Beyond ESG:
Systems Solutions for Sustainability

Duncan Austin

PRE-READ SLIDES; SEVERAL IMAGES IN DRAFT FORM

Convened by Thinking Ahead Institute

Session 3, May 3rd 2022

Plan of Sessions

1. Taking Stock: ESG and the Risk of Greenwish

- Awakening to sustainability challenges.
- The rise of corporate sustainability and ESG.
- The 'shock of net zero' and the return of limits.
- Rising ESG scepticism.
- Are we suffering from greenwish?

4. Building the economy of a sustainable culture

- Business*people* as critical moral actors in a system of market primacy.
- Realigning business and morality to set business free.
- Building not a sustainable economy, but the economy of a sustainable culture.

~~2.~~ 3. The Unintended Trap of Externality-Denying Capitalism

- Is externality-denying capitalism a 'fix that fails'?
- The Invisible Hand and the Unmentionable Foot.
- How we got here? The roads not taken.
- How are we trapped? Friedman's Feedback Loop.

~~3.~~ 2. Systems Thinking Can Rescue the Situation

- The unstoppable rise of systems thinking
- Economy as a sub-system of emergent complex social and ecological systems.
- Deep adaptation and 'fixes that stick'
- Upwards learning (innovation) and sideways learning (unlearning to relearn).

Session 3

Key Points of Session 3

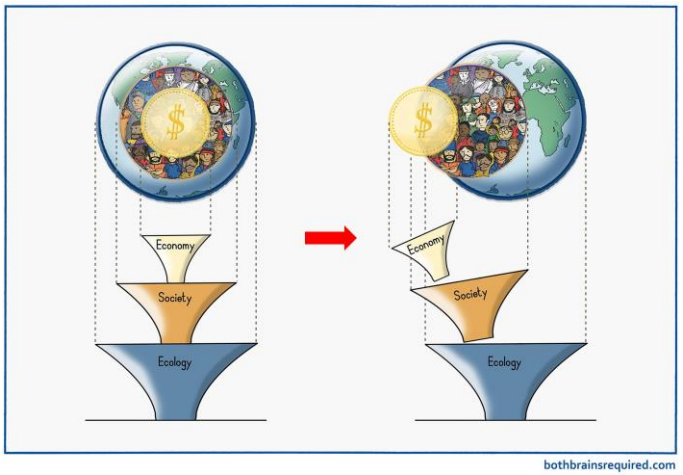
- A commonly observed pattern in adaptive systems is a ‘fix that fails’.
- Voluntary Market-Led (VML) strategies exhibit ‘fix that fails’ dynamics.
- Externality-denying capitalism is the underlying ‘fix that fails’, which VML strategies have not yet ‘broken free from’.
- Because economics has downplayed externalities, we find ourselves powerfully *aligned* to a socio-economic system that is struggling to acknowledge and integrate its externalities.

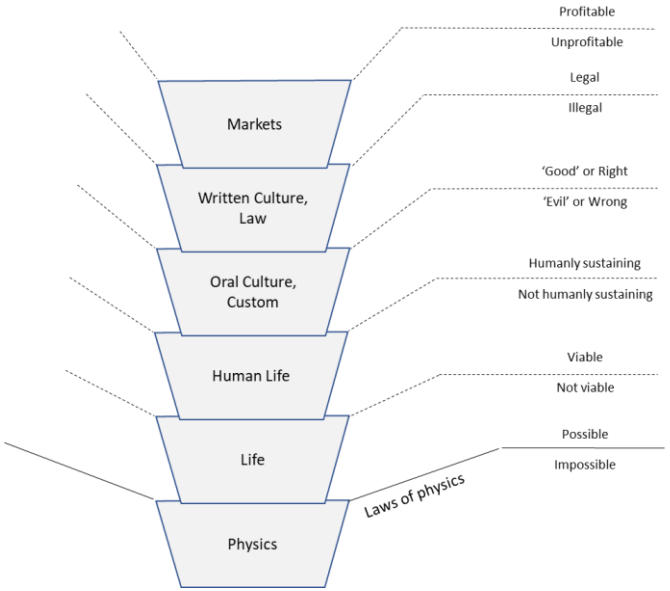
Structure

1. Recap of Session 2
2. New Concept: Causal Loop Diagrams (CLDs)
3. The ‘Fix that Fails’ Systems Archetype
4. VML Strategies Exhibit Fail Loops
5. Externality-denying Capitalism because…
6. …Externality-downplaying Economics
7. Neoliberalism: The Overshoot of Economic Thinking
8. Market Flexibility is not System Flexibility
9. The Catch-22 of VML Strategies

Recap of Session 2

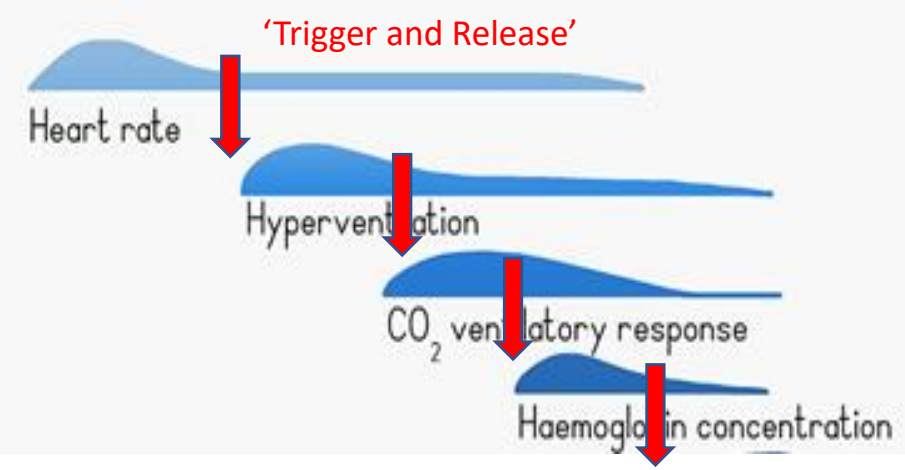
Economy as ‘Top Layer’ of Emergent Nested Complex System

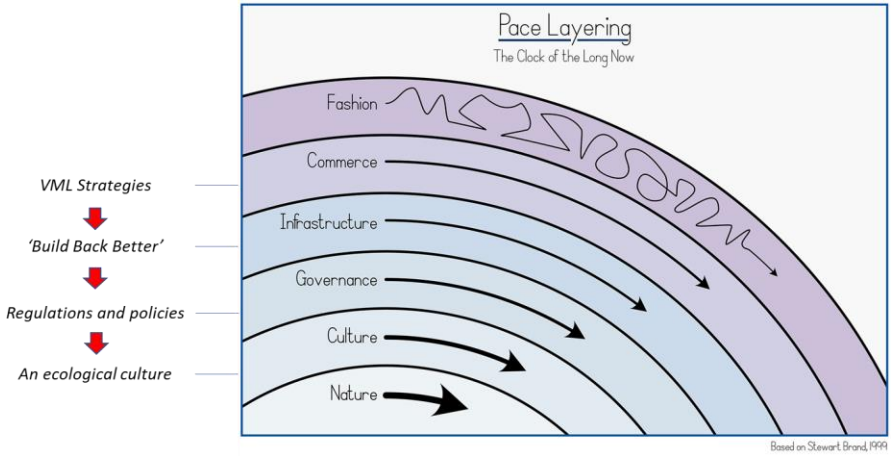




- The modern market system has ‘emerged’ out of prior cultural developments, *enabled* by lower *constraints*.
- Each emergent layer expresses a good/bad evaluation in its own new terms that seeks to direct the behaviour and further upward emergence of the system within ‘good’ guardrails.
- Because both the system and the external world are dynamic, layers can fall out of vertical alignment causing tensions to arise between different conceptions of ‘good’;
  - i.e. what has been ‘profitable’ or ‘legal’ may newly be seen as ‘immoral’ or ‘wrong’.
- Emergent nested systems are thus continually trying to stay upright by re-aligning - or ‘sliding’ - layers to adapt to new contexts…

VML as ‘Defence at First Depth’ Only

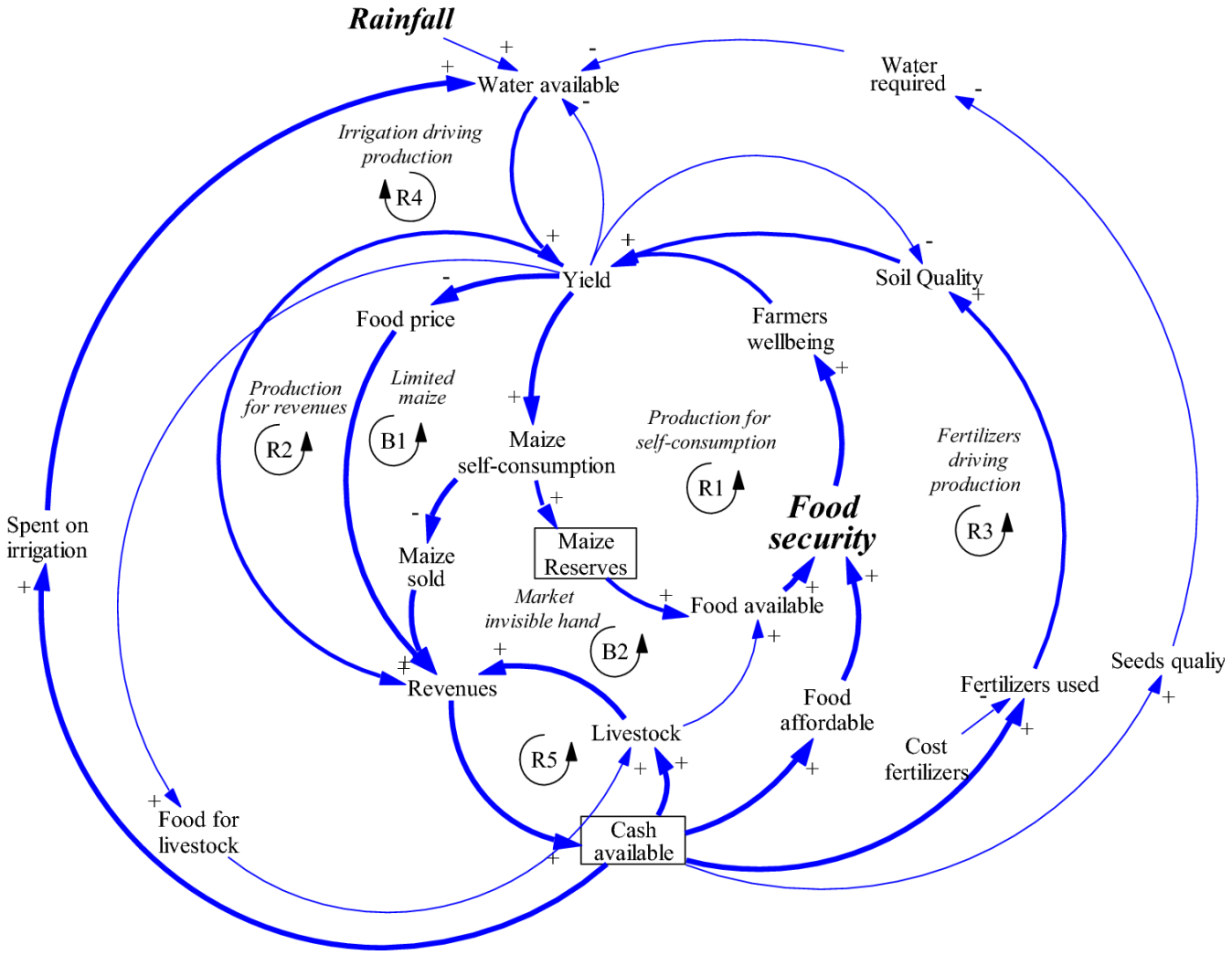




- Physiology example helped identify the pattern that complex systems adapt by progressively calling on deeper, more global behavioural changes, as need be.
- This leads to a cascading pattern – or ‘trigger and release’ pattern – in which deeper, more effortful and costly changes are summoned in turn, i.e. ‘defence in depth’.
- Our collective response to the abrupt identification of a new reality – the Anthropocene – can be viewed as a similar process in which we have predominantly been responding at the ‘first depth’ of Voluntary Market-Led strategies.
- ‘Deeper’ changes have the power to achieve more but are costly and harder to get moving.
- The physiology example also illustrates that at certain points of adaptation, what is needed is not yet more of the same, but a completely new form of response.

New Concept:
Causal Loop Diagrams

Example of a Causal Loop Diagram

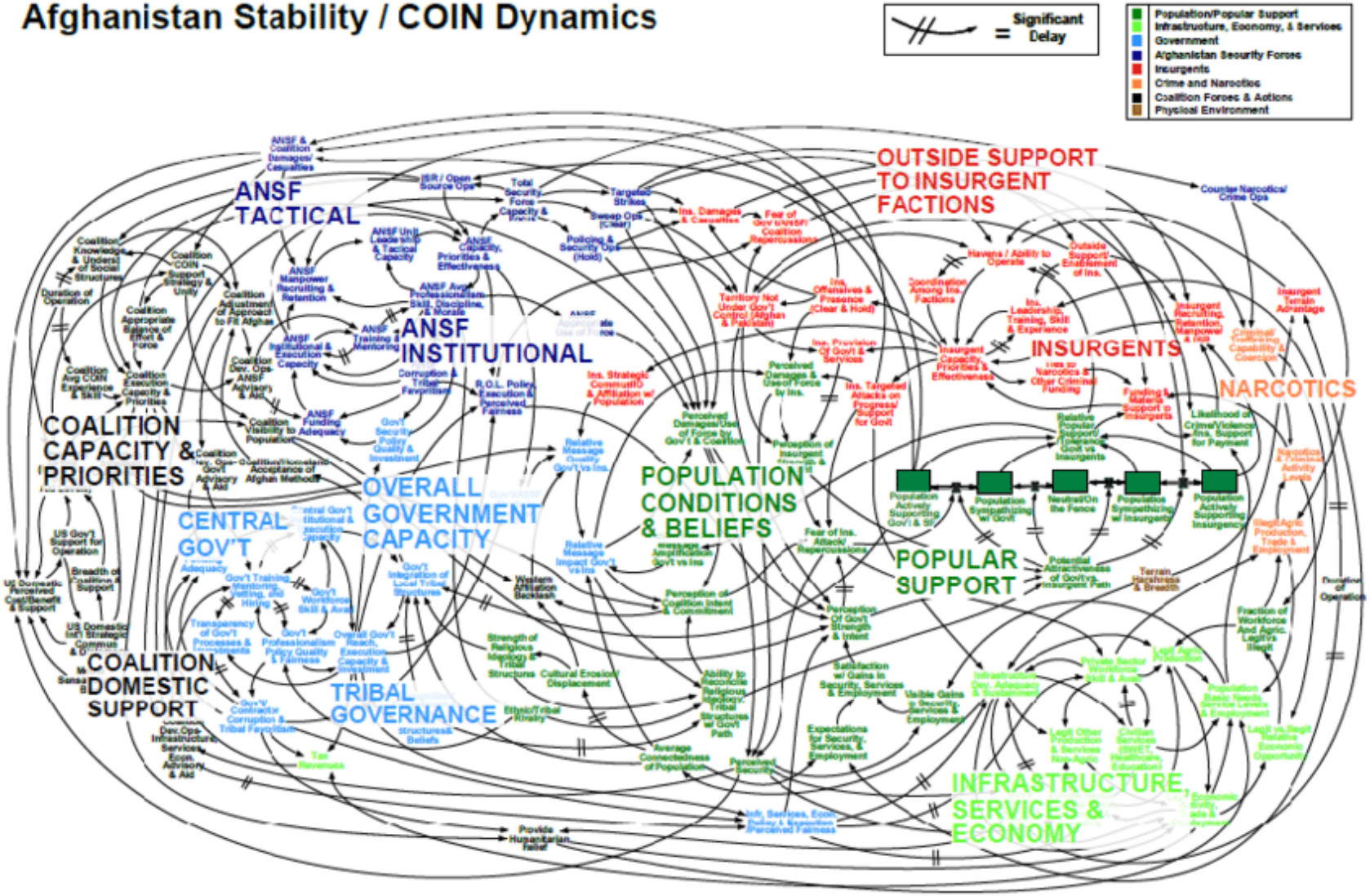


Herrera and Kopainsky, 2020

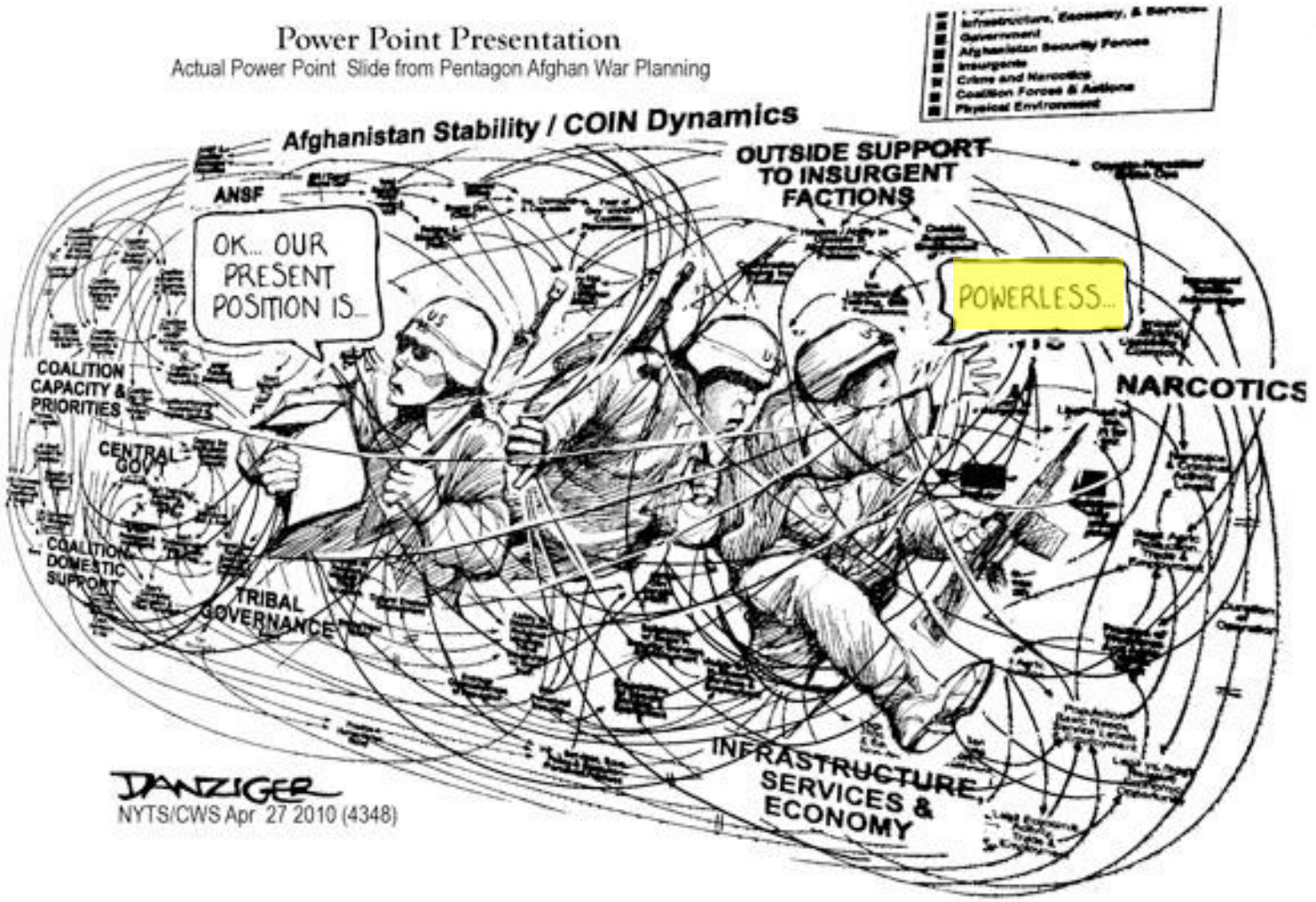
EXAMPLE TO ILLUSTRATE SHAPE ONLY; DETAILS NOT IMPORTANT

- A Causal Loop Diagram (CLD) describes a system by mapping causal relations between parts.
- Links can either be increasing (+), or reducing (-), generating either reinforcing loops (R) or balancing loops (B).
- Reinforcing loops are virtuous circles or vicious spirals.
- Balancing loops reflect self-regulation.
- Whole systems dysregulate if one or more reinforcing loops overpower the balancing loops.

Afghanistan Stability / COIN Dynamics



- CLD prepared for General McChrystal to describe US strategy in Afghanistan, 2009
- McChrystal's response: "By the time we understand that slide, we'll have won the war."

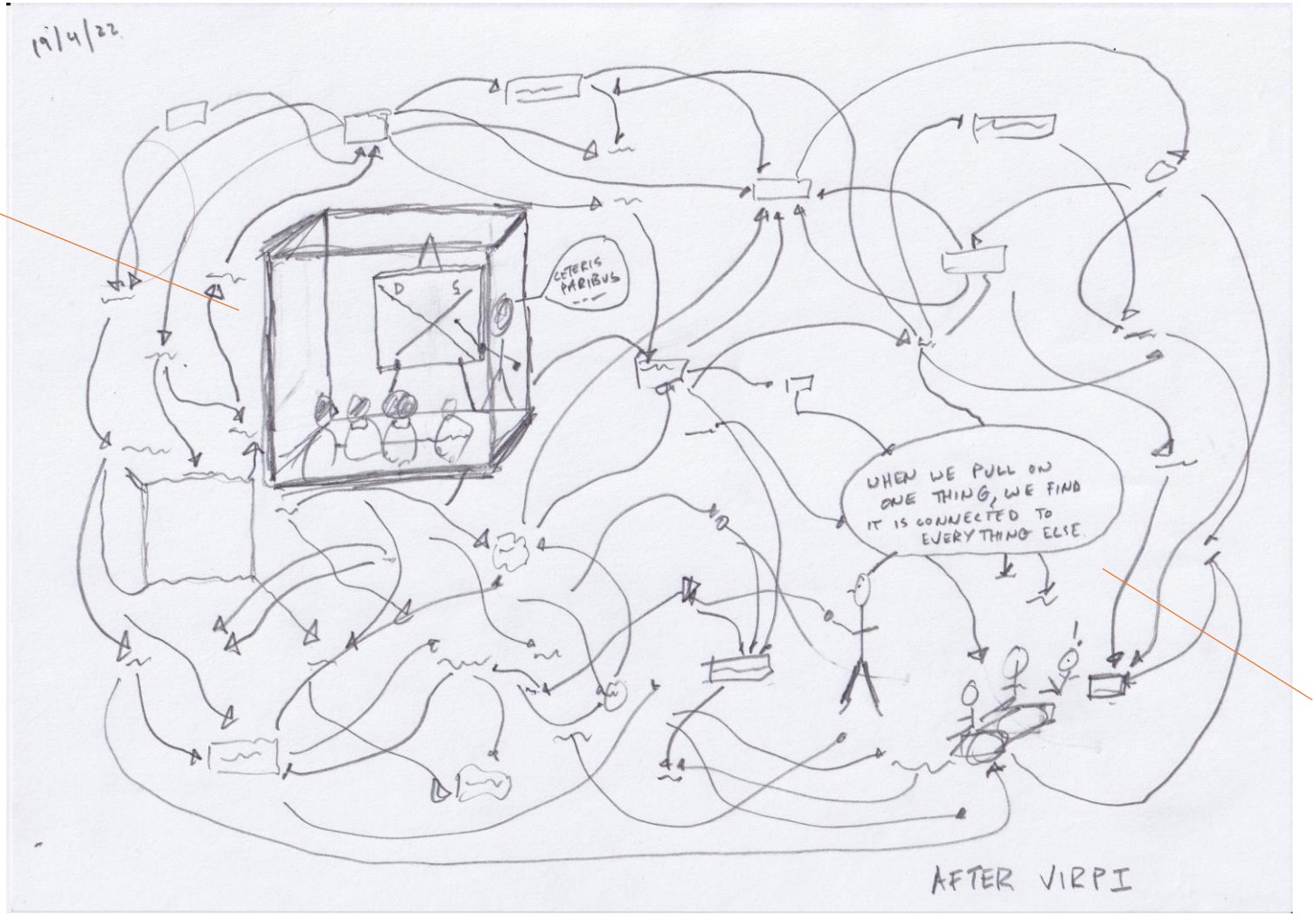


- "*When we pull on one thing in the Universe, we find it is connected to everything else*," John Muir
- CLDs instil a meta-wisdom that to hold everything in mind is impossible and induces a powerlessness or mental paralysis. Hence, we need simple 'models' to act in the world, even though models must be fallible.

The Necessity for – and Necessary Fallibility of - Models

Draft image to show contrast between 'economic' and 'ecological' views, based on different commitments to models.

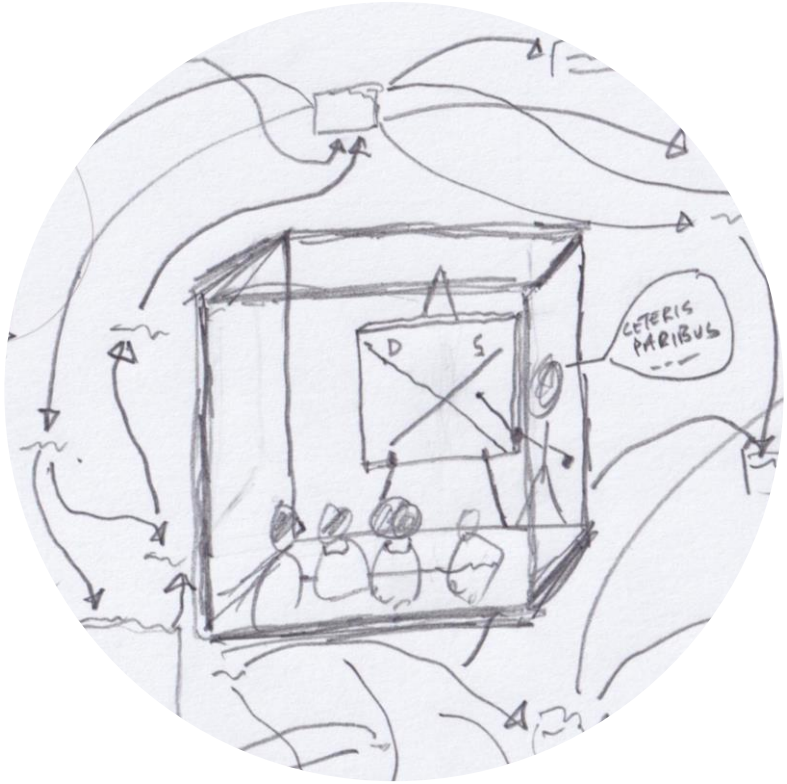
'*Ceteris paribus (all else equal)…*' says the economist



'*When we pull on one thing, we find it connected to everything else…*' says the ecologist

The Necessity for – and Necessary Fallibility of - Models

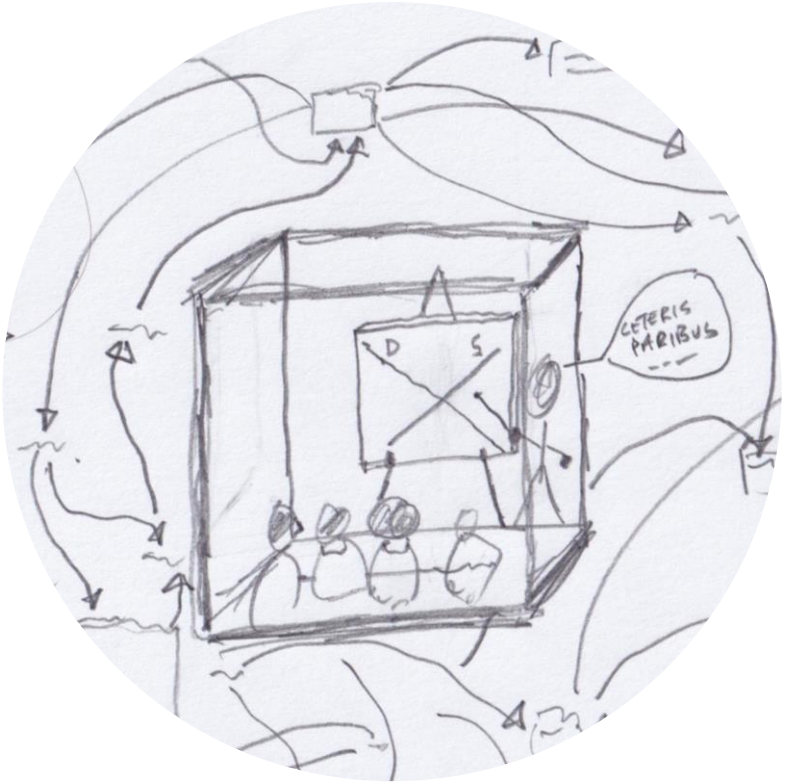
Draft image



- The intrinsic dilemma of navigating a complex world:
  - The world is far too complex for us to fully comprehend it in real time, so "*everything you know, and everything everyone knows is only a model*." (Donella Meadows).
- What is a model?
  - A model organizes some – not all – information about the real world that then guides our behaviours within it.
  - E.g., a financial model organizes some information about a company that guides buying or selling decisions.
  - Most of our 'models' are mental, many unconscious.
- Models are necessary, but must be fallible:
  - "*…because models are reductionist and don't include all of reality, whatever is real and related but not included in the model is often where the externalized harm from the application of the model will occur*." (D. Schmactenberger).
  - Hence "*all models are wrong, but some are useful*." (George Box).
- Even as models guide real-time behaviour, each model must be continually evaluated and 'trued up' to any new relevant information about reality.

The Necessity for – and Necessary Fallibility of - Models

Draft image



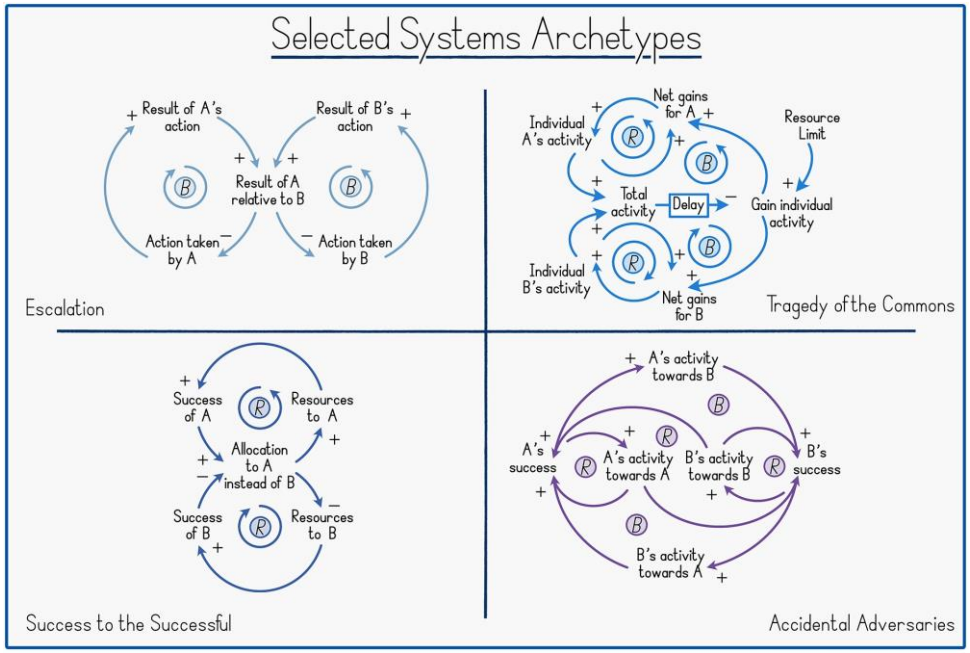
'Is the real world like that, sir?'

- The economy is a 'model' in that it represents the organization of *some* information about the real-world in a way that then guides our behaviour within the world.
- In a market-centric socio-cultural system, the market 'model' is a very powerful influence over our social and ecologically relevant behaviour.
- **The question is whether the current economy is a 'good' model given what we know about the world in 2022.**

One CLD Archetype:
A ‘Fix that Fails’

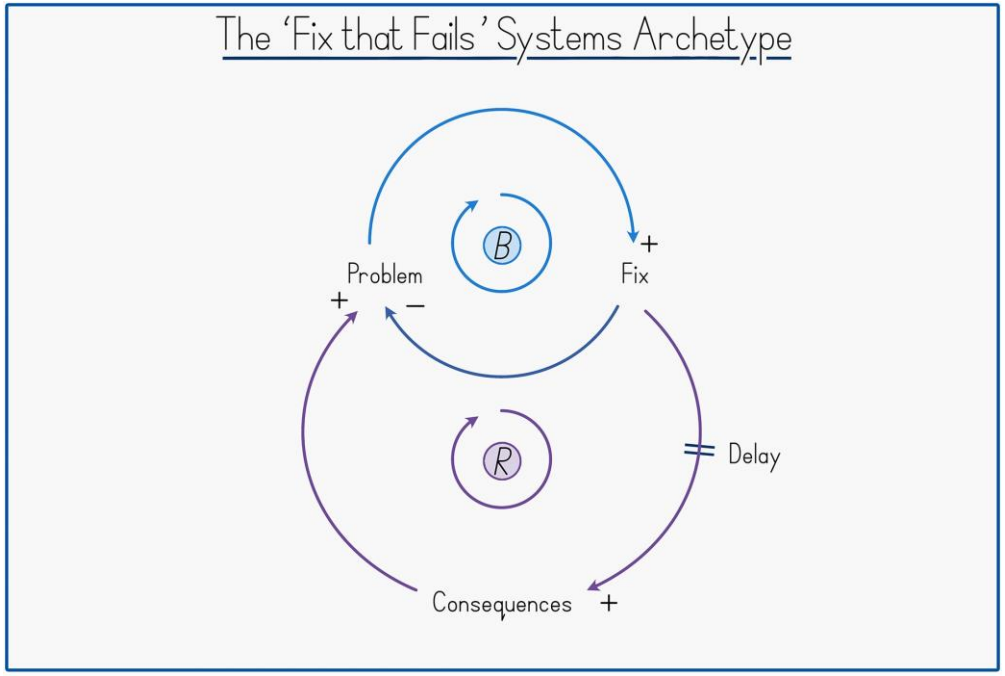
Examples of ‘Systems Archetypes’

TO ILLUSTRATE SHAPES ONLY;
DETAILS NOT IMPORTANT



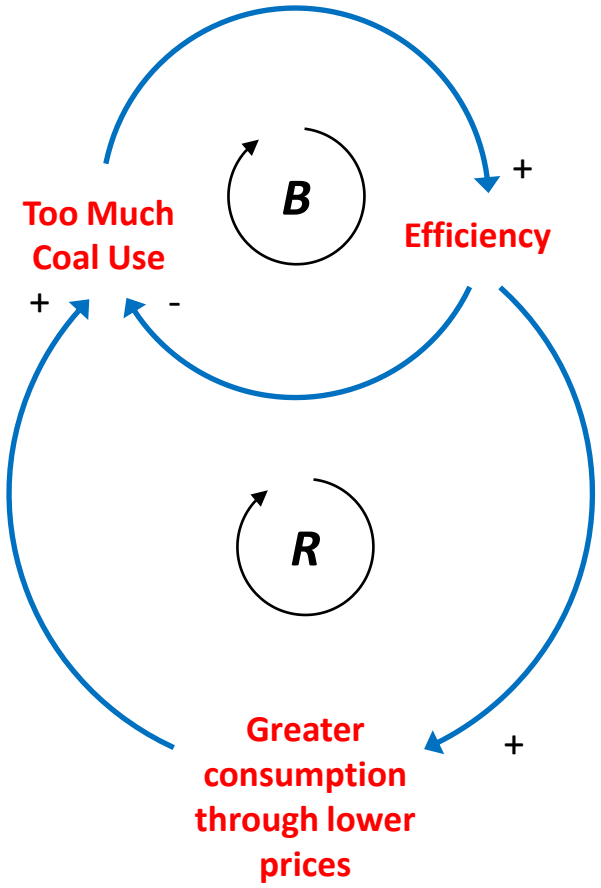
- Systems thinkers have identified a limited number of sub-patterns or ‘building blocks’ that continually reappear in CLD diagrams.
- These are referred to as ‘systems archetypes’
- “*Nature has only a limited number of procedures at her disposal and the kinds of procedure which Nature uses at one level of reality are bound to reappear at different levels*.” (Claude Levi-Strauss)

‘Fix that Fails’ Systems Archetype



- A top loop ‘balances’ an initial problem.
  - ‘The problem leads to more of a fix that leads to less of the problem’.
- However, it is offset by a second loop that only reinforces the initial problem
  - ‘The fix leads to consequences that lead to more of the problem’.
- The ‘fail’ loop is often delayed – whether a physical delay or a delay of recognition.

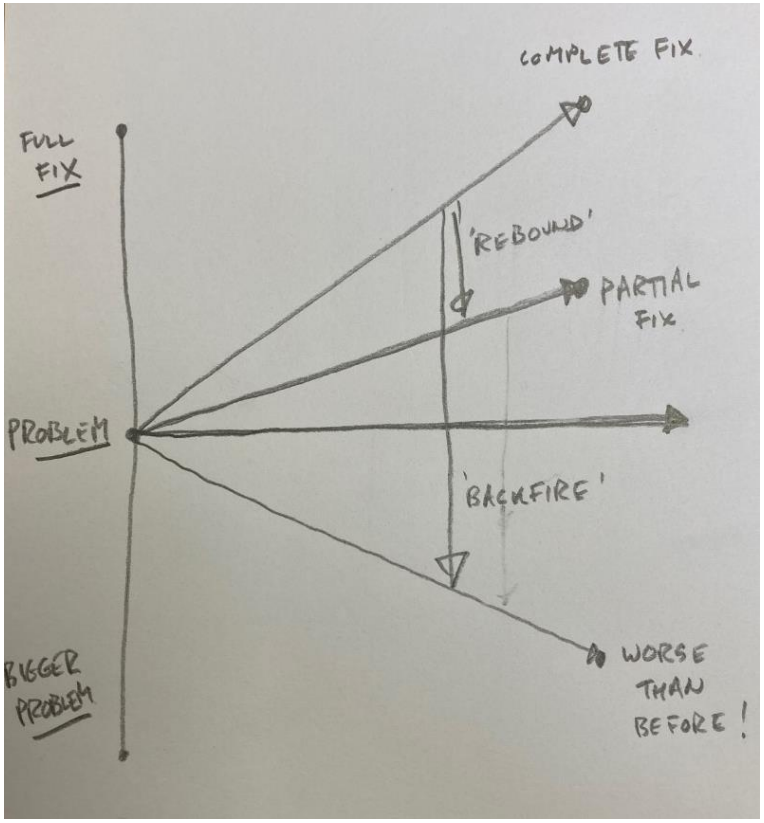
Classic Example of a 'Fix that Fails': Jevons Paradox



- In 1865, William Jevons saw that making engines more efficient would fail to reduce total coal usage because first-order energy savings would merely lower the prices of coal and coal-using processes, encouraging more use.
- "*It is a confusion of ideas to suppose that the economical use of fuel is equivalent to diminished consumption. The very contrary is the truth*."
- Other examples:
  - Paperless office
  - Seeking to reduce congestion by building more traffic lanes
  - Faster hardware triggers less efficient software.
- (Interesting that it has always been termed a 'paradox', indicating our first response is to be puzzled or frustrated.
- Niels Bohr's attitude may help: '*How wonderful that we have met with a paradox. Now we have some hope of making progress*.')

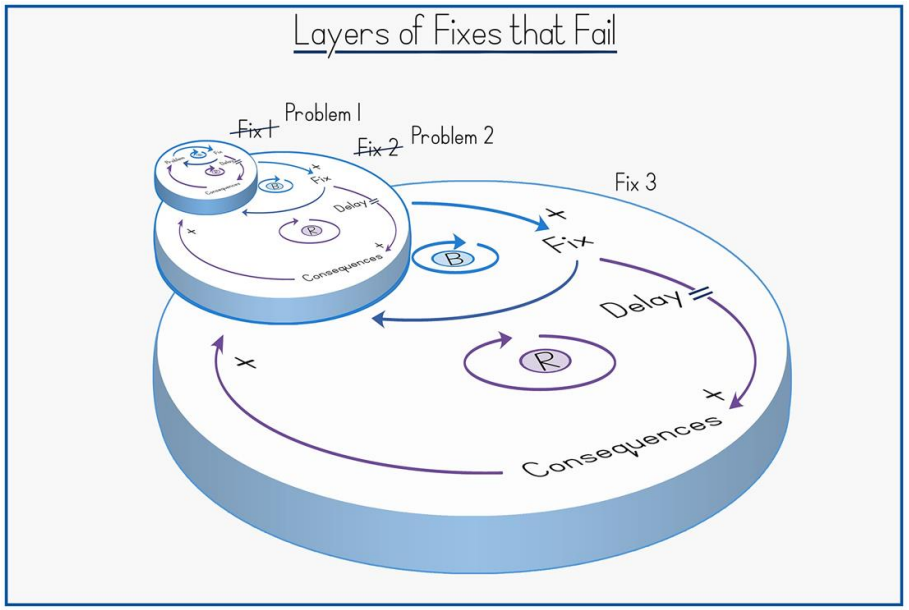
Fix, Rebound or Backfire?

Draft image to show the difference between 'rebound' and 'backfire' effects



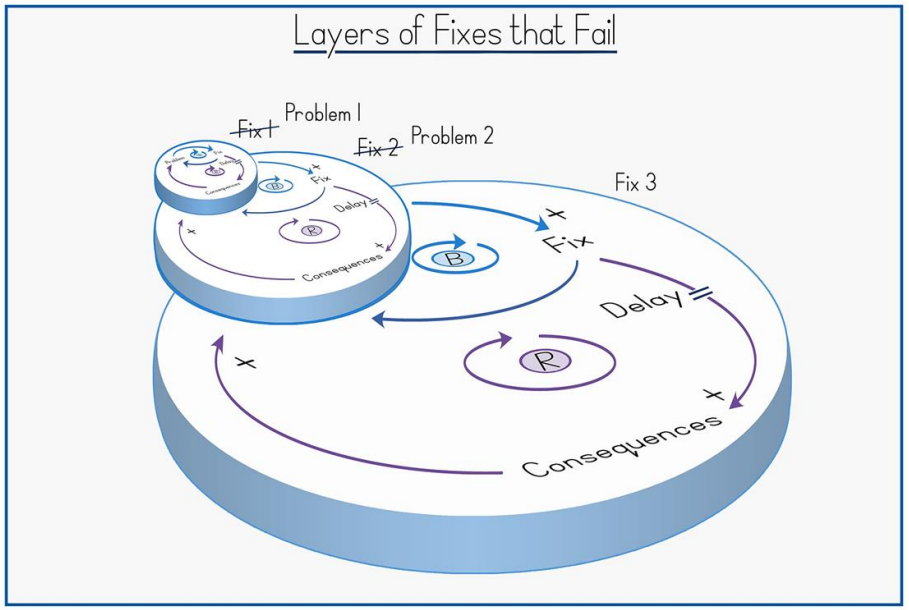
- While the strength of CLDs is their illumination of causal relations, a weakness is they do not convey the relative strength of different loops.
- It is an empirical matter whether an aggregate dynamic is more fix than fail (a 'rebound') or more fail than fix (a complete 'backfire').
  - 'Two steps forward, one step back' = a 'rebound'
  - 'One step forward, two steps back' = a 'backfire' or a 'fix that fuels' the problem.
- If a 'backfire', the 'fix' is worse than useless and not worth doing.
- Even in the milder rebound case, if the fail loop significantly stalls the *rate* of overall fixing in a deadline situation, the net result may be a 'fix that is not fast enough', and hence an adaptive fail nonetheless.

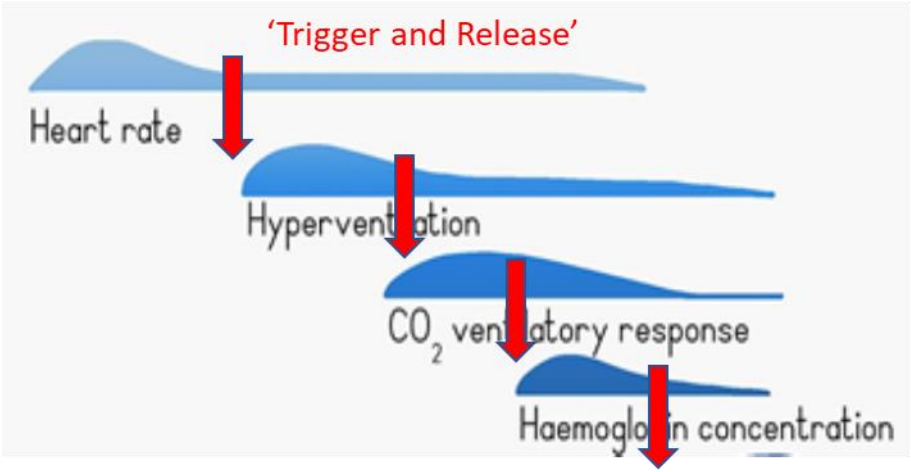
Layers of ‘Fixes that Fail’



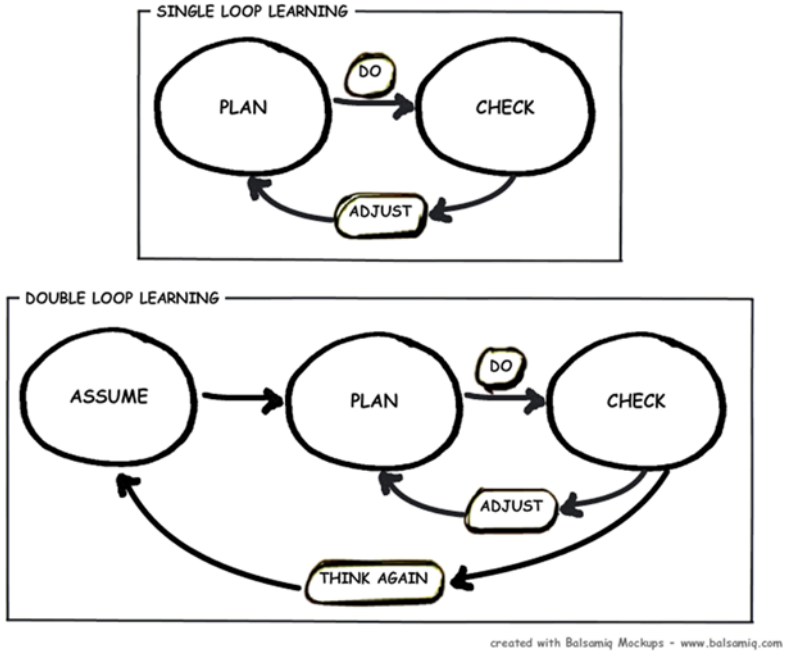
- The appearance of a fail loop signals the presence of a deeper problem that is not being addressed, possibly because it has not been adequately recognized.
- So, layers of ‘fixes that fail’ can stack up in which the first ‘fix and fail’ dynamic becomes an overall problem that requires a second ‘fix’ effort etc.
- Working down through successive ‘fixes’ brings the deeper systemic problem into view.
- **Effectively, first ‘fixes’ that fail are not breaking out of the deeper, encircling problem dynamics.**

Adaptation is About Working Through ‘Fixes that Fail’ Fast Enough





[For Completeness: Also Referred to as ‘Double Loop Learning’]

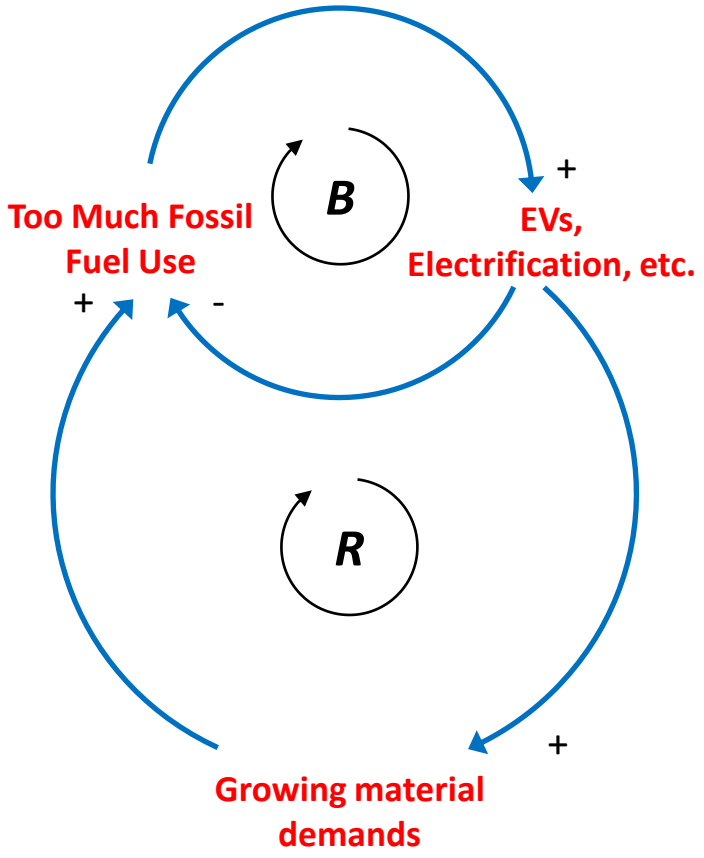


- The same dynamic is also referred to as ‘double loop learning’.
- If the initial ‘single loop’ decision-making framework is proving insufficient…
- … you need to step back into a second loop to ask why you thought – tacitly – that the original framework would be sufficient.
- Generalizes to ‘triple loop’, ‘quadruple loop’… learning etc.
- **The recurrent theme is that when you start thinking about how complex systems adapt, you seem to end up drawing nested loops or concentric circle patterns.**

VML Strategies Are Plagued by Fail Loops

At both individual and aggregate level

Jevons Effect Persists



- Many ‘clean economy’ solutions are compromised by substantial rebound or backfire effects
  - Either ‘same parameter’ rebounds, e.g. a climate solution merely induces more emissions elsewhere in the system
  - Or ‘different parameter’ rebounds, e.g., where a ‘climate solution’ is a ‘biodiversity problem’
- Climate solutions appear to be considerably more material-, land- and waste-intensive.
- Construction of a 1,000lb battery requires moving 500,000lbs of earth and materials (Manhattan Institute, 2020)
- Rivian CEO (April 2022):
  - ‘All the world's cell production combined represents well under 10% of what we will need in 10 years… meaning, 90% to 95% of the supply chain does not exist.’ (RJ Scaringe)
- Given time lags, waste disposal and recycling issues are only just now emerging.
- The bid for a ‘clean economy’ might easily trigger a vicious spiral of rising energy demands and ecological damage.

Divestment Has a ‘Fail Loop’

Harvard and others divested from fossil fuels…

Harvard Says It Will Not Invest in Fossil Fuels

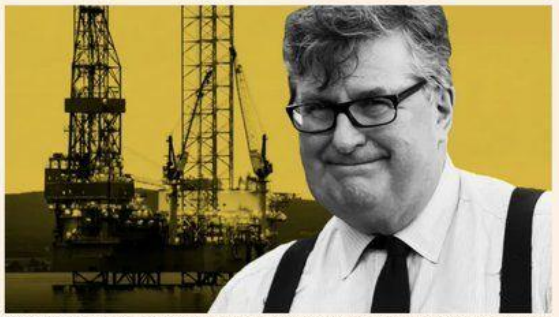
The announcement is a major victory for the climate change movement, and marks a striking change in tone for the university.

Climate change activists had recently succeeded in getting four pro-divestment candidates elected to Harvard’s Board of Overseers. Tony Luong for The New York Times

… leaving Crispin Odey to buy them cheap and proclaim it a ‘great and easy idea’. (As he is legally entitled to do.)

Hedge funds cash in as green investors dump energy stocks

Big institutions forced to exit oil and gas companies leaves hedge funds as only buyers



Crispin Odey, founder of London-based Odey Asset Management, has been building a position in oil and gas stocks this year © FT montage; Bloomberg

Laurence Fletcher in London and **Derek Brower** in New York 2 HOURS AGO

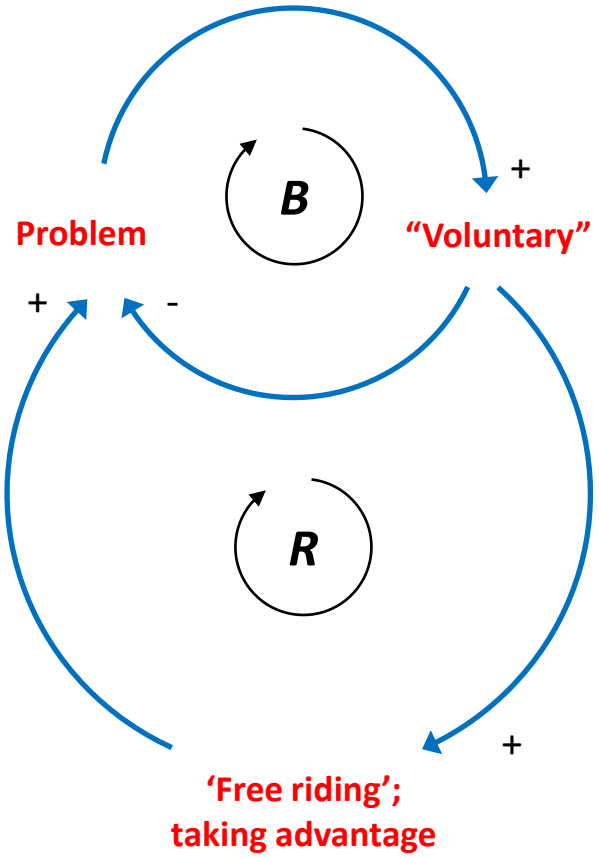
Hedge funds have been quietly scooping up the shares of unloved oil and gas stocks discarded by environmentally-minded institutional investors, and are now reaping big gains as energy prices surge.

Hedge fund managers in the US and UK have been betting that the eagerness of many big institutions to be seen to embrace environmental, social and governance (ESG) standards means they are selling wholesale out of fossil fuel stocks, even though demand for some of these products remains high.

“It’s such a great and easy idea,” Crispin Odey, founder of London-based Odey Asset Management, told the Financial Times.

“They [big institutional investors] are all so keen to get rid of oil assets, they’re leaving fantastic returns on the table,” added Odey, whose European fund is up more than 100 per cent so far this year.

“Voluntary” Doesn’t Always Succeed

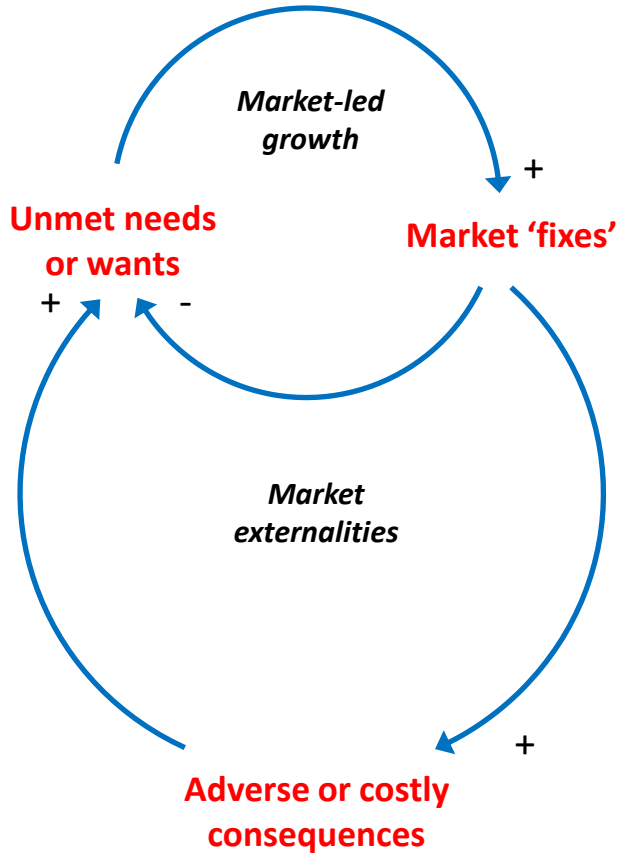


- ‘Voluntary’ as a strategy can induce its own fail loop if the rewards of not volunteering increase as more volunteer!
- Some voluntary initiatives are self-fulfilling because they create FOMO (fear of missing out) dynamics.
  - In such cases, the costs of not volunteering increase as more volunteer.
  - ‘Leading by example’ works in these situations
- In other circumstances, voluntary dynamics are self-defeating because of free rider effects.
  - The rewards from not volunteering increase as more volunteer.
  - E.g. the more people take the bus, the emptier the roads become, and so the rewards of driving a car increase.
  - If high levels of compliance are required to prevent systems failure, then binding policies or norms are required in these situations.
- This is masked by our tendency to ‘count up’ the number of volunteers to e.g. divest, rather than to ‘count down’ the remaining non-volunteers who may still be able to act in a system- jeopardising way.

Externality-denying Capitalism

The deeper, encircling, problem dynamic is Externality-Denying Capitalism.

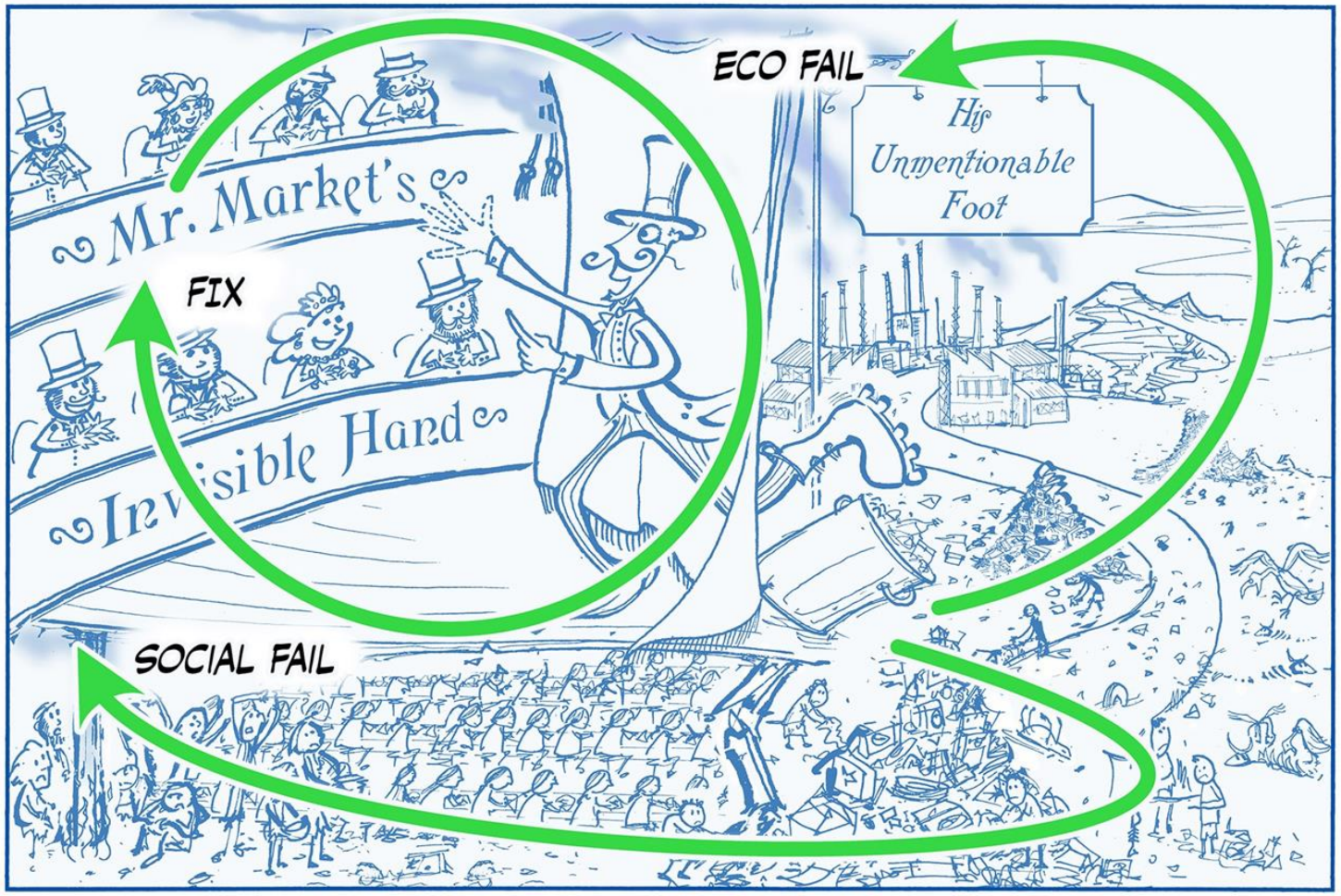
The ‘Fix that Fails’ Structure of Capitalism



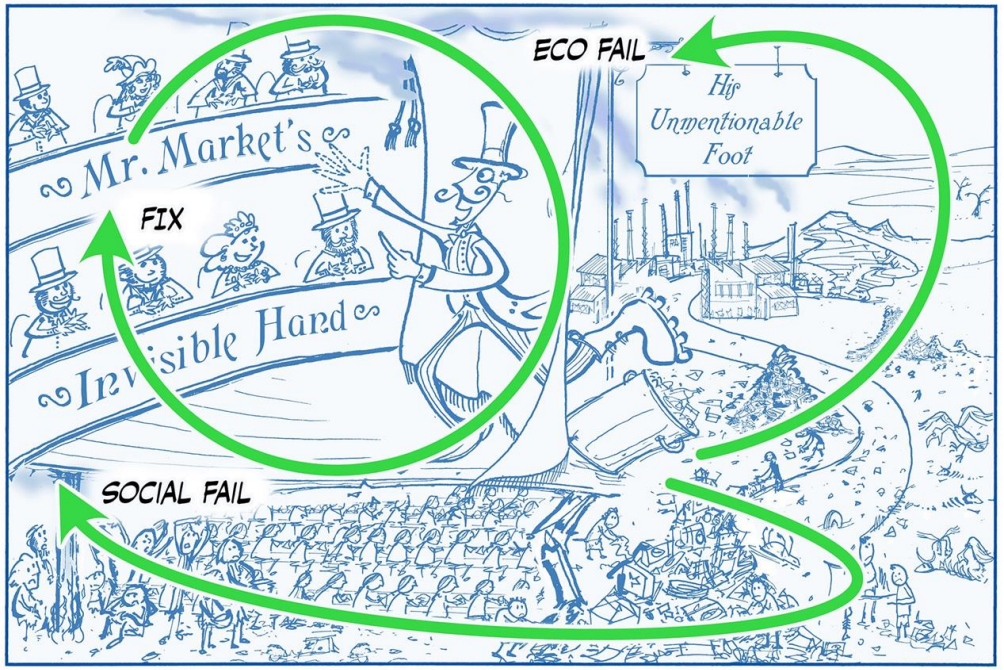
- Capitalism – or ‘market primacy’ – has a ‘fix that fails’ structure.
- The positive benefits of market-driven economic growth and innovation are undermined by lagging, unintended consequences not registered by the market system – ‘externalities’ – of a scale far greater than most economists and politicians have historically been willing to recognize, and than government and philanthropic efforts currently absorb.

An Invisible Hand AND an Unmentionable Foot

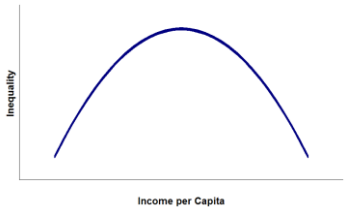
An Invisible Hand AND an Unmentionable Foot



The Orthodox Narrative of 'Market is the Solution'



'Trickle down'; 'Rising tide lifts all boats'; 'Developing countries will catch up'; Richer societies will be more equal (Kuznets curve hypothesis).



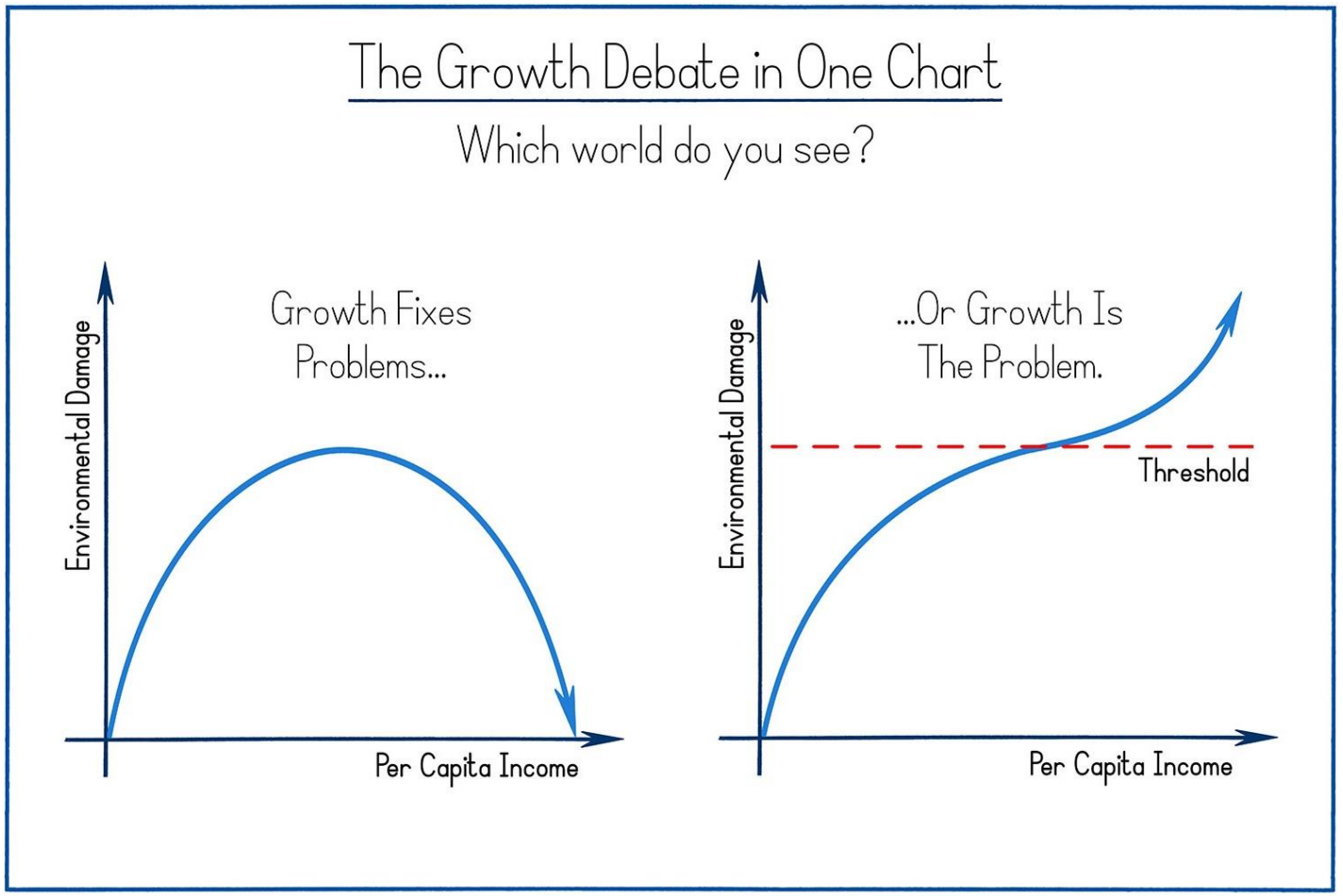
Economic growth generates the wealth and technology to protect and restore the environment. (Environmental 'Kuznets Curve')

The orthodox economic perspective is that the Hand can fix the damage of the Foot fast enough, before biophysical or 'social tolerance' limits are breached.

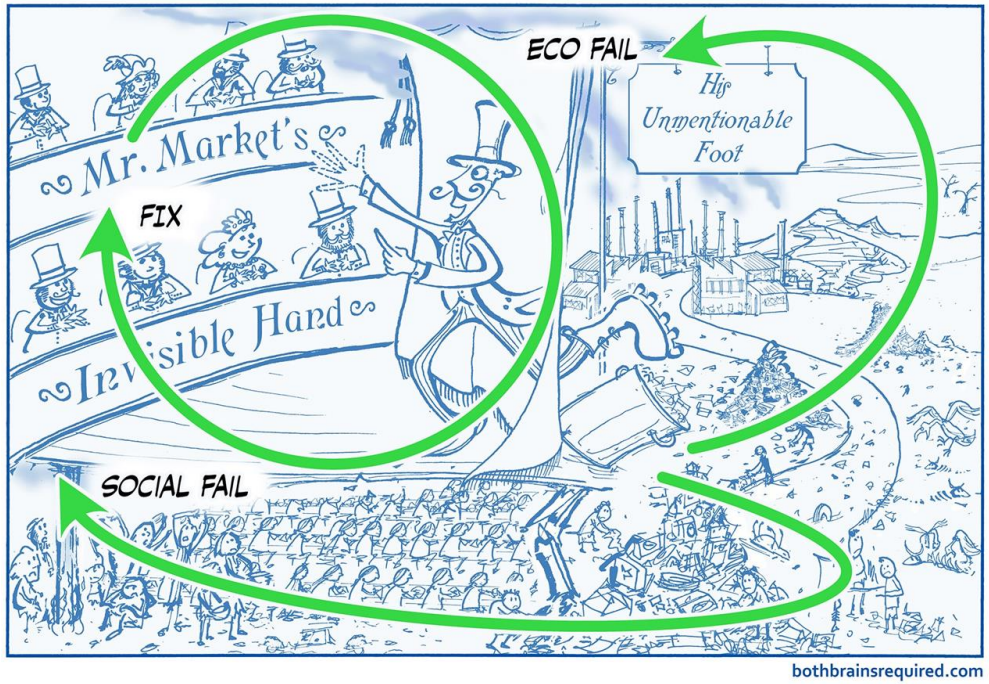
BUT…

- Neither Kuznets Curve is proving true…
- Nor do they recognize limits.

Reminder: EKC with the possibility of limits [from Session 1]



The Challenge of the Anthropocene

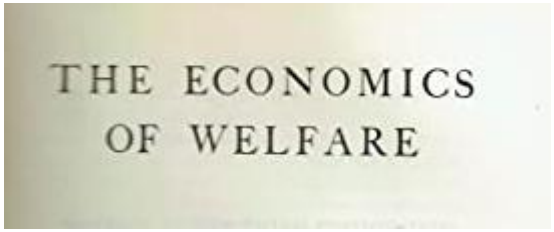


- The fundamental challenge of the Anthropocene:
- What if the Foot is now overpowering the Hand such that the Hand cannot 'fix' the Foot's damage *before* we transgress biophysical or 'social tolerance' thresholds?

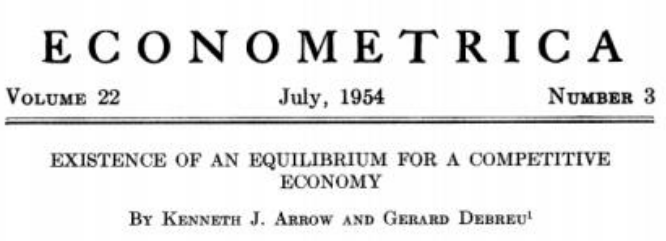
Externality-downplaying Economics

“Climate change is a pedagogical emergency” (Timothee Parrique)

Externalities? Or ‘Complete Markets’?



OR…



Pigou, 1920, coined ‘externalities’

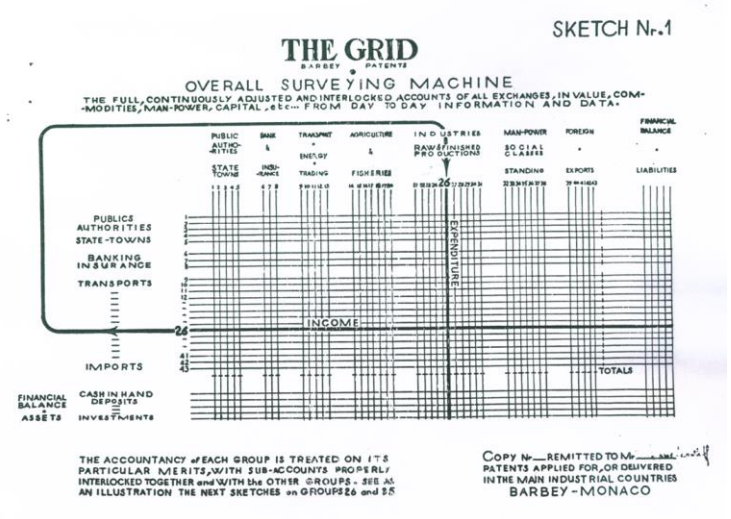
- Arthur Pigou coined ‘externalities’ – unintended harms or benefits of monetary transactions for which no monetary compensation or reward occurs.
- Externalities exist because markets have an incomplete grasp of what humans value. Markets work off prices and not everything has a price. As such, marketed values exist amidst a broader ‘value field’ of things humans care about.
- In practice, non-marketed values are many times larger than GDP, e.g. ecosystem services valued at 2x global GDP (Costanza, 2014).

Arrow-Debreu, 1954, ‘complete markets’ theory

- ‘Complete markets’ theory denies the possibility of externalities!
- In complete markets, you can sign a contract today to buy any conceivable good or service, at any place in the world, for delivery at any point in time from right now to the far distant future!
- Complete market theory is the laying down of a conceptual blanket over all human preferences that leaves no space for externalities.

The Conceptual Appeal of ‘Complete Markets’

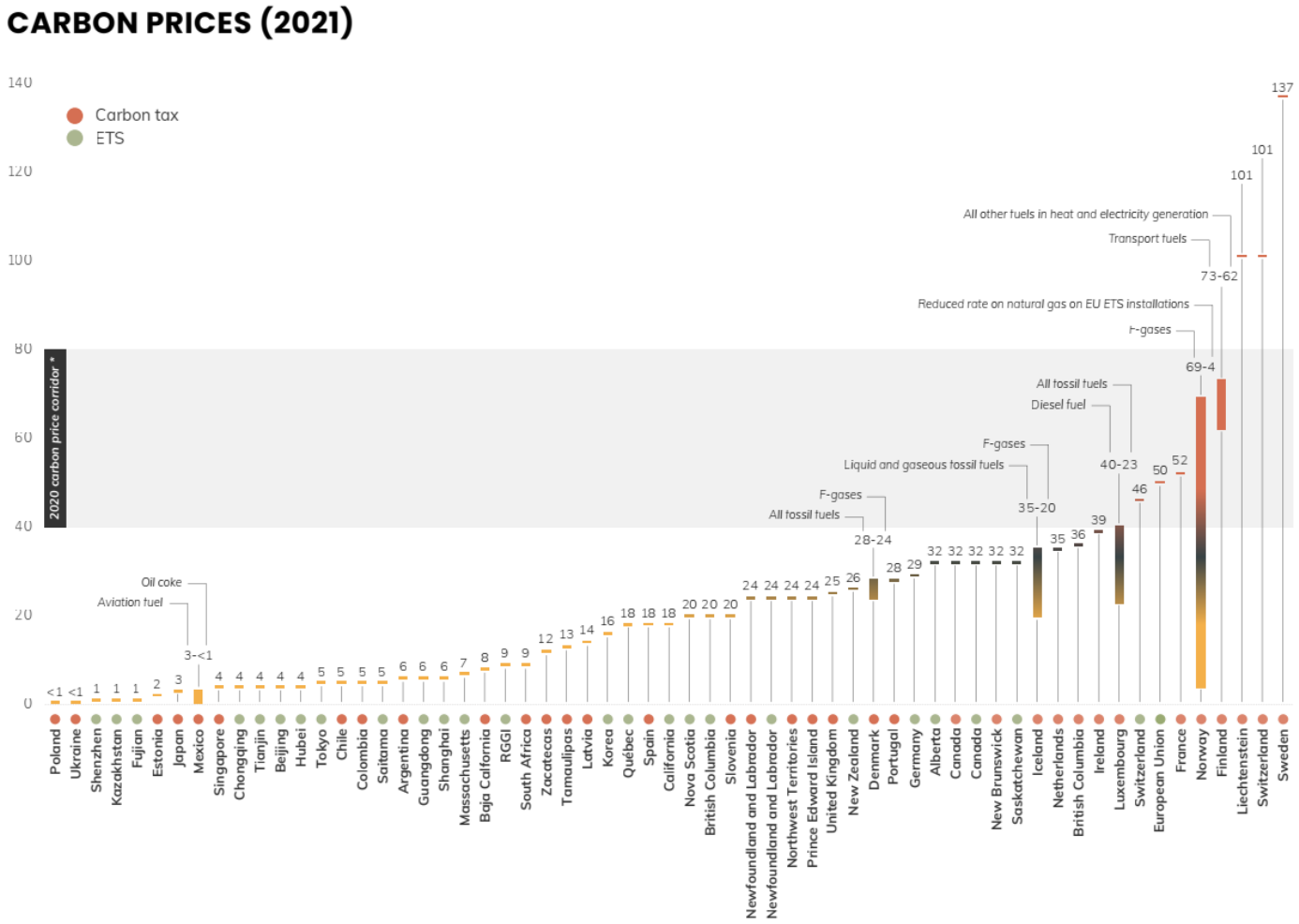
Purchases by:		Intermediate Users Sectors/Industries					Final Demands				Total Demand
		1	2	3	···	n	C	I	G	E	X
Sales by:	1	X_{11}	X_{12}	X_{13}	···	X_{1n}	C_1	I_1	G_1	E_1	X_1
	2	X_{21}	X_{22}	X_{23}	···	X_{2n}	C_2	I_2	G_2	E_2	X_2
	3	X_{31}	X_{32}	X_{33}	···	X_{3n}	C_3	I_3	G_3	E_3	X_3
Sectors/ Industries	·	·	·	·	···	·	·	·	·	·	?
	·	·	·	·	···	·	·	·	·	·	?
	n	X_{n1}	X_{n2}	X_{n3}		X_{nn}	C_n	I_n	G_n	E_n	X_n
Value-	W	W_1	W_2	W_3	···	W_n	W_C		W_G		W
Added	R	R_1	R_2	R_3	···	R_n					R
Imports	M	M_1	M_2	M_3	···	M_n	M_C	M_I	M_G		M
Total Supply	X	X_1	X_2	X_3	···	X_n	C	I	G	E	



Examples of input-output table schema

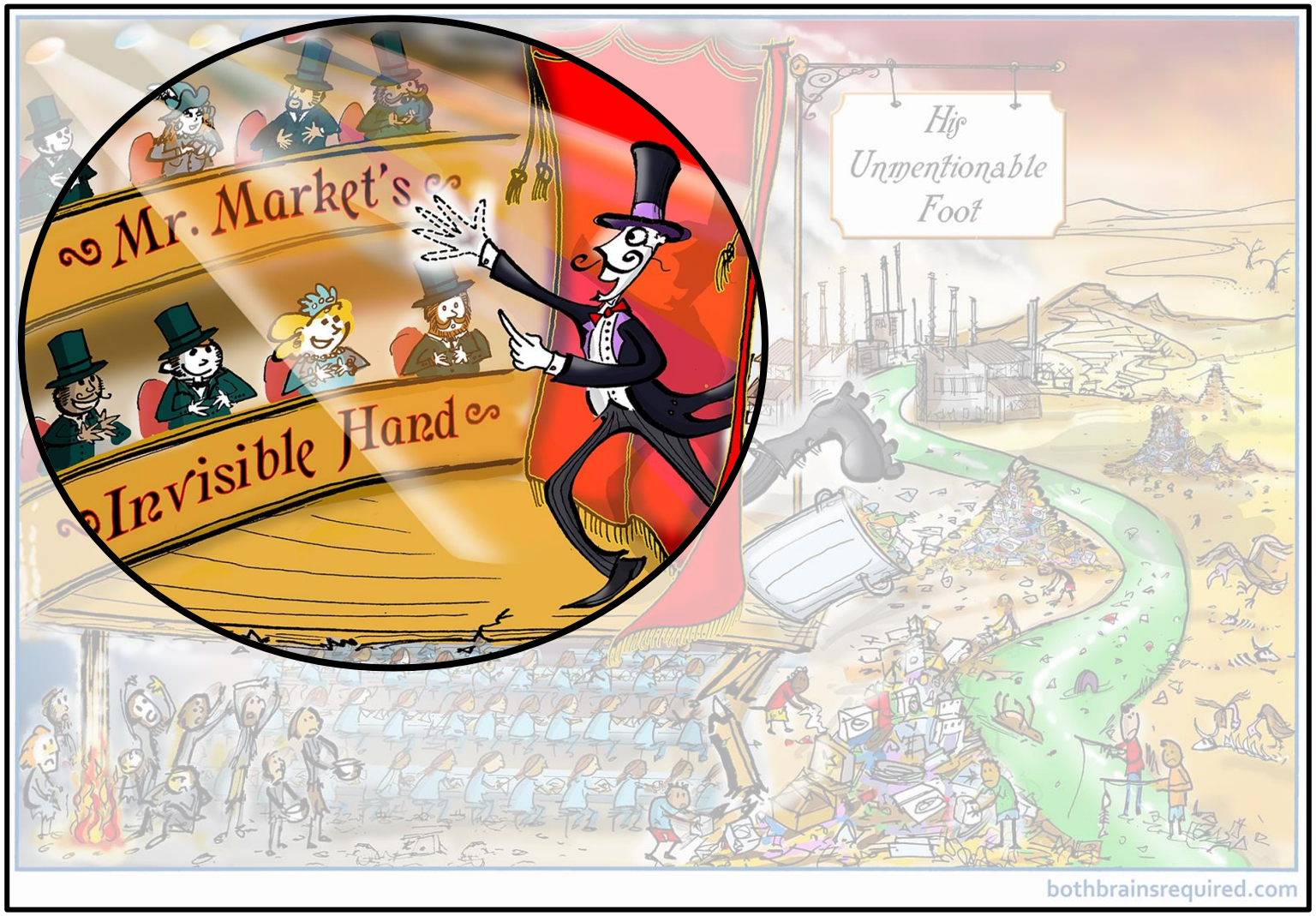
- Economics craved scientific respectability and the mathematical possibilities of complete markets provided it.
- Powerful attraction modelling the economy as a closed, complete, coherent system.
- Hence, input-output tables and ‘grids’, representing self-contained models of the economy.
- Even if economists recognized markets weren’t actually complete, **mainstream economics proceeded *as if* markets were ‘complete enough’ that externalities could be treated as residual market failures.**
- Hence, economic textbooks dutifully acknowledge ‘externalities’ but real world economies have largely developed without addressing externalities, because the discipline has downplayed their importance.
- **The emergence of the Anthropocene suggests that externalities are not mere residuals to the market centrepiece, so much as the main event!**

Less than 4% of Global Carbon is Adequately Priced [from Session 1]



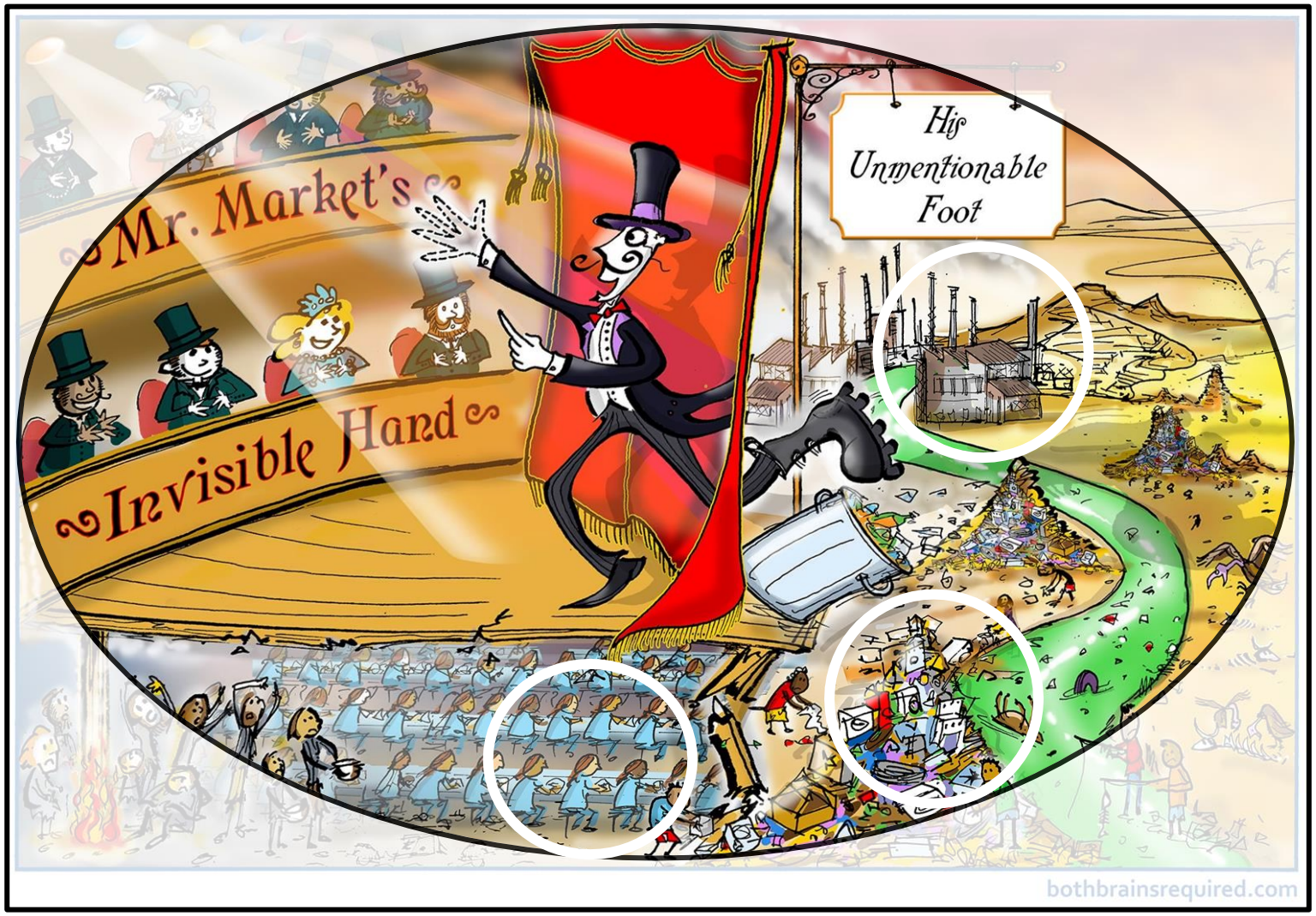
Only **3.76%** of emissions covered by a carbon price above USD 40/tCO2e (the minimum recommended by 2020 to be Paris compliant). World Bank, 2021

The Market View of the World: A Powerful but Poorly Specified ‘Model’



Disclosure Spotlights But Remains Peripheral to Core Decision-Making

A ‘More Complete’ Market Vision



Central Claims of Economics Collapse if Externalities are Large

Economic orthodoxy, premised on 'complete enough' markets:	**Systems perspective, if externalities are meaningful:**	
Growth is good	Not necessarily	The wealth-generation that might remedy social and economic problems may do harm faster than the market can fix, and possibly irreversibly.
Profit is good	Not necessarily	Certain companies may generate external costs in excess of their reported profits (e.g. Schroders (2019) finds this is true of a third of large listed companies. It would be better if these companies were shrinking and generating less 'profit').
Markets are superior to non-market institutions for allocating resources.	Not necessarily	Humans may be able to express values faster and more effectively through non-market institutions than market institutions structured to resist internalization of new values.
High inflation is bad	Not necessarily	Increasing the cost of matter- and energy-transformation of the world may be necessary to protect it; indeed a carbon tax is premised on just this idea. Of course, the distributional consequences of high inflation must be addressed.

When claims are made for the superiority of market outcomes, 'complete market' assumptions are lurking in the background.

Hence, our thinking is in reverse. it is not that we currently have an efficient economy to which carbon taxes etc., would represent an interventionist cost, BUT rather that carbon taxes etc., are required to bring the real economy closer to living up to the theoretical claims made for it.

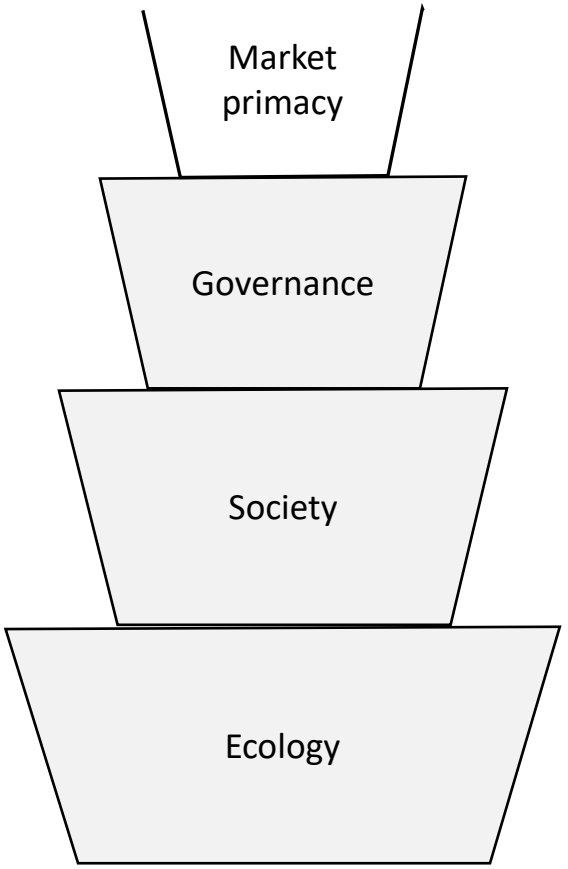
Economists have differed in their belief in the 'completeness' of markets

Polanyi: "To allow the market mechanism to be **sole director** of the fate of human beings and their natural environment…would result in the demolition of society."

E.g., Hayek welcomed the emergence of a market system to supersede prior coordination systems.

Implicit beliefs: markets were 'complete enough' and able to self-regulate such that they could almost wholly replace other decision-making systems.

'Limited' government and hoped-for automation of morality.



E.g., Marx feared the emergence of a market system that would supplant other mechanisms of social coordination while not being able to uphold beneficial influences of those lower levels.

Carlyle described a 'cash nexus' replacing decision-making at lower levels

‘Externalities’ Crystallize the Innate Limitations of any Market ‘Model’

“To allow the market mechanism to be sole director of the fate of human beings and their natural environment…would result in the demolition of society.”
Karl Polanyi

“We cannot regulate our interaction with any aspect of reality that our model of reality does not include.”
Stafford Beer, early cyberneticist

“…whatever is real and related but not included in the model is often where the externalized harm from the application of the model will occur.”
Daniel Schmactenberger

Neoliberalism: The Overshoot of Economic Thinking

Neoliberalism: The Overshoot of Economic Thinking

"…government is the problem."
Ronald Reagan, Inauguration Speech, 1981

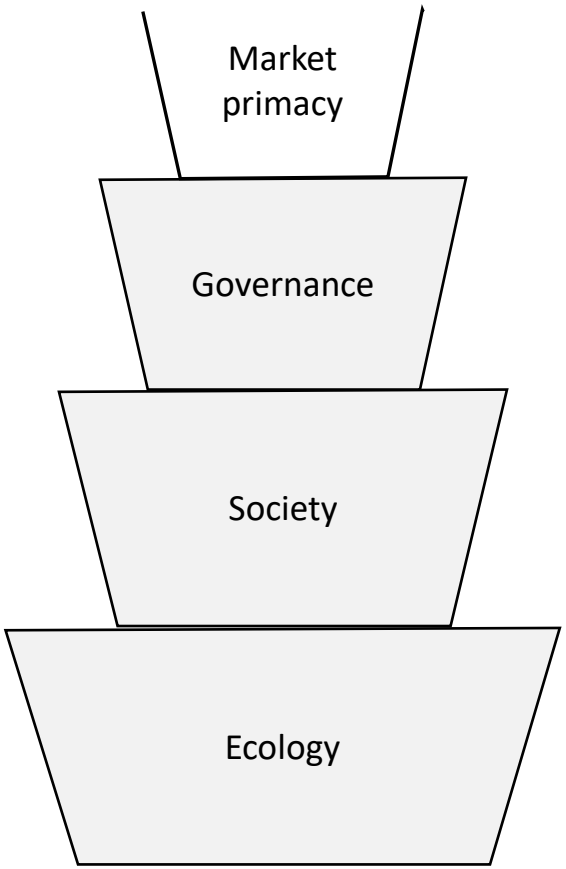
"Economics are the method; the object is to change the heart and soul."
Margaret Thatcher, 1981

- Economists generally date the rise of market-led or 'capitalist' societies to 18th Century (e.g., Hodgson, McCloskey).
- After ebbs and flows, *neoliberalism* from the 1980s represents the high point – to date (?) – of self-organizing by market arrangements.
  - Based on the conviction that market signals and outcomes can safely supersede earlier forms of human self-coordination.
- 'Free market' capitalism as the 'end of history'
- 'Markets are the solution, government is the problem' crystallized the idea that if some markets were good, more markets must be better.
- The role of underlying layers is simply to 'free', or liberalize, the market as much as possible.
  - Hence, deregulation and privatization programs of Reagan, Thatcher; the 'Washington Consensus'; the promotion of 'free' trade.
  - *"Over the past three decades, markets—and market values—have come to govern our lives as never before... The reach of markets, and market-oriented thinking, into aspects of life traditionally governed by nonmarket norms is one of the most significant developments of our time."* (Michael Sandel, 2012)

Enacting Market Primacy

"…government is the problem."
Ronald Reagan, 1981

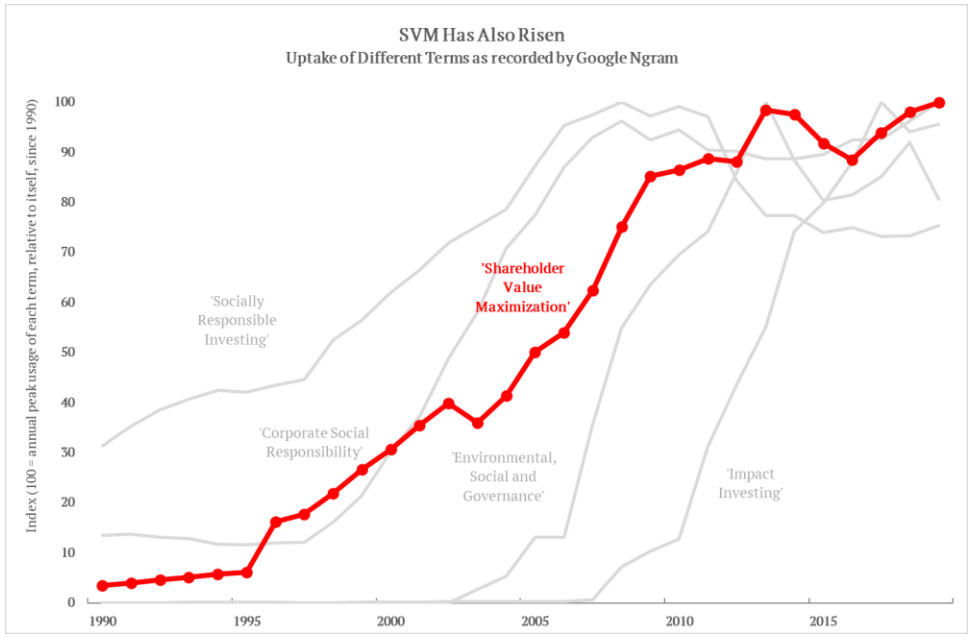
"The American way of life is not up for negotiation. Period"
George HW Bush, 1992



"Economics are the method; the object is to change the heart and soul."
Margaret Thatcher, 1981

"…there is no such thing as society."
Margaret Thatcher, 1987

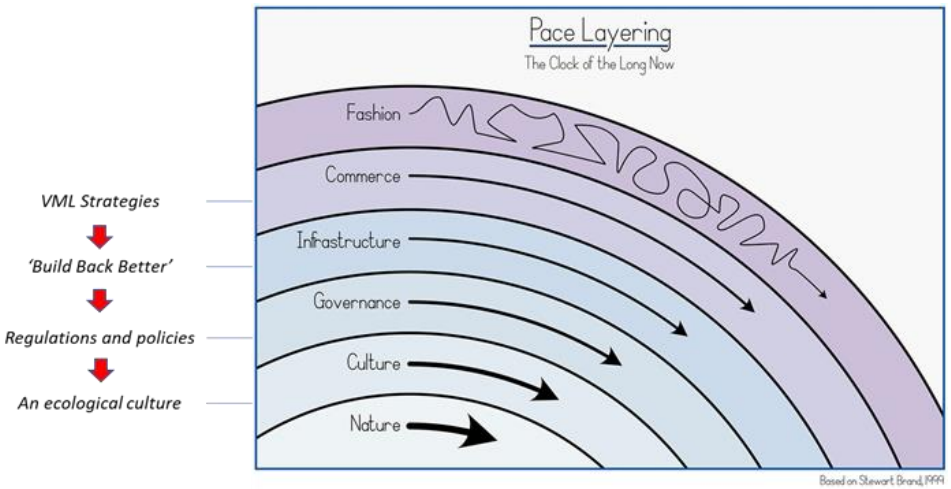
Now Aligned – Bound – to the Logic!



- We have incentivized large swathes of human behaviour in ways that are consistent with 'complete market' logic, *only to find that markets are highly incomplete*.
- Companies are more tightly held to Shareholder Value Maximization (SVM) than in the prior 'managerial' era.
- Corporate executives are *aligned* to SVM.
- Via activist investors, stock markets keep public companies at the SVM frontier (or else they become attractive assets to take over and push back to the SVM frontier, for easy short-term profit).
- It is difficult/impossible for companies to lobby against their SVM interests.
- Politicians are incentivized to keep externality-denying GDP and profits growing.
- Pensioners are relying on externality-denying stock markets to rise to fund their retirement.

Market Flexibility is Not the Same as System Flexibility

Deep Adaptation Requires Flexibility At Lower Levels

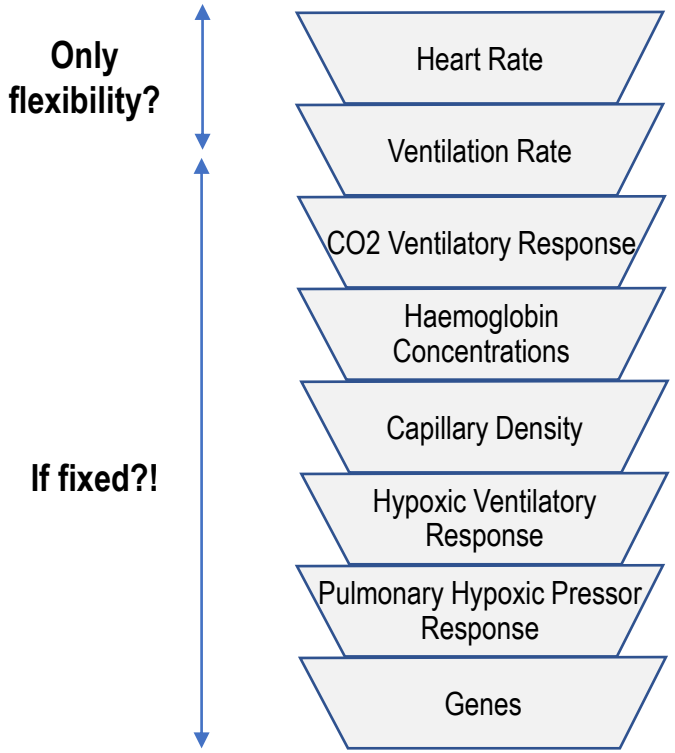


- Deeper adaptation requires moveable lower layers

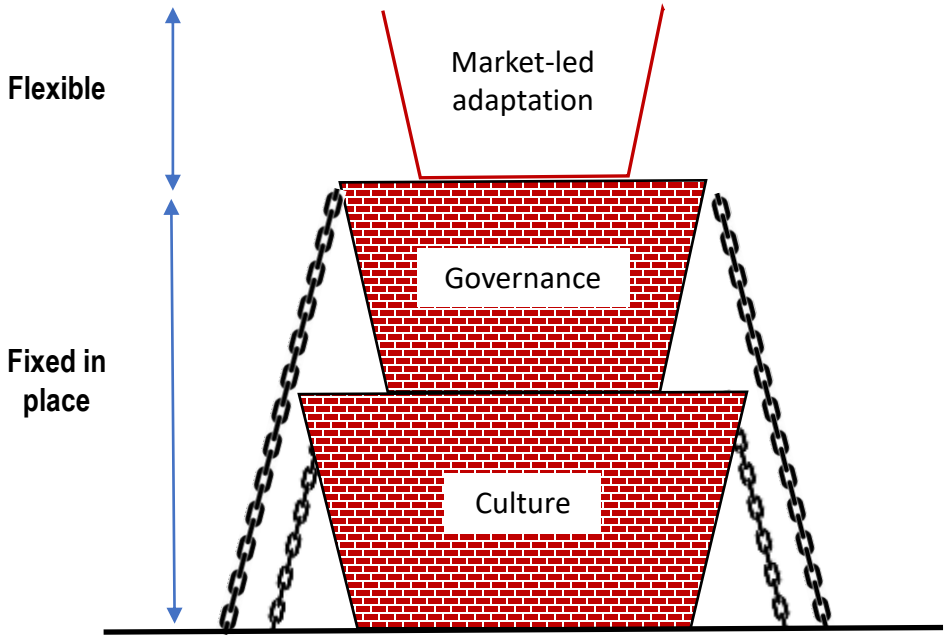
Metaphor: Inflexible Systems Cannot Adjust to Achieve Deep Adaptation

Cervical Spinal Fusion

Thoracic Spinal Fusion



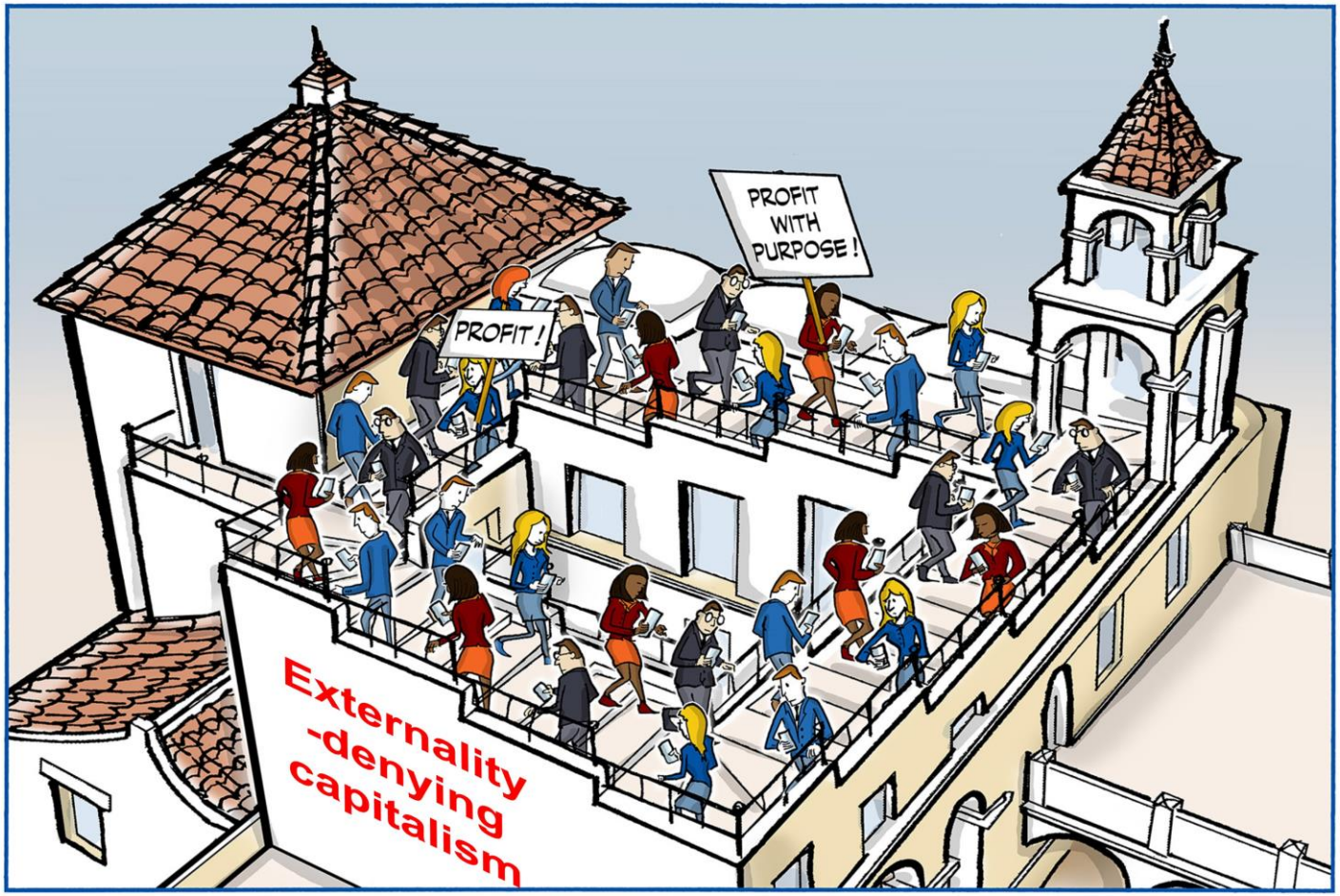
The Adaptive Rigidity of Neoliberalism



- Elevation of markets to primacy has had the effect of 'fixing in place' lower decision-making levels.
- Capitalism hubris
  - Defeat of communism; fall of Berlin Wall, 1989
  - 'End of history', 1992
  - 'Economic imperialism', 2000
- *"What* should *have died along with communism is the belief that modern societies can be run on a single principle, whether that of planning under the general will* or *that of free-market allocations."* (Charles Taylor)
- No single layer should be granted permanent primacy. Systems require different layers for different scales of adaptive response at different times.

When ‘Fixes that Fail’ Become ‘Double Binds’

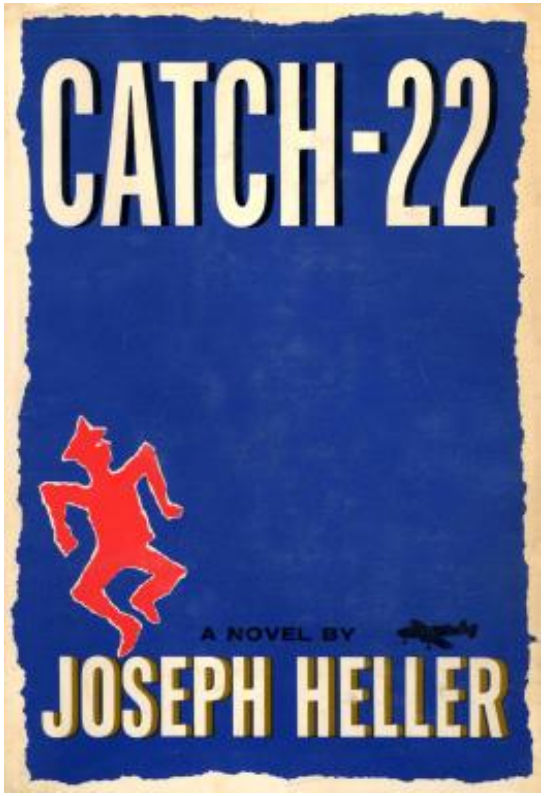
Trapped in the Loop of Externality-Denying Capitalism

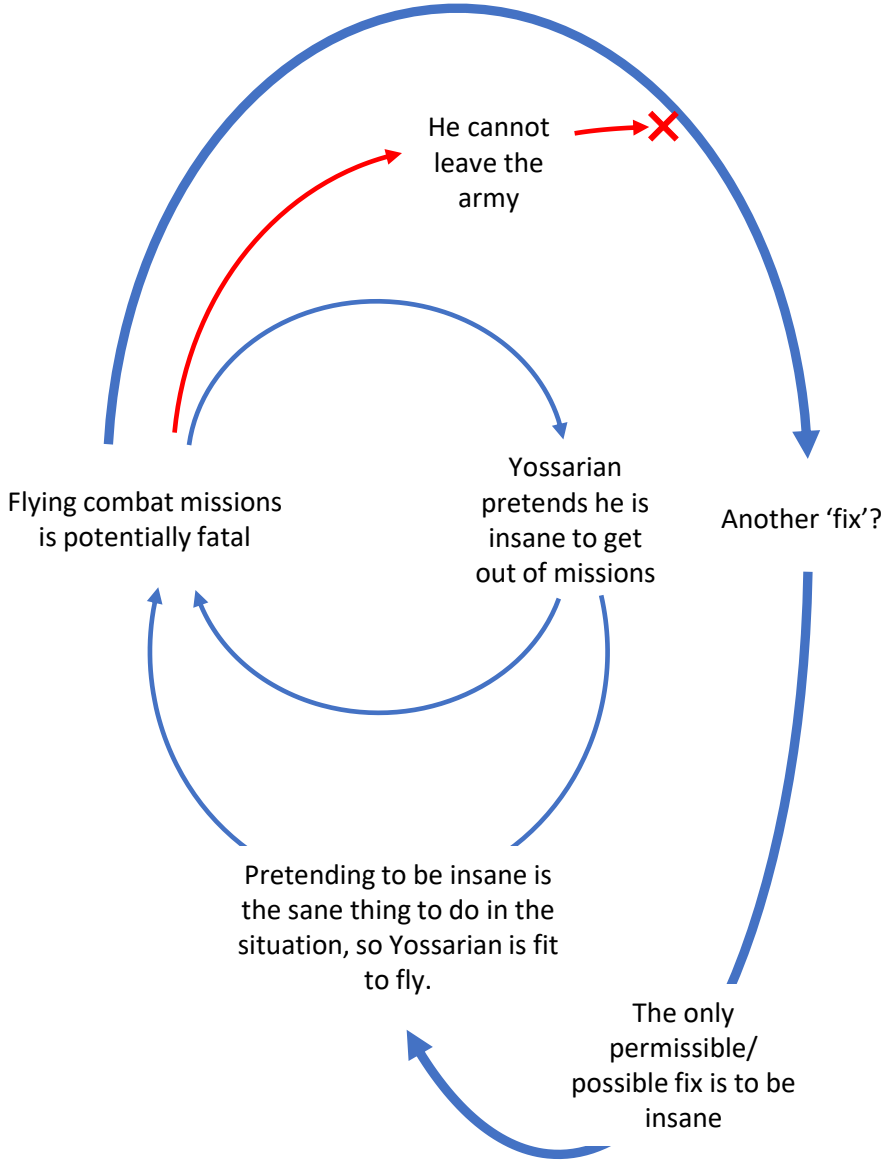


After Escher

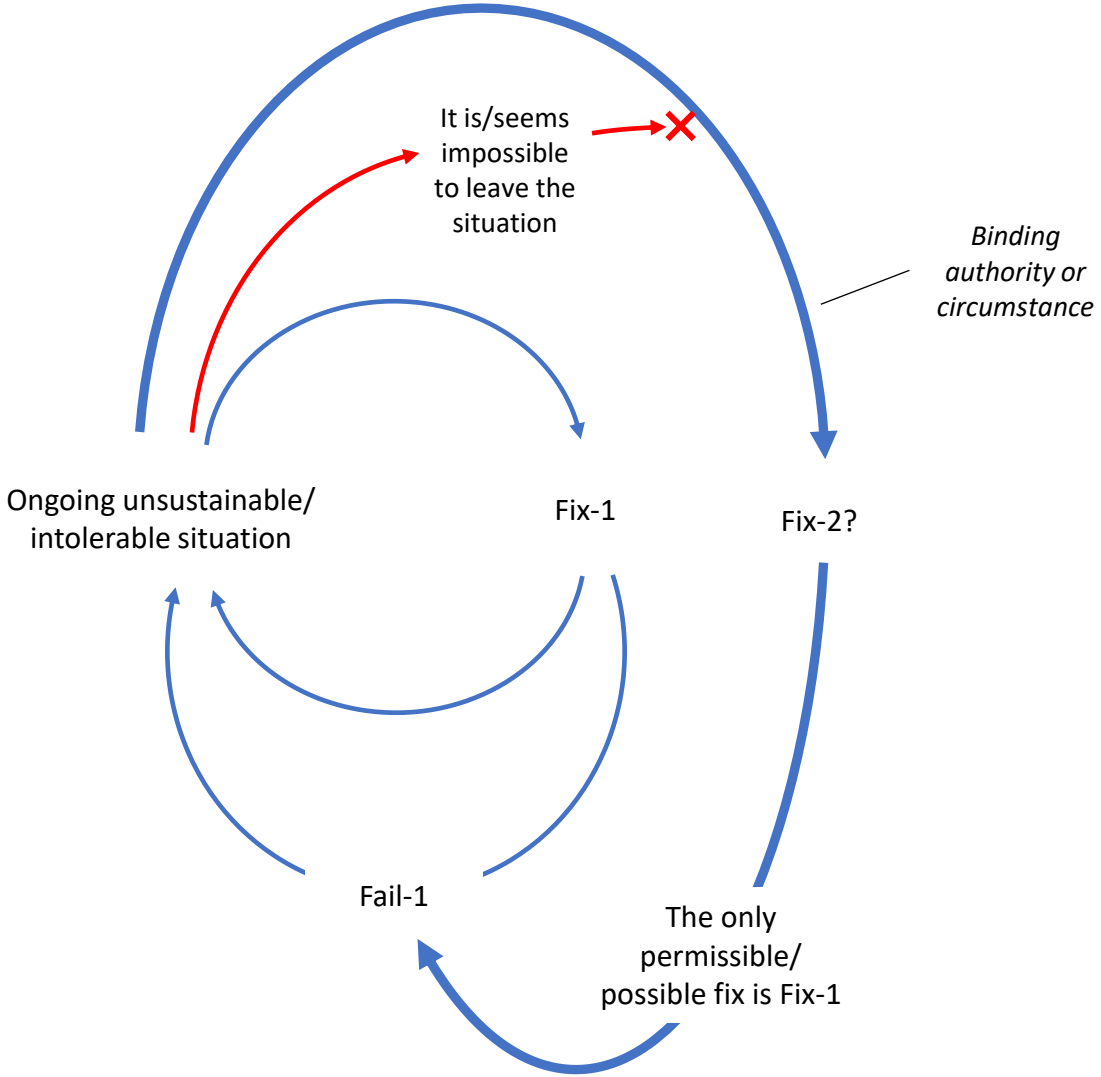
bothbrainsrequired.com

‘Double Binds’ and Catch-22



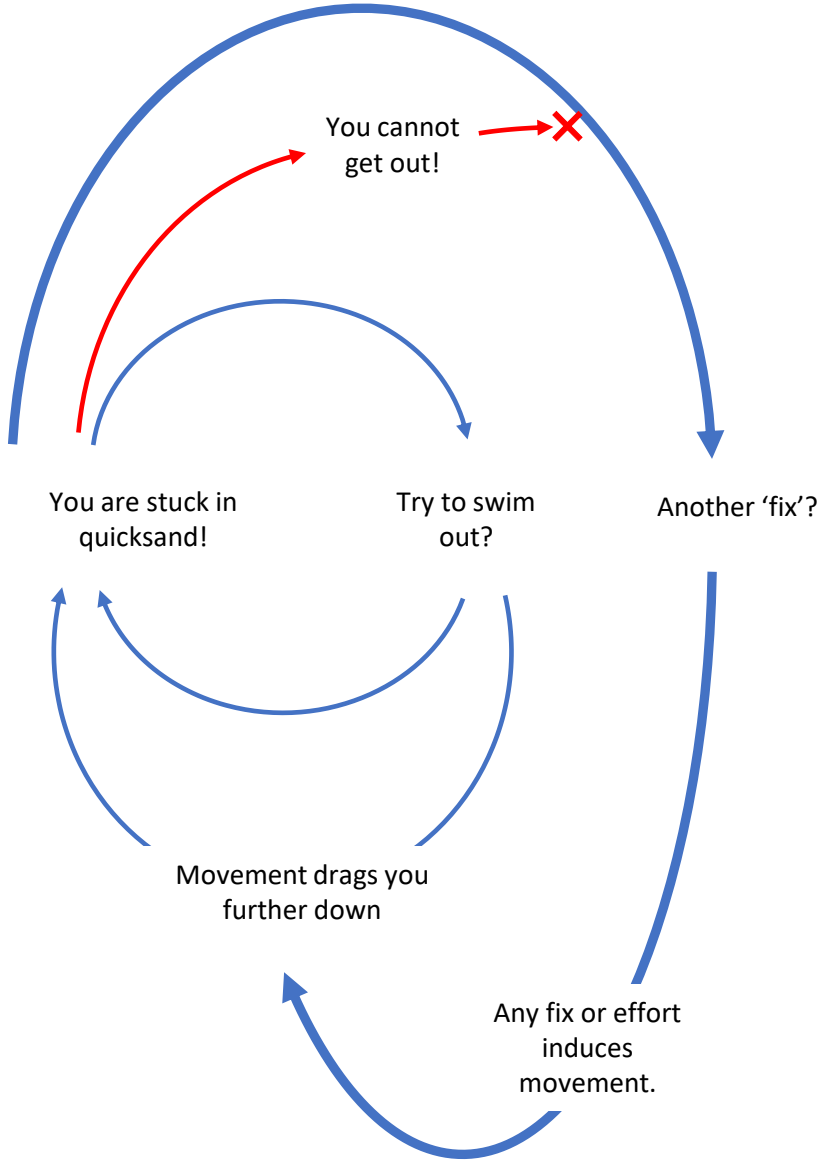


General Form of Double Bind

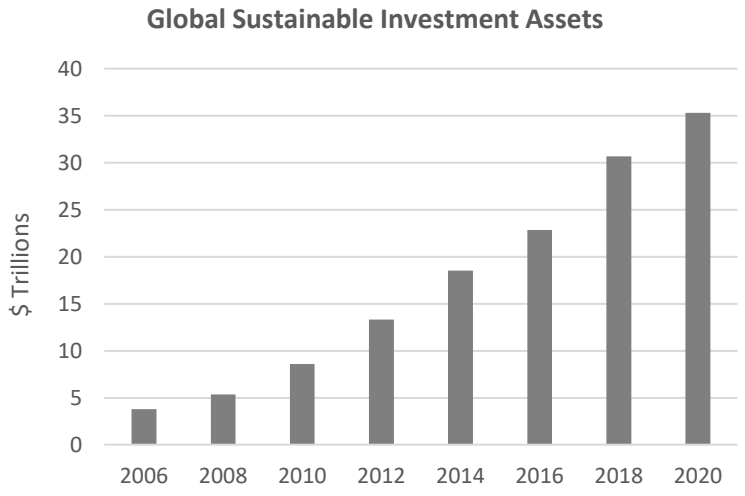


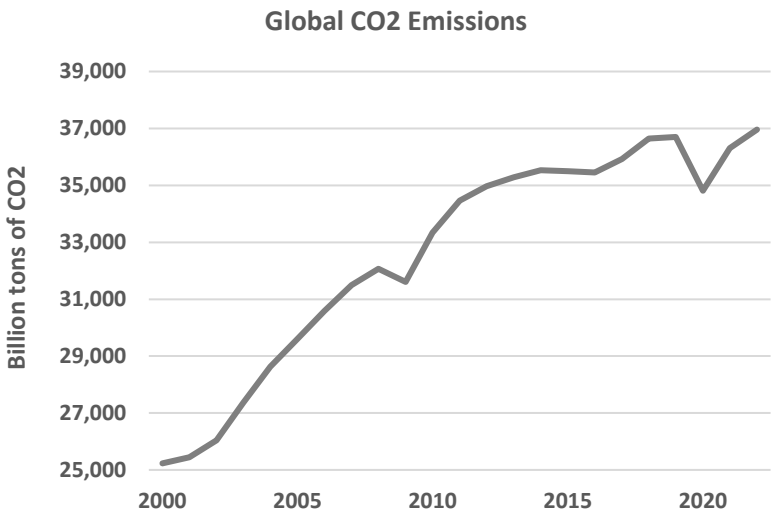
Double Bind Example: Quicksand

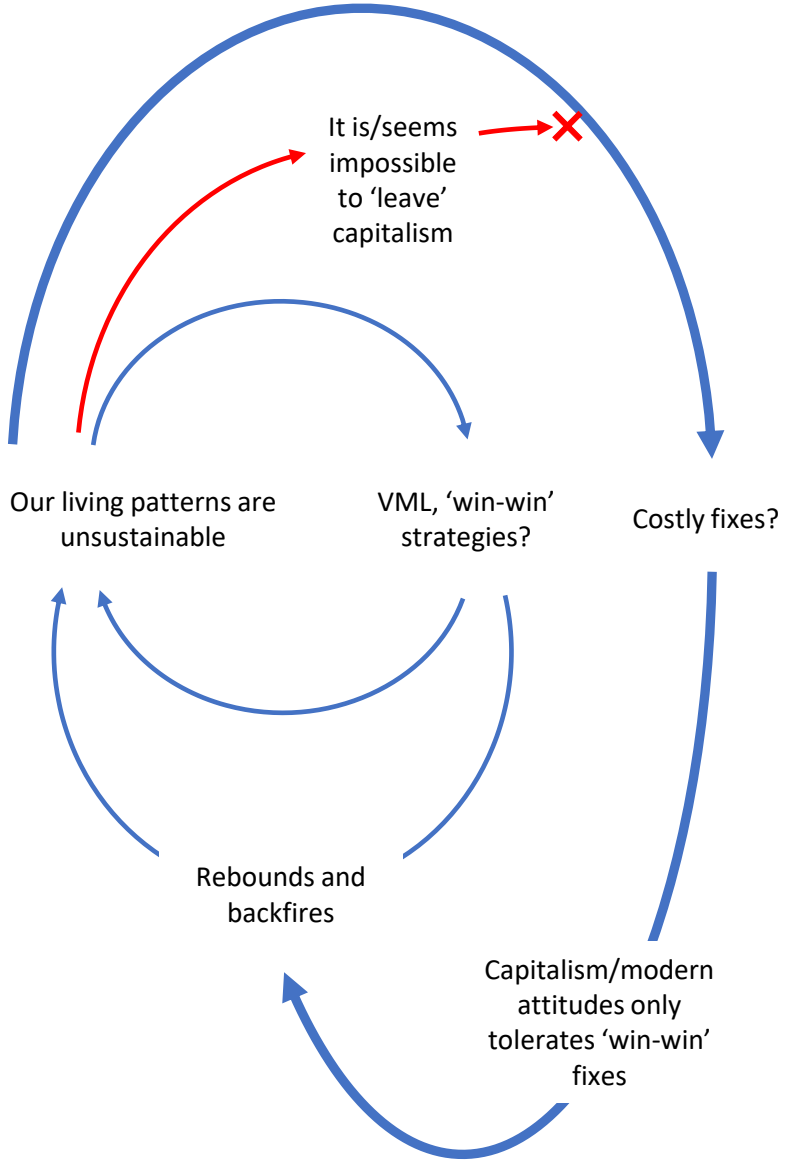
Increasing effort and urgency within the binding situation may just aggravate the problem!



Double Bind Example: VML Strategies





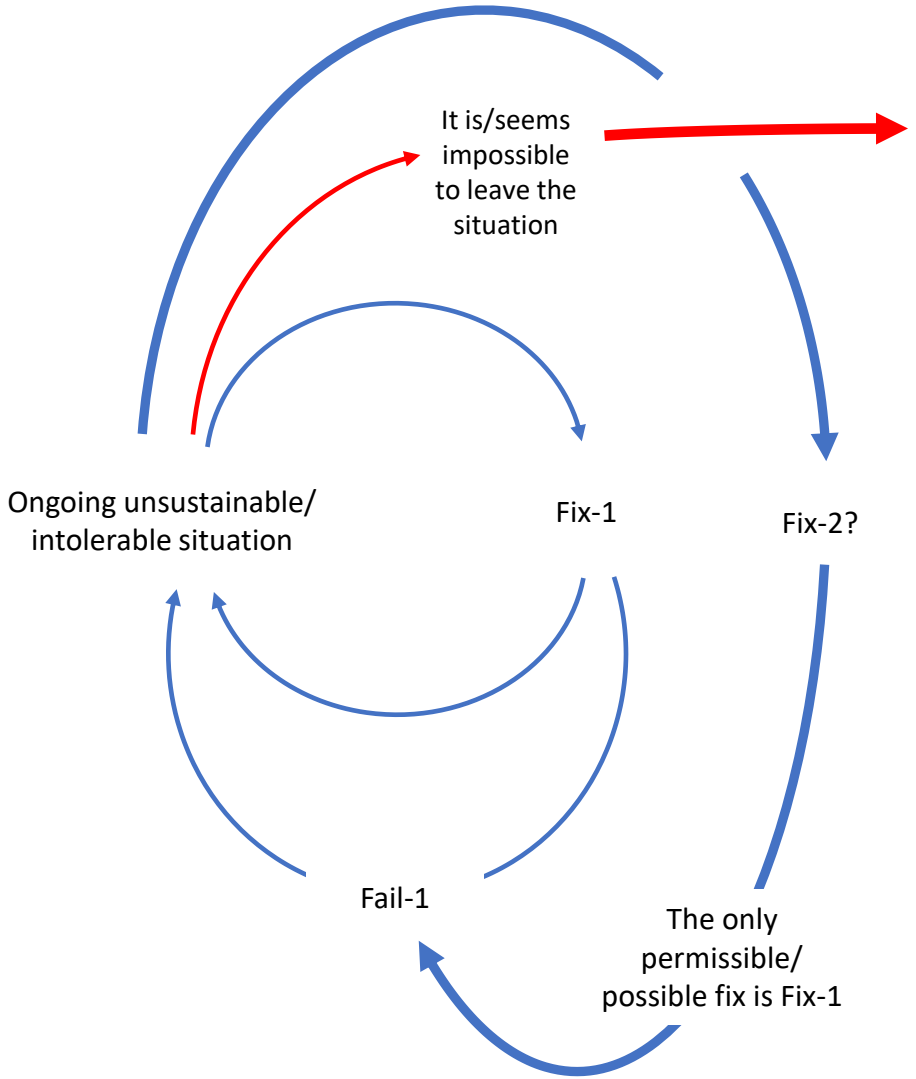


Double Binds are Maddening!

Bateson and co-authors of the 'double bind' theory.

- The hallmark of 'double bind' problems is that they are deeply frustrating and exasperating.
- Indeed, the 'double bind' was first formulated by Gregory Bateson et al., in the 1950s as a proposed driver of schizophrenia.
  - Not considered a primary driver today, but 'double binds' are widely recognized as the core dynamic of many mental health problems and dysfunctional relationship patterns.
- The frustration or powerlessness *felt* in double bind situations is the signal that the guiding, rational behaviour is failing to break out from, some unrecognized or unacknowledged deeper problematic thinking.
- The increasing sense of powerlessness, angst, and anxiety in the face of the Anthropocene is part of the adaptive process we must listen very carefully to.
- "*It is traumatising to see that you are caught up in a way of living, whether you like it or not, that makes you a victim and a perpetrator of damaging the Earth.*" Sally Latrobe, psychologist
- The felt aspects of the sustainability crisis are central to the adaptive process, not peripheral. We must attend to it, and not dismiss it as mere emotion. **It is an emotion signal indicating that our reasoning is faulty, summoning us to re-think assumptions considered long settled.**

General Form of Solution: Break or Escape From the Binding Circumstance



- Change the Army's rules;

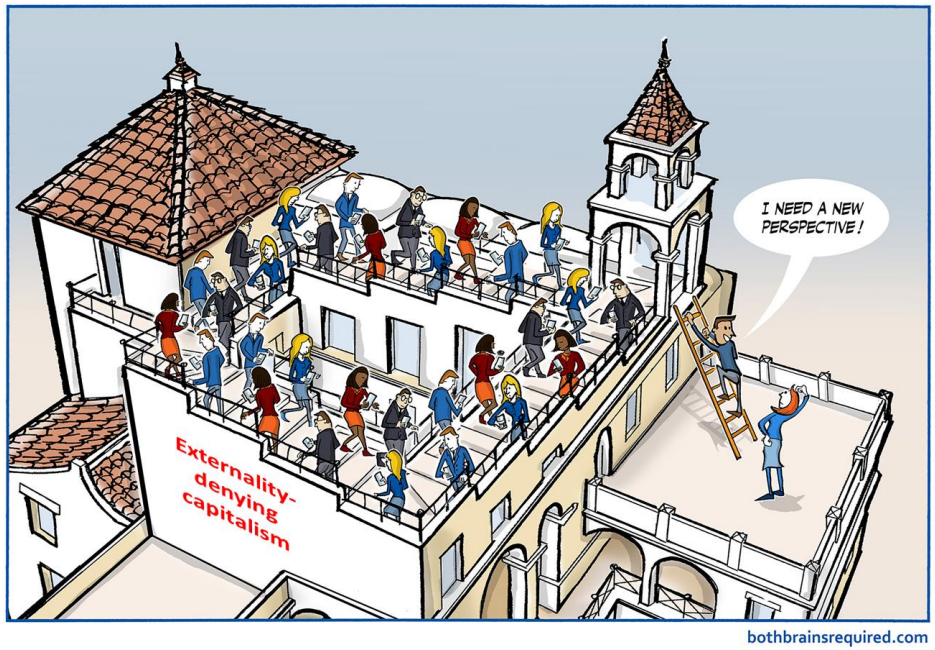
- Connect with solid ground (e.g. tree, person);

- Overcome the logic of externality-denying capitalism.

How do you Escape from Double Bind Situations?

- Quicksand provides a good metaphor for how to escape a double bind.
- You need to reach beyond the encircling situation bind and establish a connection with *solid ground*, from which to pull yourself out.
- From *outside* the secondary loop, you can see the whole dilemma for what it is. It is no longer a ‘paradox’.
- In other words, escape is a *re-grounding* process.
- In movies, dysfunctional relationships, severe mental illnesses, the *re-grounding* may be unattainable, inducing dramatic or real-life ongoing frustration or misery.
- **In many respects, the sustainability challenge is whether we can reach beyond the behavioural loop of externality-denying capitalism to reground our interactions with each other and the real world.**

Concluding Thought



- One of Escher's themes was the idea that you head off in a new direction only to return to where you started.
  - He expressed visually the notion that systems thinkers label a 'fix that fails' and that psychologists term a 'double bind' - essentially actions that may not only not fix a problem, but inadvertently reinforce it!
- Anchored by ‘win-win’ assumptions, VML does not seem able to 'break out from' the underlying problem of 'externality-denying capitalism’.
- Because VML efforts can make only a small dent in this, the vast majority of investment and consumption actions continue to be daily micro-reinforcements of the underlying externality-denying model.
- ESG etc., cannot solve our problems from within the loop. The ‘social responsibility’ of business must increasingly be to challenge the system of which they are part…