



THE LEAN ENGLISH PODCAST

Episode 5: Systems Thinking
Part 2



BENEFITS TO CLD



The main benefit of diagramming your company's system is to find the leverage points that you will use to influence the system.



These lead to long-term solutions, as short-term thinking depends on linear causality.



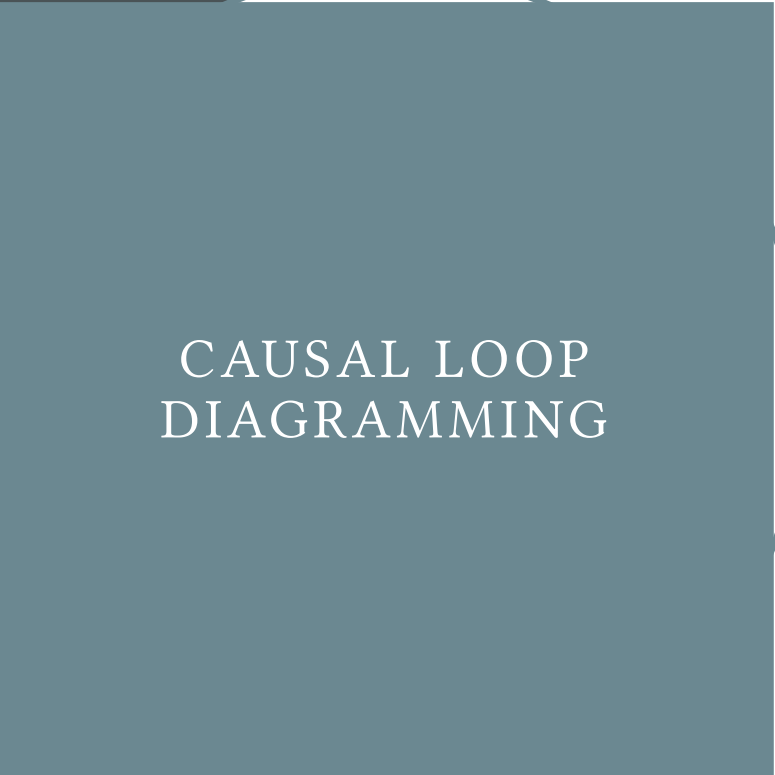
Another benefit from CLD is that there are many systems that have already been diagrammed called Systems Archetypes.



Understanding archetypes may help you understand your business even better.

SYSTEM MODELING

- When you begin modeling, remember that it should serve a purpose, to understand the system you are trying to change.
- Stop modeling when you understand it well enough to enact some change. If you don't, you may fall into the trap of mapping systems that you do not influence.
- Also, while understanding the system is an important first step, it is not the final activity.
- Just as Value Stream Mapping by itself does not reduce process waste, system modeling does little if process improvement activities do not follow.



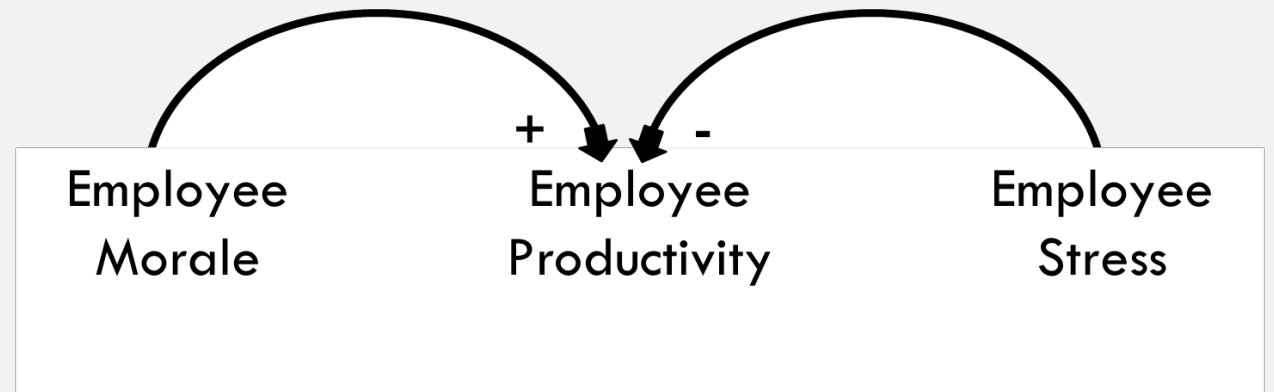
CAUSAL LOOP DIAGRAMMING

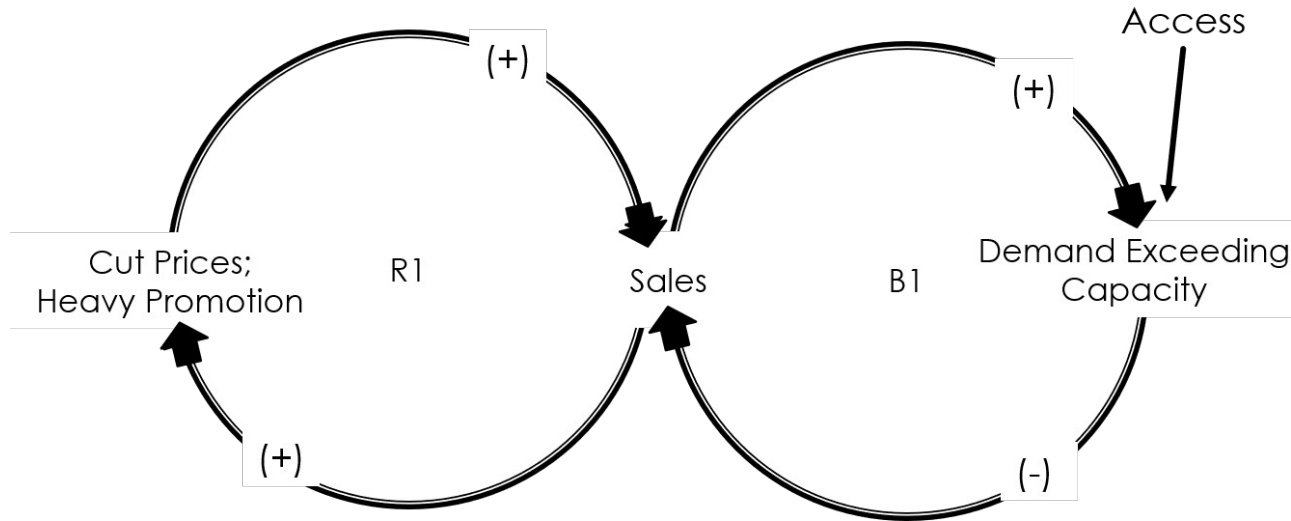
- To understand the systems that you are trying to improve, it is useful to create Causal Loop Diagrams (CLD).
- Just as process and value stream maps help us understand what we are doing, these maps help us understand the parts of a system that impact your outcomes.
- There are 4 steps to Causal Loop Diagramming:
 1. Create Variable names
 2. Draw the links
 3. Label the Loop
 4. Talk through the Loop



INFLUENCES ON PRODUCTIVITY

- In this simple diagram, we see how two parts of a company's system, morale and stress, influence a third part, productivity.
- Morale has a reinforcing (+) influence, so as morale goes up or down, productivity goes up or down.
- Stress has an inverse (-) influence, so as stress goes up or down, productivity does the opposite.





HOW TO READ A SYSTEMS DIAGRAM

- Here we see how Causal Loop Diagramming depicts non-linear relationships.
- In this system, a company's sales are reinforced by their pricing and marketing activities but subsequently balanced by their ability to meet demand.
- Even though they promoted the product heavily, their lack of access drove sales down.

PURPOSE OF ARCHETYPE STUDY

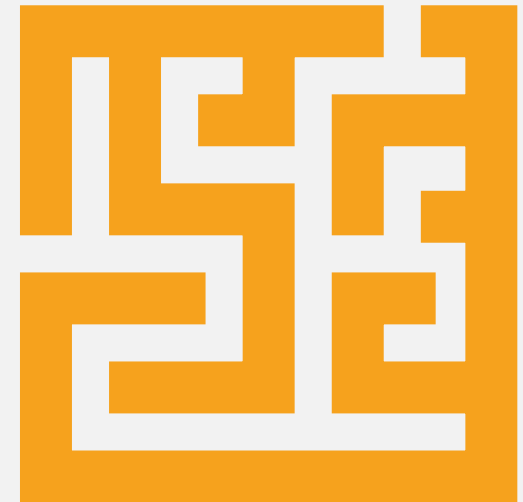
Archetype: Wikipedia defines an **archetype** as “a universally understood symbol or term or pattern of behavior, a prototype upon which others are copied, patterned, or emulated.”

It is important to study System Archetypes so we can identify patterns of organizational behavior that lead us down predictable paths of limited growth or decreasing performance.

USING SYSTEMS ARCHETYPES

Knowledge of Systems Archetypes can be used to benefit your organization in 2 ways:

- Diagnostically – helping your manager understand patterns that are at work in your organization right now
- Prospectively – the manager uses his understanding to foresee the problems he may have when he decides to implement change in the organization
- It is best to prevent the pitfalls of these archetypes to prevent the organization from adopting bad habits in the first place.



DIAGRAMMING ARCHETYPES



Each Archetype will have its own diagram that shows the relationship between efforts and results, actions and consequences.



From these diagrams, you understand the need for Systems Thinking which incorporates the theory that all actions are both a cause and an effect.



With Systems Thinking, it is easy to see how we can get trapped in vicious cycles.

10 SYSTEMS ARCHETYPES



LIMITS TO GROWTH –
THE LAW OF
DIMINISHING RETURNS



SHIFTING THE BURDEN –
TREAT THE SYMPTOM,
NOT THE DISEASE



ERODING GOALS –
LOWER YOUR
ASPIRATIONS TO
PREVENT FAILURE



ESCALATION – LET'S
ENTER AN ARMS RACE



SUCCESS TO THE
SUCCESSFUL – THE RICH
GET RICHER; THE POOR
GET POORER



10 SYSTEMS ARCHETYPES



TRAGEDY OF THE
COMMONS – THE GLUE
THAT KEEPS IT
TOGETHER STARTS TO
COME APART



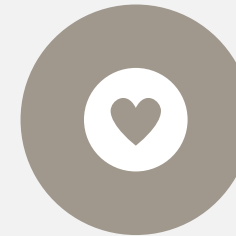
FIXES THAT FAIL – THE
LAW OF UNINTENDED
CONSEQUENCES



GROWTH AND
UNDERINVESTMENT –
WHY THROW GOOD
MONEY AFTER BAD?



ACCIDENTAL
ADVERSARIES – TURNING
A FRIEND INTO AN
ENEMY

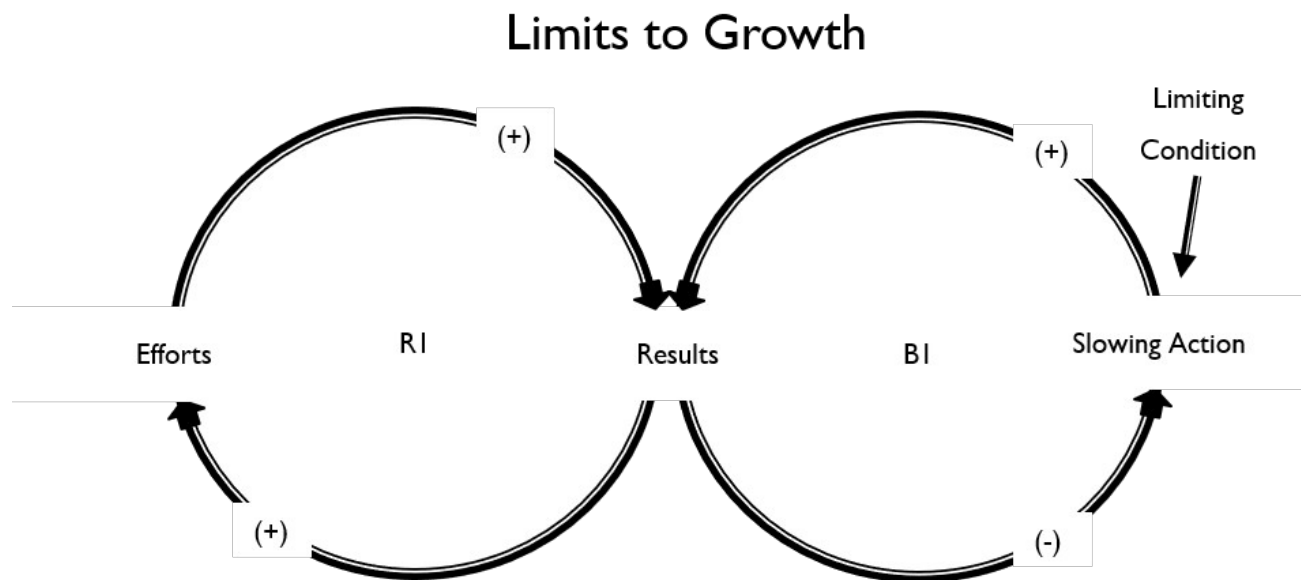


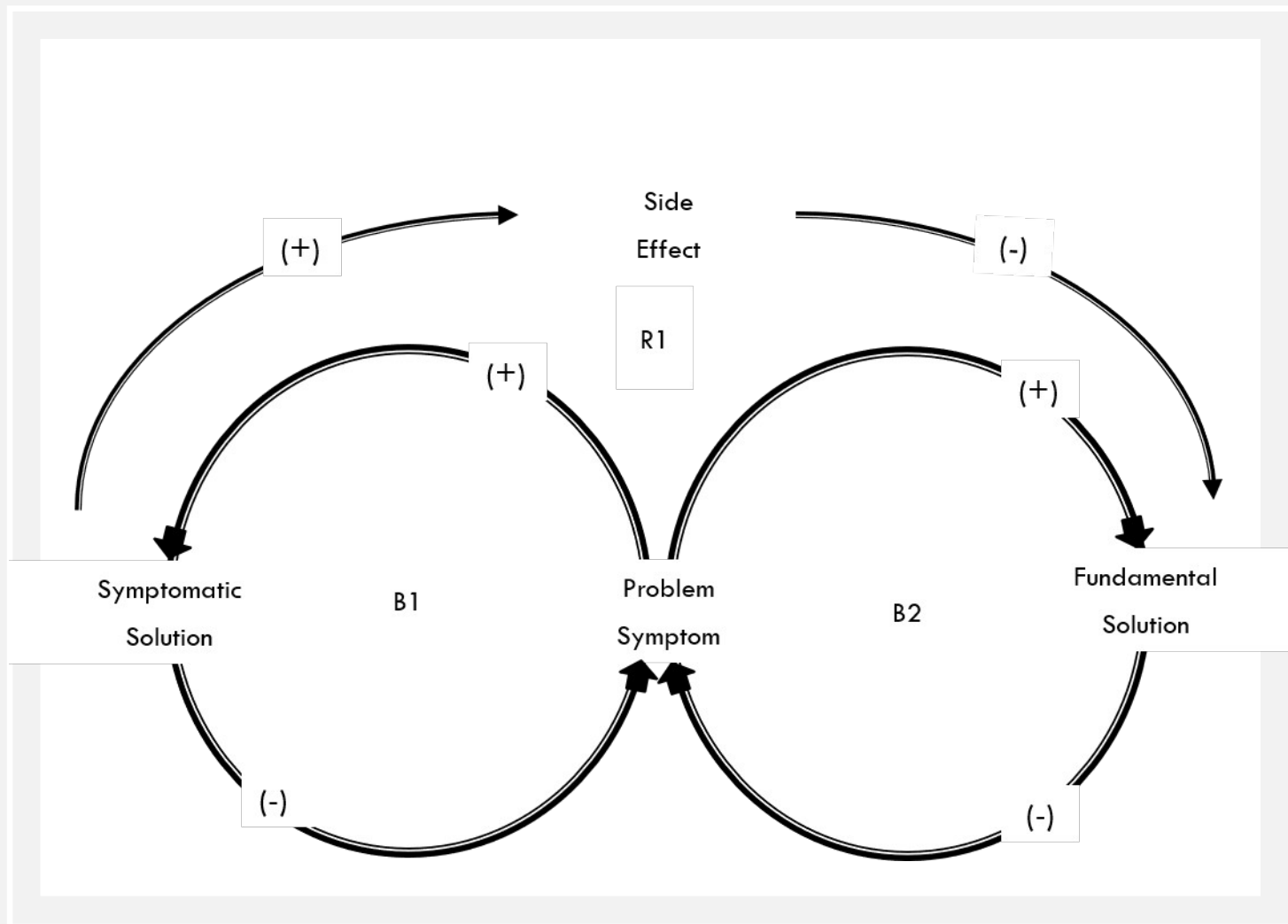
ATTRACTIVENESS
PRINCIPLE – CHOOSING
WHICH PROBLEM TO
ADDRESS FIRST



1. LIMITS TO GROWTH

- This is where a reinforcing dynamic is negated by a balancing dynamic. All efforts to progress are initially supported and reinforced, but eventually a balancing system counters the growth.
- The leverage comes from identifying and removing the balancing dynamic, not increasing the reinforcing dynamic.





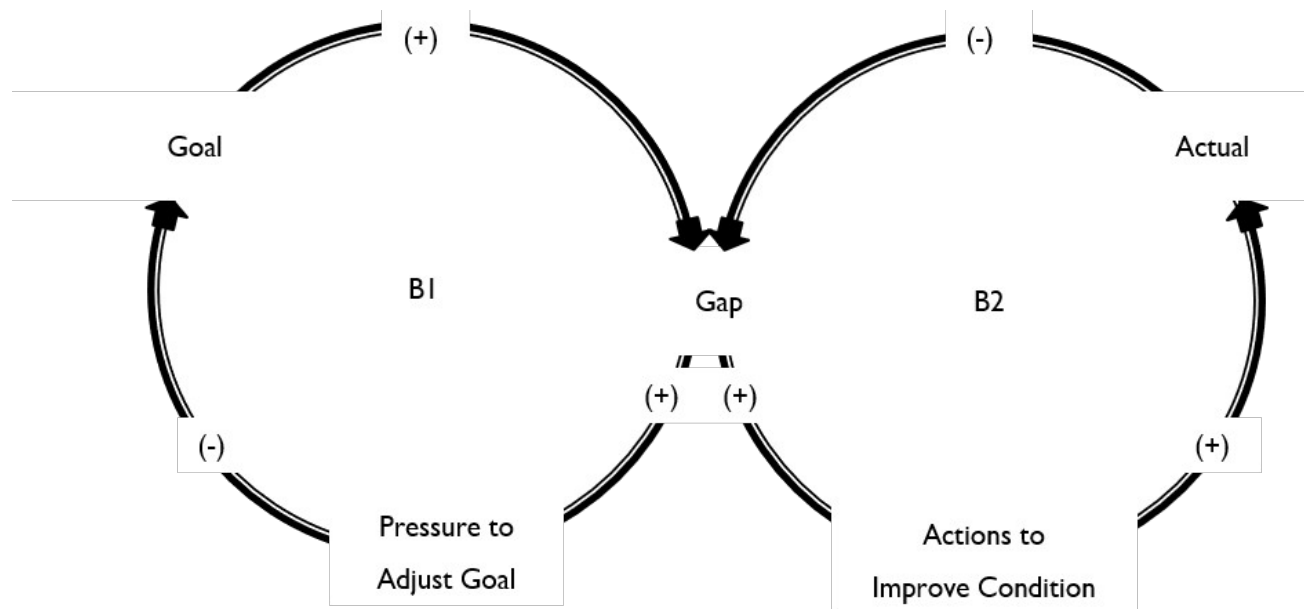
2. SHIFTING THE BURDEN

- This Archetype shows the tension between initiating a change to attack the symptom and a change that fixes the problem.
- Often simply treating the symptom (a short-term solution) is more attractive than going after a long-term solution.
- The real problem is that the short-term fix often makes us think we fixed the real issue, and we lose interest in the long-term fix.
- Example: Outsourcing strategy



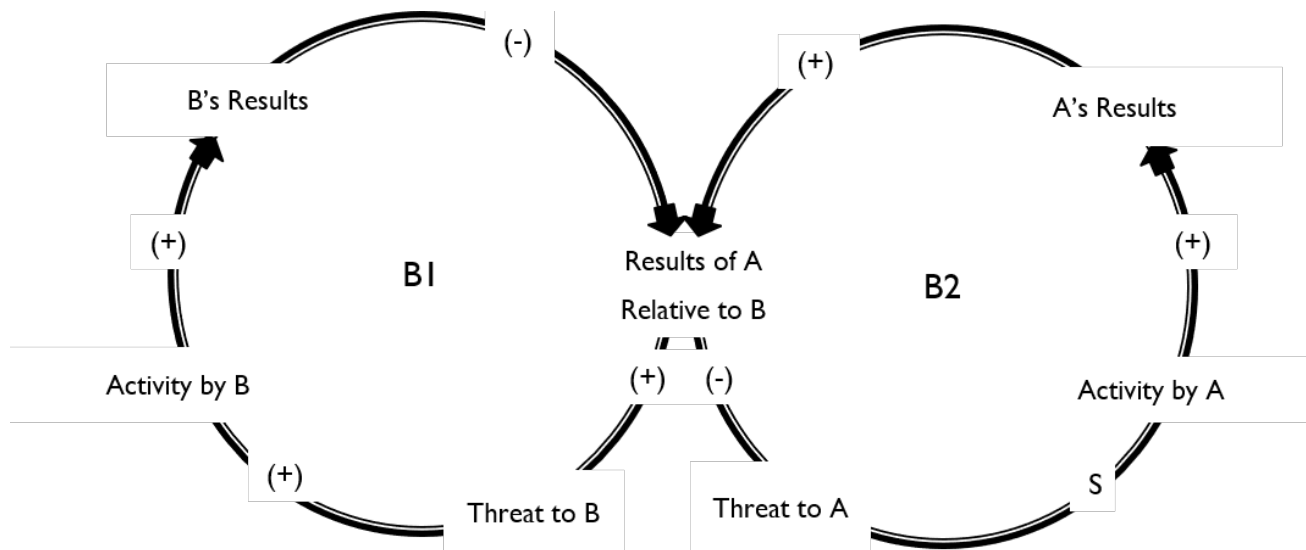
3. ERODING GOALS

- Similar to Shifting the Burden because again there is a desire for a short-term fix. But here we allow ourselves to adjust our goals, so we are now able to live with the problems. We decide that we simply cannot do what needs to be done and settle for a lesser goal.
- This creates a culture of inferior achievement in the organization, since goals are uniformly discredited and never truly pursued.





4. ESCALATION

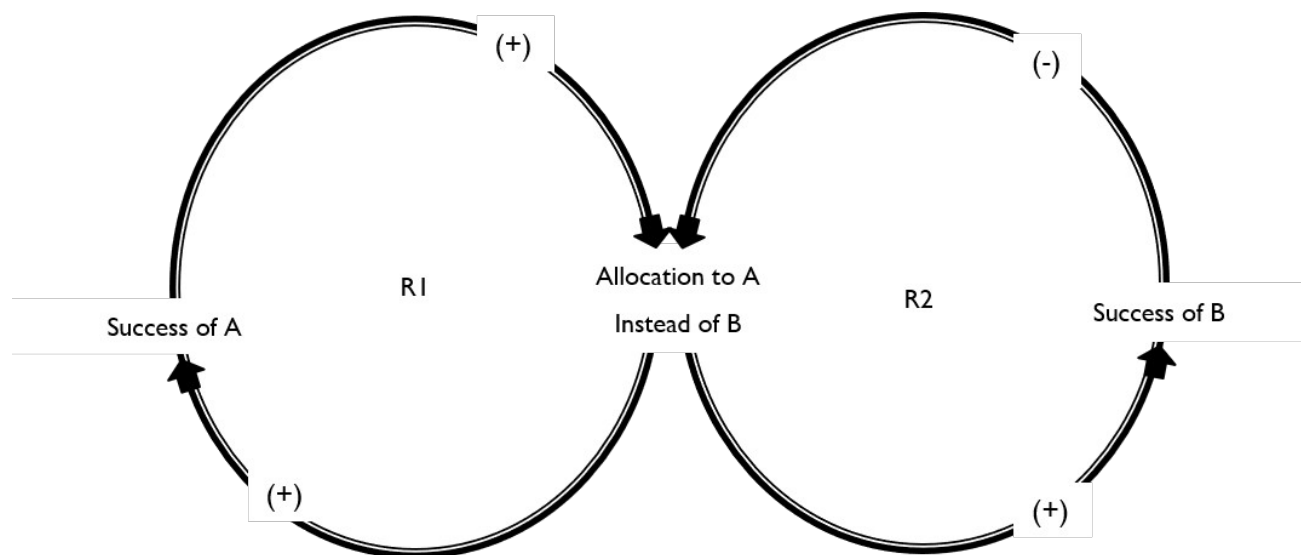


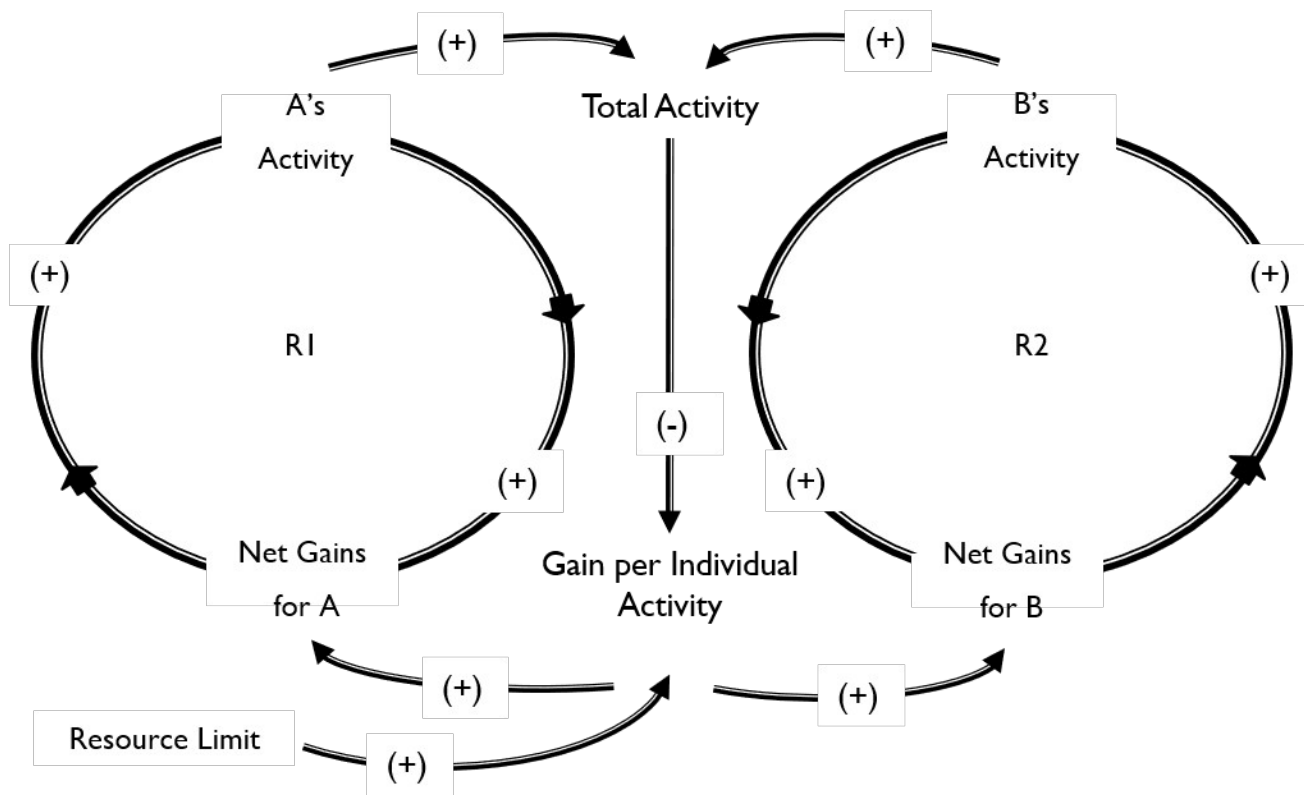
- Escalation can be found anytime there is strong competition in a marketplace.
- Each investment by Company A is seen as a threat by Company B, which in turn increases its own investment level. Company B's investment is seen as a threat by Company A...and the cycle continues. One company may win, but both may also lose.
- Leverage is found in differentiation.



5. SUCCESS TO THE SUCCESSFUL

- This Archetype describes the practice of rewarding for results. The problem arises when the underperforming area is not given the resources necessary to perform as needed since the resources are given elsewhere.
- The oversight occurs when we forget that resources help the successful get that way in the first place, and that the two are linked.





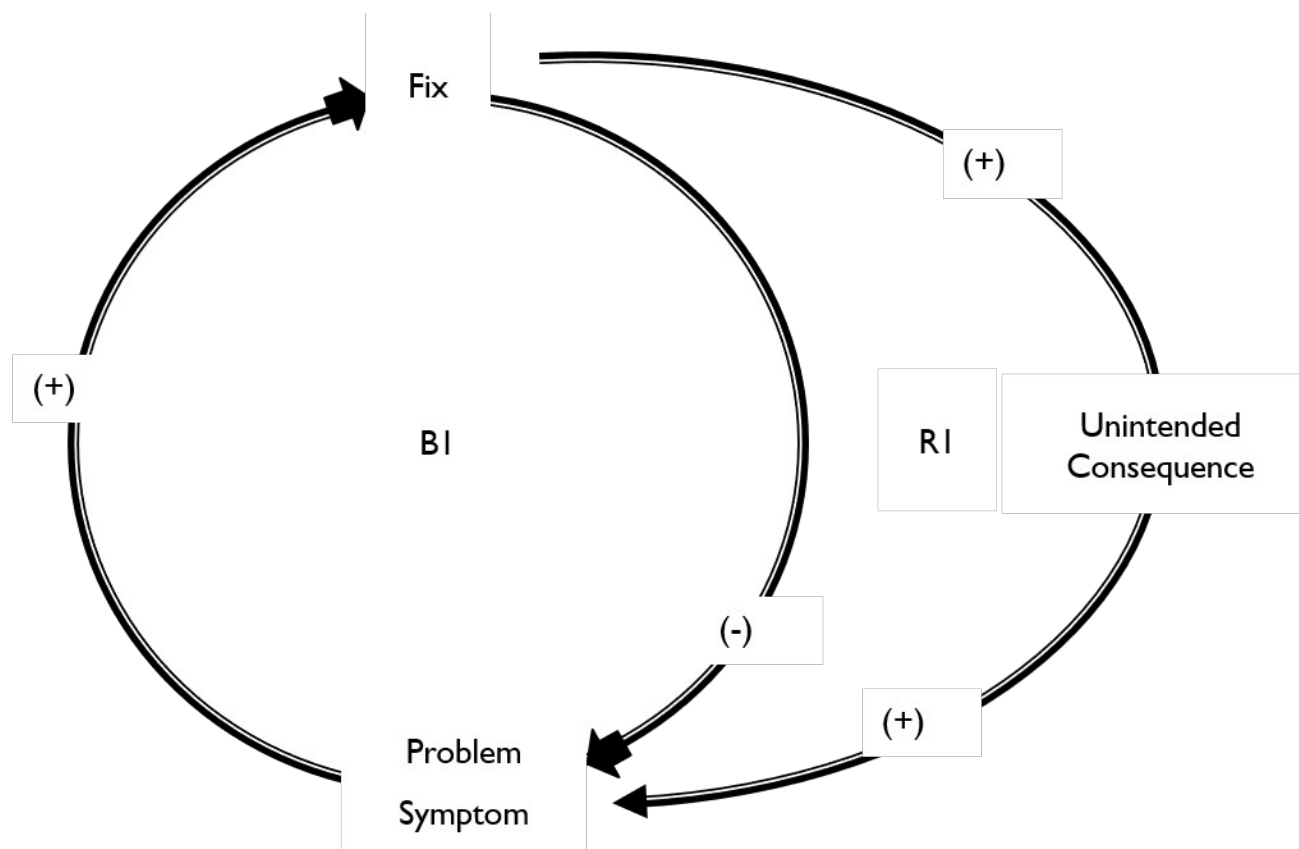
6. TRAGEDY OF THE COMMONS

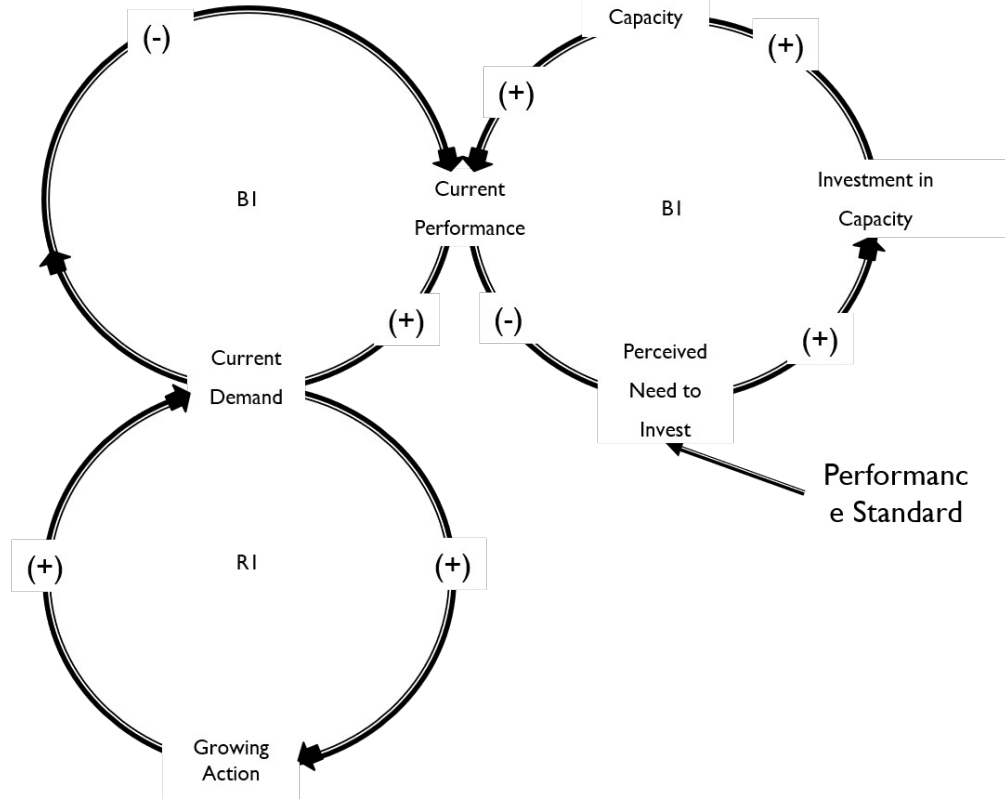
- This Archetype describes how resources that are made available to everyone (the Commons) can be stressed to the point of breaking. The organization is unaware of the demands placed by so many on the Commons, so demands are left unchecked.
- Leverage is gained by understanding the systems view and seeing where demands can be alleviated.



7. FIXES THAT FAIL

- Again, we see how a symptomatic solution is chosen over a systemic solution, but this time there are unintended consequences that keep us from experiencing at least some palliative relief.
- The unintended consequence of our actions exacerbates our initial problem, adding more problems and confusion to the situation.





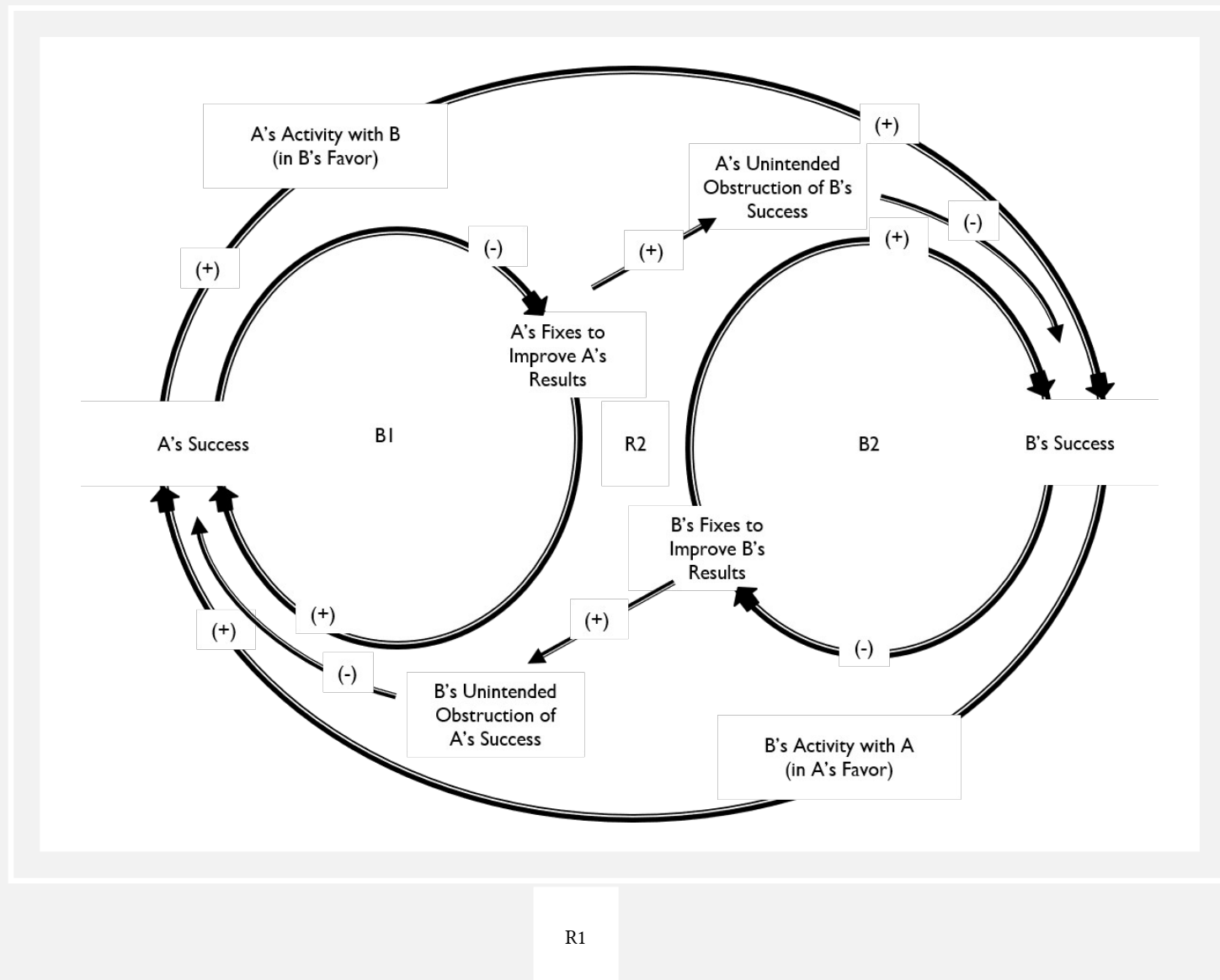
8. GROWTH AND UNDERINVESTMENT

- Similar to Limits to Growth in that the org. is trying to grow without addressing the limiting factor. Without the investment needed, the company sees a drop in demand, which fuels the speculation that more investment is not needed.
- Many people ask, “why throw good money after bad?”
- Example: in private practice, doctors have to decide between pulling money out of the practice or re-investing it.



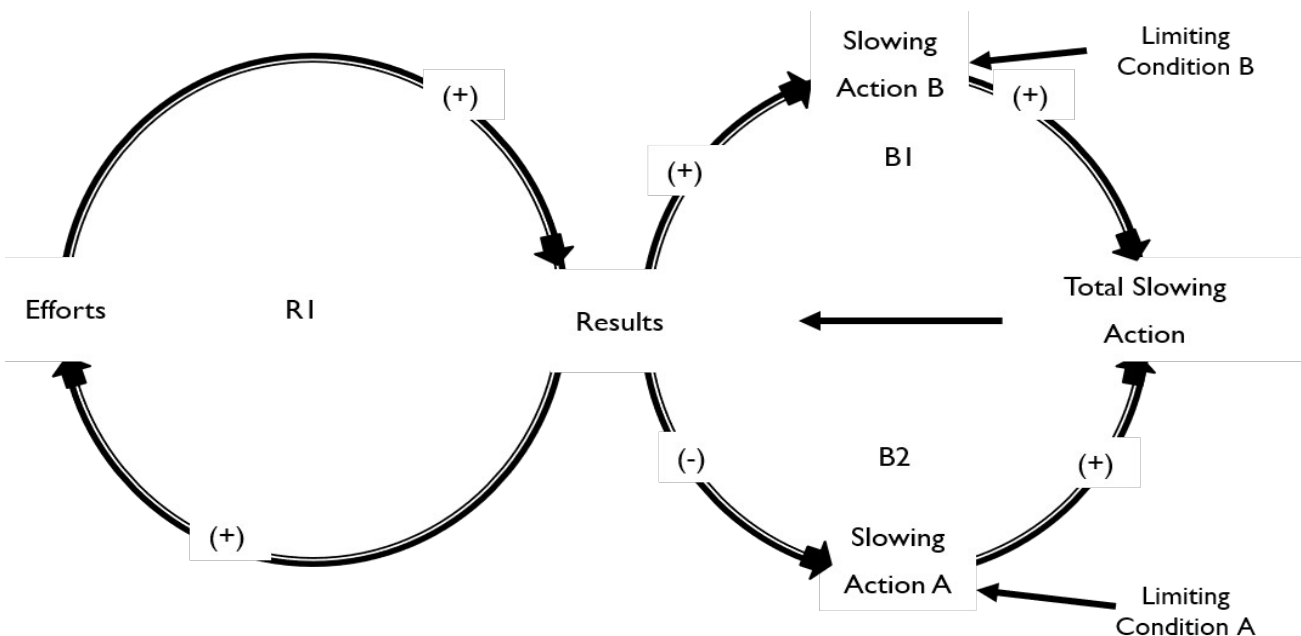
9. ACCIDENTAL ADVERSARIES

- This Archetype evolves in much the same way that Escalation does, but it starts differently. In the beginning, there is no competition between the two companies. Then Company A does something that Company B feels threatens their market share, so they feel inclined to retaliate.
- The leverage is to learn how actions are seen by others, and to recommit to shared ideals.





10. ATTRACTIVENESS PRINCIPLE



- In this Archetype, the growing action is subject to multiple slowing actions, each one representing an opportunity and an opportunity cost. The manager has to decide which one is the most attractive to pursue.
- The leverage is utilized when the manager realizes that many of these can be fixed at once if he finds the root cause and pursues a systemic fix instead of symptomatic one.



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