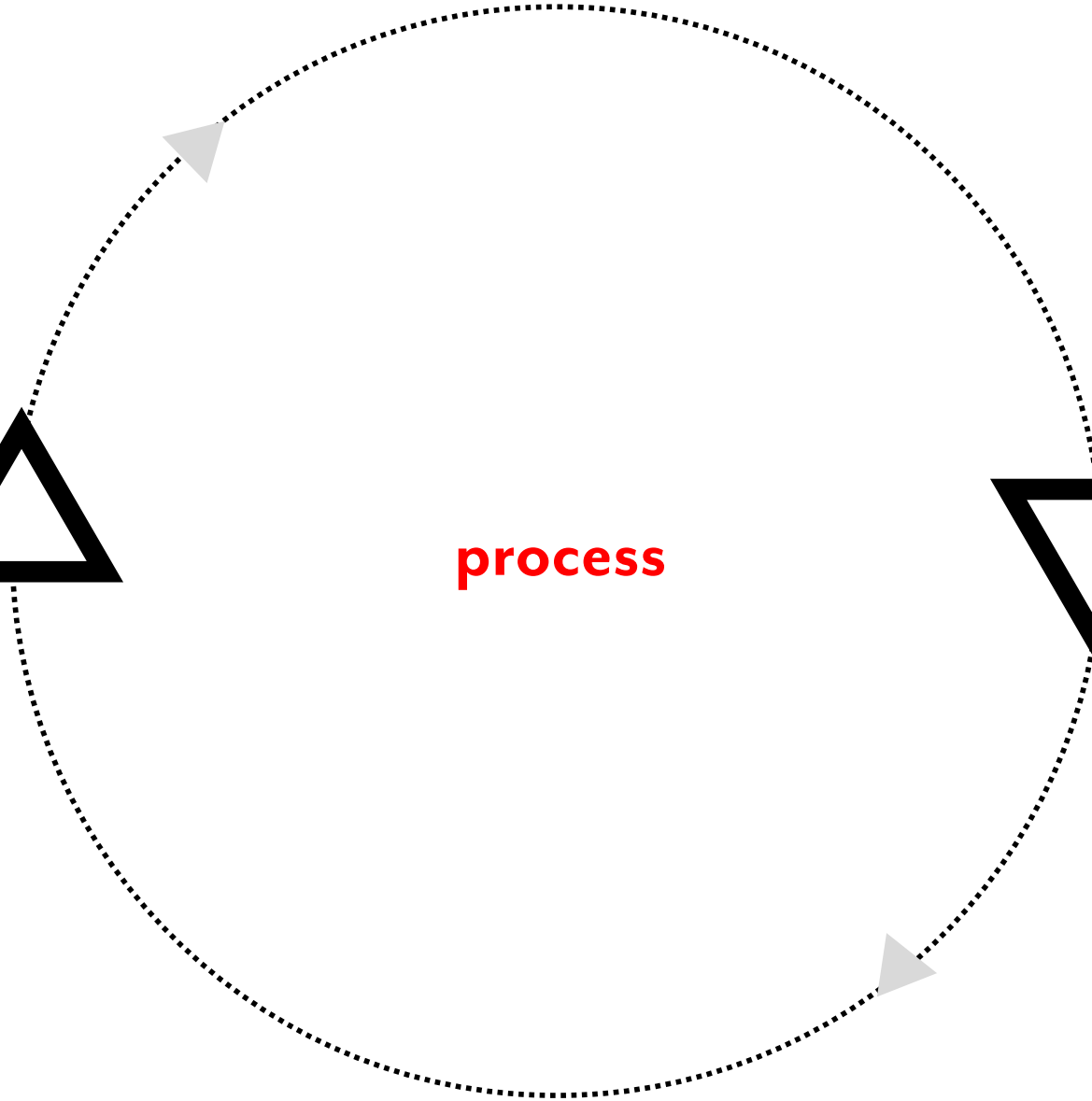
inputs



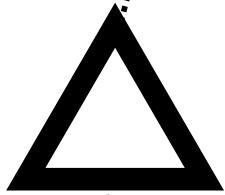
process



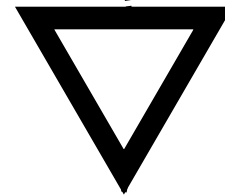
outputs



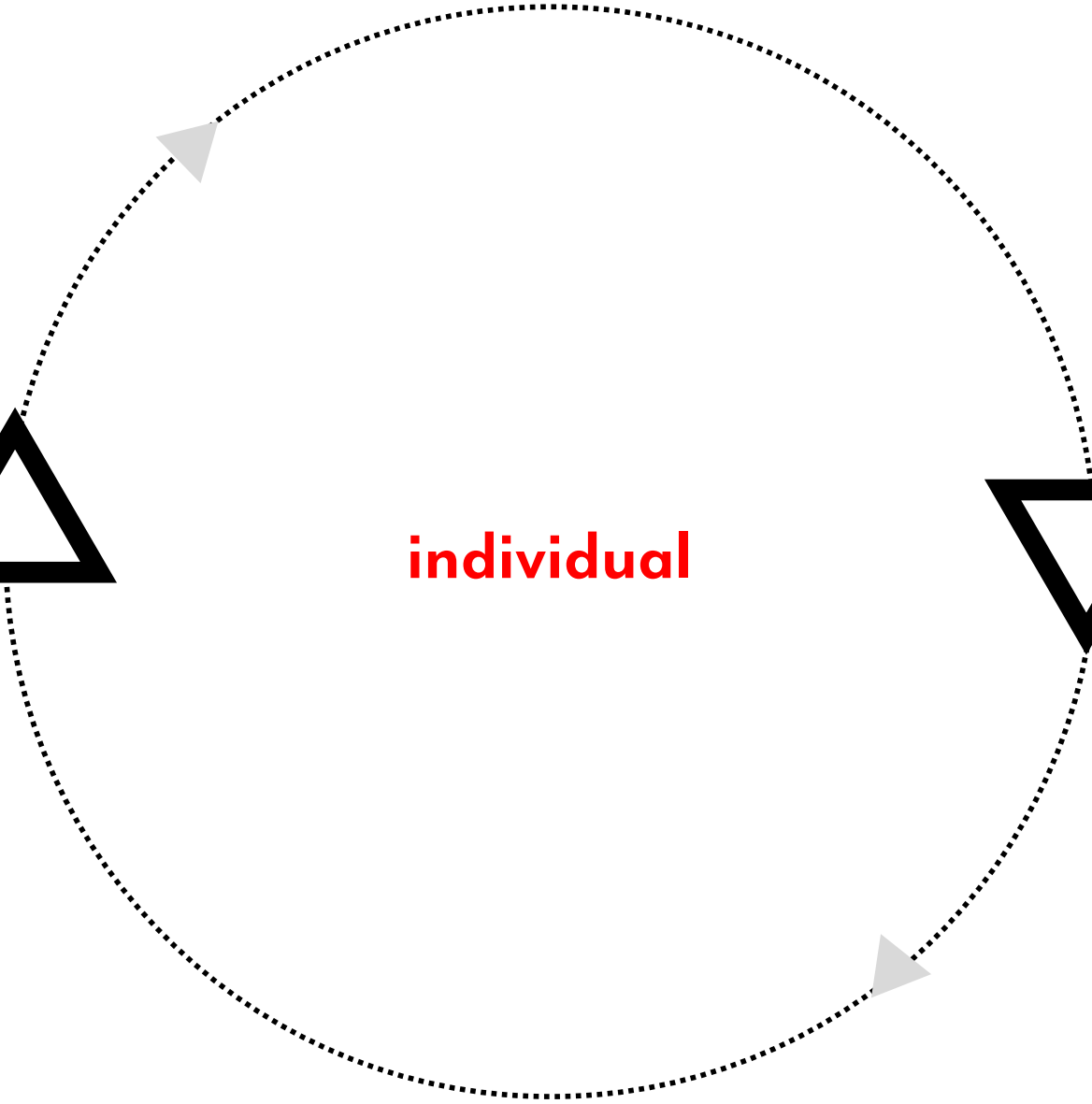
inputs



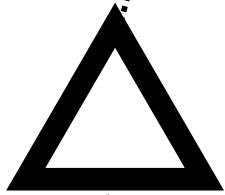
individual



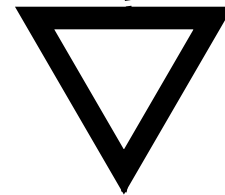
outputs



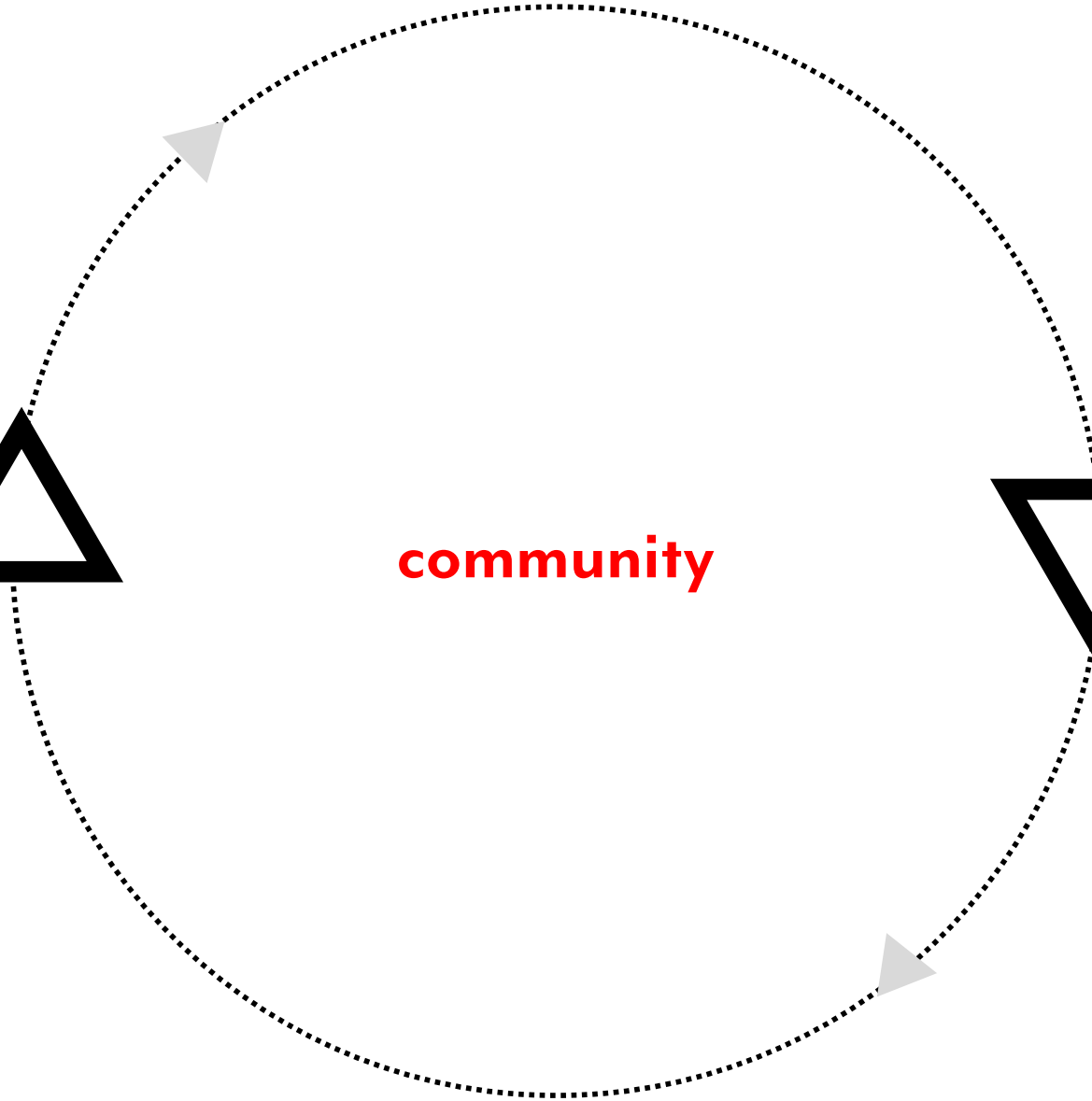
inputs



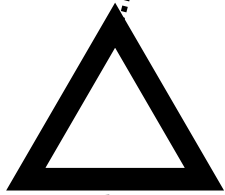
community



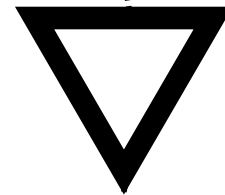
outputs



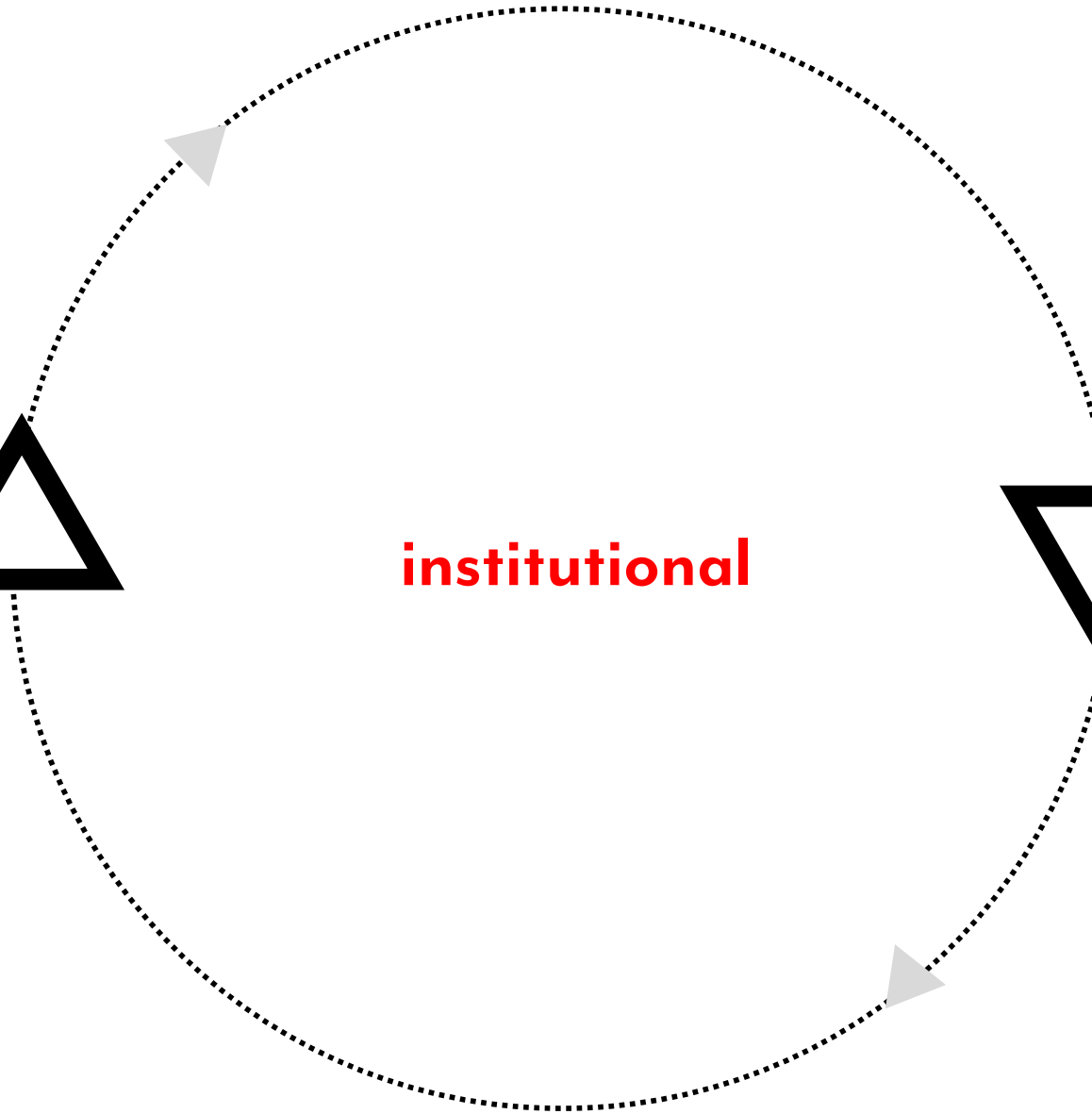
inputs



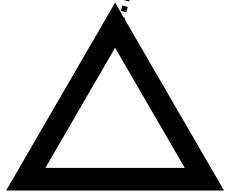
institutional



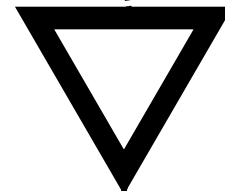
outputs



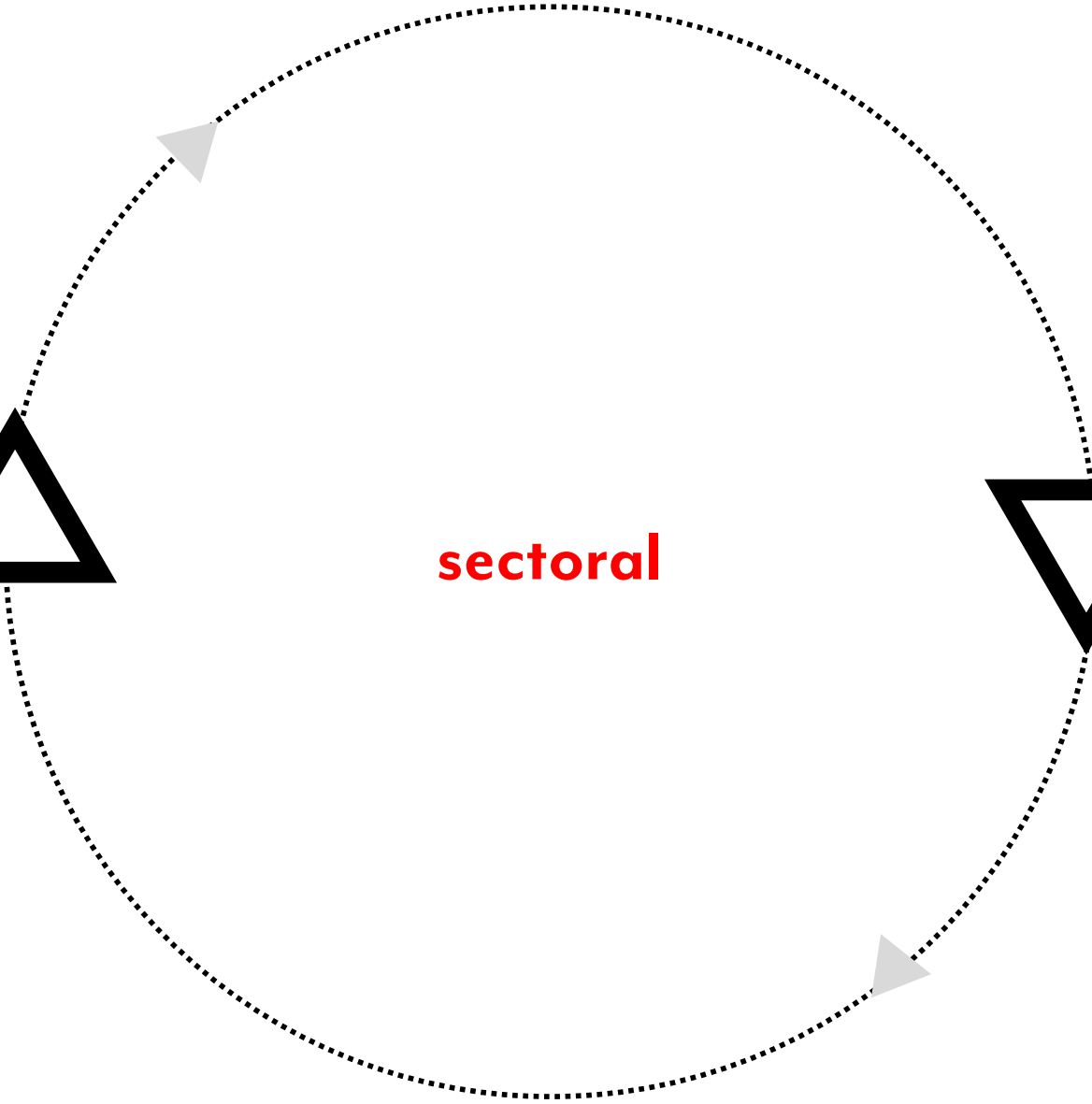
inputs



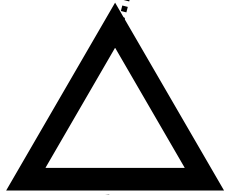
sectoral



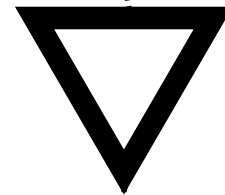
outputs



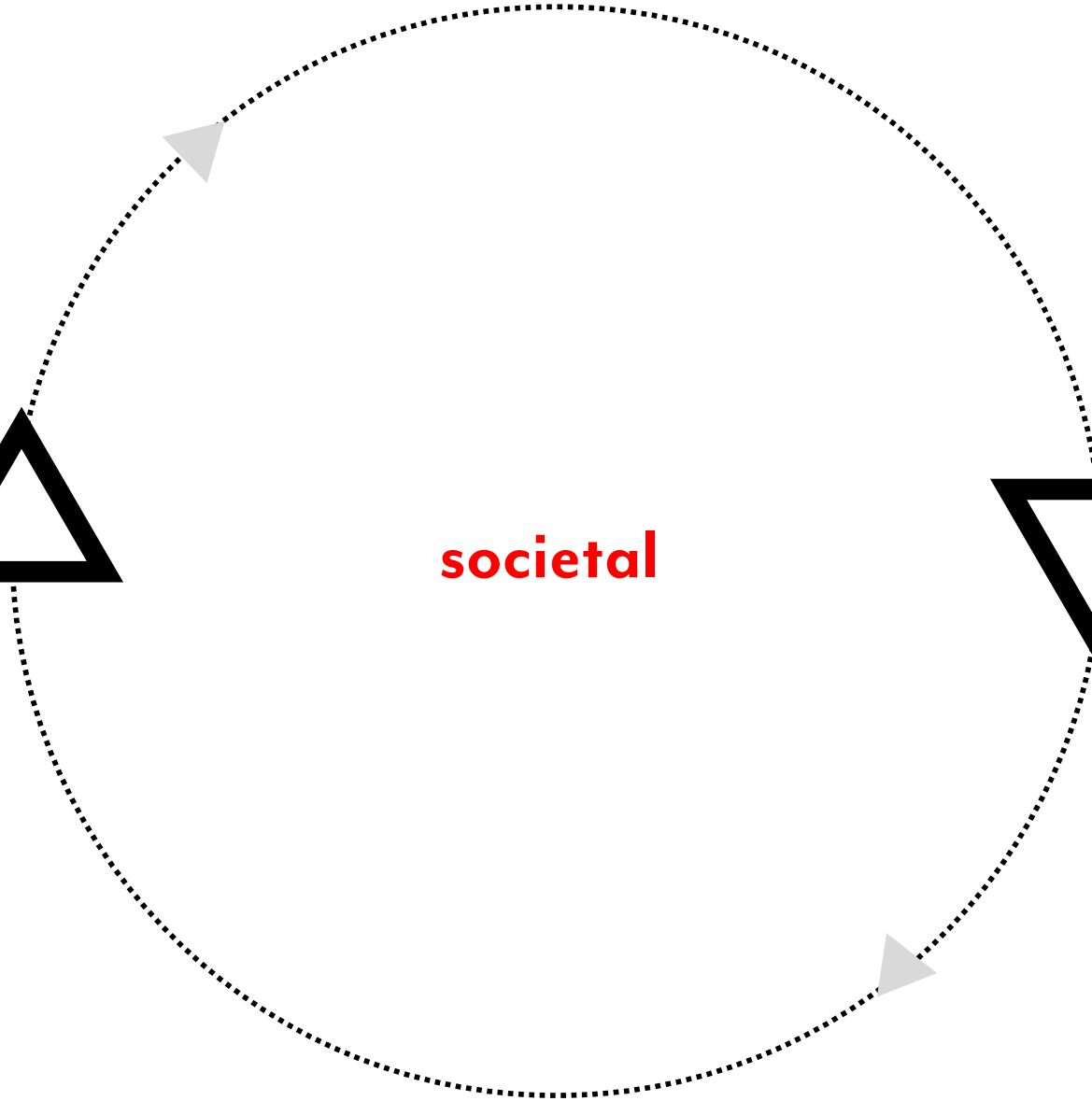
inputs



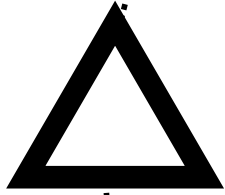
societal



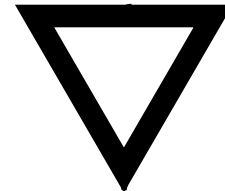
outputs



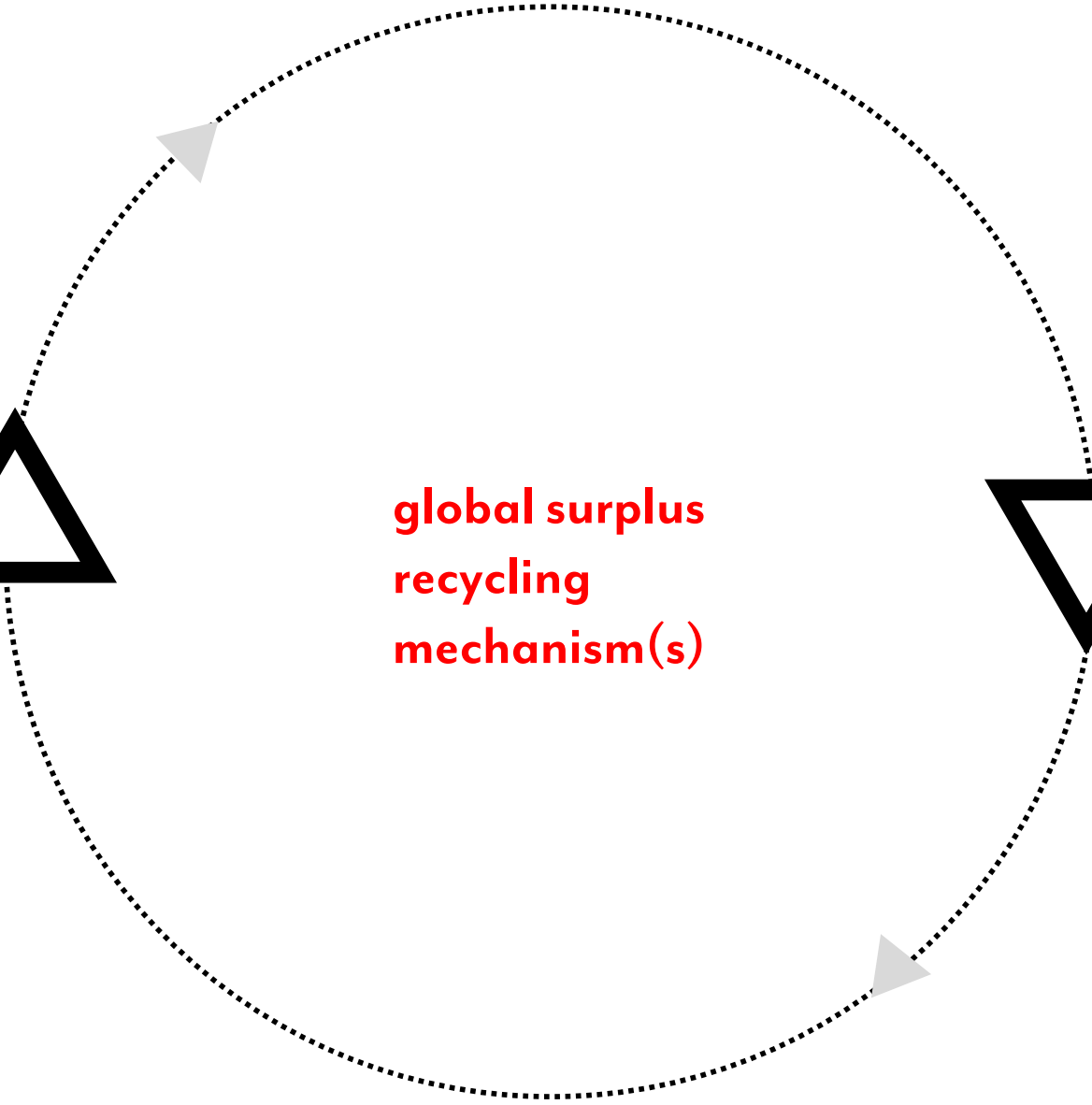
inputs



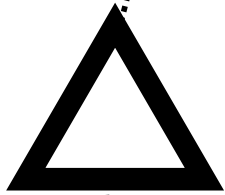
**global surplus
recycling
mechanism(s)**



outputs

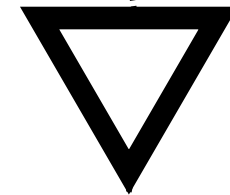


inputs

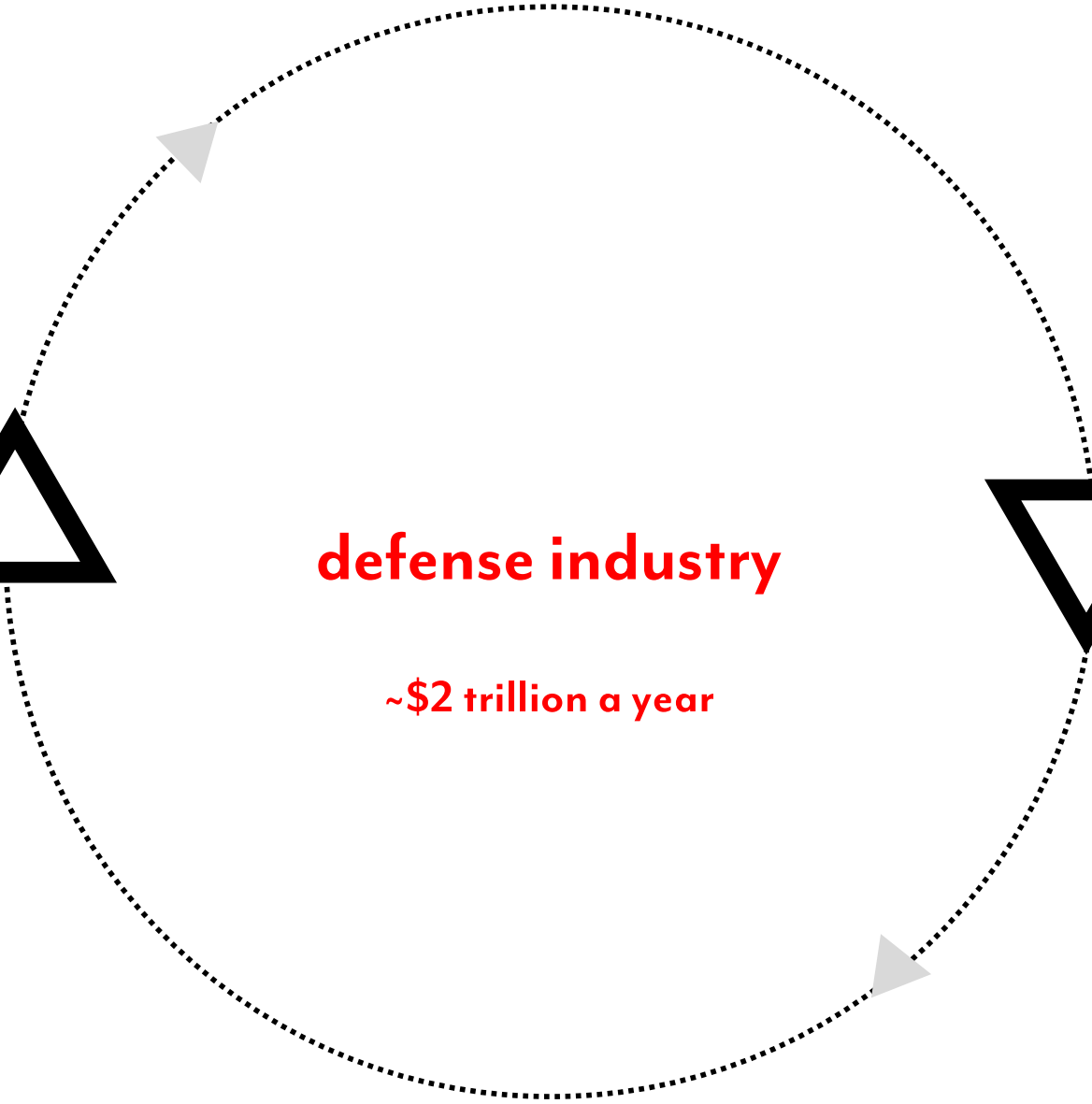


defense industry

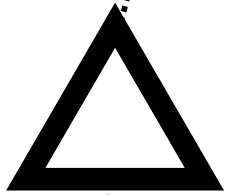
~\$2 trillion a year



outputs

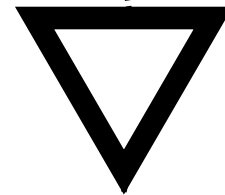


inputs

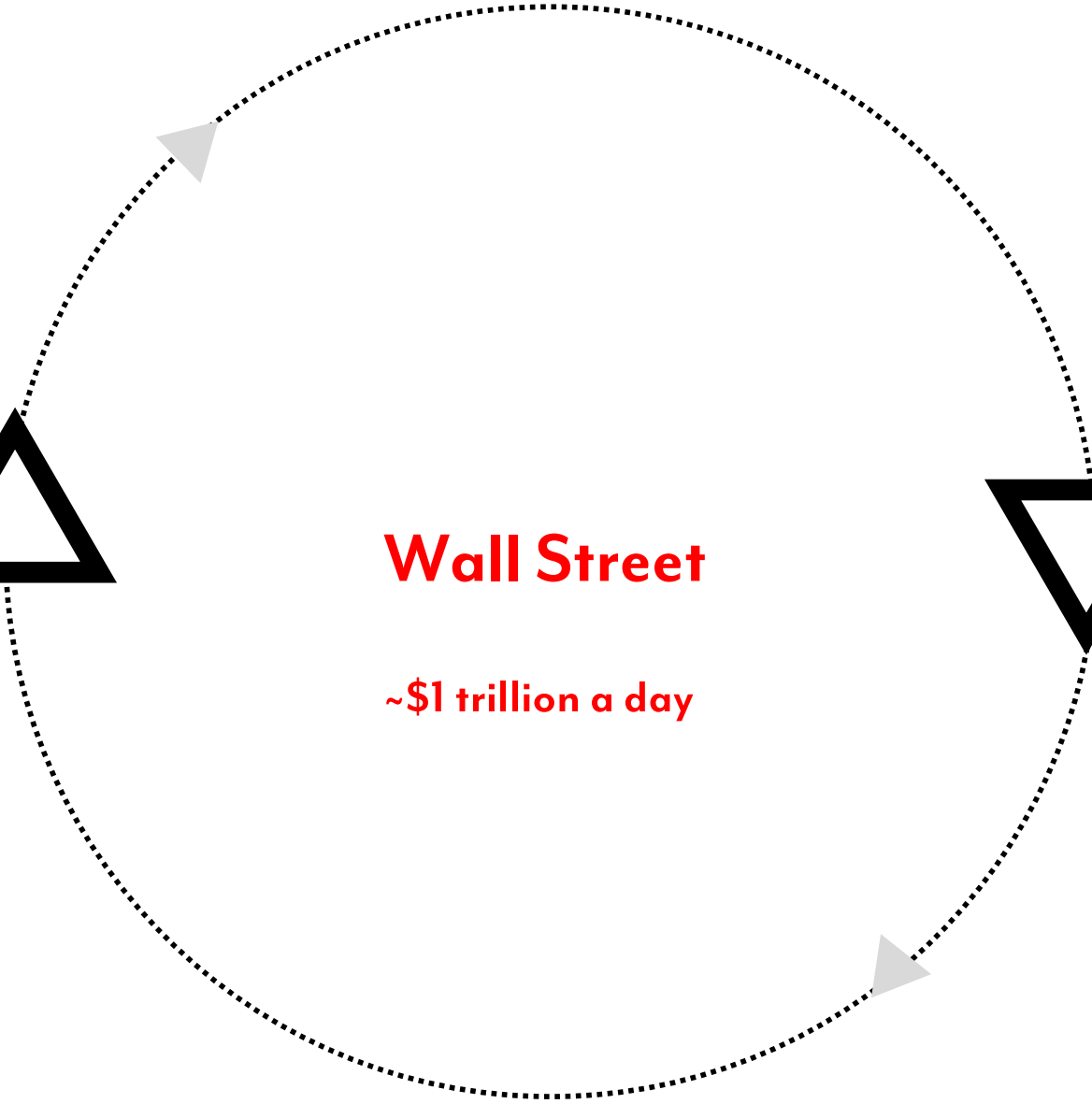


Wall Street

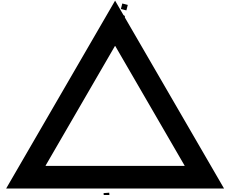
~\$1 trillion a day



outputs

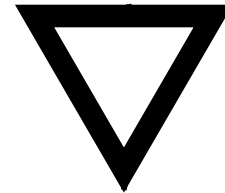


inputs

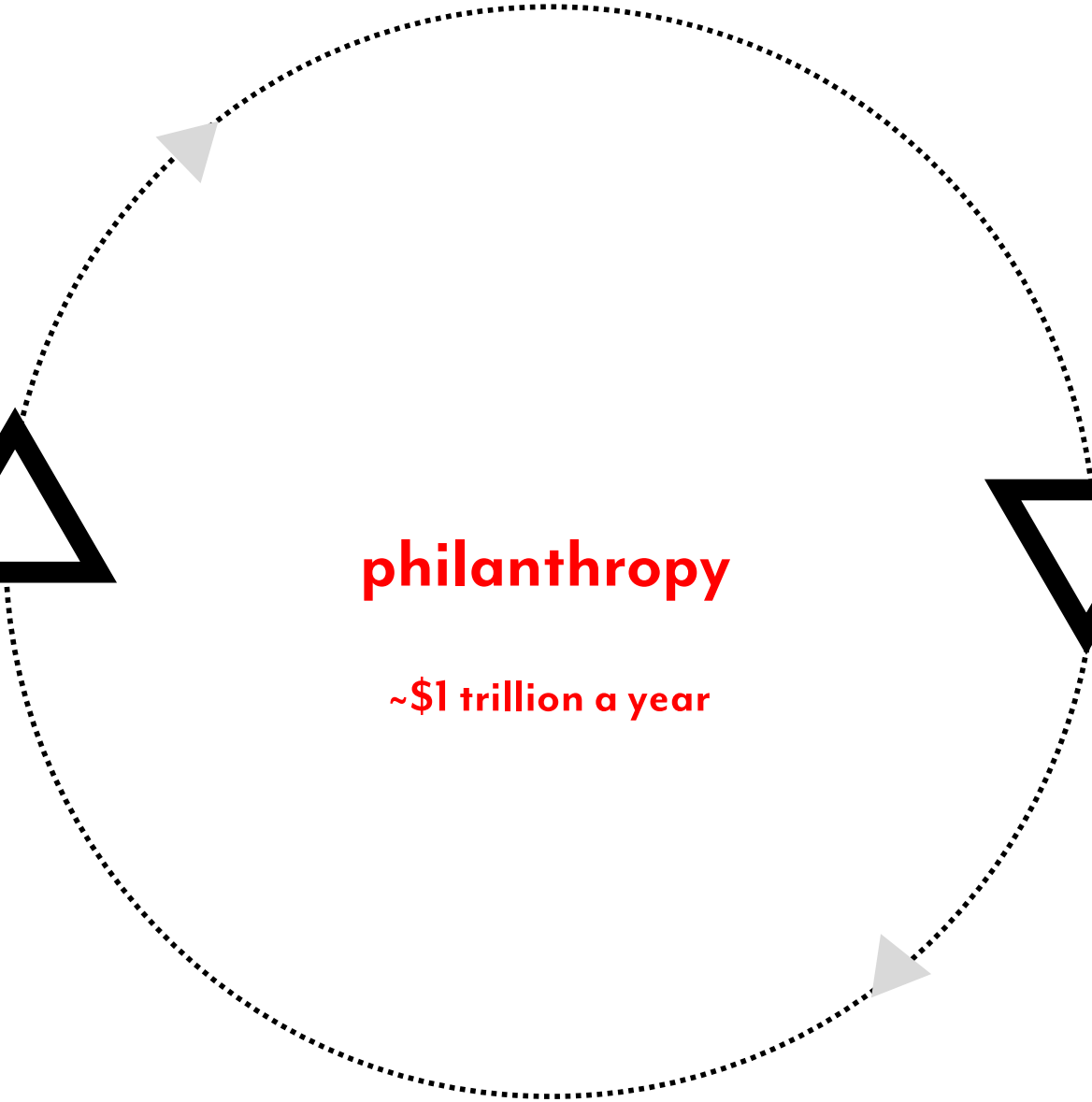


philanthropy

~\$1 trillion a year

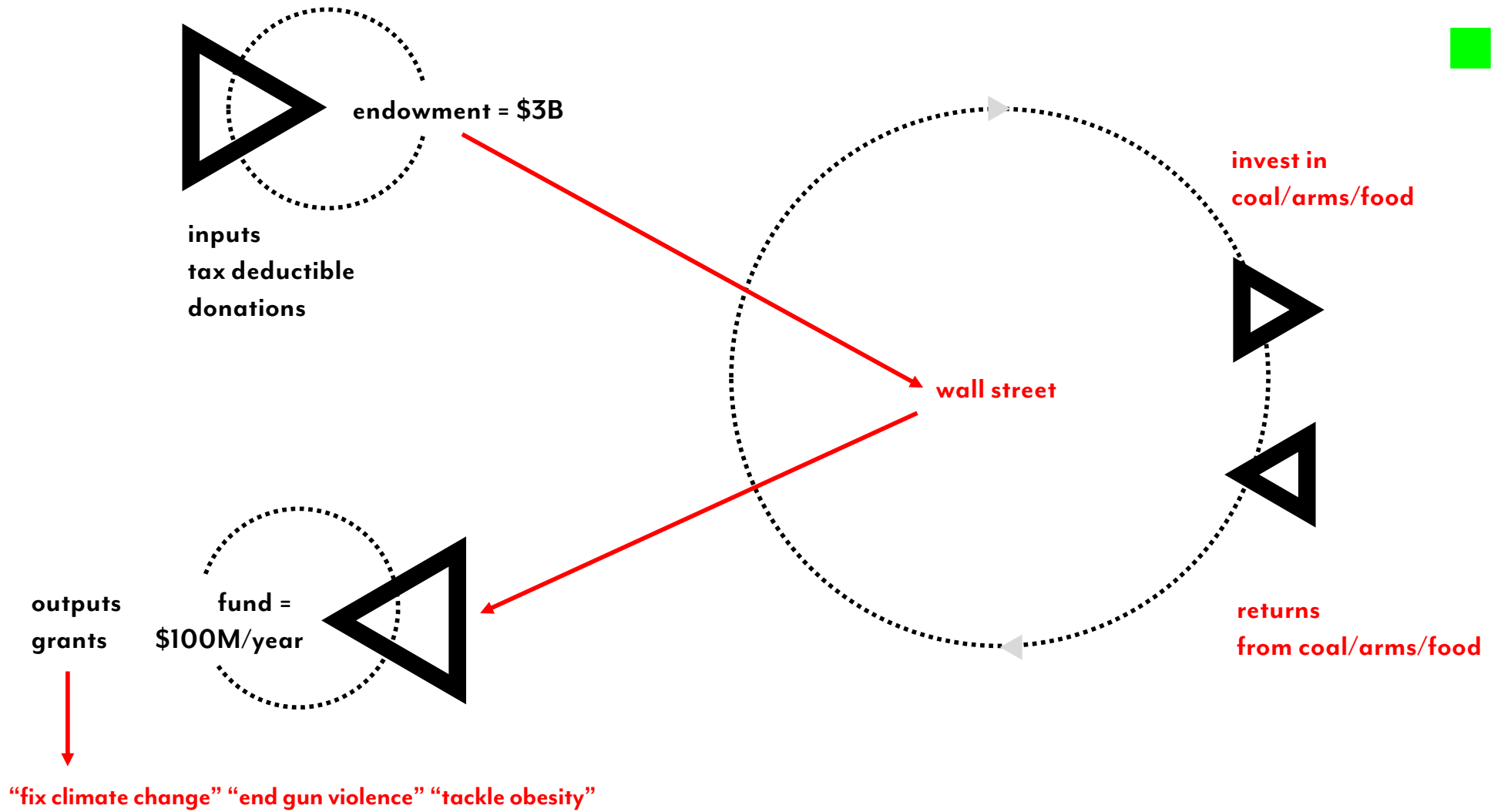


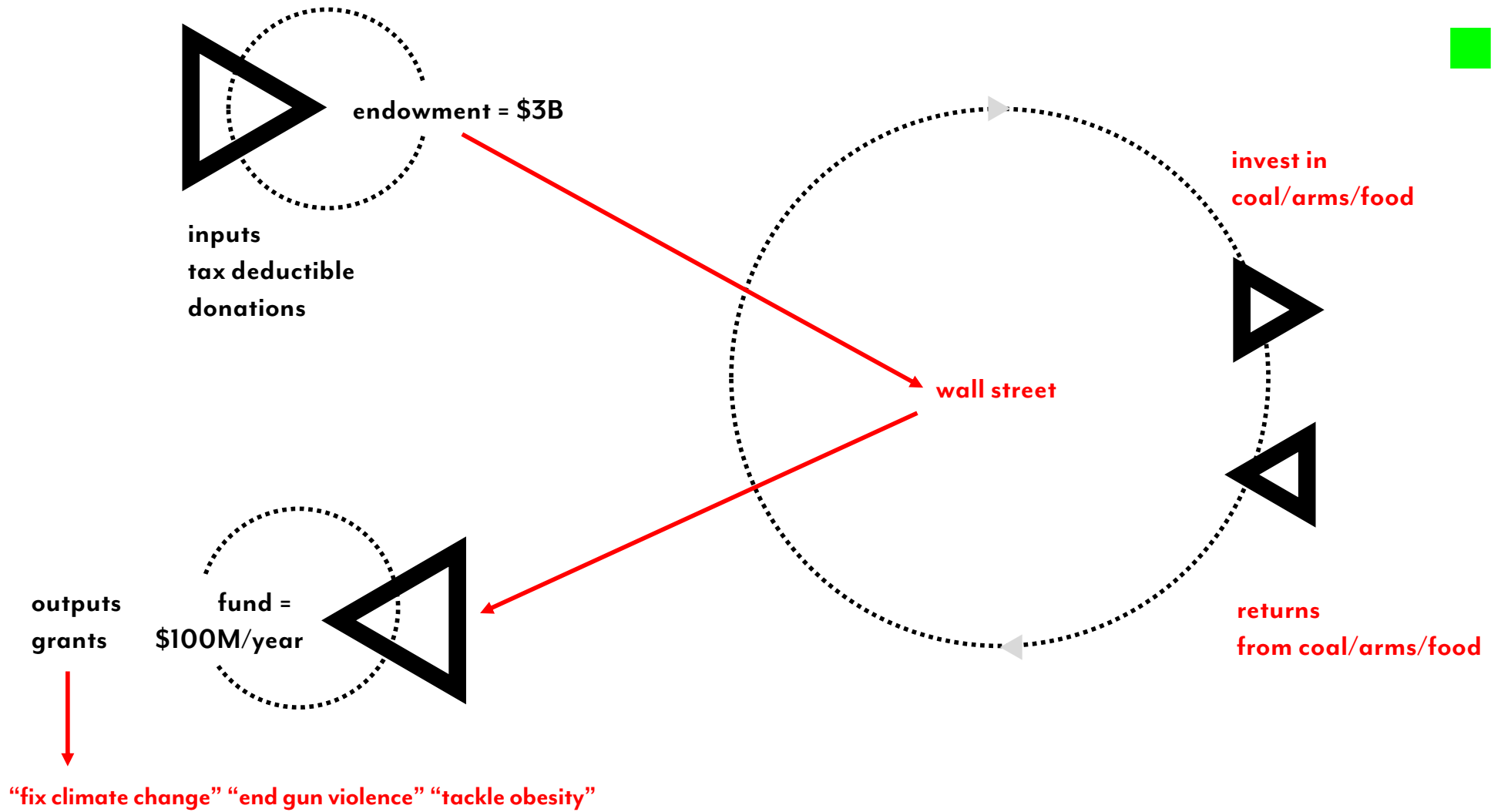
outputs





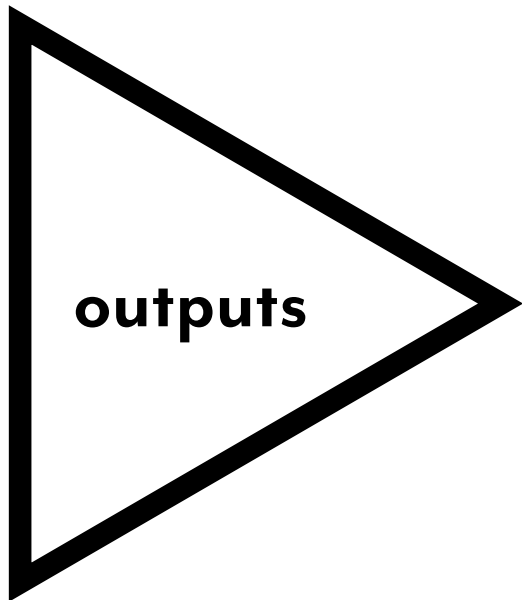
what happens to the outputs from each level?







**if the bulk of output goes into private hands
the “system” doesn’t have sufficient capital to maintain itself
ie the system is heading into catabolic collapse (Piketty)**

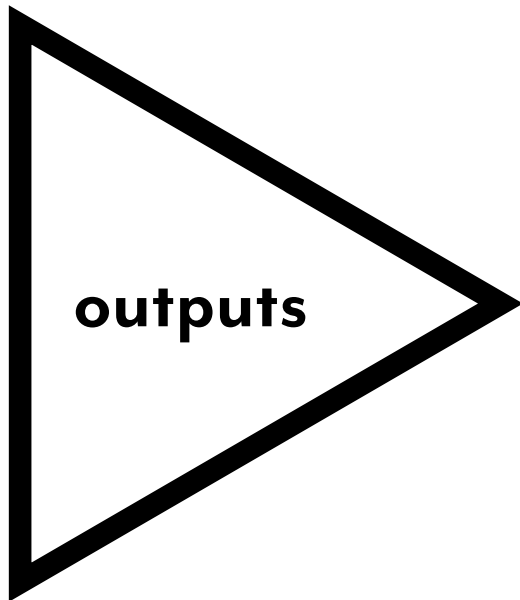


private?

commons?

public?





private = capital flight

commons = shared

public = taxes



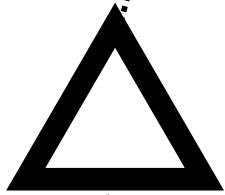


**our goal is to develop “strategies” with built in “re-cycling”
or “up-cycling” mechanisms**

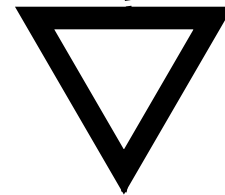


**our goal is to develop “strategies” with built in “re-cycling”
or “up-cycling” mechanisms - how?**

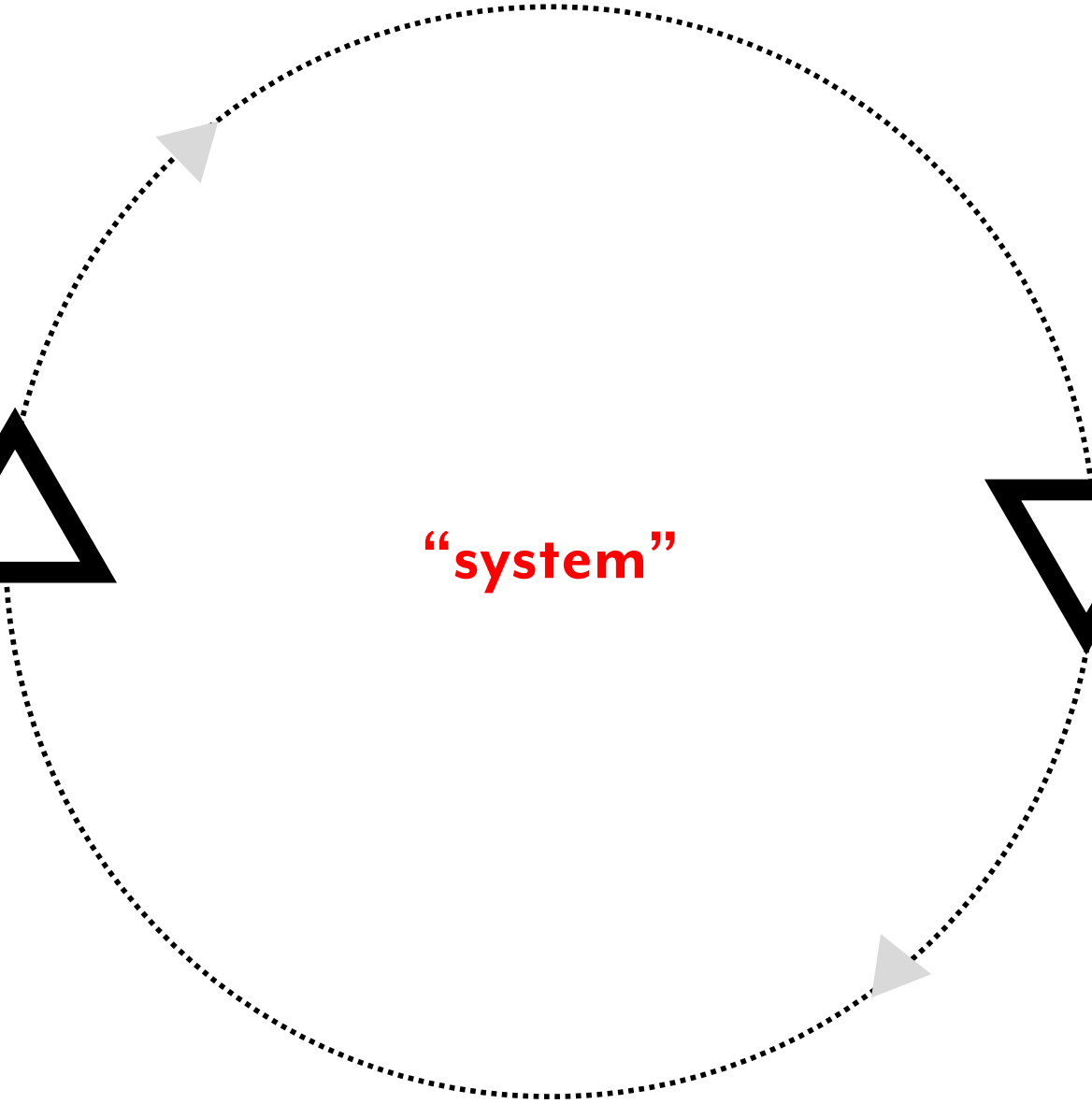
inputs

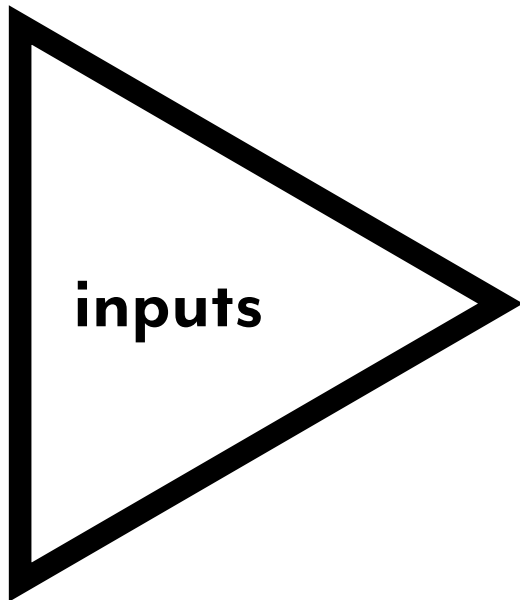


“system”



outputs



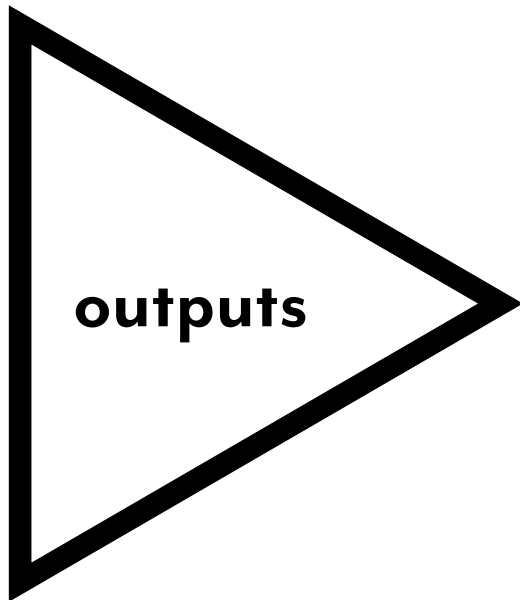


how much do you need?

how do you use it?

how do you get it?

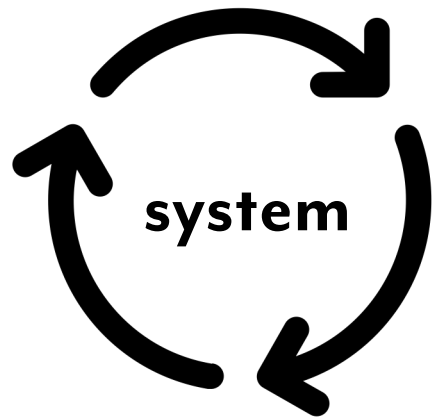




how much are you creating?

how do you share it?

who decides?



how much is needed?

who benefits ?

by what mechanisms?





24 September 2020 Session Three

Introduction to Multiple Capitals



summary



complex systems require “maintenance” capital



complex systems require “maintenance” capital, the more complex, the more capital required



many systems are unable to meet maintenance requirements, risking eventual collapse



so what do we practically do?



so what do we practically do?

what do we stop? (-)

what do we start? (+)

what do we change? (Δ)



develop a multiple capitals practice (at multiple scales)



can we pay people to tackle complex social challenges?



supply

**“responding to
complex challenges”**

demand



supply

**tackling the
climate crisis**

demand



supply

**“California billionaires
donate \$750 million
for climate change research”**

demand



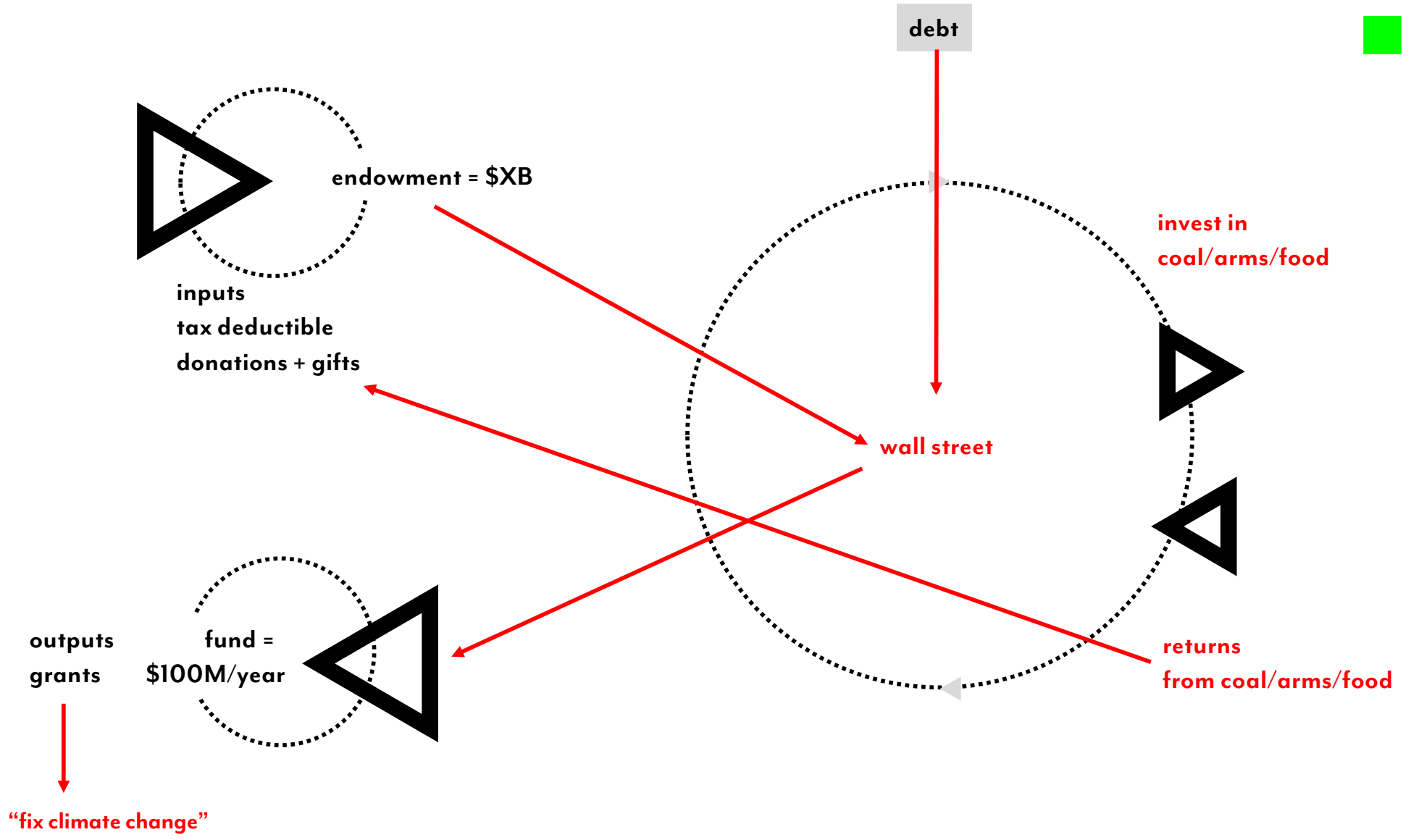
The Resnicks are among Los Angeles' wealthiest individuals and socialites. They are L.A. arts patrons and owners of POM Wonderful and other agricultural brands. Their Wonderful Co. markets mandarin oranges under the Halo brand, pistachios and almonds under the Wonderful brand and pomegranate juice POM Wonderful. They control Fiji Water, Justin Vineyards and the florist delivery service Teleflora, among other enterprises.



**The school plans to build a “sustainability research institute”
named for the family.**

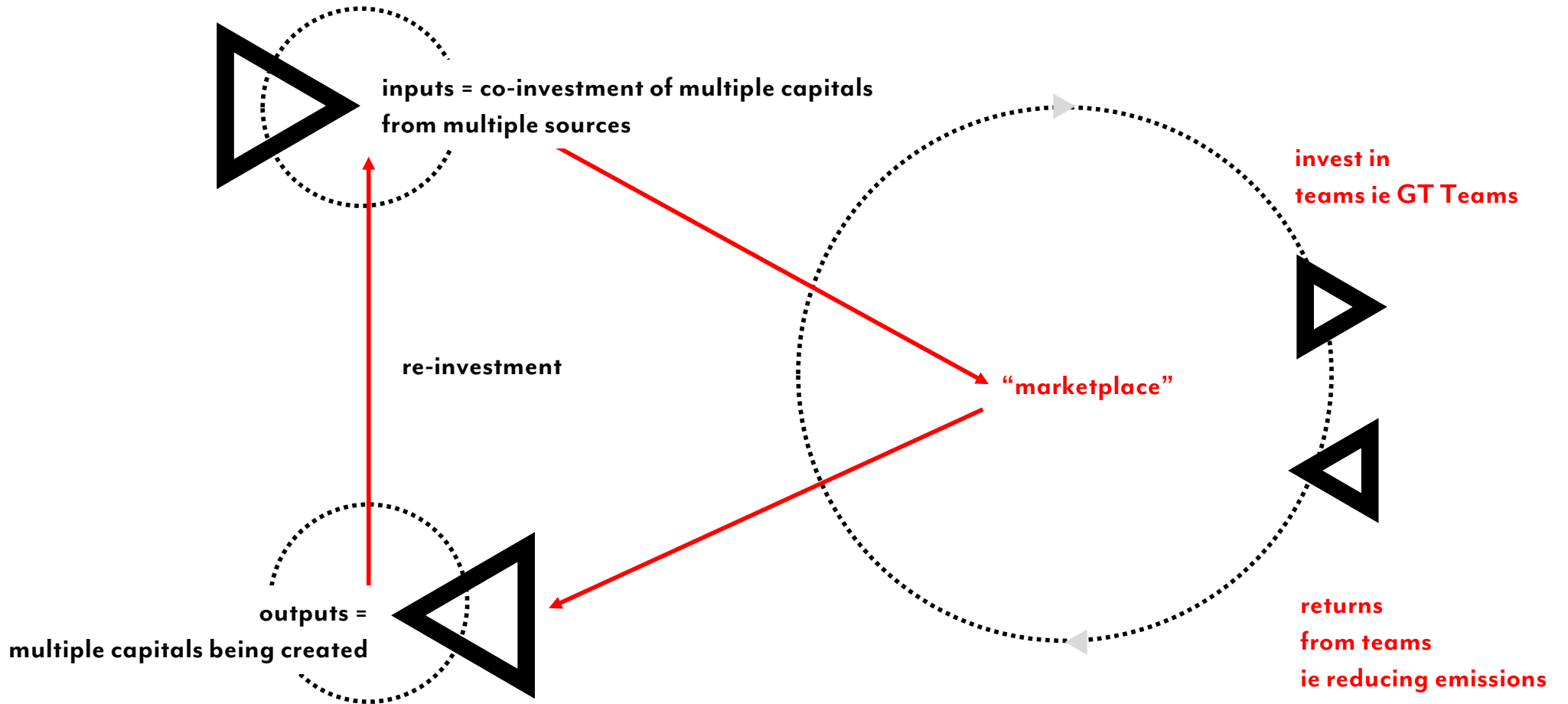


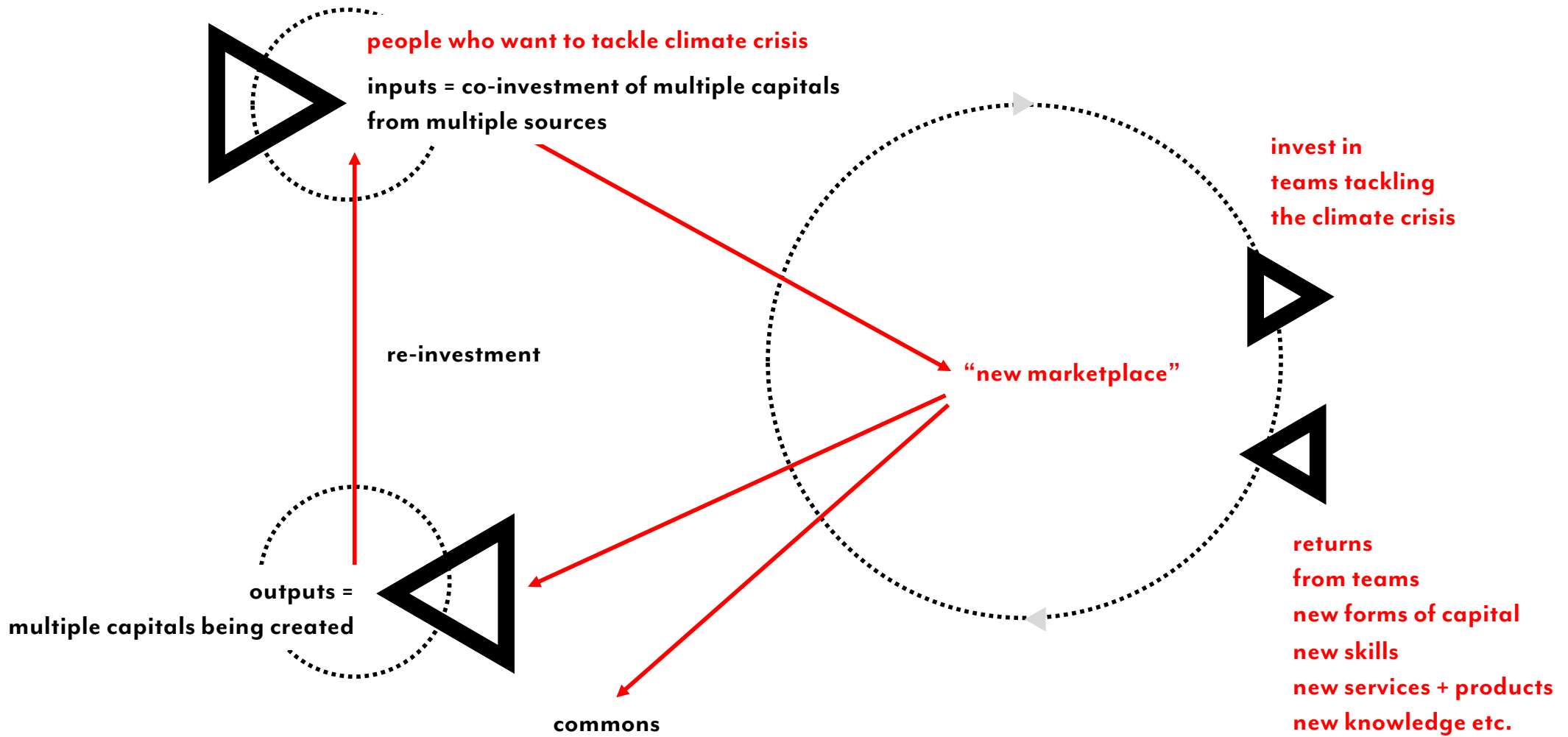
who benefits?





a different way







sequencing

1
system

how much is needed?

who benefits ?

by what mechanisms?



sequencing

2

inputs

how much do you need?

how do you use it?

how do you get it?



sequencing

3

outputs

how much are you creating?

how do you share it?

who decides?



why you participate is largely irrelevant



what are the rules of a new marketplace?



can we evolve the rules to reward collaboration?



can we evolve the rules to reward collaboration?
transparency?



can we evolve the rules to reward collaboration?
transparency?
distributed decision-making?