

Democracy’s Ultimate Challenge

Untying the Gordian knot of complexity of the global Problematique with root cause analysis

Jack Harich and Kyle Arscott ~ Thwink.org ~ June 29, 2026

For over fifty years, reformers have treated critical global problems as normal policy problems. Once the public and policymakers were presented with “evidence based” solutions based on case and comparative studies, statistical analysis, and simulation modeling, implementation would follow and these problems would be solved. This approach has failed. The report argues the reason is methodological. Conventional problem-solving processes are inadequate for the extreme counterintuitive complexity of the Gordian knot of problems now known as the global Problematique. Root cause analysis, wrapped in social force diagrams, can penetrate this fog of complexity and identify the root causes, high leverage points, and feedback loop structures required for solutions that work. The report illustrates the approach by analysis of the Problematique, supported by a controlled experiment testing a fundamental solution.

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Focusing on analysis of the Problematique, the report summarizes prior work by Thwink.org plus extensive work not published before. Principle prior works are:

Harich, J., & Rosas, M. (2026). **Democracy's eternal vulnerability: Increasing resilience to disinformation by raising the two components of political truth literacy.** *Social Sciences & Humanities Open*. – Using social force diagrams (SFDs), this analyzed the *Election of politicians not working for the common good* problem, presented the design and results of the Truth Literacy Training experiment, and focused on the role of disinformation in democratic systems.

Harich, J. (2022). **Cutting Through Complexity: The Engineer's Guide to Solving Difficult Social Problems with Root Cause Analysis, Process-Driven Problem Solving, and Model-Based Analysis.** *A Thwink.org publication*. This 490-page book presents the meta tool behind SFDs, the System Improvement Process, and applies it to the global environmental sustainability problem. Four subproblems, each with a root cause, are used to decompose the one big problem into analyzable smaller subproblems.

Harich, J. (2010). **Change resistance as the crux of the environmental sustainability problem.** *System Dynamics Review*, 26(1), 35–72. – Using RCA and simulation modeling, this broke new ground by decomposing the global environmental sustainability problem into two sequential subproblems: (1) How to overcome systemic change resistance and (2) How to achieve proper coupling of the human system to the greater system it lives within, the environment. The paper also identified Classic Activism, the standard method used by citizen groups to solve *all* activist problems, modeled the method, and showed why it fails on difficult problems.

Harich, J. (2006). **Can these best practices make the Club effective once again?** *Club of Rome Internal Newsletter*. – The newsletter [published](#) the opening page of the article and linked to the full article is [here](#). The article argued that since the Club's breakout project, *Limits to Growth* in 1972, the Club had become ineffective with no subsequent project successes, analyzed the problem, and recommended four key best practices.

Thwink.org is a small nonprofit “thwink tank” in the quiet, wooded suburbs of Atlanta, Ga, USA. Founded in 2001, its goal is:

To help solve the *complete* sustainability problem using the most efficient and effective methods of analysis available.

2. The eight problems cannot be solved individually due to *strong feedback loops*. Instead, one must analytically approach the Problematique as a [Gestalt whole](#), where due to part relationships, “the whole is other [greater] than the sum of the parts.”
3. Properties 1 and 2 combine to cause ultra-high *systemic change resistance*.

These properties explain why the Problematique has been so impossibly hard to solve. We argue that problems solvers of all kinds, including activists, NGOs, academics, and especially governments, are failing because they attempt to slice through the Gordian knot with bold sword strokes using conventional methods. Without a tool to map the structural forces at play, this produces superficial solutions that have little effect because they fail to consider the above properties. Much better would be *untying the knot by first removing the linchpin*, as Alexander the Great did. This reveals the structure of the knot and how it’s tied. After that it can relatively easily be untied.

The ultra-high complexity of the Problematique

Humanity is witnessing something new: connected global problems so large, novel, and complex that conventional approaches to solving them are powerless. That is precisely what the term “the global Problematique” was meant to convey when the problem was identified in 1970.

The eight problems have persisted for so long they are assumed by most to be unsolvable. Culturally, they have become part of the human condition and must grudgingly be accepted. Otherwise, one faces the agonizing fate of the Greek myth of Sisyphus, who was condemned to endless frustrating toil by forever pushing an immense boulder up a hill, only for it to roll back down as it reached the top. Seeking an explanation, social scientists have labeled these [wicked problems](#) (Rittel & Webber, 1973) and constructed a vast theory explaining why these problems are so diabolical that each is inherently unsolvable. From a [systems thinking](#) perspective, the Gordian knot of interconnections makes the collection of problems even more unsolvable.

One problem-solving effort after another has risen to the Sisyphean challenge and failed. For the environmental sustainability problem this began with *The Limits to Growth* (Meadows et al., 1972) simulation model and project (with many subsequent iterations and related studies), continued with potential breakthroughs like *The Death of Environmentalism* (Shellenberger & Nordhaus, 2004) which aimed to reinvent environmentalism), and culminated in the United Nations’s massive *Sustainable Development Goals Framework* (United Nations Staff, 2022, initiated in 2015) which provides 112 targets and over 10,000 actions for 17 problem areas). Similar efforts have attempted to solve the non-sustainability problems, generally by focusing on one problem at a time, such as the Council of Europe’s *Information Disorder: Toward an interdisciplinary framework for research and policy making* (Wardle & Derakhshan, 2017). This targeted democratic backsliding.



adapted from: *Dilemmas in a General Theory of Planning*
Horst W.J. Rittel and Melvin M. Webber (Policy Sciences, June 1973)

But alas. None of this has worked. *WHY is this?*

Because problem complexity exceeds the analytical capacity of conventional problem-solving processes.

Note the question. We are not asking WHAT is the solution, but WHY have all past solutions failed? What would explain that pattern? *That is the real problem to solve.*

Note the answer. This signals our point of departure from conventional wisdom, which attributes solution failure to reasons like high problem complexity, greed, Darwinian competition, the [IPAT equation](#) factors (population, affluence, and technology growth), lack of global government with decision making and enforcement power, the inherent insolvability of [wicked problems](#), and so on. However, as this report will show, none of these conjectures hold up under analytical scrutiny.

Fortunately, problems of high complexity have long been solved by industry. At the core of their approach lies the powerful tool of **root cause analysis** (RCA). RCA is the systematic practice of finding, resolving, and preventing the recurrence of the root causes of causal problems. RCA works by starting at problem symptoms and asking “WHY does this occur?” until the root cause(s) is found.

How RCA can be applied to the Problematique is the topic of this report. The main findings are:

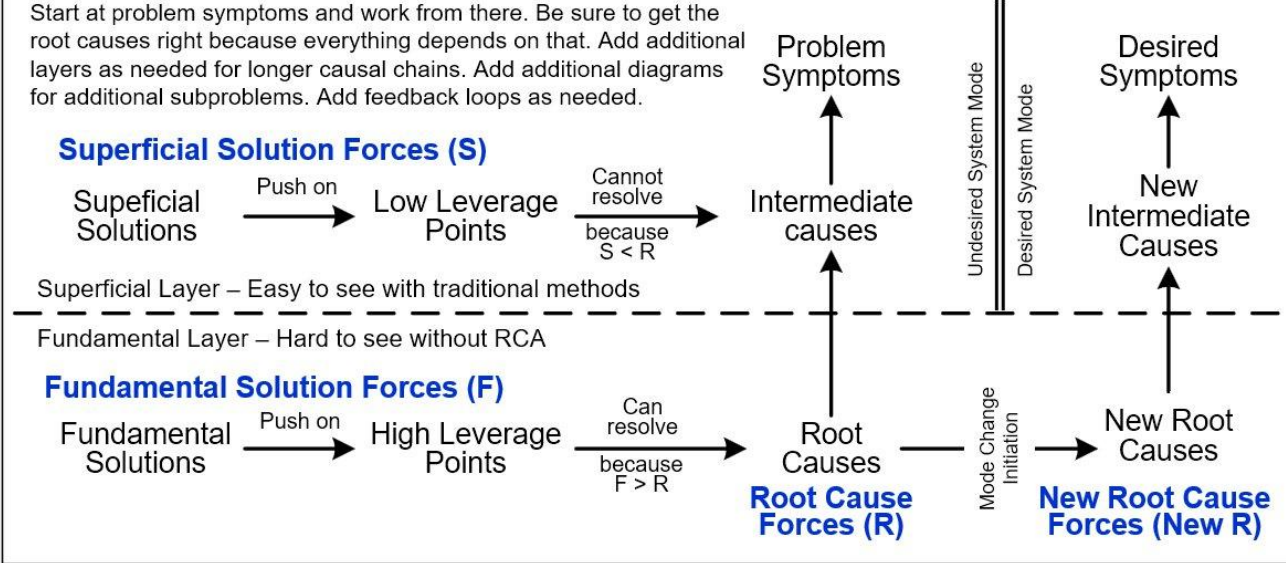
Methodology conclusions

1. The goal is not to solve the Problematique component problems perfectly, but to acceptable levels. Not all at once, but one or a few at a time, beginning with the most urgent *but still with an eye on the whole*. This will require a relentless focus on **continuous process improvement**, known as the philosophy of [Kaizen](#).
2. The Problematique exhibits **high dynamic complexity** (Sterman, 2000, pp. 5–23). Problems in this class are so counterintuitive they cannot be solved without deeply understanding their essential causal structure. Lacking this understanding, conventional solutions have been unable to address the emergent property of *systemic change resistance*.
3. Because of finding 2 and the long history of solution failure, we conclude conventional solutions are failing **because problem complexity exceeds the analytical capacity of conventional problem-solving processes**. Howlett (2009) frames this as the problem of low “policy analytical capacity [which contributes] to failure to effectively deal with many complex contemporary policy challenges.” Analytical capacity is one of the five core elements of “the problem-solving capacity of the modern state,” the others being delivery, coordination, regulatory, and management capacity (Lodge & Wegrich, 2014).
4. The analytical capacity gap can be closed with an RCA-based problem-solving process that fits the problem. The basic RCA process is generic and must be wrapped in a process suitable for a particular problem class. This has been done by development of **social force diagrams** (SFDs), a fill-in-the-blanks template framework for applying RCA to difficult large-scale social problems.

Social Force Diagram (SFD) Template

Showing the standard terms of root cause analysis and the four forces of social force diagrams: S, F, R, and new R. All four forces must be explained to create a complete comprehensive theory of the problem.

Start at problem symptoms and work from there. Be sure to get the root causes right because everything depends on that. Add additional layers as needed for longer causal chains. Add additional diagrams for additional subproblems. Add feedback loops as needed.



- By using a tool like SFDs to identify the causal structure of a problem, the linchpin is removed, **the fog of complexity is lifted**, and how the key nodes are tied together is revealed. After that, untying the Gordian knot is a systematic exercise of refining the analysis model (including successive experimentation and solution iterations) until the fundamental solution is so well engineered the system “wants” to stay in the solved mode indefinitely.

Analysis results

None of the results below have previously been reported in the literature and fill a large gap. Their discovery illustrates the power of RCA to probe the depths of system complexity and find what other methods cannot.

- RCA was applied to the Problematique. The main root cause is **low political truth literacy**. *As long as this remains low, democracy is vulnerable to disinformation attacks and the Problematique is unsolvable.*
- Using the four forces of SFDs, analysis results form a **comprehensive theory** that explains the past (why a myriad of solutions failed because they fell into the Superficial Solutions Trap, as explained on page 26) and predicts the future (how fundamental solutions can avoid the trap and resolve the main root cause).
- The theory contains three key hypotheses:
 - H1. The main root cause of low political truth literacy exists.
 - H2. The root cause can be resolved in a practical manner.
 - H3. $DTQ = LTQ \times AAQ$ models the core of political truth literacy reasoning.
Democratic Truth Quotient = Logical Truth Quotient x Appropriate Action Quotient.
 These hypotheses were tested with a proof-of-concept **controlled experiment** using Truth Literacy Training to teach LTQ and AAQ skills. Findings were positive and suggest that further research along these lines will be productive.

4. THE HIGHLIGHT OF THE ANALYSIS was discovery of **the equation $DTQ = LTQ \times AAQ$** . Simulation modeling and experimentation show that exercising political truth literacy is a two-step process. Both steps require training to move political truth literacy components (LTQ and AAQ) from low to at least medium and thereby resolve the main root cause. Surprisingly, no prior solution elements were found that do this, suggesting a potential breakthrough and a practical way to accelerate solution, since political truth literacy training is fairly fast, simple, inexpensive, and persistent. Much further research is required.

Recommendations

1. The top recommendation is the key long-term strategy. For difficult large-scale social problems, problem solvers must abandon conventional methods, which are largely based on intuition, expert opinion, statistics, case and comparative studies, and simulation modeling, and shift to the same tool adopted *en masse* by large-scale industry beginning in the 1980s: **RCA-based problem-solving processes**. RCA uses conventional methods and many more, but as supporting tools for the overall process. (George et al., 2004, 100 tools; Pyzdek, 2003, over 100 tools; Tague, 2023, 142 tools) Like all tools, RCA is not a panacea. It requires thoughtful, skillful application.
2. Of the eight problems in the Problematique, **the crux is democratic backsliding**. If that continues, all the other problems remain unsolvable. Authoritarians care only about themselves and power, not the common good. Like the melting of the icecaps or extinction of a species, an acute slide from democracy to authoritarianism is usually *irreversible*. Using data from 1900 to 2019, Boese et al. (2021) found that “once a democracy enters an autocratization episode, the fatality rate is distressingly high: since 1900 a mere 19 [out of 84] episodes (23%) managed to avert breakdown at the end of the episode.” Therefore, of all the problems, *solving the democratic backsliding problem must be the top initial process application priority*.
3. **Accelerated solutions are needed** due to the extreme urgency of some of the eight problems, particularly democratic backsliding and environmental sustainability.
4. Further research should focus on pushing on **the high leverage point of raise political truth literacy components (LTQ and AAQ) from low to at least medium**. This requires not just Truth Literacy Training, as demonstrated in the experiment, but additional solution elements. Examples are News Source Truth Ratings, Politician Truth Ratings, Continuing Truth Literacy Training in Journalism by making the deception mechanism a central part of the story, a searchable online database of AI generated fact-checks that can also be generated on request, a phone app to run the Personal Truth Test on a claim, and so on. AI will soon be able to do most of the work for some of these solution elements. Furthermore, AI-powered Truth Literacy Training using an educational tool like Khan Academy’s Khanmigo *is now feasible and can be rapidly implemented at low cost* (Tyrangiel, 2024).

THE GLOBAL PROBLEMATIQUE

The metaphor of the Gordian knot



Alexander the Great confronting the Gordian knot. A **linchpin** connects a cart shaft to a cross beam, which allows the two parts to pivot as the cart is driven. The painting shows how once the linchpin is pulled, the knot becomes loose and its ends are exposed. ([image source](#))

A **Gordian knot** is a metaphor for a highly complex, seemingly impossible problem to solve. “Cutting the Gordian knot” means solving such a problem in a single bold stroke with an innovative solution, rather than struggling to untie it.

The legend of the Gordian knot arose in ancient Greece, when Midas tied an ox cart to a cross beam using an intricate knot with its ends hidden, [described](#) as comprising “several knots all so tightly entangled that it was impossible to see how they were fastened.” An oracle later prophesied that any man who could untie the knot was destined to rule over all of Asia.

None could, until in 333 BC Alexander the Great confronted the knot. Two historical versions exist of how he “untied” it. According to one version, he reasoned that it made no difference *how* the knot was untied, causing him to draw his sword and slice the knot in half in a single swift stroke.

In the second version the future ruler of all of Asia *used brains instead of brawn*, by pulling the linchpin around which the knot was tied. This loosened the knot and exposed its ends, making it relatively easy to untie. The second version is more plausible since it was recorded by Aristobulus of Cassandreia, Alexander’s architect, engineer, and technical supervisor on his campaigns. In effect, *Alexander analyzed the system*. By simply pulling the linchpin instead of raising his sword, he released the tension of the knot binding the cart shaft to the cross beam, thus making the knot’s [structure](#) plain to see and easy to untie.

The story of the Gordian knot offers a powerful metaphor to how the interconnected global problems must be approached. No sword exists that can miraculously slice through them all or even one. Instead, we much do what Alexander the Great did, and *analyze the system*.

The eight interconnected problems

Today’s world confronts eight critical unsolved global problems:

1. **Environmental sustainability (including climate change)**
2. **Backsliding from democracy to authoritarianism**
3. **High inequality of income and wealth**
4. **War**
5. **Endemic government corruption**
6. **Recurring large recessions and depressions**
7. **Systemic discrimination of many kinds**
8. **The power of large corporations**

The first problem, if left unsolved will lead to global environmental collapse beginning sometime in the mid-21st century (Turner, 2012). The second problem, if left unsolved will lead to a world of authoritarian super-states in perpetual conflict, much like the dystopia described in [George Orwell’s 1984](#) where Oceania, Eurasia, and Eastasia were perpetually at war. The third problem leads to a world controlled by the rich and powerful, the so-called 1%, who by nature care little about the other 99%. The fourth problem leads to death, destruction, and suffering by far too many, with the constant risk of catastrophe, such as by nuclear, germ, or robotic warfare. And so on. (More problems could be included, but for simplicity we stopped at eight.)

What makes this class of problems so insanely difficult to solve is their interconnections. Once **environmental collapse** begins, states are too weak to devote large resources to solving any other

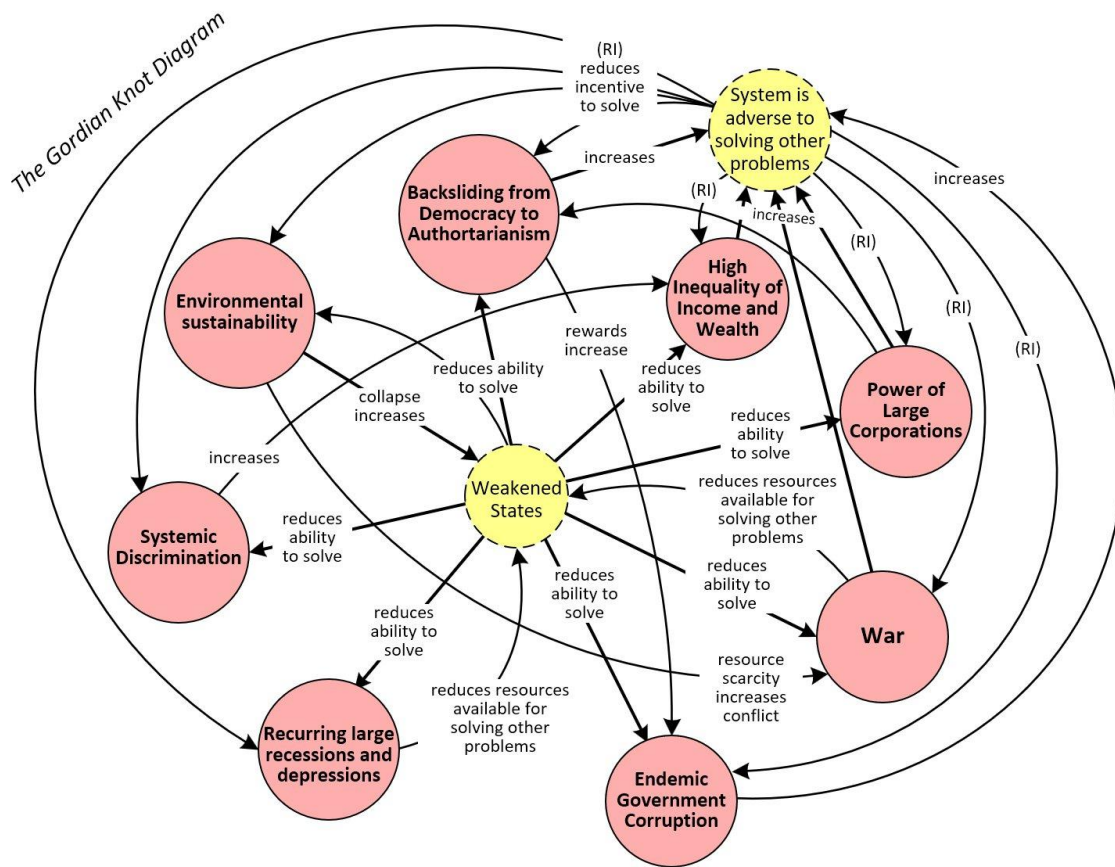
problems, and growing resource scarcity provokes conflict, which can lead to **war**. **Authoritarians**, the **super rich** (with rare exceptions), and **corrupt politicians** care only about themselves rather than the common good, and hence are adverse to solving the other problems. States at **war** or undergoing **economic pain** are unable to devote large resources to any other major problem. More **authoritarianism** increases **corruption**, since financial rewards are the main way autocrats reward and control their supporting economic elite. As the **power of large corporations** increases so does **corruption**, since that's how corporations control governments. So does **authoritarianism**, since large corporations and their owners are the main powerbase of modern authoritarians.

Systemic discrimination is always the fallacy of painting a false enemy, for the purpose of an enticing pillar in an ideology. If the ideology is political, which it often is, attention on that false enemy draws attention away from problems that really matter, and falsely justifies giving more power to a strong leader (a rising authoritarian) who can solve the non-existent problem. An example is the way the far-right in Europe and the US claims immigrants are taking over, taking away jobs, and bringing in more crime and drugs (none of this is true). This Gordian knot of relationships is illustrated below.

The Gordian knot examined

The Global Problematique

and its eight critical unsolved global problems



This is a high-level causal diagram rather than a causal loop diagram emphasizing feedback loops. The latter would be more revealing but also much more complex and harder to read.

Like the mythical Gordian knot, there is no visible end. There is only a complex bird's nest of relationships that make it terribly hard to determine how to solve the total problem. These relationships cause the structure of the Problematique to exhibit these key properties:

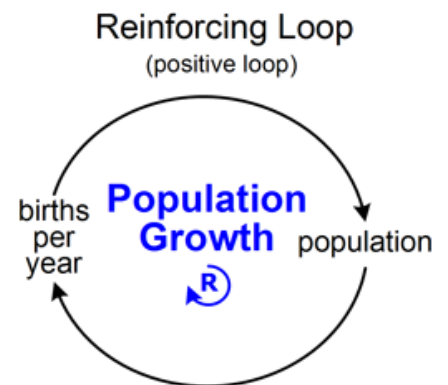
Property 1. The eight problems cause the emergent problems of *Weakened States* and *System is adverse to solving other problems*.

The arrows show how three problems, *environmental sustainability*, *recurring large recessions and depressions*, and *war*, directly increase *Weakened States*. Other problems cause increases in those three problems, such as the way *systemic discrimination* increases *high inequality of income and wealth*, which increases *System is adverse to solving other problems*, which reduces incentive to solve *systemic discrimination*.

In a similar manner, four problems increase *System is adverse to solving other problems*. *Backsliding from democracy to authoritarianism* increases it because autocrats care only about themselves and power. Authoritarians, the super rich, and large corporations (with rare exceptions) care only about themselves, power, profits, and wealth, rather than the common good. States at war are unable to devote large resources to any other major problem and tend to drag additional states into conflict.

Property 2. The problems cannot be solved individually due to *strong feedback loops*. These loops may be balancing or reinforcing. A reinforcing loop causes an increase in one problem to cause an increase in other problems. On the diagram, this leads to increases in the two yellow nodes, which causes systemic change resistance.

The right diagram shows a simple reinforcing [feedback loop](#). As *population* goes up, so does *births per year*. As that increases, so does *population*. The loop goes round and round over time, causing exponential Population Growth.



Let's trace one reinforcing loop in the Problematique diagram. As the *power of large corporations* increases, so does *system is adverse to solving other problems*. That in turn increases the *power of large corporations*. But it also reduces incentive to solve the *environmental sustainability* problem, which increases *weakened states*, which reduces the ability to solve the *power of large corporations* problem. Analysis reveals the diagram contains many such feedback loops, each of which causes the system as a combined whole to strongly and cleverly resist solution. Balancing loops also exist, but these have been omitted for simplification.

Property 3. Properties 1 and 2 combine to cause ultra-high *systemic change resistance*.

This emergent property of the system *is the central reason traditional solutions fail*. Systemic change resistance and its role in the sustainability problem was examined in [a 2010 Thwink.org paper](#): *Change Resistance as the Crux of the Environmental Sustainability Problem*. The paper defines **systemic** as “originating from the system in such a manner as to affect the behavior of most or all social agents of certain types, as opposed to originating from individual agents.”

Because these properties are poorly understood, *most problem-solving efforts focus only on one problem at a time and ignore the others and their relationships*. This dooms single problem solutions to inexplicable failure. That, unfortunately, is the present state of where most NGOs, academics, and governments are on solving these problems, despite what a quote related to *The Predicament of Mankind* urges below.

These three properties explain why the Problematique has been so impossibly hard to solve and why a radically better problem-solving process is required.

Naming the problem

What would be a good name for this class of difficult large-scale social problems? Rather than call it Civilization's Gordian Knot, we can turn to [The Club of Rome](#), which identified and named the problem in 1970 as **the global Problematique**. The club commissioned *The Predicament of Mankind*, a 72-page foundational research proposal which named the problem:

[The Predicament of Mankind](#) ...was put together under the towering leadership of [Prof] Hasan Ozbekhan, probably one of the best systems thinkers of the 20th century. It described very eloquently the predicament of mankind. It identified approximately 50 Continuous Critical Problems, which on account of their strong interactions should not be addressed in a piecemeal fashion. Such problems as the "pollution problem," the "inner city problem," the "poverty problem," the "starvation problem," the "nuclear proliferation problem," the "population growth problem," and so on, are strongly interconnected, contributing to the emergence of a new entity called in the proposal the global Problematique.

The concept and the name Problematique appeared for the first time in the Club of Rome proposal. *The proposal recognized and described the futility of addressing these problems in a piecemeal fashion, instead of addressing them as a system of problems.* It proceeded to conceptualize and articulate very elegantly a philosophical, methodological, and institutional framework for penetrating and resolving the global Problematique.

(The source for this quote, http://quergeist.net/Problematique_Club-of-Rome.htm, no longer exists. However, it continues to be an accurate description. The exact number of listed Continuous Critical Problems was 49.)

The problem was named on page 7:

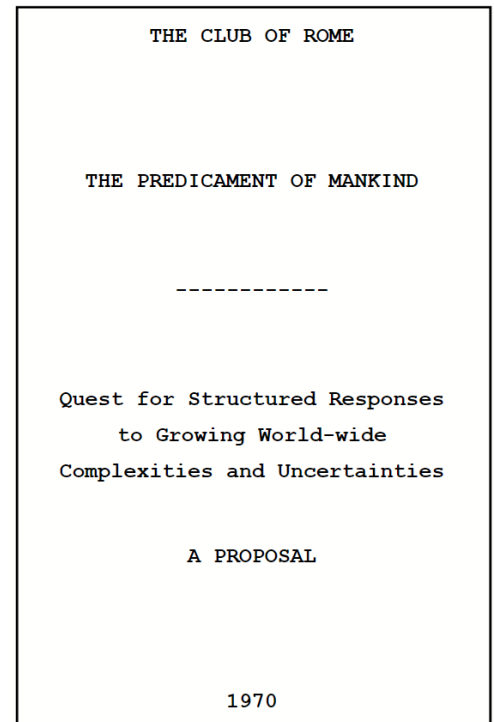
It is the aim of this particular project of the Club of Rome to turn the above assumption into a positive statement, by trying to cognize and investigate the all-pervasive **problem-*atique*** which is built into our situation, through some new leap of inventiveness.

And pursued beginning on page 8:

Such then is *the predicament of mankind*, and the object of this document is to describe, in terms that are perforce still somewhat cursory, what can be done now, the issues that must be addressed, the organization of the needed effort, its scope and its program, the methods of investigation that appear pertinent and the outcomes which, a priori, one might hope for.

Striving for a breakthrough analysis of the Problematique began on page 9:

It is their belief [the Club of Rome] that *only an effort which strives to go beyond "conventional wisdom" and methodological orthodoxy can allow us to perceive the complex dimensions of the problematique of our age*, and thus set the stage for the formulation and development of the long-term options and alternative outlooks needed for policy-making.



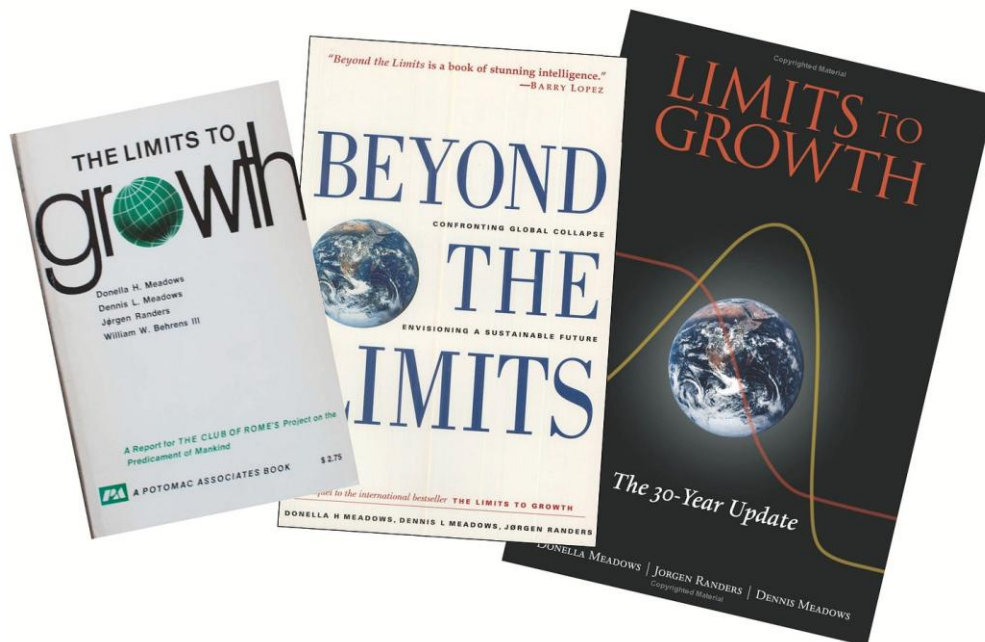
CUTTING THROUGH COMPLEXITY WITH ROOT CAUSE ANALYSIS (RCA)

Global society faces a staggering array of high-impact common good problems that have gone unsolved for fifty years or more, except for backsliding which began around 2015. This class of problems, identified in 1970 as **the global Problematique**, includes these eight highly interconnected problems:

1. **Environmental sustainability (including climate change)**
2. **Backsliding from democracy to authoritarianism**
3. **High inequality of income and wealth**
4. **War**
5. **Endemic government corruption**
6. **Recurring large recessions and depressions**
7. **Systemic discrimination of many kinds**
8. **The power of large corporations**

Fifty-six years later, none of these problems have been solved. WHY is this?

It is certainly not for lack of trying. Nor is it for lack of brilliance. These problems have attracted many of the sharpest minds on the planet, who have worked tirelessly for decades to solve them. They have educated the public about the magnitude and urgency of the problems, and what solutions would work *if* implemented. They have lobbied and cajoled politician after politician. They have organized and written countless articles and books, many based on in-depth well-managed long-term research projects, with the three editions of [*The Limits to Growth*](#) in 1972, 1992, and 2004 being the prime example.



But none of this has worked. So again, WHY has society been unable to solve the problem?

The report argues the reason is extreme problem complexity. The complexity of this class of problems vastly exceeds the analytical capacity of current problem-solving methods, which rely mainly on intuition and expert judgement, supplemented with tools like simulation modeling, correlation analysis, case studies, and experimentation. This approach works well for less complex problems. *However, it fails when faced with problems of ultra-high complexity.*

This failure has been total. Not a single one of the eight problems has even a glimmer of a successful solution in progress. Most are getting worse, particularly the environmental sustainability problem. This caused the authors of the third edition of *Limits to Growth* in 2004 to sound a dire warning:

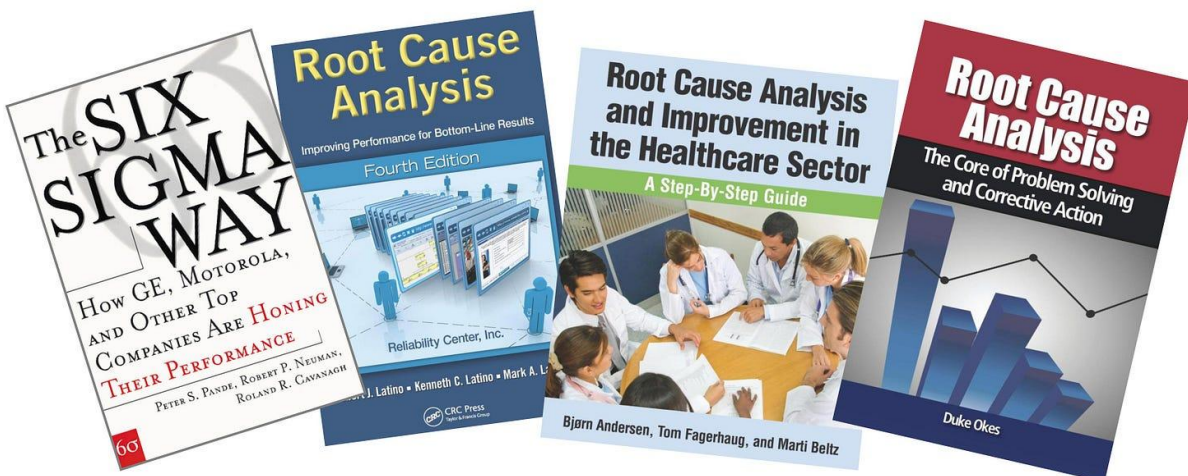
... we are much more pessimistic about the global future than we were in 1972. It is a sad fact that **humanity has largely squandered the past 30 years** in futile debates and well-intentioned, but halfhearted responses to the global ecological challenge. We do not have another 30 years to dither. Much will have to change if the ongoing overshoot is not to be followed by collapse during the twenty-first century. (p xvi)

Where the researchers behind the *Limits to Growth* project erred was this key assumption: *When the world was presented with a simulation model convincingly showing that unless environmental impact was radically reduced, collapse is unavoidable, world leaders would take appropriate action.* All activists needed to do was raise awareness of the problem and prove the crisis exists, and solution would follow.

That was a false assumption, because it ignored [systemic change resistance](#). Because of this the system resisted change and humanity squandered not just the 30 some years leading from 1972 to 2004, but the 54 years from 1972 to 2026. The problem solving process used, [system dynamics simulation modeling](#) driven by intuition, expert opinion, and [systems thinking](#), was inadequate because the process could not accommodate the problem's ultra-high complexity.

If you can't solve a problem, turn to those who can

Fortunately, problems of high complexity have long been solved by industry. At the core of their approach lies the powerful tool of **root cause analysis (RCA)**. RCA solves causal problems by finding and resolving their root causes. A **causal problem** occurs when problem symptoms have causes, such as illness or a car that won't start. Examples of non-causal problems are information search problems (such as scientific discovery or crime solving), math problems, and puzzle solving. The golden rule of RCA is *All causal problems arise from their root causes.*



RCA works by starting at problem symptoms and asking “WHY does this occur?” until the root causes are found. A **root cause** is the deepest cause in a causal chain (or the most basic cause in a feedback loop structure) that can be resolved with practical solutions, without side effects that create other equal or bigger problems. **Resolved** means the problem will probably not recur due to that root cause. **RCA** is the systematic practice of finding, resolving, and preventing recurrence of the root causes of causal problems.

While the business world uses RCA mainly to maximize profits, RCA is applicable to any problem type. NASA uses it to increase safety. Hospitals use it to improve quality of care. Social scientists have used it for finding the root causes of health inequity (Weinstein et al., 2017), finding the root causes of racial disparity (Conley et al., 2024), and finding the root causes of biodiversity loss (Wood et al., 2000).

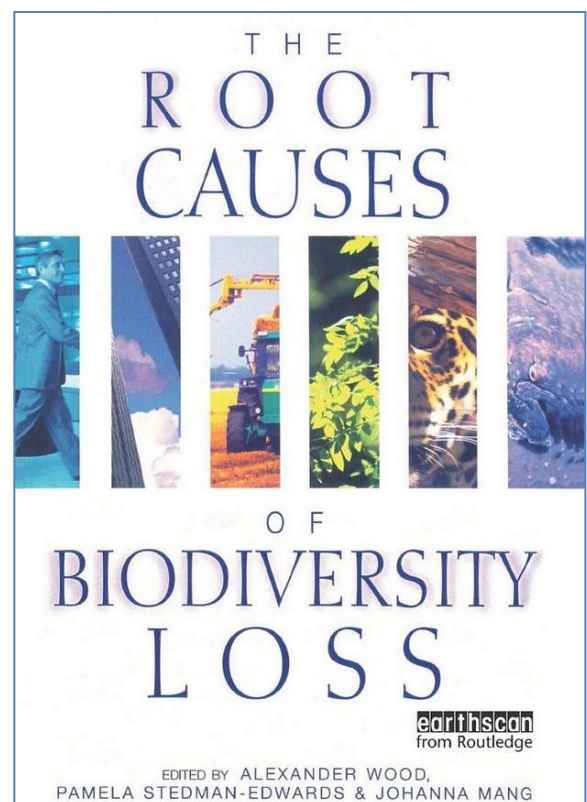
However, social problem application is rare and results have been meager. None of the three social science applications listed above led to major impact. Why? As you might have guessed, because no RCA was actually used, *even though all claimed to be finding root causes*.

For example, *The Root Causes of Biodiversity Loss* (Wood et al., 2000), a book reporting on a World Wildlife Fund project, was the closest we came to finding a true application of RCA to a social problem. It utilized “a framework for analyzing socioeconomic root causes of biodiversity loss” (p11) with these steps:

1. Perform a literature review to find the first hypothesis of the root causes.
2. Develop a first iteration conceptual model of the problem using these root causes.
3. Collect data to complete the model.
4. Revise the model as needed when new data disagrees with the model until the model is stable and complete.

The book defined **root cause** as “the set of factors that truly drive biodiversity loss, but whose distance from the actual incidence of loss, either in space or time, makes them a challenge to identify and remedy.” (p3) But nowhere in this definition or the four steps is the Five Whys practice of asking “WHY does this occur?” until the root causes are found. Instead, analysts are searching for “factors that truly drive biodiversity loss,” with no method of finding those factors other than intuition and “perform a literature review.” *If a problem has not been solved, how can analysts realistically expect to find the correct root causes in the literature?* All they are likely to find is intermediate causes or wrong root causes.

That was the case here. Page 62 contains a table of the 13 “common causes” found. These are population growth, poverty, immigration, inequality, isolation/marginalization, cultural changes, macroeconomic policies, international trade policy, **policy failures**, domestic market factors, poor environmental law/weak enforcement, unsustainable development projects, and lack of local control over resources.



True RCA requires inspection of the actual system, not the literature. The causes found are a fairly arbitrary collection of intermediate causes and were intuitively derived, despite the process and many conceptual model diagrams. One cause, policy failures, cannot be a cause because policies are solutions, not causes. Saying policy failures is a root cause is the same as saying “Our policies are failing because of policy failures,” which is the circular reasoning fallacy.

All efforts to apply RCA to social problems we examined were similarly weak. Why? Because none used an RCA wrapper process that was tailored to fit difficult large-scale social problems and performed true RCA. The 4-step process above is not true RCA and is not tailored to social problems.

Wrapper processes

The basic RCA process is generic and must be wrapped in a process suitable for a particular class of problems. Examples of widely used **wrapper processes** are:

1. **Six Sigma** for process control (Pyzdek, 2003). Six Sigma uses statistical techniques and other tools to identify and resolve root causes of process defects. Six Sigma is so popular it’s been institutionalized in the form of international standards, certifications, and levels of practitioner competency: white belt (awareness), yellow belt (foundational), green belt (project leadership), black belt (change leader), and master black belt (enterprise strategy).
2. **Lean** for manufacturing (Womack et al., 1990). Lean is a direct copy of the [Toyota Production System](#), widely acknowledged as the most advanced RCA-based large-scale process in the world.
3. **MECE issue trees**, the tool used by the world’s top three business managements consultancies (McKinsey, Bain, and BCG) for the world’s toughest business management problems (Chevallier, 2016). MECE stands for mutually exclusive, collectively exhaustive, and is a diagram-based decision tree process for systematically searching a problem for its root causes.
4. **Fault tree analysis** (FTA) for system failure incidents (Ericson, 1999). FTA is a form of failure analysis, such as airplane accidents, in which the undesired state of a system is methodically examined to pinpoint the root causes of failure. FTA can also be used in system design for failure prevention, and is widely used in aerospace, nuclear power, chemical and process, pharmaceutical, petrochemical and other high-hazard industries.

RCA-based processes have proven so effective that Six Sigma, invented at Motorola in 1986, is used by 100% of aerospace, motor vehicle, electronics, and pharmaceutical companies in the Fortune 500 and 82% of all companies in the Fortune 100 (Marx, 2007). Lean, based on the Toyota Production System perfected by Toyota beginning in the 1950s, has become the global best practice for large-scale manufacturing (Nguyen, 2018).

Large scale industry’s commitment to RCA-based processes is so total that we can draw this insightful conclusion:

An extraordinary claim

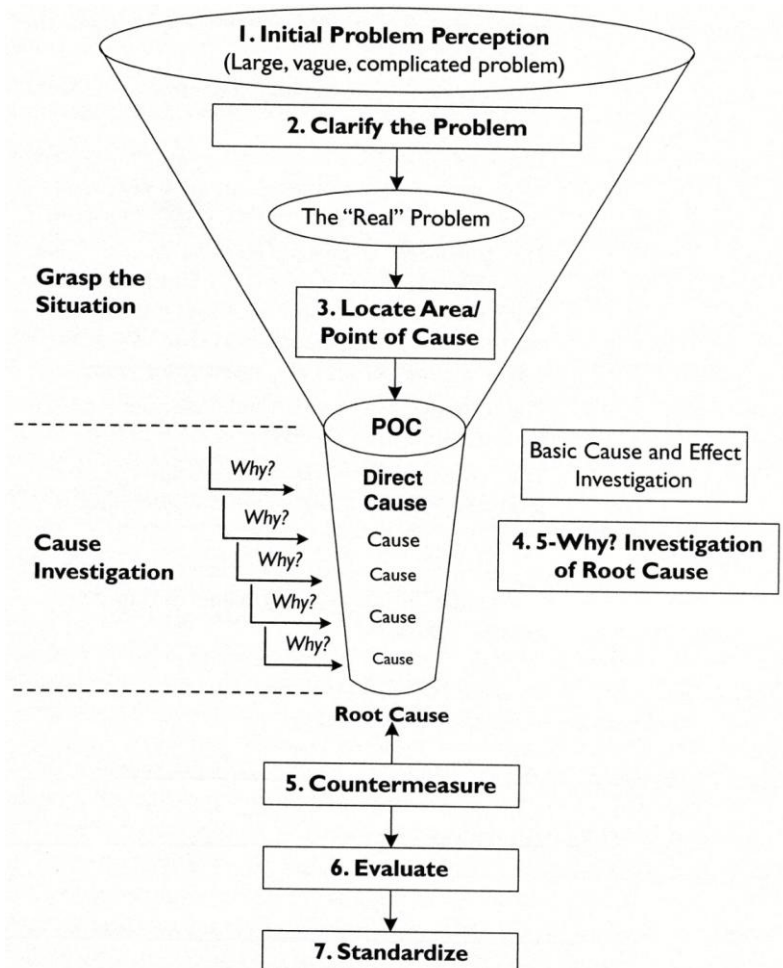
RCA-based processes are the only known method for consistently creating high-quality low-cost products and services of any type at large scale.

That's an extraordinary claim. The **high-quality portion** of the claim follows logically. Governments and large corporations are both in the business of doing the same thing: creating high-quality low-cost products and services of any type at large scale for their customers. For governments the customer is citizens. Creating products and services at large scale requires a production process. The quality of a process is measured by defects per opportunity to please the customer. *All defects arise from root causes and only from root causes.* As the root causes of defects are resolved a process is continuously improved, until extraordinary high levels of quality are achieved. This outcome is guaranteed if the RCA-based process is properly applied, and ultra-high levels of quality are routinely achieved. From this follows the high-quality portion of the claim.

The **low-cost portion** follows historically. Formal RCA originated with the “King of Japanese Inventors,” [Sakichi Toyoda](#) (1876-1930), in the early twentieth century when he formalized how he applied RCA with the now ubiquitous [Five Whys](#) method (Imai, 1986, p. 50). Use of RCA in Japan spread and began to mature, and received an enormous boost with arrival of [W. Edwards Deming](#) in 1947, who introduced a well-structured component for continuous process improvement (Gabor, 1990, p. 20,74). This was the **PDCA cycle** (Plan, Do, Check, Act), aka the Deming Cycle or Shewhart Cycle, with RCA occurring mainly in the Plan step (Patel & Deshpande, 2017).

Shown is “Toyota’s practical problem-solving process”, from [The Toyota Way](#), by Jeffrey Liker, 2004. p 256. As simple as the diagram is, it summarizes the heart of the most impactful production process ever invented: the Toyota Production System.

The combination of RCA and PDCA is now known as modern process control, aka **RCA-based continuous process improvement**. *This was the new process that solved industry’s most difficult problem at the time: how to consistently mass produce complex products and services of very high quality and low cost, a problem that had*



existed since the dawn of the industrial revolution. The problem had never been solved in the West, even with its large-scale mass production systems and Henry Ford's perfection of the high-volume moving assembly line. Combining RCA with PDCA allowed process control theory to at last move from its fourth stage of process maturity, *statistical quality control* using control charts and other techniques, to the all-important fifth stage, *total quality control* (Feigenbaum, 1991, pp. 15–17). In the fifth stage, the PDCA cycle integrated statistical quality control with RCA to drive specific continuous process improvements in a manner so efficient and effective that mass production of very high-quality products and services at low cost was now possible. *This had never been achieved before and was revolutionary.* The new process was swiftly adopted by industry after industry, beginning with the automobile manufacturing in the form of lean.

No other method has been found that comes remotely close to the quality and cost results obtained by RCA-based processes. From this follows both the high-quality and low-cost portions of the claim.

The invention of root cause analysis (RCA) and the Five Whys

How RCA and the Five Whys were invented by Sakichi Toyoda and how the Five Whys work is described by Taiichi Ohno (1988) in *Toyota Production System: Beyond Large-Scale Production*. This is deeply insightful material, so we cover it at length. As you read, notice how the Five Whys is generic. This explains why a wrapper process is required for each problem type.

While still a young man, Toyoda developed the habit of consciously asking WHY something occurred until he arrived at its true root cause. The habit appeared in his youth when he was 20 years old. “Sometimes, I would spend all day watching the grandmother next door weaving. I came to understand the way the weaving machine worked.” (p77) Toyoda wasn't understanding how the machine worked in the normal sense. He was silently asking himself WHY certain things happened. WHY, for example, was hand looming necessary? Couldn't it be replaced by machine looms?

Toyoda went on to invent the most efficient machine loom in the world because he kept asking WHY. Early power looms were plagued by tread breakage, which necessitated one operator per machine. Toyoda asked WHY they were breaking. The causes were too numerous to completely control, so he asked a deeper WHY question: WHY is so much material and operator time wasted once thread breakage occurs? The correct answer, because the machine did not automatically stop, was a technical breakthrough. That insight, combined with additional loom improvements based on other WHY questions, *quickly led to a 20-fold increase in productivity* in Toyoda's power looms compared to all previous looms.

The Five Whys

Toyota's method became known as the **Five Whys**. The method asks "WHY does this occur?" until the root cause(s) of a problem is found. "When a problem arises... we repeatedly ask *why*. This is the scientific basis of the Toyota system." (p18) The beauty of the Five Whys is it can be applied by anyone, anytime, to any causal problem. The trick is to not stop until you've found the true root cause(s). This rule is so crucial that Taiichi Ohno famously begins chapter two (p17) this way:

Evolution of the Toyota Production System

Repeating *WHY* Five Times

When confronted with a problem, have you ever stopped and asked *why* five times? It is difficult to do even though it sounds easy. For example, suppose a machine stopped functioning:

1. *Why* did the machine stop?
There was an overload and the fuse blew.
2. *Why* was there an overload?
The bearing was not sufficiently lubricated.
3. *Why* was it not lubricated sufficiently?
The lubrication pump was not pumping sufficiently.
4. *Why* was it not pumping sufficiently?
The shaft of the pump was worn and rattling.
5. *Why* was the shaft worn out?
There was no strainer attached and metal scrap got in.

Repeating *why* five times, like this, can help uncover the root problem and correct it. If this procedure was not carried through, one might simply replace the fuse or the pump shaft. In that case, the problem would recur within a few months.

To tell the truth, the Toyota Production System has been built on the practice and evolution of this scientific approach. By asking *why* five times and answering it each time, we can get to the real cause of the problem, which is often hidden behind more obvious symptoms.

Why RCA works so well on complex problems

The Gordian knot of interrelationships in large complex social systems leads to the phenomena of dynamic complexity. This causes **counterintuitive system behavior** that is so unpredictable the system cannot be understood without identifying its essential cause-and-effect structure. John Sterman (2000), in *Business Dynamics: Systems Thinking and Modeling for a Complex World*, examines this behavior. Page 22 describes how **dynamic complexity** arises because complex social systems are constantly changing, tightly coupled, governed by feedback loops, nonlinear, history dependent, self-organizing, and endlessly adaptive.

These characteristics work together to produce problems so complex and counterintuitive it is little surprise they cannot be correctly analyzed without using an RCA-based problem-solving process to identify the essential cause-and-effect structure of the system. This changes one's mental model

Stage 2. A **gray box model** knows some of the relationships between inputs and outputs. Some of the essential causal structure is known but not all, so much walking of the solution landscape using trial-and-error is still required. Simulation modeling usually builds a gray box model by starting at symptoms and building a model that mimics those symptoms “for the right reasons.” These models always include some of the intermediate causes, because otherwise they would be unable to generate symptom behavior. However, they tend to not include the root causes because root cause analysis is not employed. Despite its sophistication and innovation, the *Limits to Growth* simulation model is a stage 2 model.

Stage 3. In a **glass box model** you can “see” the entire essential causal structure of a problem. For example, after Newton discovered gravity and the mathematical laws governing the movement of bodies, astronomers had a glass box model of the universe’s motion behavior. They could now accurately predict where heavenly bodies would be in the future (the effect) given their present location, speed, and other bodies whose presence affected them (the causes). As a second example, once a doctor starts with a patient’s symptoms, asks assessment questions, performs an examination, runs tests as needed, and determines the root causes, they have a glass box model of the problem and can confidently proceed with treatment. A glass box model provides a correct and sufficiently complete explanation of the relationship between causes and effects. The analysis and simulation model in the paper this article reports on is a stage 3 model, though further research is needed.

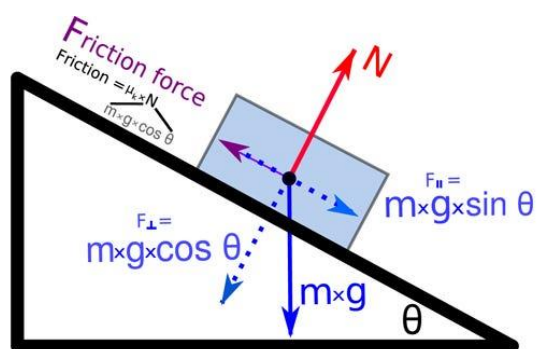
RCA works well on complex problems because RCA is explicitly designed to build glass box models with ease. Once the paradigm of RCA-based problem solving is grasped, you will easily see why all large-scale industries have turned to RCA-based processes, and why all those working on difficult large-scale common good problems should do the same.

APPLYING RCA TO SOCIAL PROBLEMS WITH SOCIAL FORCE DIAGRAMS

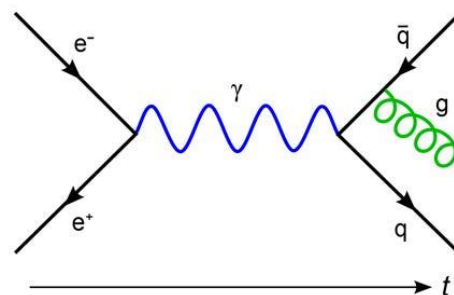
RCA is not a panacea. Thoughtful, methodical application is required. Crucially, so is a process wrapper that fits the problem type since basic RCA is generic. For difficult large-scale social problems, no suitable wrapper was found in the literature or examination of industrial practices so we were compelled to develop one. This is a common occurrence on novel problems. For example:

After extensive review, NASA found that *none of the commercially available tools and methods would support a comprehensive root cause analysis* of all the unique problems and environments NASA faces on the Earth, in the ocean, in the air, in space, and on moons and planetary bodies. Existing tools were designed for a specific domain (e.g., aviation), a specific type of activity, a specific type of human error (e.g., errors of omission) or had a limited set of cause codes. The NASA RCAT [Root Cause Analysis Tool], a paper-based tool with companion software (now available free to government Agencies and contractors), was designed to address the shortcomings identified in existing tools. (Uusitalo, 2011, p. 73)

In our case, the wrapper must support clear understanding of the important causal forces in difficult complex large-scale social problems. Other fields have the same requirement for their problems: *What are the important forces at play?* Some fields pose a second question: *How can the key forces best be visually represented?* The answers are illustrated below for Newtonian physics and quantum reactions.



Newtonian free body diagram for block on an inclined plane.



Feynman diagram for describing a quantum reaction.

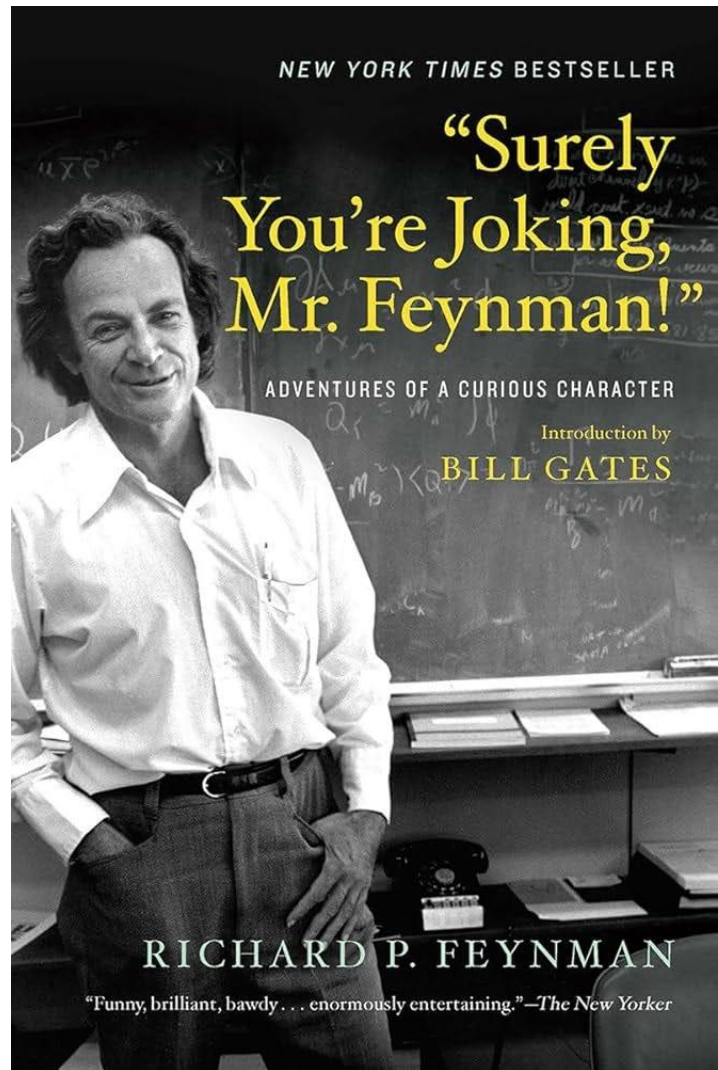
Sir Isaac Newton's pioneering discovery of the three laws of motion and universal gravity accomplished far more than laying the foundation for physics. *It also demonstrated the need to think in terms of standard forces for developing standard approaches to solving problems.* On the left, a [free body diagram](#) of combined forces shows how a friction force (F) may be calculated, given the coefficient of friction (μ), a body's mass (m), the gravitational constant (g), and the inclined plane angle (θ). The formula is $F = \mu \times m \times g \times \cos \theta$.

The right diagram shows how a [Feynman diagram](#) may be used to explain how an electron (e^-) and a positron (e^+) annihilate when meeting, producing a photon (γ), which becomes a quark-antiquark pair (q and \bar{q}), after which the antiquark radiates a gluon (g). Feynman diagrams allowed theoretical physicists to rapidly think through problems that previously could only be approached with pages of arcane calculations.

In the hands of a postwar generation, [Feynman diagrams were] a tool intended to lead quantum electrodynamics out of a decades-long morass. ... *With the diagrams' aid, entire new calculational vistas opened for physicists.* Theorists learned to calculate things that many had barely dreamed possible before World War II. It might be said that physics can progress no faster than physicists' ability to calculate. Thus, in the same way that computer-enabled computation might today be said to be enabling a genomic revolution, Feynman diagrams helped to transform the way physicists saw the world and their place in it. (Kaiser 2005)

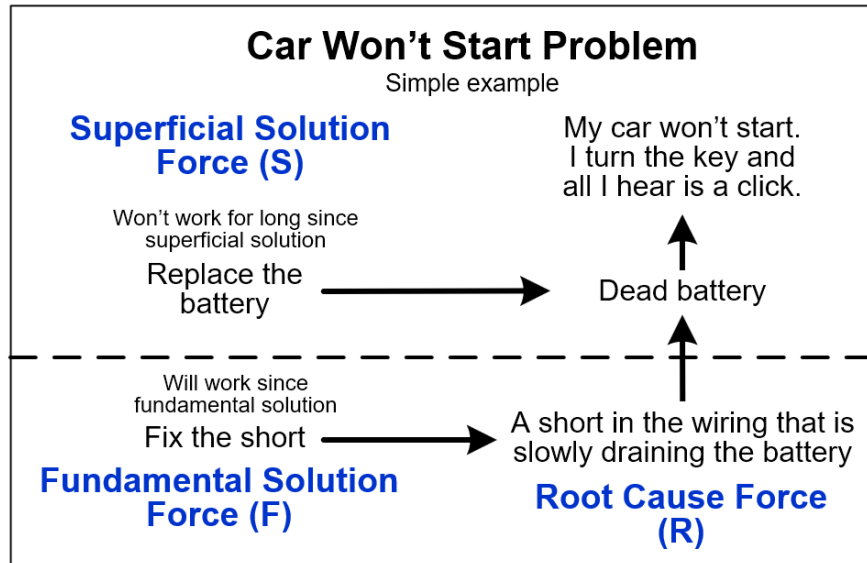
Feynman shattered the stereotype of the stuffy out-of-touch-with-reality scientist. He moved to Rio de Janeiro in 1951 for his sabbatical just to learn samba and the bongos, and marched in samba parades. While at the Manhattan Project in Los Alamos from 1941 to 1945, he ingeniously learned how to open safes containing top secret material, and then performed prank after prank. At the Challenger disaster hearing in 1986, while TV cameras were rolling he astonished all by asking for a glass of ice water and forceps, and then demonstrated how the rubber O-ring seal leak was easily caused by near freezing air temperatures, which indeed had occurred during launch. His ingenuity knew no bounds!

The process wrapper must do what Newtonian and Feynman diagrams did: **visually portray the key standard forces of a problem** in such a manner that solving the problem becomes a matter of methodically applying the tool to identify the standard forces at play.



How social force diagrams (SFDs) work - Simple example

Below is a simple problem analyzed using SFDs. The essential causal structure has been identified. SFDs show the most important forces in a problem, which here are S, F, and R. (Later more complex diagrams show a fourth force, New R.)



Suppose you have the problem of “My car won’t start.” Root cause analysis (RCA) works by asking “WHY does this occur?” until you find the root causes.

RCA always starts with a problem’s symptoms, such as *My car won’t start. I turn the key and all I hear is a click*. WHY is that? You hear a click, but the engine won’t turn over.

Therefore, the cause must be a *dead battery*. That’s really the intermediate cause. But you assume it’s the root cause and decide to *fix the battery*. You then either *buy a new battery or recharge the old one*. Now the car runs. Problem solved.

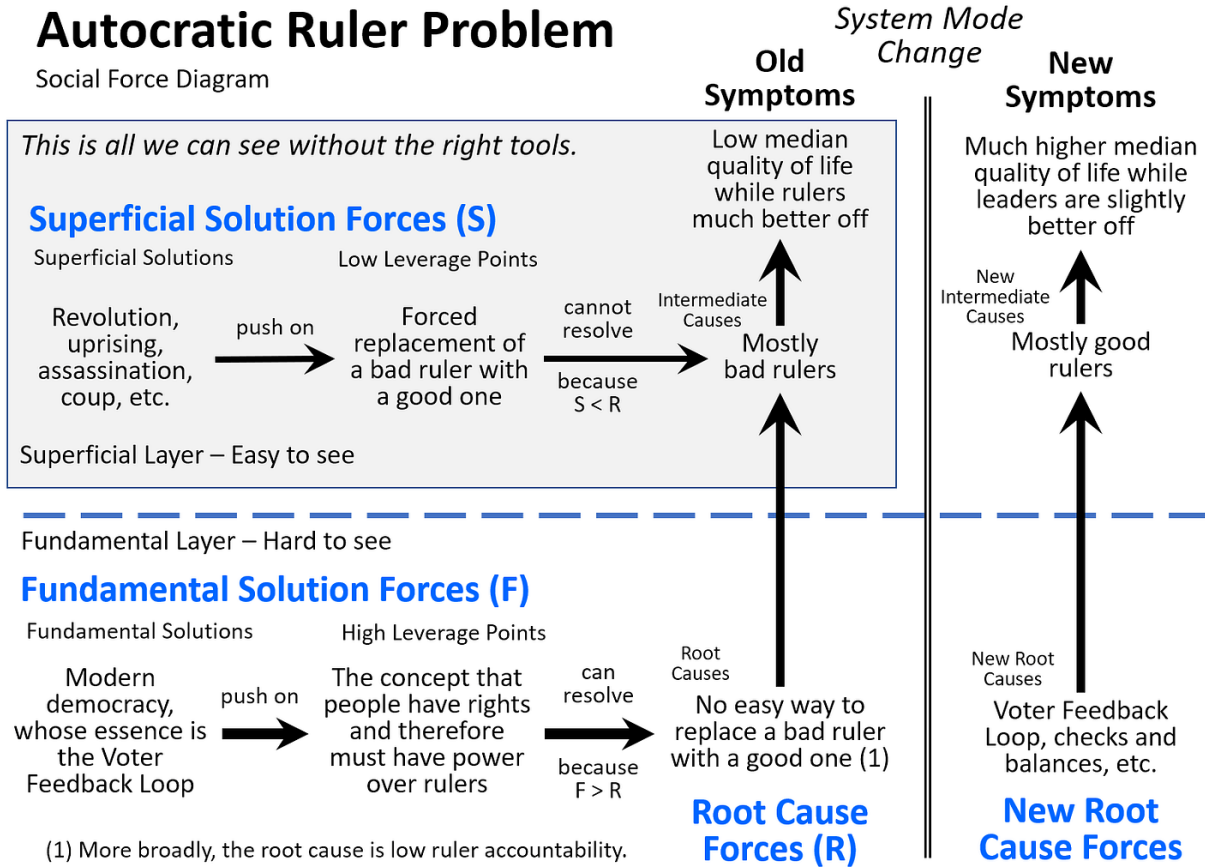
But superficial solutions only solve a problem partially or temporarily. A week later the car won’t start again. WHY is that? You have no idea, because replacing or recharging the battery is all you know how to do. The key point of SFDs is that if it’s a difficult problem, the fundamental layer is normally hard to see. *Without the right tool all you can see is what’s on the superficial layer*.

In this problem the fundamental layer is easy to see with the right tool: a volt meter. A friend shows up with a tool you don’t have: a volt meter. She jump starts your car by hooking up your battery to hers. Then, while the car is running, she checks how many volts are charging the battery. Not enough! So the real cause must be a *defective alternator, so the battery is not charged enough*. That’s the root cause. Now the high leverage point is obvious: *fix the alternator*, such as by *have a mechanic replace the alternator*. Now the problem is permanently solved, at least due to that root cause.

Each of us uses some form of RCA every day to solve causal problems. But we usually don’t use RCA terms and a formal problem-solving process using a tool. This works fine on easy problems. But when we apply the same intuitive approach to difficult problems it almost always fails. That’s why tools like SFDs are required for difficult causal problems.

Retrospective Example - The Autocratic Ruler Problem

Now let's analyze a complex problem, one that's been solved. There is much to learn from analyzing past problems because they illustrate the pitfalls of the wrong problem-solving process, and offer many educational insights into the structure of how complex social systems work.



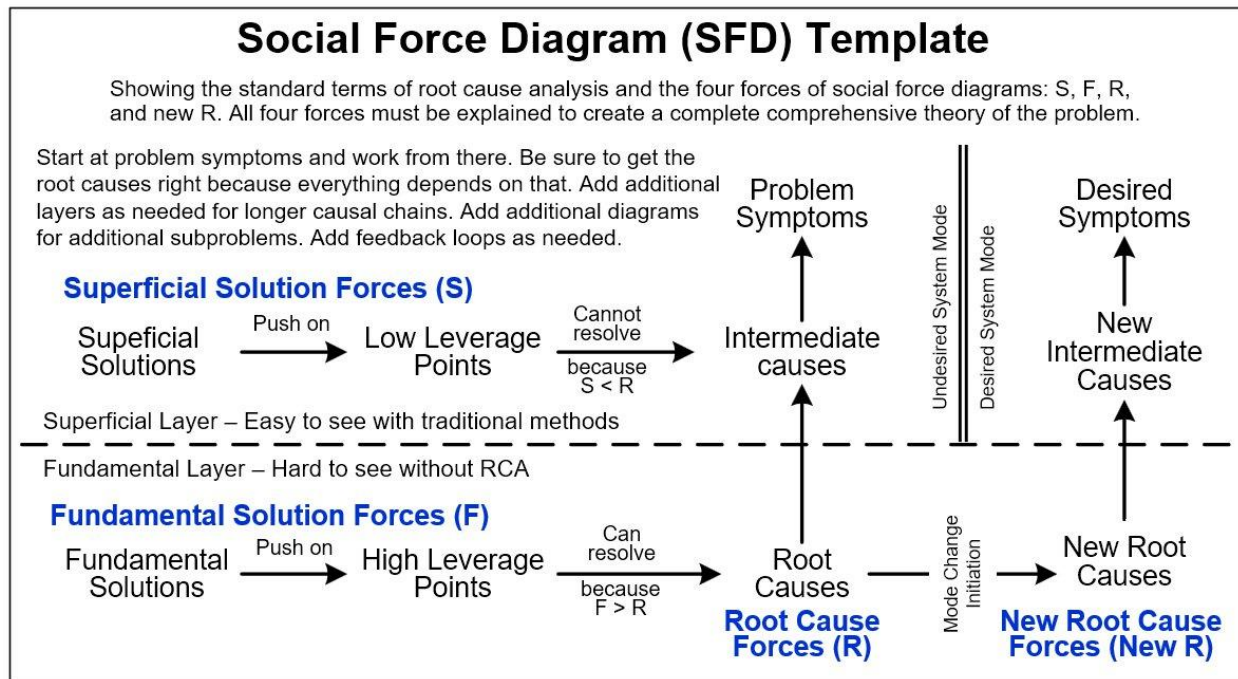
One of history's most intractable problems was the **Autocratic Ruler Problem**. After thousands of years of rule by warlords, dictators, and kings, a period characterized by countless superficial solutions like *revolutions, uprisings, assassinations, and coups*, the shift to a fundamental solution began with the signing of the *Magna Carta* in 1215. This introduced the high leverage point *concept that people have rights that must be respected*. This innovative concept steadily diffused and eventually reached critical mass. The invention of *modern democracy* in 1776 in the US and 1789 in France signaled the beginning of pushing in a comprehensive manner on the high leverage point. The fundamental solution resolved the root cause so well that a historic mode change occurred and democracy swept much of the world.

The superficial solutions force is especially instructive. The low leverage point is *forced replacement of a bad ruler with a good one*. This failed to permanently solve the problem because it did nothing to change the system. More bad rulers appeared to replace the good ones, or good rulers went bad once in power. By contrast the fundamental solution of democracy changed the system so that a permanent new mode resulted, where far fewer bad rulers naturally appeared.

SFDs are powerful tools. The diagram shows at a glance why superficial solutions failed to solve the problem, why the fundamental solution worked, and why, once the mode change occurred, political systems tended to stay in the new mode due to the right new balancing feedback loop.

Unfortunately, the new mode is being challenged by Problematique problem number 8, democratic backsliding. WHY is that? Because something is going wrong with the fundamental solution's Voter Feedback Loop, as this report will later explain.

The standard social force diagram template



For analyzing difficult large-scale social problems using RCA we created the standard SFD template. The analyst starts with the template, which uses RCA terminology and a fill-in-the-blanks format. The diagram organizes a problem's essential causal structure into the four forces found in all problems of this class. This allows the analyst(s) to rapidly apply the tool by working at the highest level of abstraction possible, while still identifying all of a problem's essential causal structure. SFDs are a form of [systems thinking](#). By addition of RCA, SFDs turn the broad practice of systems thinking into a tightly focused, repeatable, effective problem-solving process.

Social force diagrams are organized into two layers:

1. The **superficial (symptomatic) layer** of the problem, where intermediate causes are so easy to see they are erroneously assumed to be root causes, and
2. The deeper **fundamental layer**, where by understanding the problem's deeper structure its true root causes may be found.

The superficial solutions trap

The two layers allow avoidance of the **Superficial Solutions Trap**. The trap occurs when problem solvers unknowingly assume intermediate causes are root causes, and then develop solutions based on that false assumption. This leads to solutions directed toward intermediate causes rather than root causes. Superficial solutions can *never* resolve root causes because root cause forces exert a greater force on intermediate causes than superficial solutions, regardless of how well funded, managed, or promoted those solutions are. As this report will show, all popular solutions to the global Problematique fell into this trap.

How to build social force diagrams

Social force diagrams are built by starting at problem symptoms and identifying the causal chain with “WHY does this occur?” questions until the root causes are found. As this is done, why past superficial solutions failed is diagrammed. *This is critical knowledge, as it indicates the intermediate causes are indeed intermediate rather than root causes, and triggers insights about how to dig deeper.* After the superficial layer of the problem is understood, the analyst follows the causal chain down into the fundamental layer to find the problem’s true root causes, and finally the fundamental solutions.

The superficial layer contains one or more intermediate causes. Some problems require multiple diagrams, since they contain multiple subproblems (defined by multiple symptoms) and thus multiple root causes. Difficult problems usually require construction of a feedback loop model to analyze the fundamental layer. Without analysis of the fundamental layer, difficult problems tend to stay stuck in the superficial layer for a long time, as the Autocratic Ruler Problem did for thousands of years.

Failed solutions are powerful clues. Knowledge of the superficial layer and why past solutions failed is required for solving difficult problems, because as Popper (1999, p. 13) explains (italics in the original):

We are always learning a whole host of things through falsification. We learn not only that a thing is wrong; we learn *why* it is wrong. Above all else, we gain *a new and more sharply focused problem*, and a new problem, as we already know, is the starting point for a new development in science.

After the superficial layer is built a new problem that could not be seen before comes into sharp focus: What is the feedback loop structure that identifies the root cause of the lowest intermediate cause in the superficial layer? What is the high leverage point for resolving the root cause? What practical solutions can push on the high leverage point in a manner so well-engineered that the root cause stays resolved and the mode change is relatively permanent? Because each question is so sharply focused, the answer landscape is relatively small and quickly searched.

Kark Popper is justly famous for adding [falsifiability](#) to the scientific method paradigm. Basically, Popper says that if a hypothesis cannot be falsified, it's not science. It's something else. This is a polite term for hogwash. *Failed solutions are strong falsification.*

The four forces of social force diagrams

Social force diagrams focus on understanding four key forces: S, F, R, and new R. Superficial solutions (force S) fail because *force S is always less than root cause forces* (force R), indicated by $S < R$. By contrast, if fundamental solutions (force F) are properly designed (especially their impact on feedback loop structure), *force F can exceed force R*, indicated by $F > R$. This leads to a systemic mode change, during which the old R is replaced by a new R, and the problem is solved. The new R must be engineered to be strong enough and self-managing enough to permanently hold the system in the solved mode, due to the way force F fundamentally changes critical feedback loop structure and loop dominance.

If analysis shows no $F > R$ exists (no resolvable root cause is found), *the problem is unsolvable as defined.* In this case problem definition (problem symptoms) can sometimes be relaxed to make the problem solvable, such as raising the maximum allowable global temperature rise for climate change to make that problem solvable. Otherwise, the problem should be declared unsolvable.

Once all four forces are understood and key assumptions have been tested by measurement or experimentation, the analyst has a sufficiently complete scientific theory of the problem. Each force provides an explanatory tenet of the theory. This gives *the four requirements for a comprehensive theory of a difficult large-scale social problem*. The theory must identify the four forces and explain them in this manner:

1. **Social Force S** – Why past solutions failed (because $S < R$).
2. **Social Force R** – Why the problem occurs (because R is unresolved).
3. **Social Force F** – Why fundamental solutions can be expected to succeed in causing the desired mode change (because $F > R$).
4. **New Social Force R** – Why the mode change will be relatively permanent (because the new R contains self-sustaining feedback loops).

This suggests that any comprehensive theory of how to solve a difficult social problem must adequately explain all four forces. The above list thus serves as *the four requirements for a comprehensive theory of a difficult large-scale social problem*. The theory must identify the four forces and explain their causal structure. Anything less and we would disappoint Newton and Feynman!

Different analysts will produce different diagrams and supporting simulation models, and reach different policy conclusions. This is the well-known problem of model uncertainty/variation (Young, 2009). The standard solution is to specify model requirements and use that for model evaluation, a process step especially important for complex models (Höge et al., 2018). The above four requirements provide this for the class of difficult large-scale social problems.

Meeting the four requirements is challenging. Fortunately, as analysts iteratively mature their social force diagram(s) and simulation model(s) using RCA, measurement, experimentation, calibration, evidence of past solutions that failed, and rigorous testing, they will tend to converge toward each other and the requirements because in the real world only one true causal mechanism exists. But since all models are simplifications of reality and alternative solutions are possible due to multiple solutions for the same high leverage point, multiple useful models and effective solutions are possible. This matters little, as long as an analysis fulfills its purpose. If large crucial differences exist, they can be reconciled by rigorous application of the process. Large differences have not been a problem in industrial RCA.

The best way to learn how to use SFDs is to practice analyzing simple problems you are familiar with, and then gradually escalate to more complex problems. Who knows, you might solve some agonizing problem that's have been frustrating you or your friends for years! If so, we'd be delighted to hear about it.

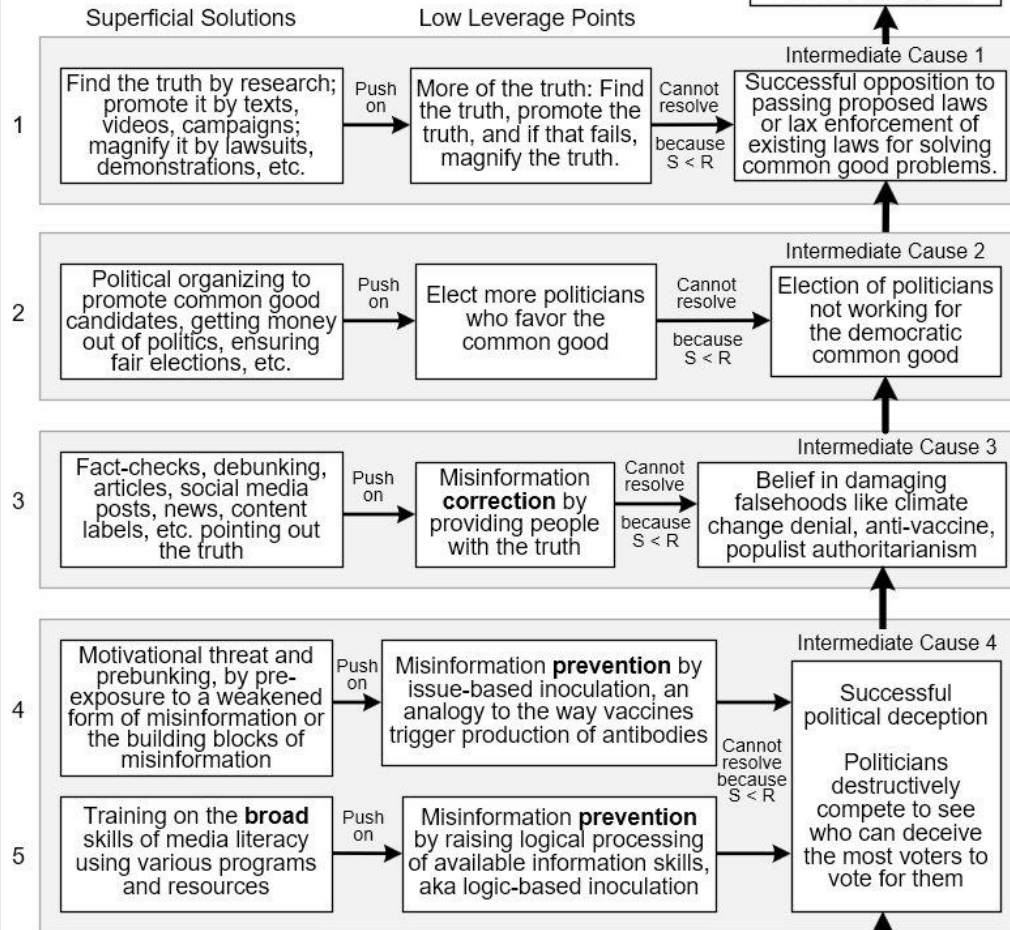
ANALYSIS RESULTS – SUPERFICIAL LAYER

The Global Problematique

Analyzing the problem with SFDs allows “pulling the linchpin” of the Gordian knot of problems, **by identifying the backbone of the problem**. This is the vertical causal chain running from the Main Root Cause up to Problem Symptoms. We have “pulled the linchpin out” where it can be clearly seen by all. Once that’s done, how to solve the problem becomes obvious.

Root Cause Analysis
Social Force Diagram

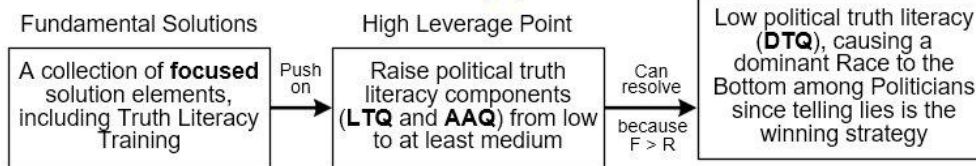
Superficial Solution Forces (S)



Superficial Layer – Easy to see with traditional methods

Fundamental Layer – Hard to see without RCA

Fundamental Solution Forces (F)



Political truth literacy, aka democratic truth quotient (DTQ), has two components: logical truth quotient (LTQ) and appropriate action quotient (AAQ). The three are related by the equation $DTQ = LTQ \times AAQ$.

Root Cause Forces (R)

This is a systemic problem causing many democracies to be locked into the wrong mode. Resolving the root cause initiates the desired mode change.

Desired Symptoms



Undesired System Mode

Desired System Mode

Mode Change Initiation

Analysis results are summarized in the SFD on the previous page. This shows the “linchpin” of the problem as described.

This is more than a summary diagram. It is a summary of 25 years of relentless iteration of the analysis combined with continuous process improvement, beginning when Thwink.org was founded in 2001. Several generations of analyses were required to reach this point. Particular attention was paid to developing a problem-solving process that could apply to a wide variety of problems and be easy to learn and apply. This became SIP and SFDs.

The diagram was built incrementally by starting with Problem Symptoms and working downward from there. We had strong clues to work with: a large collection of superficial solutions that had repeatedly failed, despite long-term attempts to modify them to improve success. None achieved more than modest success due to the Superficial Solutions Trap (page 26). The trap occurs when problem solvers unknowingly assume intermediate causes are root causes, and then develop what are in fact superficial solutions due to that false assumption.

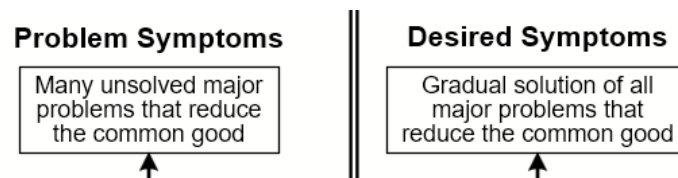
Notice how the diagram fits on a single page and serves as a roadmap to the entire analysis.

The chief analysis tool is **social force diagrams** (SFDs), which are a wrapper process for application of root cause analysis (RCA). SFDs are part of a larger tool, the [System Improvement Process](#) (SIP). However, SIP is beyond the scope of the report and is described at length in the book [Cutting Through Complexity](#).

In the book, application of SIP to the *complete* sustainability problem found four subproblems and four main root causes. Here we report on the subproblem corresponding to the *How to Overcome Change Resistance* subproblem in the book. This subproblem was selected because it has the largest and fastest solution impact for the lowest investment, and if successful easily leads to solution of the other subproblems. Considerable detail has been added to the analysis to reflect research conducted after the book was written. Our work on this subproblem began in earnest in 2010 with publication of [Change Resistance as the Crux of the Environmental Sustainability Problem](#).

Please note this is a *proof-of-concept analysis* to demonstrate the power of the method. It is not *the* analysis or *the* solution, though we expect it is a strong step in the right direction.

Problem symptoms

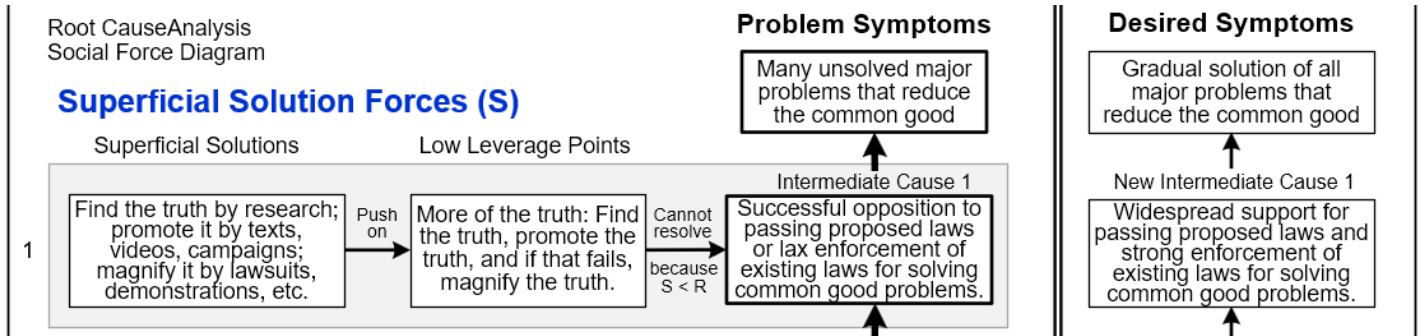


The symptoms are *many unsolved major problems that reduce the common good*. In 1970 *The Predicament of Mankind* report named this problem **the global Problematique**.

Intermediate cause 1 – Successful opposition to common good laws

RCA works by asking “WHY does this occur?” until the root cause(s) is found. Tracing the high-level steps used in the analysis, our first WHY question was:

WHY are there *many unsolved major problems that reduce the common good*? Examining the system, we found the main cause was not that they are so hard to solve. Workable solutions exist for all of them. But those solutions are not being adopted due to systemic change resistance. WHY are governments not adopting workable solutions? Because of *successful opposition to passing proposed laws or lax enforcement of existing laws for solving common good problems*, which is intermediate cause 1.

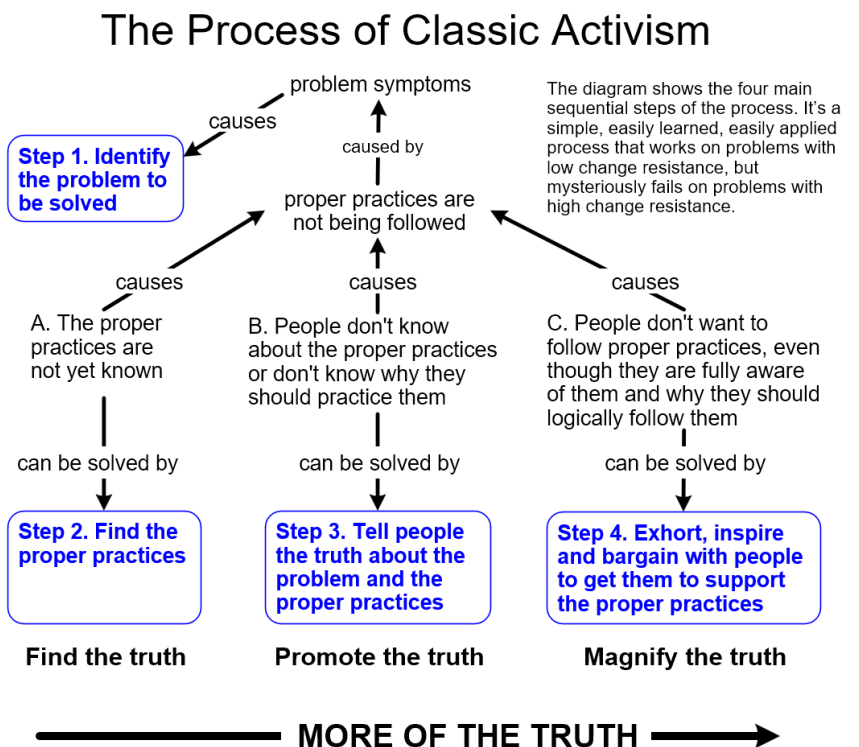


How can that opposition and lax enforcement be changed into *widespread support for proposed laws and strong enforcement of existing laws for solving common good problems*, especially those in the Problematique? To activists of all kinds, the answer is obvious: tell people the truth about the problem that needs solving and why that would benefit all. By long habit this strategy evolved into the process diagrammed below.

The process of Classic Activism

Classic activism is the use of the four steps of The Basic Process of Classic Activism for all types of public interest problems. The process is simple to apply and has only four main steps. The general idea is to persuade people to follow the proper practices needed to solve the problem by providing them with “more of the truth.” A **proper practice** is a behavior that if followed, would *directly* help to solve the problem. Examples for the sustainability problem are renewable energy and closed loop manufacturing. The process was first identified and modeled by Harich (2010) as part of the groundwork for deeply analyzing the change resistance subproblem.

Steps 1 and 2 find the truth, such as climate change is real, urgent, and can be solved with solutions like



renewable energy, conservation, and the [Kyoto Protocol](#) treaty on climate change. Step 3 promotes those truths using solution elements like articles, books, videos, movies, fund raisers, and campaigns. If that fails, step 4 magnifies the truth with confrontational solutions like lawsuits, demonstrations, sit-ins, and urgent rhetoric. Step 3 is also known as education on the facts or “appeal to logic,” while step 4 is “appeal to emotion.” Classic activists pride themselves on being “solution oriented.”

However, if step 4 doesn’t work, what does a classic activist do? *The only thing they can do: repeat the steps and somehow do them better.* The process works fine on easy problems, those with low change resistance. But it fails on more difficult problems like those in the Problematique for these two fundamental reasons:

1. Classic Activism doesn't find and resolve root causes.
2. Classic Activism doesn't treat change resistance as a separate problem to solve.

This is *the* strategic reason problem solvers have failed to make any significant progress in solving the Problematique, and explains why “more of the truth” is a low leverage point. *Classic Activism is by far the most common solution to common good problems* because it works on easy problems, those where change resistance is low and root causes are obvious. This makes the process addictive, because it works some of the time. Therefore, the reasoning goes, “If we can just tweak and improve our solutions, they will eventually succeed. After all, nothing else will work.” On hard problems, this leads to endless new slogans, messaging strategies, campaigns, programs, etc.

The heart of how Classic Activism works is embodied in a famous inspirational [quote](#) attributed to cultural anthropologist Margaret Mead:

Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.

Let’s scrutinize this quote and try not to step on too many toes. *Logically, this maxim is fallacious.* Plenty of beneficial world changes have occurred that were not caused this way, such as invention of agriculture, the Scientific Revolution, and the Industrial Revolution. Furthermore, small groups of thoughtful, committed citizens have *failed* more times than they have succeeded. They are failing now on all members of the Problematique. Those groups *cannot* change the world.

The larger fallacy is lack of an open mind. Saying “it is the only thing that ever has” implies it’s the only approach that will work to solve public interest problems. That’s false, as there are other ways, such as [analytical activism](#), which is the use of analysis and a formal process that fits the problem to solve difficult public interest problems.

Popular solutions for intermediate cause 1

Below are two representative lists of popular solutions for intermediate cause 1, *successful opposition to passing proposed laws for solving common good problems.* If some of your favorites or even some you are working on now are included, then we hope this material will incentivize you to read the rest of the report. In the remaining pages you can watch the analysis dig down to the fundamental layer, where solutions that can resolve the root cause may be found.

We first examine environmental sustainability solutions. These push on the low leverage point of “more of the truth” using Classic Activism solutions.

Environmental Sustainability Solutions	Steps of Classic Activism	Comments
Organizations		
Sierra Club , founded in 1892 by John Muir	All 4	Highly successful in initiating national parks and environmental preservation programs in the US, a model emulated by many other NGOs around the world.
World Wildlife Fund , founded in 1961	Mostly 2 and 3	The world's largest independent conservation organization, headquartered in Switzerland. 2025 revenue was \$457 million. Initiates and manages many successful long-term conservation programs.
Extinction Rebellion , founded in 2018	Mostly step 4	A global environmental movement using nonviolent civil disobedience to demand action on climate change and biodiversity loss. "We are running out of time, and our governments have failed to act."
Books		
Silent Spring , Rachael Carson, 1962	Mostly 1, some 2 and 3, with a final chapter on 4 titled <i>A Fable for Tomorrow</i>	The book that launched environmentalism. Contains famous quotes, like "In nature, nothing lives alone." The title is a bleak metaphor for what will happen if no action is taken on harmful pesticides.
The Limits to Growth , Meadows and others, 1972, 1992, and 2004.	Mostly 1, some 2.	An innovative, pioneering project based on a system dynamics simulation model of the global environmental sustainability problem. This identified the general problem and launched the field of global simulation models of the problem.
Our Common Future: The World Commission on Environment and Development , UN, 1987	Mostly 1, 2, and 3	Widely known as The Brundtland Report, this introduced the term "sustainable development." This is an inherently flawed term, really an oxymoron, because development means economic growth, and no form of growth is 100% environmentally sustainable using present technology and practices.
Earth in the Balance: Ecology and the Human Spirit , Al Gore, 1992	Mostly 3 and 4	Argued for a fundamental shift in humanity's practical and spiritual relationship with the planet, centered on a "Global Marshall Plan."
Natural Capitalism: Creating the Next Industrial Revolution , Lovins and others, 1999	Mostly 2 and 3	How corporations can take the lead and create the "next industrial revolution" by switching to more environmentally sustainable technology.
Other		
The Stern Review on the Economics of Climate Change , Nicholas Stern, 2006	Mostly 1, some 2	A 700-page report commissions by the UK with conclusions like "The scientific evidence is now overwhelming: climate change is a serious global threat, and it demands an urgent global response."
Sustainable Development Goals Framework , UN, 2015	Mostly 1, 2, and 3	A massive program funded by the UN. It provides 112 targets and over 10,000 actions for 17 problem areas.
Environmental magazines like <i>Sierra</i> , <i>National Geographic</i> , <i>Audubon</i> , <i>Orion</i> , <i>Earth Island Journal</i> , and <i>Green Living</i> .	3 and 4	These contain articles extolling the value of a pristine, undamaged ecosystem that is sustainability managed, using many photos and inspirational stories. They also contain many actions citizens can take to be more sustainable.

More examples could be listed. The pattern is all major environmental solutions we've studied employ *only* the four steps of Classic Activism. The best they can do to overcome *systemic change resistance* is step 4, magnify the truth.

All the environmental sustainability solutions push on low leverage point 1, *more of the truth*. The evidence shows this is not working.

Next, what leverage points are democratic backsliding solutions pushing on?

The graphs below show how after 40 years of advances since 1975, the democratic backsliding problem began around 2015 or around 2000 in the higher GDP countries. These are from V-DEM Institute’s [Democracy Report 2026: Unraveling the Democratic Era?](#), p8. All graphs plot the most comprehensive and widely cited democracy index available, their **Liberal Democracy Index (LDI)**, updated annually from 71 indicators in 8 core areas using five country experts per country-year observation, from a pool of over 4,000 country experts. The four different weightings allow different views of the same underlying data. The gray region indicates the confidence interval.

FIGURE 2. LIBERAL DEMOCRACY – WORLD AVERAGES, 1975–2025



The trend is bleak. Graph B shows how “Democracy is back to 1978 levels for the average global citizen. The gains of the ‘third wave of democratization’ starting 1974 in Portugal are almost eradicated.” (p7) Graph D shows how the trend is especially steep for well-developed countries, and supports how “The level of democracy for the average citizen in Western Europe and North America is at its lowest level in over 50 years, primarily due to ongoing autocratization in the USA.” (p7)

Below is a representative list of notable projects attempting to solve the backsliding problem. While the environmental solutions in the previous table all push on the *low leverage point (LLP)* of “more of the truth”, backsliding solutions push *mostly* on that leverage point but also on other LLPs. The five LLPs are:

- LLP1 – More of the truth
- LLP2 – Elect more politicians who favor the common good
- LLP3 – Misinformation correction by providing people with the truth
- LLP4 – Misinformation prevention by issue-based inoculation
- LLP5 – Misinformation prevention by raising logical processing of information skills

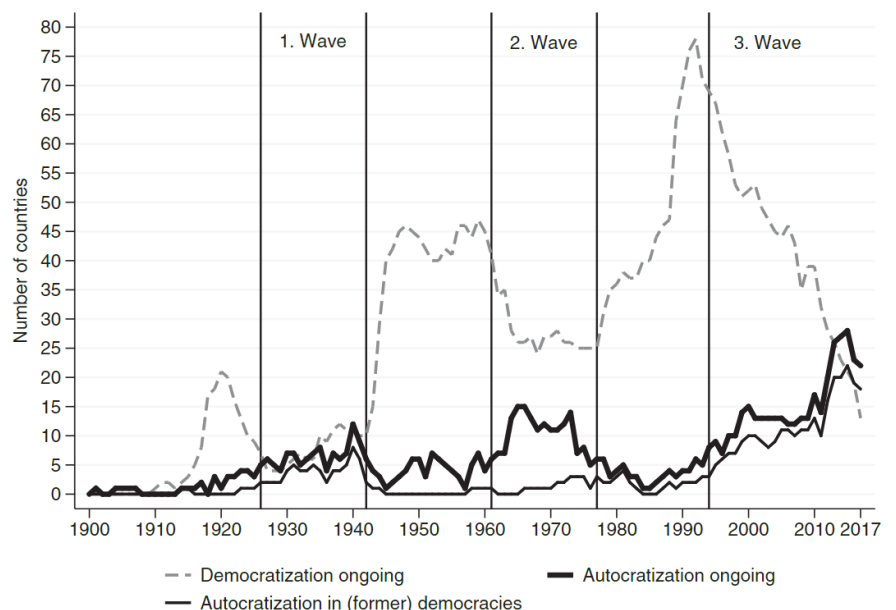
Democratic Backsliding Solutions	Steps of Classic Activism	Comments
Books – Broad-Based Pro-Democracy Citizen Mobilization Coalitions The key goal of these coalitions is fair elections (LLP2) leading to peaceful regime change to democracy. The key strategy to achieve that goal is “more of the truth” (LLP1) about autocratic regimes.		
Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict , Chenoweth & Stephan, 2011.	2, 3, with emphasis on 4	This study tested a claim by political scientist Mark Lichbach, who hypothesized in his book <i>The Rebel’s Dilemma</i> , 1995, that governments could not withstand mass mobilization from 5% of their population. Analyzing 323 violent and nonviolent campaigns between 1900 and 2006, Chenoweth and Stephan found that nonviolent protests succeeded 53% of the time, while armed conflicts succeeded only 26% of the time. Further examining the data, in a 2013 TEDx talk Chenoweth introduced the now famous 3.5% rule . “No revolutions have failed once 3.5% of the population has actively participated in an observable peak event like a battle, a mass demonstration, or some other form of mass non-cooperation.” In a later discussion paper , Chenoweth emphasizes “The 3.5% figure is a descriptive statistic based on a sample of historical movements. It is not necessarily a prescriptive one.... other factors—momentum, organization, strategic leadership, and sustainability—are likely as important as large-scale participation in achieving movement success and are often precursors to achieving 3.5% participation.”
Defeating Authoritarian Leaders in Post-communist Countries , Bunce & Wolchik, 2012.	2, 3, with emphasis on 4	Using case studies and comparative analysis of 11 elections in post-communist Europe and Eurasia, this seminal book analyzed how some political opposition movements were able to achieve electoral breakthrough against authoritarian rulers, while others suffered defeat. It reached three conclusions: “First, the opposition was victorious because of the hard and creative work of a transnational network composed of local opposition and civil society groups, members of the international democracy assistance community and graduates of successful electoral challenges to authoritarian rule in other countries. Second, the remarkable run of these upset elections reflected the ability of this network to diffuse an ensemble of innovative electoral strategies across state boundaries. Finally, elections can serve as a powerful mechanism for democratic change.”
Books and Reports		
How Democracies Die , Levitsky and Ziblatt, 2018	Mostly 1	One of the first books to bring the backsliding crisis to the world’s attention. It reviewed many breakdowns and popularized the finding that “Democratic backsliding today begins at the ballot box,” not as before with coups. It is elected leaders themselves who subvert democratic institutions (p5). They are easily identified by the “four key indicators of authoritarian behavior” (p23). Research like this laid the groundwork for the “playbooks” that followed. LLP1
Ill Winds: Saving Democracy from Russian Rage, Chinese Ambition, and American Complacency , Larry Diamond, 2020	Mostly 1	“The world has plunged into a democratic recession” (p54). After describing that and the four features of the populist peril (p62-63), Diamond identified how creeping authoritarianism tears a democracy down, by “a generic playbook which I call ‘the autocrats’ twelve-step program’.” (p64) LLP1
The Authoritarian Playbook , ProtectDemocracy.org, 2022	2 and mostly 3	Describes how reporters can more accurately cover anti-democratic activity and better promote the truth about that activity. Drawing on the work of the above books and other scholars, it lists the “seven basic tactics in the pursuit of power.” Since the main goal is to educate the electorate to make better voting decision, this is LLP2.
Effectively supporting democratic resilience and resistance: Scoping Study , Canada, 2025	All four steps	Commissioned by the International Development Research Centre, Canada. Exemplifies how governments are approaching the problem, frames the solution as the need for “democratic resilience” against erosion attacks, reviews current research programs, repeatedly calls for “new thinking on democratic resilience,” notes this work is in its infancy. Ends with six strategic solution recommendations. Democratic resilience is the ability of a democratic system to withstand authoritarian takeover attacks. Its goals are thwarting rollback of common good laws (erosion of democratic norms), ensuring fair elections (so that autocrats can be removed or prevented from entering office). This requires providing citizens with the truth about the value of democracy and the danger of authoritarianism, to achieve those goals. These goals are LLP1 and LLP2.
Health of Democracy Indexes These perform only step 1, identify the problem. Other organizations use the index and data to perform other steps. LLP1		
Economist Democracy Index , Economist Group, started 2006	Only 1	The index measures quality of democracy around the world, using 60 indicators grouped into five categories. “The index categorizes each country into one of four regime types: full democracies, flawed democracies, hybrid regimes, and authoritarian regimes.”
The Liberal Democracy Index (LDI) of the V-Dem Institute , started 2016	Only 1	V-Dem’s mission is to create a database that allows conceptualizing and measuring democracy in all nations. They produce the Liberal Democracy Index, the most widely used index for measuring the health of a democracy. They have other indexes for various uses. The LDI classifies countries into four types: liberal democracy, electoral democracy, electoral autocracy, and closed autocracy.

Government Programs		
These motivate citizens with the truth about th		
Open Government Partnership (OGP), 2011, website	2 and 3	A multilateral initiative to promote open government, empower citizens, combat corruption, and improve governance. The OGP has 73 nation and 150 local civil society members. While not a stated goal, its work improves democracy by strengthening key preconditions. Authoritarian states tend to not be members. LLP1 and LLP2
G7 Rapid Response Mechanism (RRM), G7, 2018	2 and 3	This is a program for identifying, analyzing, and countering foreign threats to democracies. Members are the G7, the EU, Australia, New Zealand, Netherlands, Sweden, and Poland. It focuses on foreign covert disinformation campaigns (LLP3 as well as shutting them down), foreign repression of political dissidents living in G7 borders (via enforcement of existing law), and attempts by foreign actors to influence politicians (LLP1 via enforcement of anti-corruption law).
Rule of Law Conditionality Regulation , EU, 2020	2 and 3	In response to backsliding in Hungary and Poland, the European Union created this new regulation. Member adherence to rule of law standards must be maintained. If not, disbursements from the EU may be curtailed. The regulation was successful in Poland but less so in Hungary, where Orban made up the shortfall with Chinese state capitol and continued his autocratic behavior. V-Dem's latest LDI classifies Hungary as an electoral autocracy. This has begun to change due to Orban's recent election loss to a pro-democracy politician, but will take time. LLP1 via enforcement of EU law.
Tools and Frameworks		
Electoral Risk Management Tool , (ERM Tool) International IDEA, 2013	Only 2	The tool "is designed to empower people to ensure peaceful and credible elections. Intended users are electoral management bodies, security sector agencies, civil society and other state and non-state actors. The ERM Tool aims to build the user's capacity to understand, analyze, and mitigate electoral risks." The tool acts to improve the quality of existing election law, rather than change or improve the law. It pushes on LLP2, <i>elect more politicians who favor the common good</i> , by helping to ensure fair elections.
Democracy Playbook 2025 : Seven Pillars to Defend Democracy in 2025 and Beyond, Brookings Institution, first version 2019.	All 4 steps, with emphasis on 2	The framework consists of a country strengthening the "seven pillars to defend democracy: protect elections (LLP2), defend rule of law (LLP1), fight corruption (LLP1), reinforce civic and media space (LLP1), protect pluralistic governance (LLP1), counter disinformation (LLP3 plus penalize disinformation sources), and make democracy deliver (LLP1 via proof democracy works, primarily economically)" (p5). The seven pillars are "evidence-based best practices for reversing democratic backsliding" (p1).

Patterns in democratic backsliding solutions

One pattern is analysis tools consist primarily of case and comparative studies, statistical analysis, expert opinion, and intuition to connect favorable case behavior or innovative ideas with solution components. We saw the same approach used over and over to produce "evidence based" solutions.

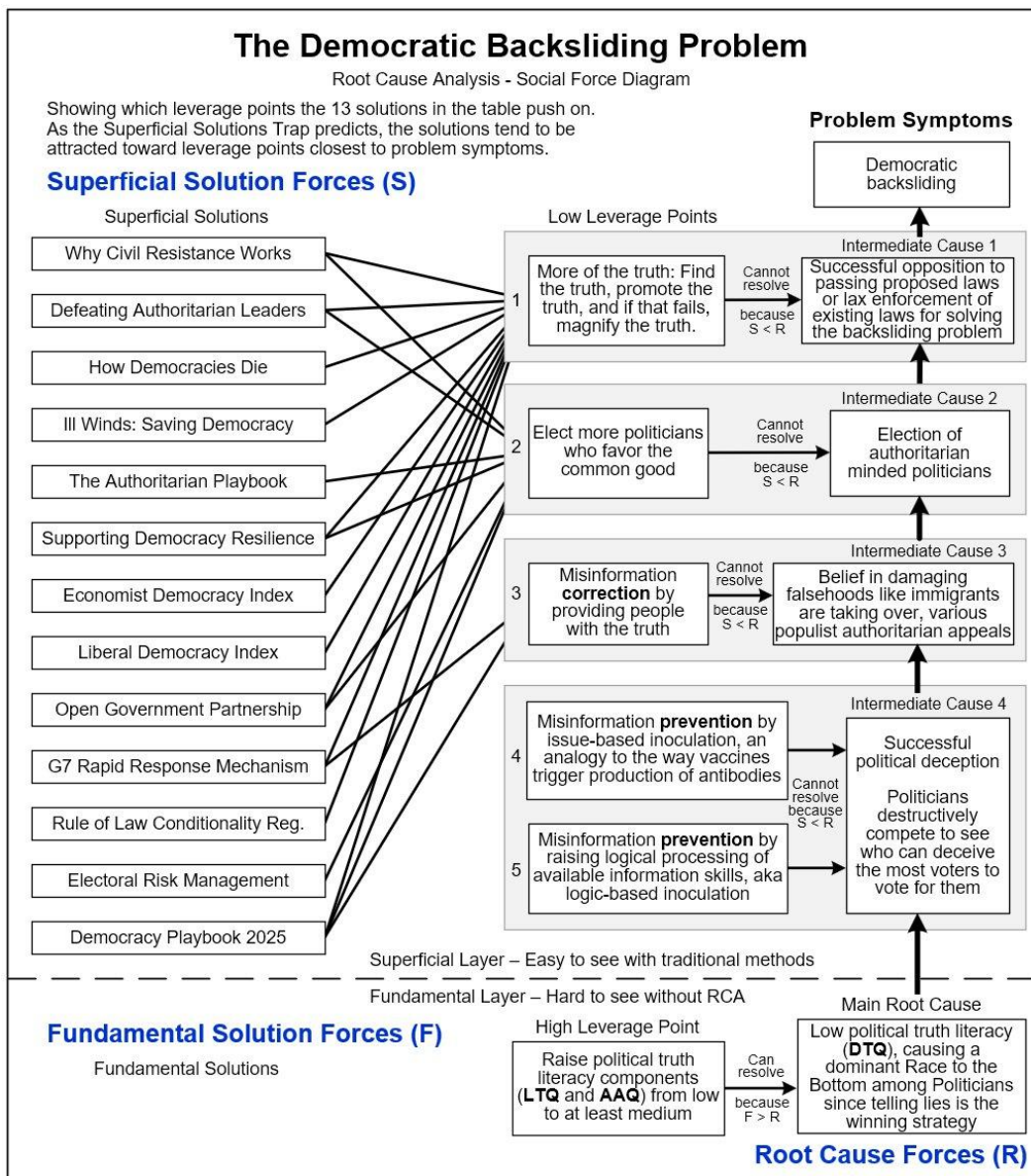
A second pattern is the wide variety of solutions rather than convergence on a few or one central strategy. While backsliding scholars may have found their main two organizing terms (*democratic resilience* to prevent or correct *democratic backsliding*), the search continues for a foundational theory, a central shared paradigm. This is to be expected given the backsliding problem appeared so recently, though two prior smaller waves of backsliding have occurred as shown (Luhmann & Lindberg, 2019).



A third pattern is shown in the SFD below for just the backsliding problem. Recall that the **Superficial Solutions Trap** (page 26) occurs when problem solvers unknowingly assume intermediate causes are root causes, and then develop what are in fact superficial solutions due to that false assumption. As Forrester explains in the section on the trap:

...social systems are inherently insensitive to most policy changes that people select in an effort to alter behavior. In fact, a social system draws attention to the very points at which an attempt to intervene will fail. Human experience, which has been developed from contact with simple systems, *leads us to look close to the symptoms of trouble for a cause.* (Forrester, 1971, pp. 94–95)

The trap thus predicts that solutions derived using conventional thinking will be intuitively directed to leverage points “close to the symptoms of the trouble.” That has occurred here. Of the 13 solutions in the table above, 11 pushed on LLP1, 7 pushed on LLP2, and 2 pushed on LLP3. None pushed on leverage points any lower in the backbone causal chain running from the root cause up to problem symptoms. This is expected for some solutions whose purpose was only problem identification or measurement, such as indexes. *However, for the rest the diagram serves as proof that problem solvers are intuitively developing solutions using inadequate tools, rather than analytically with a tool that fits the problem like SFDs.*



Superficial Layer – Easy to see with traditional methods

Fundamental Layer – Hard to see without RCA

Fundamental Solution Forces (F)

Fundamental Solutions

- Raise political truth literacy components (LTQ and AAQ) from low to at least medium

High Leverage Point

Can resolve because $F > R$

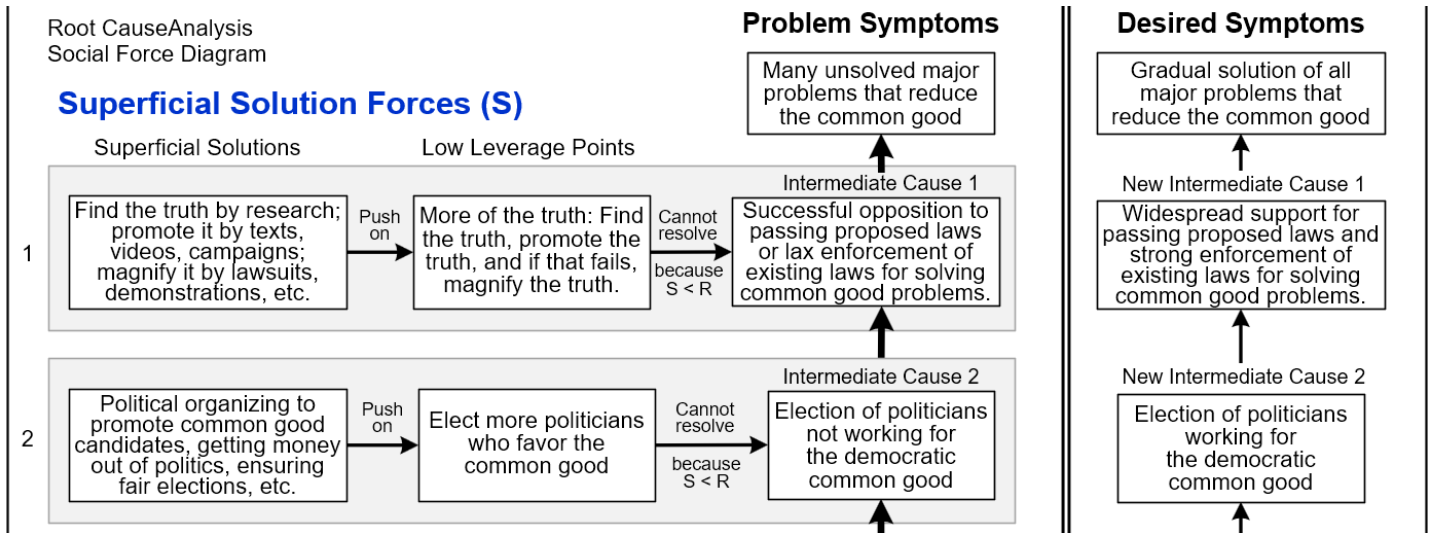
Low political truth literacy (DTQ), causing a dominant Race to the Bottom among Politicians since telling lies is the winning strategy

Main Root Cause

Intermediate cause 2 – Election of politicians not working for common good

Let's continue applying the Five Whys of RCA. The analysis found that intermediate cause 1 is *successful opposition to passing proposed laws or lax enforcement of existing laws for solving common good problems*. Our next WHY question was:

WHY is there so much successful opposition? That depends on who the opposition is coming from. For passing proposed laws or lax enforcement of existing laws, the opposition is coming from elected politicians. Therefore, the answer is because elected politicians are against solving them and giving them priority over other problems. WHY are those politicians in power? Because of *election of politicians not working for the common good*, which is intermediate cause 2.



Powerful special interests promote their own goals rather than those of the common good, and are the bane of democratic systems. Special interest dominance of elections is a systemic architectural feature of how democratic systems work. The dominance is well explained by Olson's (1971) groundbreaking work, *The Logic of Collective Action: Public Goods and the Theory of Groups*. Small, well-organized groups, particularly large corporations and the rich, promote candidates who will work in their favor (intermediate cause 2). They also lobby to promote laws in their favor (intermediate cause 1). When they win, they reap massive benefits per agent at a small cost. Meanwhile, the public at large suffers only a very small loss of benefits per person, causing a much lower incentive per agent to organize and promote their own interests. This inherent imbalance causes powerful special interest control of democratic system to be the norm.

Lupu and Warner (2021) asked WHY democratic systems are controlled by the rich. Using correlation analysis, they found the dominant drivers to be "clientelism, corruption and income inequality. ... Where clientelism and corruption are rampant, representatives may have incentives to emphasize the preferences of the affluent because they fund their political machines or because poor voters are bought off." In politics, **clientelism** (aka patronage, cronyism, the spoils system) is the exchange of goods, services, or political favors for electoral support. **Corruption** is the misuse of public office for private or partisan gain. This supports Olson's theory, which explains why the inherent imbalance between powerful special interests and average citizens leads to clientelism and corruption.

Gilens and Page (2014), in a landmark study of outcomes due to special interest control of US policy, examined the outcome of 1,779 policy issues in the US and reached this striking, widely quoted conclusion:

Multivariate analysis indicates that economic elites and organized groups representing business interests have substantial independent impacts on U.S. government policy, while *average citizens and mass-based interest groups have little or no independent influence.*

This dysfunctional behavior is not uniquely American, as many political scientists first assumed. The results were soon generalized to all democracies by Lupu and Warner (2022), who:

...gathered every publicly available survey of elected representatives in the world and matched it with mass survey data. Our dataset consists of 92,000 elite observations and 3.9 million citizen observations spread across 565 country-years, 52 individual countries, and 33 years. Using a variety of methods, we find that around the world, legislators' preferences are consistently more congruent [in ideological agreement] with those of affluent citizens.

However, Lupu and Warner measured ideological agreement rather than policy proposal outcomes, which is what matters. Four major post-Gilens and Page studies exist that did measure outcomes. The results of these studies and Gilens and Page are summarized below:

Influence of the rich and non-rich on policy proposal outcomes					
Study	Country	Influence of the Rich (Top 10%)	Influence of the Non-Rich (Bottom 10–50%)	Party System, Campaign Finance, Union System	Outcomes Measured
(Gilens & Page, 2014) paper	United States	Total Dominance. Economic elites have a strong, statistically significant independent effect on policy outcomes. Average citizen preferences have near-zero influence. The rich prevail even when opposed by majorities.	Near zero. Average citizens at the 50th income percentile show no statistically significant independent impact on policy. Their preferences appear influential only when they happen to align with the rich.	<ul style="list-style-type: none"> - Two-party majoritarian - Unlimited private campaign donations with no public campaign financing, heavily reliant on private corporate/PAC donations - Weak and declining labor unions 	1,779 policy proposals (1981-2002).
(Elsasser et al., 2021) paper	Germany	Strong. Policy decisions are skewed toward upper-income, upper-occupational, and higher-education groups regardless of policy type (economic or cultural) or governing coalition.	Zero or negative. No positive independent influence on policy. The study attributes this bias partly to the overrepresentation of privileged social groups within parliament itself.	<ul style="list-style-type: none"> - Multi-party with proportional representation (PR) - State-funded campaigns with strict party finance rules - Strong, centralized labor unions. Co-determination law gives workers board-level representation in firms. 	746 policy proposals (1980-2013)
(Schakel, 2021) paper	Netherlands	Strong. Probability of preferred policy adoption rises from 10% for the 10 th income percentile, to 25% for the 50 th percentile, to 60% for the 90 th percentile.	Near zero. Non-rich preferences have a positive but much weaker effect on policy adoption than high incomes. Analysis of possible causes finds that unequal political participation (wealthier citizens participate more) and corporate lobbying contribute to the gap.	<ul style="list-style-type: none"> - Highly fragmented PR system with many parties - Primarily publicly funded parties - Moderate trade union density, strong tradition of corporatist consensus-building (polder model) between government, employers, and unions. 	291 policy proposals (1979-2012)
(Mathisen, 2023) paper	Norway	Total dominance. When preferences diverge, “the affluent have a substantial, statistically significant effect on policy, [while] there is no detectable effect for any of the other income groups.”	Zero. (See cell to the left) When policy types are disaggregated, an exception emerges. The poor (10 th income percentile) have about 2/3 the influence of the rich on economic policy.	<ul style="list-style-type: none"> - Multi-party PR - Public campaign financing with strict spending limits, television political advertising banned - Among the world's highest union density, with about 50% of employees belonging to unions 	397 policy proposals (1966-2014)
(Persson, 2023) paper	Sweden	Strong: “Only the high-income citizens' preferences matter positively for policy change.”	Zero to negative. Low-income preferences have no positive independent effect on policy.	<ul style="list-style-type: none"> - Multi-party PR - Low campaign contributions - High union density at about 70%, declining since 1990s 	Over 500 policy changes (1956-2010)

All five studies found the same effect: The rich dominate legislative outcomes, while the non-rich have very little influence.

Of particular interest is the column for *Party, Government, Campaign Finance, and Union Systems*. Large differences were observed. However, these differences had little impact on the effect. Reformers often claim the high influence of the rich in the United States is due to factors like a two-party system, campaign donations by the rich, the *Citizens United* ruling, weakened labor unions, and lack of a strong social safety net. But the other four countries have just the opposite factors: multi-party systems, strictly regulated or publicly funded campaigns, strong labor unions, and strong social safety nets. *Yet they too suffer from dominance by the rich*. This indicates these factors appear to matter but do not. Solutions based on controlling these factors, for the purpose of eliminating the power of special interests, have demonstrated little effect. Mathisen stresses this point:

Norway is a prime example of social democracy, with low levels of income inequality, strict regulations of campaign spending, strong unions, and a generous welfare state. If social democracy is capable of curtailing the disproportionate influence of the affluent, *then we should see it in this case*.

But yet we don't. All five countries exhibit the same pattern.

What Mathisen didn't say is Norway was [ranked](#) the most democratic country in the world by the Economist Democracy Index every year since 2010. It has all the "right" institutions. Yet it still suffers from elite dominance.

Consider the larger picture. The data in the table shows that votes matter little. What matters instead is whether you are represented by a powerful (meaning all the money it needs) special interest group or not. Democracy is thus a comforting illusion. Most democracies are in fact **plutocracies**: governments ruled by the wealthy. That's how severe the effects of Problematique problem 3, *high inequality of income and wealth*, and problem 8, *the power of large corporations*, have become.

If the cause of the many problems forming the Problematique is *election of politicians not working for the common good*, then the strategic leverage point follows logically: *elect more politicians who favor the common good*. This is precisely what activists have done, with solutions like *political organizing to promote common good candidates, getting money out of politics, ensuring fair elections, etc.* The first solution pushes directly on the leverage point. The second solution pushes indirectly, by attempting to remove the power of money on politicians by the large corporations and their owners, the rich. The third also pushes indirectly, by preventing subversion of the election process itself, which is the very heart of democracy.

These solutions have repeatedly failed, indicating they are superficial. This indicates there must be a deeper cause.

NOTE: Most of the remainder of the analysis and description of the experiment is based on the paper *Democracy's Eternal Vulnerability: Increasing resilience to disinformation by raising the two components of political truth literacy* (Harich & Rosas, 2026). The paper's SFD had *Election of politicians not working for the common good* as Problem Symptoms and analyzed that problem. This was done to achieve a small paper focused on disinformation.

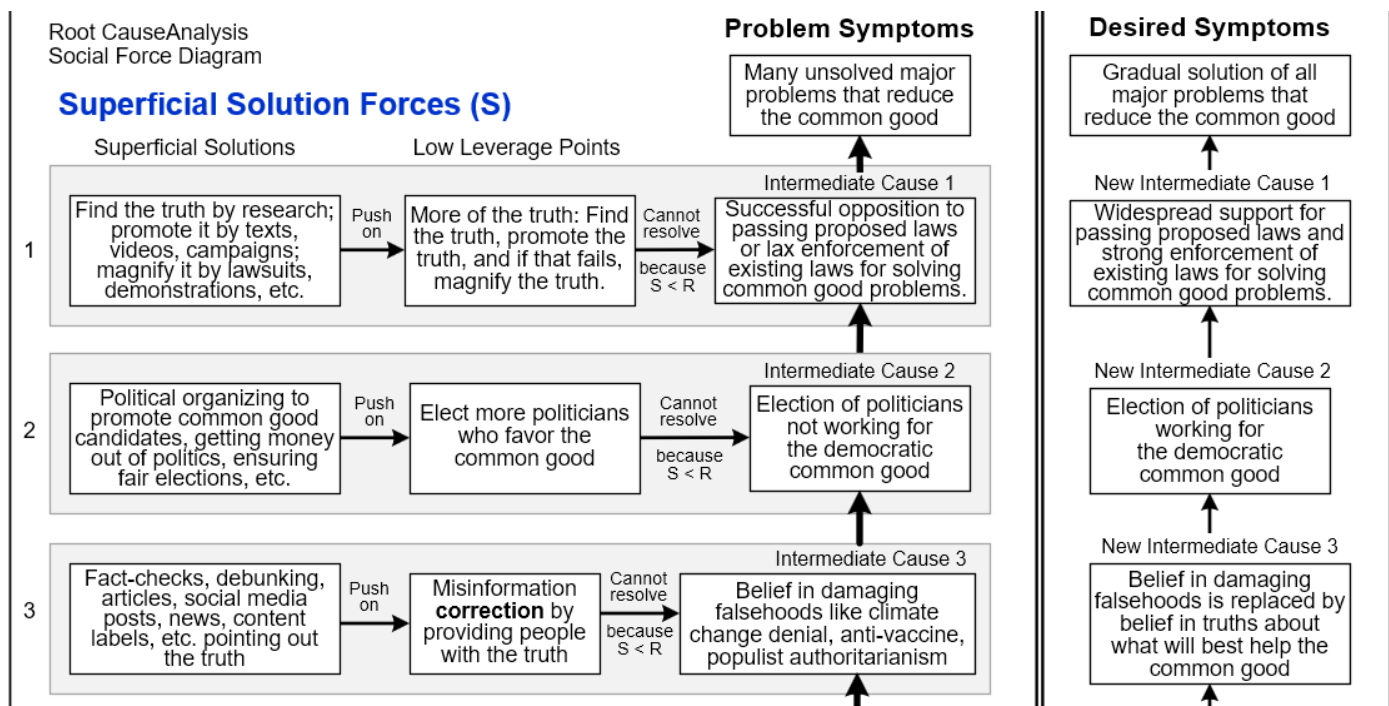
Intermediate cause 3 – Belief in damaging falsehoods

Let's continue building the SFD. The analysis found that intermediate cause 2 is *election of politicians not working for the common good*. Our next WHY question was:

WHY does *election of politicians not working for the common good* occur? The strongest cause is discernible in what those candidates working for the rich and corporations say. They deny climate change is real and is a hoax. They deny vaccines work. And so on, so much so that:

The vulnerability of democratic systems to political disinformation has become a defining challenge of contemporary governance. Most ominous is the worldwide surge of far-right populism, which has enabled the ascent of **populist authoritarians** such as Putin, Modi, Erdogan, Orban, Duterte, and Trump (Scoones et al., 2020, pp. xv, 202). Each has exploited long campaigns of unsubstantiated epistemic claims and conspiracy theories to manufacture a fearful sense of exploitation and persecution of the “noble people” by corrupt elites and other enemies that only a strong leader can save that nation from (Prooijen et al., 2022). The ramifications of **political disinformation** are “increasingly viewed as a crisis that demands urgent action” (Roozenbeek et al., 2023).

This endless stream of successful political disinformation causes false beliefs, which in turn causes voters to favor politicians supporting those false beliefs. Therefore, the main cause of *election of politicians not working for the common good* is *belief in damaging falsehoods like climate change denial, anti-vaccine, populist authoritarianism*, which is intermediate cause 3.



If the cause of the problem is belief in damaging falsehoods, then once again the leverage point is obvious: *misinformation correction by providing people with the truth*. This is done with solutions like *fact-checks, debunking, articles, social media posts, news, content labels etc. pointing out the truth*. These solutions employ slogans like “[speaking truth to power](#)” and The Washington Post’s official slogan of “[Democracy Dies in Darkness](#),” adopted in 2017 to stress the crucial role of a free press and an informed public in hold power to account. All are forms of more-of-the-truth, the central strategy of **classic activism**, discussed earlier on page 32.

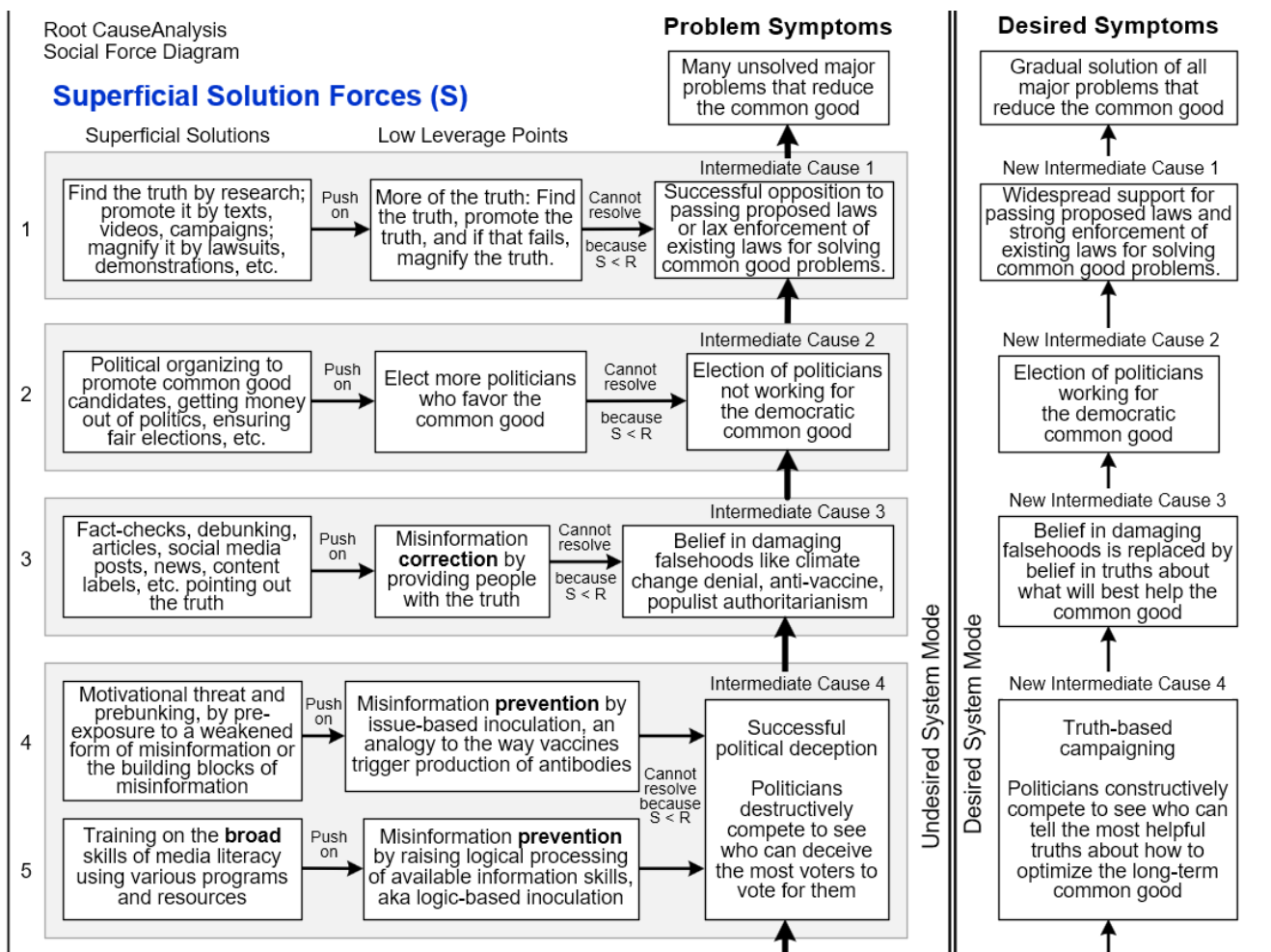
However intuitively obvious it may be these solutions will work, they doesn’t. A misinformation correction strategy fails because once people have been exposed to misinformation, processed it,

and believe it to some degree, *it is much harder to change a false belief than to prevent it in the first place* due to factors like confirmation bias, disconfirmation bias, belief persistence, and motivated reasoning (Lodge & Taber, 2013; Savion, 2009; Taber & Lodge, 2006). The research has reached strong conclusions concerning the ineffectiveness of misinformation correction. For example, Savion stresses that “Belief perseverance—clinging to explicitly discredited beliefs—is ubiquitous to the point of serving as the ultimate evidence of the feebleness of our mind.”

In addition, Guess and Nyhan (2018) found fact-checking to be *operationally ineffective*, mainly because the corrections rarely reach the people affected: “We almost never observe respondents reading a fact-check of a specific claim in a fake news article that they have read.”

Intermediate cause 4 – Successful political deception

Intermediate cause 3 is *belief in damaging falsehoods like climate change denial, anti-vaccine, populist authoritarianism*. WHY does *belief in damaging falsehoods* occur in general? The answer is mainly because of *successful political deception*, which is intermediate cause 4.



Political deception presently works so well that *politicians destructively compete to see who can deceive the most voters to vote for them*. Fallacious appeals dominate, especially during campaign season with *ad hominem* attack ads against opponents; *false promises* about what a politician can do for you that they really cannot or will conveniently forget; the painting of *false enemies* like immigrants with Trump’s “Build the Wall” refrain or the Alternative for Germany party’s official slogan of the “[remigration](#)” (mass deportation) of millions of immigrants; the *empty slogan* “Time for a change,” which says nothing since it’s what every non-incumbent could say; and so on.

In a democracy, powerful special interests (the rich and large corporations) are by definition a small minority. This raises a pivotal question: How can a *small minority* working for the uncommon good persuade a *majority* working for the common good to vote against their own best interests?

In a democracy, the main ways to do this are by force, threats, rigged elections, voter suppression, favoritism, bribes, or deception. Force, threats, and rigged elections are illegal. Voter suppression is mostly illegal. Favoritism doesn't work on large populations, since there are not enough favors (like jobs or contracts) to dole out. Bribes are inefficient, as even the rich lack the resources to bribe millions of voters. This leaves deception as the main preferred strategy and explains why *successful political deception* is required.

[Jeremy Bentham](#), the father of utilitarianism, reached the same conclusion in 1824:

...it is impossible by fair reasoning ...to justify the sacrifice of the interests of the many to the interests of the few.... It follows that for effecting this purpose they must have recourse to every kind of fallacy, and address themselves, when occasion requires it, to the passions, the prejudices, and the ignorance of mankind. (Larrabee, 1952, p. xxi)

Democracy's eternal vulnerability to political deception has existed since the dawn of democracy. When making the case that deceit by elite politicians posed a profound threat to Athens's democratic process, Demosthenes reached this conclusion in the fourth century BC:

A man can do you no greater injustice that to tell lies. In a political system based on speeches, how can it be safely administered if the speeches are not true? (Hesk, 2000, pp. 1–2)

Two main low leverage point strategies have been used to prevent *successful political deception*. The first (LLP4) is *misinformation prevention by issue-based inoculation, an analogy to the way vaccines trigger production of antibodies*. Linden (2022) describes how this is accomplished by *motivational threat and prebunking, by pre-exposure to a weakened form of misinformation or the building blocks of misinformation* (SS4). However, a limitation is that people must be pre-exposed to all possible types of misinformation they may encounter, which is clearly impossible. Linden acknowledges this and reports that:

Instead, scholars have started to identify the *common building blocks of misinformation* more generally, including techniques such as impersonating fake experts and doctors, manipulating people's emotions with fear appeals, and the use of conspiracy theories. Research has found that people can be inoculated against these underlying strategies and, as a result, become relatively more immune to a whole range of misinformation that makes use of these tactics.

This describes an alternative to issue-based inoculation, known as technique or logic-based inoculation, which “confers resistance against manipulation strategies or tactics such as logical fallacies, emotional manipulation, or conspiracy theories” (Roozenbeek et al., 2023). This leads to the second low leverage point (LLP5) of *misinformation prevention by raising logical processing of available information skills, aka logic-based inoculation*. Logic-based inoculation research remains formative and fragmented across exploratory studies on a wide range of potential approaches. The oldest and most common form of logic-based inoculation has been *training on the broad skills of media literacy using various programs and resources* (SS5). Like the inoculation-based solutions, media literacy interventions have failed to have the intended effect.

These two groups of superficial solutions (SS4 and SS5), as well as the third group of *fact-checks, debunking, articles, social media posts, news, content labels, etc. pointing out the truth* (SS3), are working so poorly we are now living in the **post-truth age of politics**, “in which lies and distortions carry as much weight as facts” (Puddington, 2017, p. 57).



THIS STATE OF THE SYSTEM, post-truth politics and an unsolved Problematique, is where problem solvers and the world are trapped now, peering around in a fog of complexity so thick they can only “look close to the symptoms of trouble for a cause” (page 26), while stuck in the invisible quicksand of the Superficial Solutions Trap.

ANALYSIS RESULTS – FUNDAMENTAL LAYER

UP TO THIS POINT IN HISTORY, problem solvers have failed to untie the Gordian knot of complexity hiding the causal structure of the global Problematique. But with the right tools, it becomes possible to pull the linchpin and reveal the essential causal structure of the problem. We begin that task by following the process and posing the next Five Whys question: WHY does *successful deception occur*?

Could it be low levels of literacy or education? We ruled that out because successful political deception, particularly far-right populism, occurs in nations with high levels of functional literacy (the ability to apply reading and reasoning skills in real-world contexts), like the US and EU, as well as low levels, like South America, as measured by the OECD's PISA test of 81 countries (OECD, 2023, p. 97).

Could it be due to cognitive flaws like confirmation bias or the *processing fluency effect*, where “the more a claim is repeated, the more familiar it becomes... the brain uses this fluency as a signal for truth” (Linden, 2022). We ruled this out because these flaws are relatively constant, while outbreaks of successful political deception come and go, such as the three waves of autocratization beginning in 1926, 1961, and 1994 (Luhrmann & Lindberg, 2019).

Could it be high levels of economic inequality or insecurity? Many studies have found a correlation between these conditions and the rise of far-right populism, e.g. (Gidron & Hall, 2017; Rooduijn & Burgoon, 2018). But correlation is not cause. We interpret this relationship to indicate an *exploitable grievance*. This causes higher susceptibility to well-targeted fallacious appeals, such as a far-right populist claiming “your money is being taken by corrupt elites and the filthy rich, and only a strong leader like me can fix that.”

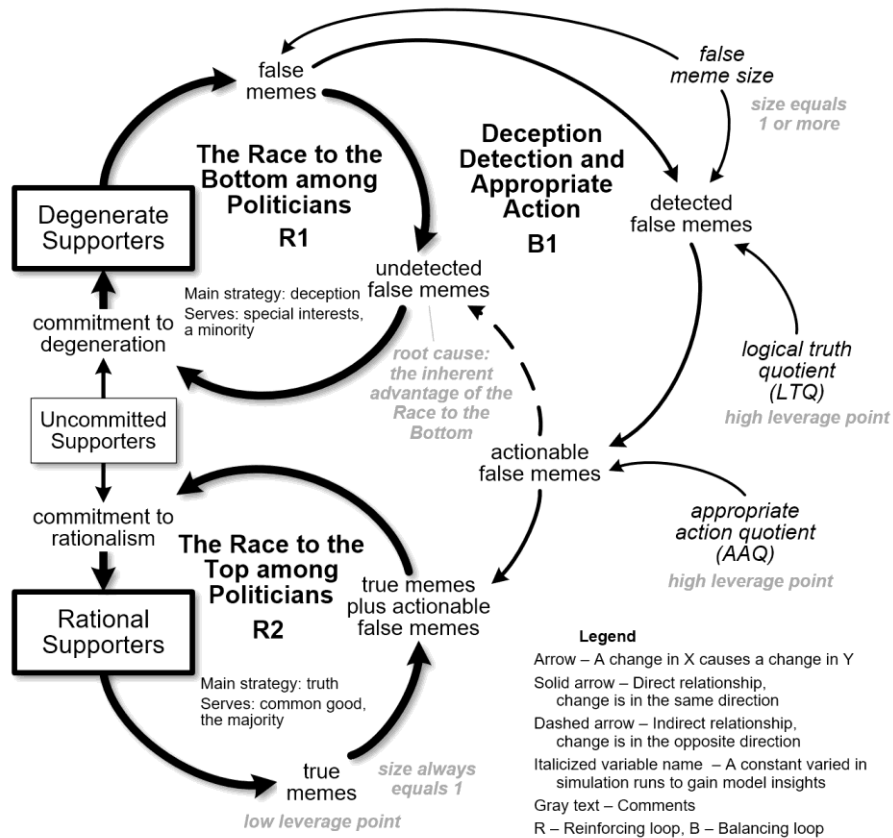
Finally, could it be due to political or cultural beliefs that predispose people to accept clever fallacious appeals? Yes, to some extent. Such beliefs often contain distortions, motivated reasoning biases, or loyalty to group identity rather than to truth and the common good. Rather than exploitable grievances, they are *exploitable false beliefs* that can be magnified into major misconceptions, such as hatred of everyone not in your identity group (extreme identity politics) or of a particular group like immigrants (scapegoating). Lodge and Taber (2013, p. 150) explain how “citizens are often partisan in their political processing, motivated more by their desire to maintain prior beliefs and feelings than by their desire to make accurate or otherwise optimal decisions,” which is a highly exploitable state. But why do these exploitable false beliefs occur?

Political and cultural beliefs are learned from the political parties, news sources, books, churches, cultures, family members, teachers, friends, etc. a person is exposed to. But why would a person make an error and believe false statements, regardless of the source or prior beliefs, and develop erroneous beliefs? *Why exactly does political deception succeed?*

Answering that question at the root cause level blocked progress for years and was so difficult it required construction of a system dynamics simulation model, shown on the next page.

The backbone of the model is the two opposing feedback loops dueling for the same Uncommitted Supporters. Race to the Bottom politicians, the right, use deception to gain supporters, while Race to the Top politicians, the left, use the truth. Currently the Race to the Bottom is the dominant loop in many countries most of the time because *undetected false memes* (successful misinformation) are high.

The Dueling Loops of the Political Powerplace



Feedback loop structure explaining how political deception works. This is a high-level diagram of the simulation model. Simulation model behavior is relatively simple as seen in Selected Simulation Runs, page 50. This behavior suffices for the model's purpose. See the Appendix for detailed model description.

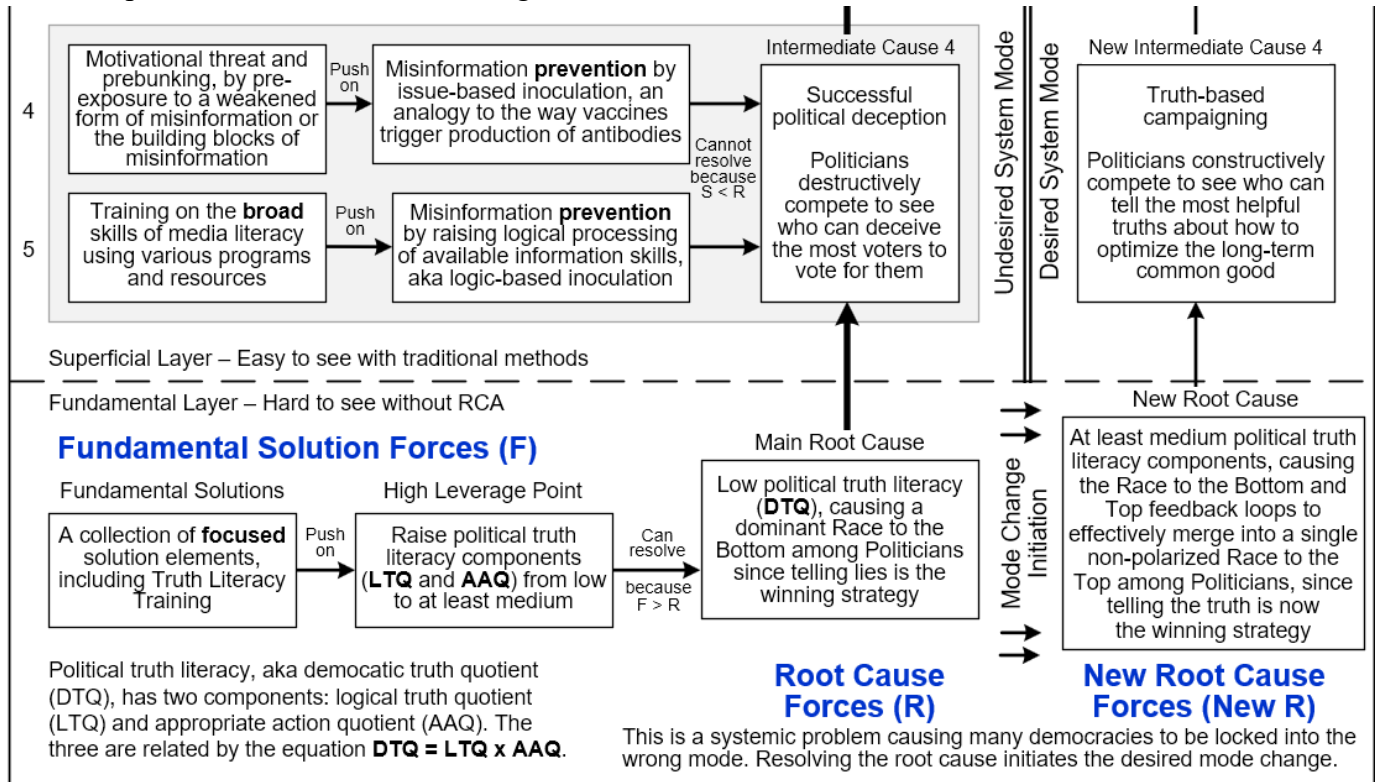
The model uses the concept of memes (Dawkins, 1976). A **mememe** is copied information capable of affecting behavior, such as a fact or opinion. In the model a meme is a statement that is true or false, regardless of its form, such as conversation, social media, print media, image, video, etc. The spread of misinformation can thus be realistically modeled as the process of memetic infection, as memes spread from one mind to another. Our model is similar to epidemiology's SIR model (Sterman, 2000, pp. 303–304) in that it uses infection rates, average duration of infection, and susceptible and infected populations, but incorporates additional features necessary for modeling root cause behavior.

The key model insight is that the size (and hence the attractive power) of a lie (*false memes* on the model) can be inflated, while the size of the truth (*true memes*) cannot. From a mathematical perspective, the size of a falsehood can be inflated to be a different, more attractive (false) reality by saying that $2 + 2 = 5$, or 7, or even 27. But the size of the truth is always 1 since there is only one true reality. Its attractive power can never be inflated by saying anything more than $2 + 2 = 4$. Inflation is used to create fear when there is nothing to fear, doubt when there is nothing to doubt, the false promise of I can do so-and-so for you when I really cannot, a large flaw in one's opponent when there is only a small flaw or no flaw, etc.

The main root cause – Low political truth literacy

This insight leads to identification of the main root cause: the inherent asymmetric advantage of the Race to the Bottom, represented on the model by *undetected false memes*. The advantage exists because the opposing loop, the Race to the Top, has no corresponding variable because there are no inflated *true memes* to detect. This reveals a second form of the asymmetric nature of information warfare. The first form, that “autocracies [can] penetrate the information space of democracies without facing an equivalent response” (Liagusha & Iarovyi, 2025), is more obvious.

For simplicity we usually say the **main root cause** is *low political truth literacy*. This causes a dominant Race to the Bottom most of the time since telling lies is the winning strategy. This appears to be a root cause rather than an intermediate cause because there is no deeper root cause and practical solutions for resolving it exist.



Evidence of universal reliance on political deception

If *low political truth literacy* is the main root cause, one would expect universal reliance on political deception by Race to the Bottom parties and politicians. Evidence of this is considerable:

1. Freelon et. al. (2020) found that “in the US and throughout the industrialized West... available evidence suggests that the right has invested far more than the left in misinformation and conspiracy theories as core components of its activist repertoire....”
2. An examination of political behavior in 169 countries in 1,759 elections found four key characteristics of right-wing autocracy (Luhmann et al., 2023). All require deception to implement.
3. In the U.S. a well-financed “Right-Wing Propaganda Machine” has dominated political debate for decades (Conason, 2004).
4. Dunlap and Jacques (2013) found that 92% of books denying climate change and other environmental sustainability problems originated from conservative think tanks.

5. In an effort to understand the effect of propaganda on politics, Benkler et al. (2018, pp. 77, 79) analyzed four million messages in the US using their Media Cloud platform. America's political spectrum has evolved into two opposing feedback loops: a right-wing "propaganda feedback loop" where politicians "compete on identity confirmation" regardless of the truth, versus a centrist/left-wing "reality-check" loop that follows "institutionalized truth-seeking norms" where politicians "compete on truth quality and the scoop". The two loops correspond exactly to the Race to the Bottom and Top loops.

A two-step cognitive model of political truth literacy

In order to correctly identify the high leverage point for resolving the main root cause, we must deeply understand how political truth literacy reasoning works. Here the simulation model helped to identify the key abstractions and how they interacted with the rest of the system.

Truth literacy is the ability to tell truth from deception, to be able to "read" the truth. A **political claim** is any claim meant to influence voters. The analysis uses three important variables to model the cognitive behavior of political truth literacy, or any form of decision making involving potentially deceptive claims. All range from zero to 100%:

1. **LTQ** (*logical truth quotient*) is the ability to logically tell whether a political claim is true or false.
2. **AAQ** (*appropriate action quotient*) is the ability to take appropriate action, given the perceived truth (using LTQ) of a political claim.
3. **DTQ** (*democratic truth quotient*, aka political truth literacy) is the ability to take informed and logically correct action within a democratic system, particularly voting, given a potentially deceptive political claim.

A person's DTQ uses the two-step process of (1) determine the truth (LTQ) and then (2) take action given that perceived truth (AAQ). For example, "I can see that statement is false because it uses the false dilemma fallacy." And then "Now I need to vote against that politician because they cannot be trusted to tell me the truth." Because of this two-step process, $DTQ = LTQ \times AAQ$, though DTQ is not in the model.

For example, suppose a person's LTQ and AAQ are low at 10% and 20%. They will detect 10% of lies using their LTQ. Then, using their AAQ, they will use 20% of the 10% to take appropriate action. $10\% \times 20\% = 2\%$. They will respond correctly 2% of the time to misinformation. The Race to the Bottom will dominate.

Suppose their LTQ and AAQ are both medium at 50%. Now they do much better and detect 50% of lies. Since $50\% \times 50\% = 25\%$, they will respond correctly 25% of the time, an order of magnitude better. While they are still fooled most of the time, the simulation model shows that enough lies are detected to make the Race to the Top dominant.

The high leverage point

If the main root cause is *low political truth literacy*, the high leverage point follows logically. It is *raise political truth literacy components (LTQ and AAQ) from low to at least medium*, as seen in the SFD. This becomes two high leverage points in the simulation model: LTQ and AAQ. Presently both are low, as seen in simulation run 5 where they are both 20%, which gives the Race to the Bottom its asymmetric advantage and allows successful deception to occur. Because both are low, in simulation runs optimum *false meme size* is much more than one. Many large lies occur, causing Race to the Bottom dominance. This dominance is seen in higher red line for degenerates, who end the run at about 65% of supporters. It is also shown by the percent rationalists line.

As LTQ and AAQ are raised, more lies are detected. In an effort to maximize the number of Degenerate Supporters, optimum *false meme size* falls to make lies harder to spot. Lies get smaller.

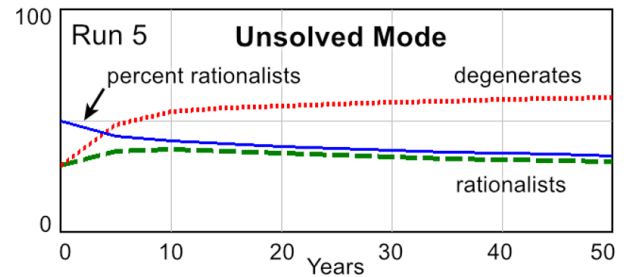
As the simulation model is run and LTQ and AAQ are each gradually raised from both at 20% in run 5 to 50% in run 10, optimum *false meme size* falls all the way to one, which is no lying at all. Supporters on the right have moved from an extreme right position (the far-right) based on a false ideology to a truth-based moderate position, one so moderate that like the left, the right also pursues the common good. Neither side has an advantage since lying ceases. The run ends with degenerates and rationalists both having 50% of supporters.

The two loops effectively merge into a single non-polarized Race to the Top with approximately equal percentages of degenerates and rationalists. There will be disagreement between the left and right, which is normal in politics, but it will be constructive and small enough for the system to solve common good problems. Extreme polarization is eliminated, bipartisan consensus becomes the norm, and resilience to disinformation is achieved. The system has undergone a fundamental mode change from undesired to desired symptoms.

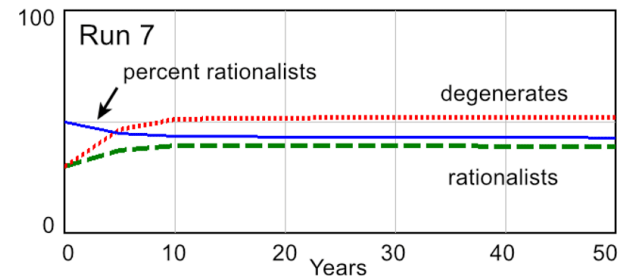
We did not expect run 10 to end with equal numbers of degenerates and rationalists. We anticipated some hold outs, some degenerates who clung to their false beliefs. But the model shows this is not their optimal strategy. We expect that this counterintuitive behavior generalizes to the real world and look forward to real-world testing of this effect.

We are not saying all polarization will be eliminated, only extreme polarization. This model-based prediction relates to what Sterman (2000, pp. 5–23) calls the *dynamic complexity* of complex social system problems and their counterintuitive, unpredictable behavior. It's unpredictable until the root causes and high leverage points are known.

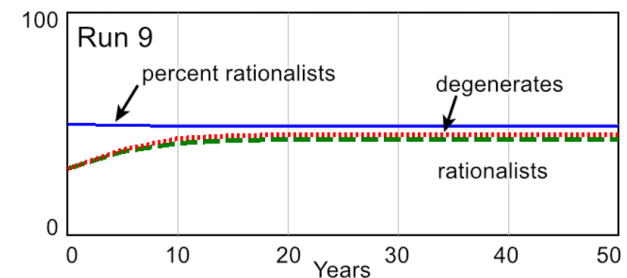
Selected Simulation Runs



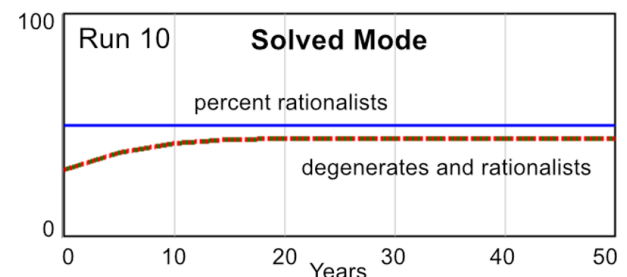
false meme size = 4.9, LTQ = 20%, AAQ = 20%



false meme size = 3.4, LTQ = 20%, AAQ = 30%



false meme size = 1.3, LTQ = 40%, AAQ = 40%



false meme size = 1, LTQ = 50%, AAQ = 50%

Fundamental solutions

Of all the superficial solutions studied, media literacy education came the closest to being able to push on the high leverage point of *raise political truth literacy components (LTQ and AAQ) from low to at least medium*.

Political truth literacy (DTQ) is the ability to tell truth from falsehood in statements meant to influence voters and to make logically correct voting decisions based on that information. *DTQ is a very small subset of media literacy*, broadly [defined](#) in the US by the National Association for Media Literacy Education as “the ability to access, analyze, evaluate, create, and act using all forms of communication.” The definition is extended by the Six Core Principles (Potter, 2022, p. 32) which broaden the definition still further. The EU uses a similar definition. The pattern is media literacy definitions of what should be taught tend to be all-encompassing and aspirational.

The strategic reason present media literacy education efforts fail to prevent susceptibility to political disinformation is they are too broad. They do not properly focus on the very narrow set of skills (LTQ and AAQ) required to resolve the main root cause. To do that requires *a collection of focused solution elements, including Truth Literacy Training*. These are the fundamental solutions.

The Truth Literacy Training experiment

A collection of solution elements was designed to push on the high leverage point of *raise political truth literacy components from low to at least medium*. The most promising one to develop first was Truth Literacy Training, since it requires the least amount of work to develop, test, and implement for the highest impact, and is the core solution element.

The key output of the analysis was these three hypotheses:

- H1.** The main root cause of low political truth literacy exists.
- H2.** The root cause can be resolved in a practical manner.
- H3.** DTQ = LTQ x AAQ models the core of political truth literacy reasoning.

To make a first pass at testing these hypotheses, we developed and performed the proof-of-concept Truth Literacy Training study.

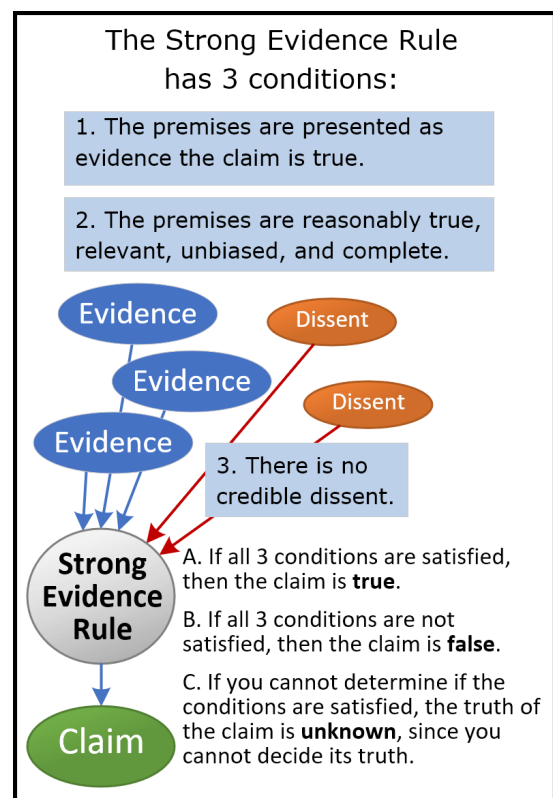
Study design

The complex user interface for online training required custom software and our own database. The final format consisted of a long questionnaire supplemented by training materials, shown on the next page.

The questionnaire consisted of five sections as seen in the **Outline** panel on the left. The only section that varied per group was the Review Section, which varied the type of training as described below.

In the screen shot of a running questionnaire, the subject has completed the LTQ and AAQ training, done in the Getting Started and Review Section in the left panel. They have just answered three questions concerning a statement about a Trade Agreement Treaty. All three answers are correct. All statements follow a similar format, with the claim bolded. All questions are unrelated to each other and stand alone.

The **Personal Truth Test** is shown on the right panel. Notes are the two vote training rules. The subject scrolls up to see the rest of the **Reference Material**. This includes a catalog of fallacies they were trained on and a graphic of the **Strong Evidence Rule**, as shown. Using the left panel, subjects can navigate anywhere in the questionnaire to review their decisions or training material. Checks indicate a completed item. Decision answers can be easily reviewed and changed.



Outline

Getting Started
Introduction
The importance of this survey
Instructions

Review Section
1. Pickpocketing ✓
2. Falling Tourism ✓
3. Balance the Budget ✓
 The concept of truth literacy
 How arguments work
 Three rules for health of democracy
Cherry Picking ✓
The Strong Evidence Rule ✓
Common Political Fallacies ✓
The Personal Truth Test ✓
Suggestions ✓

Decision Making Section
Tour Scammers ✓
Trade Agreement Treaty ✓
Stripped Eagle
Teacher Shortage
Highway System Maintenance
Asteroid Could Strike
Crime Is On the Rise
Lower Traffic Accident Rates
Expert Witness
Drug Addiction
Unemployment
Import Tariff
National Minimum Wage
Golden Opportunity
Water Quality Tourists Sick
Highest Quality of Life
Dumping

End Section
Feedback Questions
Demographics

Completion

Decision Making Questionnaire

Trade Agreement Treaty

Speaking on behalf of Rutania at a global summit, the vice-president of Rutania said, “We are pleased to see such progress on the trade agreement treaty. Free trade helps us all. But some tariffs are needed to help out developing countries and industries. There are only two choices here. If we design the treaty right, we are all going to benefit. But if we design it wrong, too many nations will suffer. **Therefore, we must take every precaution to design it right instead of wrong.**”

42. The politician said “Therefore, we must take every precaution to design it right instead of wrong.” How **true** do you feel that claim is?

False Mostly false Half true Mostly true True Cannot decide

43. What is the main reason for your decision in the above question?

There isn't enough information to base that claim on. This is a false dilemma.

44. If the election were held today and this was all the information you had, how much impact would what the politician claimed have on your decision to vote for or against the politician?

Very large impact on voting for them.
 Large impact on voting for them.
 Medium impact on voting for them.
 Small impact on voting for them.
 It would make no difference.
 Small impact on voting against them.
 Medium impact on voting against them.
 Large impact on voting against them.
 Very large impact on voting against them.

Reference Material

The Personal Truth Test

Step 1. Check the premises. If they're biased, the rule of logic is **cherry picking** and the claim is *false*.

Step 2. Check to see if the premises are being presented as evidence the claim is true. If so, then the rule of logic is the **Strong Evidence Rule**.

A. If the premises are all reasonably true, relevant, unbiased, and complete, and there is no credible dissent, then the claim is *true*.



B. If these conditions are not satisfied, then the claim is *false*.

C. If you cannot tell if the conditions are satisfied, then the truth of the claim is *unknown* and you *cannot decide* its truth.

Step 3. Check to see if the rule of logic is a fallacy or not. If it's a fallacy, then the claim is *false*. See the list of **Common Political Fallacies** above to help on this step.

Step 4. If it's not a fallacy and the claim follows from the premises and the rule of logic, then the claim is *true*. But if the claim doesn't follow from the premises and the rule of logic, then the claim is *false*.

Notes

- If the claim is *false*, apply the **Penalize the Deceiver** rule and *strongly oppose* the deceiver. For example, this would have a *Very large impact on voting against them*. 
- If the claim is *true*, apply the **Reward the Truth Teller** rule and *strongly support* the truth teller. For example, this would have a *Very large impact on voting for them*. 

Questionnaire user interface for the online Truth Literacy Training study, group 3. This runs in any popular browser.

Using a Prolific.com online panel filtered to US subjects aged 22 to 99, the study was run on 93 subjects randomly assigned to three groups. A 22-year age minimum was used since pretesting showed subjects younger than 22 did not take the questionnaire seriously, raced through, and had unreliable, wildly varying answers with lots of guessing (random answers). Resultant demographics were age range 22 to 51, average age 31, 49% male. Educational levels were 34% high school, 55% college degree, 10% PhD. All were told this is a decision-making study for the purpose of improving the health of democracy. The three treatment groups were:

1. **Control group** – This group received training on the neutral topic of how democracy works.
2. **Claim training (LTQ)** – This group received training on how to tell if a political claim embedded in a political statement was true or false, by spotting the pattern of fallacy or non-fallacy used and using the Personal Truth Test, which includes the Strong Evidence Rule. The strategy is high-speed pattern recognition to drive the Personal Truth Test. Humans are excellent at pattern recognition, if they know what to look for. “...the ways by which we are deceived are consistent and not so hard to recognize” (Jackson & Jamieson, 2007, p. 6).
3. **Claim and vote training (LTQ and AAQ)** – This group received the same training as group 2 plus training on how to vote correctly (given the perceived truth of a claim) by applying two rules: Reward the Truth Teller and Penalize the Deceiver (See the Notes section of the questionnaire for these rules.). Total time for group 3 averaged 87 minutes, of which about one hour was training. Group 3 training used 37 questions.

At one point in training development, we found many subjects were not taking the training seriously, resulting in widely varying and mostly low scores.

The problem was solved by discovery of an insightful set of experiments on “dispelling the illusions of invulnerability” to deceptive persuasion (Sagarin et al., 2002). The study found it was not enough to expose subjects to deceptive statements and explanations of why they were deceptive. This failed to work because “our participants’ sense of unique invulnerability to deceptive ads left them unmotivated to use defenses against such ads.” This illusion of invulnerability caused subjects to believe they were not susceptible to deception, with the result that “they did not resist the ads containing illegitimate [deceptive] authorities more effectively than did controls.” This was corrected by “demonstrating in an undeniable fashion that participants can be fooled by ads containing counterfeit authorities.”

To dramatically demonstrate to subjects they are not invulnerable to deception, we changed the initial part of the training. After subjects in groups 2 and 3 answer questions for the first three statements in the Review Section of the questionnaire and before any training has occurred, they read an educational essay on *The concept of truth literacy*. There they are shown their own answers for the first three statements (the first two are almost always wrong) versus the correct answers. The training then says:

If you got all the answers right, congratulations. However, here’s how other people did. In a past survey with 34 participants, none got the answer to the first question right. Three got the answer to the second question right. On the third question 19 people got the answer right.

Why are the first two questions so hard? It’s because they use clever forms of deception, which makes it terribly difficult to determine how true the claims are.

The reason so many people got the third question right is it’s not deceptive. Generally, it’s much easier to spot the truth as opposed to deception, because we are so used to processing true statements from people we talk to, books we read, and so on. ...

Fortunately, there's a solution to this problem.

Here's the solution. The reason citizens are so easily fooled by deceptive statements is **low truth literacy**. The average person has never been trained in telling truth from deception, so their truth literacy is low. Because it's low, they are unable to reliably tell truth from deception.

For example, the average person is unable to instantly see that the claims in the first two statements are false, because they both use the **cherry-picking** fallacy.

Truth literacy is the ability to tell truth from deception. Universal truth literacy is just as important to the health of democracy as reading literacy, because if people cannot "read" the truth they are blind to what the truth really is. They are easily controlled by any politician who uses deception to hoodwink the masses into supporting him and his positions.

In the Truth Literacy Training that follows you are going to learn two things:

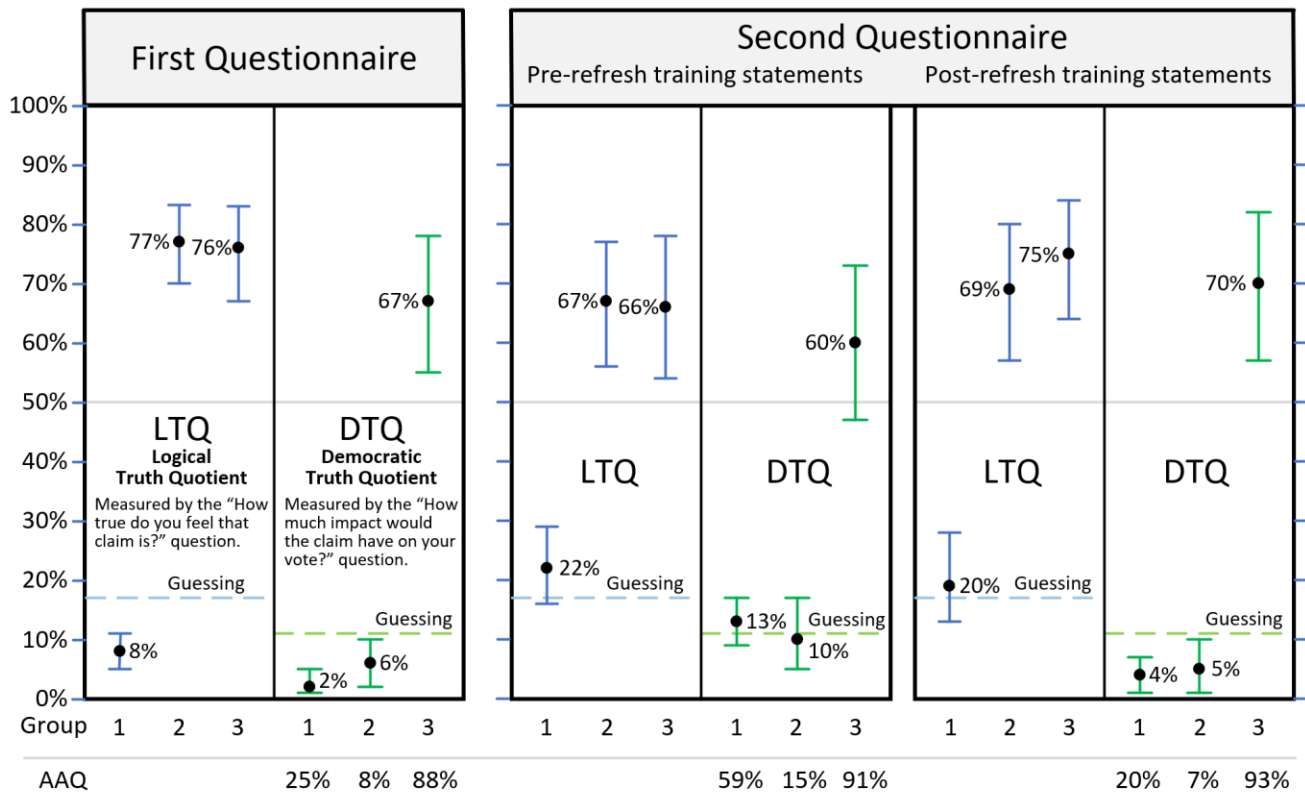
1. How to spot the **cherry-picking** fallacy, a form of deception.
2. How to spot the **strong evidence** non-fallacy, a form of telling the truth.

This and the material that follows triggers realization they are vulnerable to deception. From this point on, almost all take the questionnaire seriously. From the viewpoint of the elaboration likelihood model of persuasion (Dillard & Shen, 2013, pp. 137–149), elaboration *motivation* has increased from low to high. Subsequent training increases their elaboration *ability*, with the result that when training is complete, most deceptive persuasion attempts will be processed (elaborated) correctly and they will not be fooled.

There is a 5-minute break after training for all groups, necessary to avoid fatigue and loss of interest on such a long questionnaire.

In the questionnaire, non-hot statements were presented in random order. Each statement was followed by three questions: (1) the truth question, (2) an open-ended question designed to maintain cognitive motivation and give us feedback, and (3) the vote question. The fictitious country of "Rutania" was used in statements to create interest and political realism without the hot bias a real country would have provoked. Deceptive statements contained six fallacies we found common in political appeals: cherry picking, ad hominem attack, appeal to emotion, strawman, false dilemma, and false fact lie, plus flawed application of the Strong Evidence Rule.

Study results



Average scores for answers to deceptive statements are shown, with 95% confidence intervals, guessing levels, and calculated AAQ. Treatment groups were: 1. No training (control group), 2. Trained on claims (LTQ), 3. Trained on claims and vote (LTQ and AAQ).

Results are summarized above. Rather than a 95% confidence interval calculation using the central limit theorem, bootstrapping resampling with replacement was used (Banjanovic & Osborne, 2016), due to the data being far from the non-skewed normal distribution assumption required for the central limit theorem.

Results were positive. Average DTQ for the control group was low, 2%, with a 95% confidence range of zero to 10%. This offers preliminary proof-of-concept support for **H1**, *that the root cause of low political truth literacy exists*. Average DTQ for the fully trained group (group 3) was 67%, a 65-point rise. Full training averaged one hour. *This suggests that Truth Literacy Training can successfully push on the high leverage point of raise political truth literacy components from low to at least medium*. This confirms the potential feasibility of **H2**, the main root cause can be resolved. The fact that LTQ training alone increases DTQ very little, while ATQ and AAQ training increase it a lot, supports **H3**, $DTQ = LTQ \times AAQ$ models the core of political truth literacy reasoning.

The effect of AAQ training alone was not tested to reduce study expense and is an area for further research. We expect the effect would be low, since if LTQ is low then one cannot make good logical decisions in the AAQ step, even knowing the two rules of AAQ, Penalize the Deceiver and Reward the Truth Teller.

The literature offers some support for a generally low level of DTQ. A study on the teaching of critical literacy in UK schools found 2% of children and young people, and 4% of adults could successfully determine the truth or falsity of six short news stories correctly (Powell, 2023).

DTQ training is persistent but falls slowly. The follow up study 26 days later (using different statements) found LTQ and DTQ for group 3 had declined from 76% to 66% and 67% to 60%, 10-point and 7-point falls. After an average of 30 minutes of refresh training, LTQ and DTQ for group 3 rose to 75% and 70%, indicating regular refresh training of some type can work and will be required. Or it may be that like reading and writing literacy, once political truth literacy matures and becomes the reasoning default and is exercised often enough, little decline will occur. Long term it may even rise, if reinforced and strengthened by regular exposure to Truth Literacy Training topics in news media, such as stories centered on use of a particular fallacy.

As predicted, LTQ training alone (group 2) does not raise DTQ significantly. AAQ training is also required (group 3). Still, the 6% DTQ for group 2 was an astonishing discovery. *We expected it to be low, but not that low.* Even if a person has been trained on how to tell whether a political claim is true or false, they are unable to translate the truth or falsity of a claim into correct action. Instead, they choose all sorts of answers for the vote question.

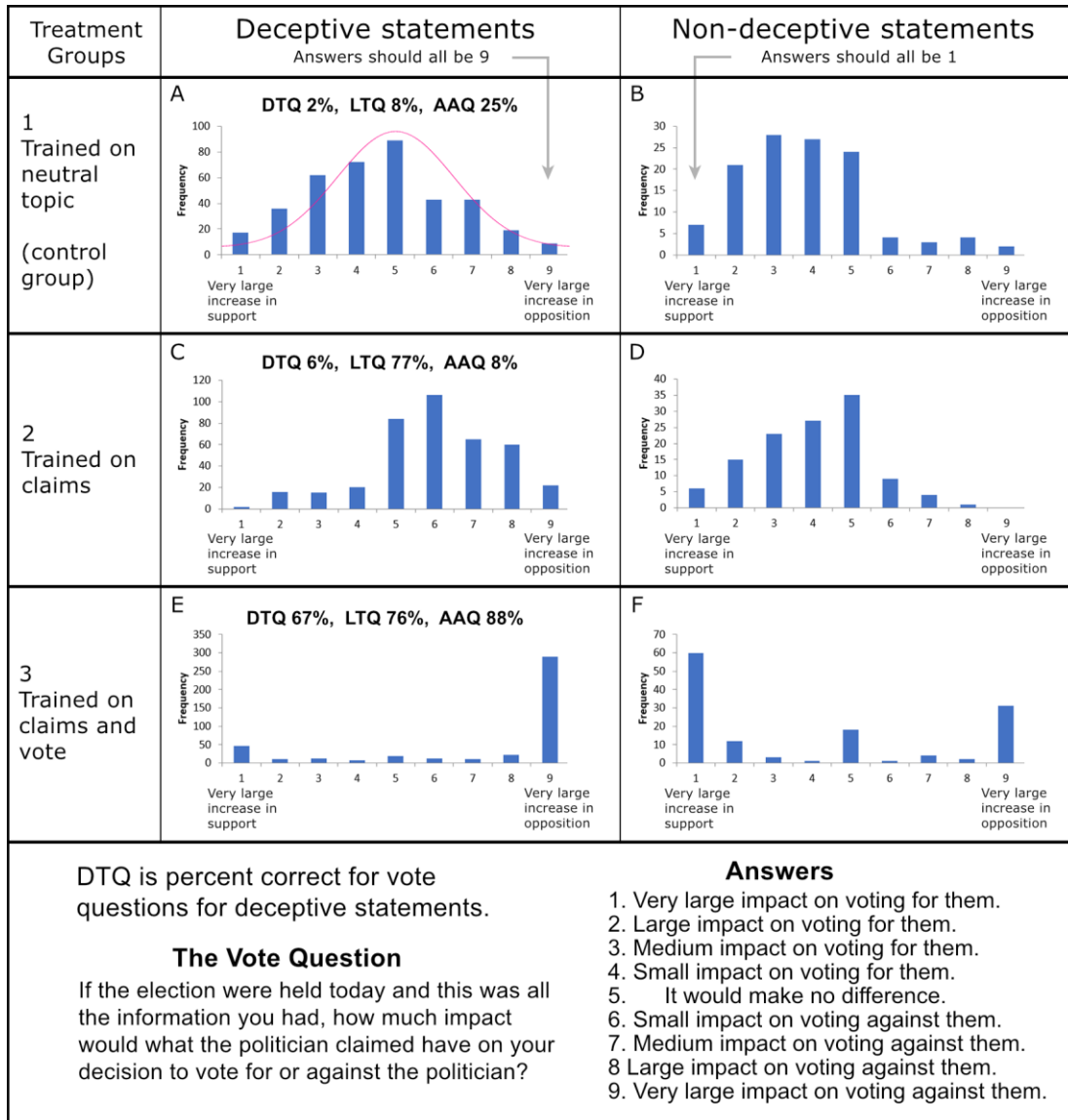
This indicates the average voter currently does not significantly penalize politicians they know to be deceptive. This behavior is required for democratic governments to work in the best interests of voters. We suspect the main reason for this dysfunctional behavior is that very few citizens have received the equivalent of Truth Literacy Training and in particular vote training, which is amazingly simple. Vote training consists of following two simple rules: **Penalize the Deceiver and Reward the Truth Teller.**

For the first questionnaire, treatments groups 1, 2, and 3 had $N = 30, 30,$ and 33 . Small N was chosen due the pilot nature of the study and the high cost of reimbursement per subject, as total time averaged 2.5 hours per subject across both questionnaires during pretesting. Small N is typical for pilot studies, especially when large effects are anticipated (Bell et al., 2018). Final pretesting with $N = 6$ for group 3 found a 50 to 70 percentage-point DTQ increase. Using a sample size calculator (www.powercalc.ca) for anticipated DTQ of 5% and 55% for groups 1 and 3 (a 50-point rise), estimated standard deviation 50 percentage points, desired two-sided significance .05, and desired power .80, the minimum sample size per group is 17. The sample sizes were thus more than adequate for detecting effects of this magnitude. Actual SD was 33 points, indicating estimated SD was conservative.

Despite the small sample, 95% confidence interval ranges were small enough to reach strong inferences for the first questionnaire due to the large effect, as predicted by pretesting. Because of an 18% dropout rate in the second questionnaire and use of 20 statements in the first questionnaire versus 13 in the second, confidence intervals widened in the second questionnaire.

Vote question results

These contain insightful behavior, so will discuss them at length.



Distributions of the vote question answers for the first questionnaire are shown above. The question measures DTQ for deceptive statements. Values for the DTQ, LTQ, and AAQ are shown. Recall that $DTQ = LTQ \times AAQ$.

Correct answers are 9 for deceptive and 1 for non-deceptive statements, under the idealized conditions stated in the vote question. Other answers indicate errors in LTQ or AAQ reasoning. Even if these errors are seemingly small and insignificant, they can have large cumulative effects when repeated exposure to persuasive stimuli occurs over time (Koch & Arendt, 2017), a cognitive flaw caused by the processing fluency effect (Linden, 2022, *italics added*):

The primary cognitive mechanism responsible for the fact that people are more likely to think that repeated claims are true is known as *processing fluency*: the more a claim is repeated, the more familiar it becomes and the easier it is to process. In other words, the brain uses fluency as a signal for truth.

The study was single exposure, so we make no claim it tests cumulative effects. We rely on research by others that shows that small shifts in beliefs can accumulate into large shifts over time, due to repeated exposure to media messages.

In democratic systems, once a person knows a politician has lied and knows the Penalize the Deceiver rule, answers 6, 7, and 8 only partially penalize the deceiver and are an error in AAQ reasoning, as defined in the training. What is needed is *full* penalization, by applying the Penalize the Deceiver rule. This normative rule helps a person avoid cumulative media effects.

The error in AAQ reasoning occurs because of the tendency of *moral decoupling* (Bhattacharjee et al., 2012), where: “judgments of performance are separated from judgments of morality. By separating these judgments, moral decoupling allows consumers to support a transgressor’s performance while simultaneously condemning their transgressions.” Moral decoupling is a rationalization heuristic that allows people “to support public figures that act immorally.” A voter choosing answer 8, for example, is saying “I know the politician lied and condemn them for that, but I still partially support them.” Due to cumulative effects, repeated exposures can cause weak beliefs (such as partial support) to grow into strong beliefs.

The answer distributions show this behavior:

Group 1. Trained on neutral topic (control group) – While the effect surely varies across political units and study samples, we hypothesize that the first row approximates how voters in most nations behave today.

In chart A there’s more support than opposition in response to a deceptive political claim. This has not gone unnoticed by politicians willing to engage in deception.

A normal distribution curve centered on the midpoint was added to chart A to illustrate how closely the data approximates, but does not perfectly fit, a normal distribution. *Low DTQ has caused answers to shift slightly left.* The near-normal shape of the data indicates a person’s level of political truth literacy is largely due to random factors rather than the formal education seen in charts C and especially E. This may be inferred from the way a normal distribution results from a sufficiently large sample of random independent variable values.

Chart B shows untrained people lean toward supporting truth-telling politicians who tell the truth, but seem shy about supporting them strongly with answer 1. We hypothesize this is mostly because they received no vote training.

Group 2. Trained on claims – As discussed earlier, group 2 results contain what to us is astonishing data. Citizens trained on how to determine the truth of claims but not trained in how to vote correctly, intuitively lean in the correct direction on vote answers. But very few choose the correct answers of 9 in chart C and 1 in chart D. *A surprising percentage (22% and 29%) choose answer 5, “It would make no difference.” That’s like saying “It doesn’t matter to me at all if a politician tells the truth or not.” But yet it must, if democracy is to thrive.*

Similar observations apply to other incorrect answers. Choosing 4 and 6 is like saying “It barely matters to me whether a politician tells the truth or not.” Deviations from correct answers are why the vote training in group 3 is required.

Correct answer preference is worse in chart D than chart B. Claim training *reduced* ability to vote correctly. This is puzzling behavior we cannot explain and identifies an interesting phenomenon for further research.

Group 3. Trained on claims and vote – The third row, if we could get enough voters to choose the correct answers when faced with real-world decisions, would resolve the root cause by raising political truth literacy components from low to medium. The simulation model shows levels of 50% for LTQ and AAQ are sufficient to solve the problem. These levels appear feasible. To accelerate solution, training would go first to those most likely to benefit from it: swing voters and the young. The rest are committed to a party and rarely change (Jones et al., 2020).

The training needs improvement to reduce confusion of some kind, indicated by the answer 1 spike in chart E and the answer 2, 5, and 9 spikes in chart F. These should all be near zero.

A starting-point comprehensive theory

The analysis offers a starting-point comprehensive theory of the global Problematique that can productively guide further research. The theory consists of the causal structures in the completed SFD and the simulation model, the two-step cognitive model of $DTQ = LTQ \times AAQ$, and the four forces of the SFD as explained below. These are based on the “four requirements for a comprehensive theory of a difficult large-scale social problem” as discussed earlier in the section on: The four forces of SFDs (page 28).

1. **Social Force S.** Why past solutions failed (because $S < R$) – Due to lack of an appropriate analytical method, the fundamental layer of the problem was hidden by complexity. This caused problem solvers to be intuitively attracted to pushing on low leverage points with superficial solutions, as shown in the completed SFD.
2. **Social Force R.** Why the problem occurs (because R is unresolved) – The current system cannot solve the problem symptoms of *Many unsolved major problems that reduce the common good* because of the unresolved main root cause of *low political truth literacy*, as measured by the Truth Literacy Training study.
3. **Social Force F.** Why fundamental solutions can be expected to succeed (because $F > R$) – The Truth Literacy Training study provides preliminary proof the root cause can be resolved in a practical manner, though much further research is required. *Solution strategy must center on resolving the main root cause by raising the components of DTQ (LTQ and AAQ) from low to at least medium.*
4. **Social Force New R.** Why the mode change will be relatively permanent (because new R contains self-sustaining feedback loops) – Resolving the root cause changes feedback loop dominance and how politicians compete for votes, causing the system to shift into the new mode where *politicians constructively compete to see who can tell the most helpful truths about how to optimize the long-term common good.* This should be relatively permanent, because based on this analysis and future similar research, those who believe in democracy now know that keeping political truth literacy (DTQ) above *a critical minimum* is required for a healthy democracy and will strive to keep it there. How this rule of system behavior can be institutionalized is an area for further research.

That DTQ must be kept above a critical minimum is what Lynch (2025, p. 18) suggests with “a [correctly] informed citizen is essential for democracy to flourish.” Dahl’s (2015, p. 37) third criterion for a democratic process, “enlightened understanding,” echoes that requirement, as does Lewandowsky’s (2024) claim that “Democracy also requires reliable shared knowledge for meaningful debate and to ensure normatively good policy outcomes.” Low DTQ prevents correct understanding, enlightened action, and reliable shared knowledge.

RECOMMENDATIONS

Recommendations are based on these key findings:

1. **The strategic reason** for the long history of solution failure on the Problematique is *problem complexity exceeds the analytical capacity of conventional problem-solving processes*.
2. **To fill this gap** a wrapper process for RCA, SFDs, was iteratively developed and applied. Results demonstrate this to be a powerful alternative to conventional methods, *since the tool was able to find what conventional methods have not*. None of the findings below has previously been reported in the literature:
 - a. The **main root cause** is low political truth literacy, as supported by a completed SFD, simulation model, and controlled experiment.
 - b. The **high leverage point** for resolving the root cause is *raise political truth literacy components (LTQ and AAQ) from low to at least medium*.
 - c. The equation **DTQ = LTQ x AAQ** models the core of political truth literacy reasoning. Equation discovery allows development of hyper-focused solution elements designed to raise the components in an efficient and effective manner.
 - d. A **comprehensive theory** of the problem in terms of the four forces of SFDs. No other theory we examined can explain even one of these forces satisfactorily.
3. **The high leverage point** has never been pushed on before with large-scale solution elements. This suggests a sizable opportunity.
4. **A formal RCA-based process** that fits the Problematique has never been applied before. The same holds for its component problems. This suggests an even greater opportunity.

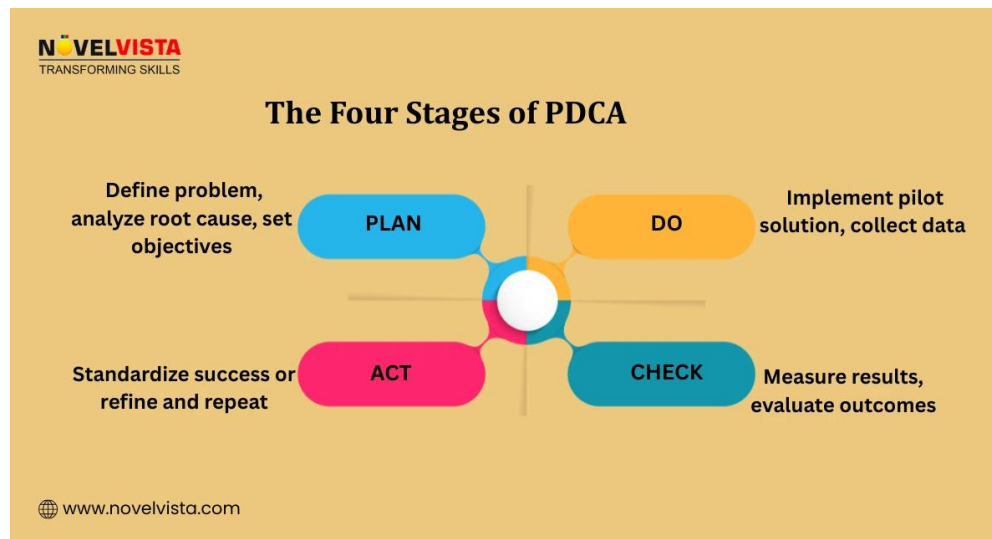
Accordingly, our recommendations at this point in this line of research are:

Recommendation 1. Adoption of RCA-based problem-solving processes for large-scale difficult social problems.

This is the key long-term strategy. For difficult large-scale social problems, problem solvers must abandon conventional methods, which are largely based on intuition, expert opinion, statistics, case and comparative studies, and simulation modeling, and shift to the same tool adopted *en masse* by large-scale industry beginning in the 1980s: **RCA-based problem-solving processes**. RCA uses conventional methods and many more, but as supporting tools for the overall process. (George et al., 2004, 100 tools; Pyzdek, 2003, over 100 tools; Tague, 2023, 142 tools) Like all tools, RCA is not a panacea. It requires thoughtful, skillful application.

Formal RCA originated with the “King of Japanese Inventors,” Sakichi Toyoda (1876-1930), in the early twentieth century when he formalized how he applied RCA with the now ubiquitous Five Whys method (Imai, 1986, p. 50). Use of RCA in Japan spread and began to mature, and received an enormous boost with arrival of W. Edwards Deming in 1947, who introduced a well-structured component for continuous process improvement (Gabor, 1990, p. 20,74). This was the **PDCA cycle** (Plan, Do, Check, Act), aka the Deming Cycle or Shewhart Cycle, with Japan’s RCA occurring mainly in the Plan step (Patel & Deshpande, 2017).

The combination of RCA and PDCA is now known as modern process control, aka RCA-based continuous process improvement or CPI. This was the new process that solved industry’s most difficult problem at the time: **how to consistently mass produce complex products and services of very high quality and low cost**, a problem that had existed since the dawn of the industrial revolution. The problem had never been solved in the West, even with its large-scale mass production systems and Henry Ford’s perfection of the high-volume moving assembly line. Combining RCA with PDCA allowed process control theory to at last move from its fourth stage of process maturity, *statistical quality control* using control charts and other techniques, to the all-important fifth stage, *total quality control* (Feigenbaum, 1991, pp. 15–17). In the fifth stage, the PDCA cycle integrated statistical quality control with RCA to drive specific continuous process improvements in a manner so efficient and effective that mass production of very high-quality products and services at low cost was now possible. This had never been achieved before.



A typical version of the PDCA cycle, with RCA in the Plan step. ([source](#))

The new RCA-based CPI process was so well received by Japanese industry that soon Japan’s Deming Prize (an annual award for quality beginning in 1951) was a national competitive event and came to be as prestigious in Japan as the Nobel Prize was in the West (Gabor, 1990, p. 73). Almost instantly the new process served as *the* critical component of the Japanese post-war economic miracle in the 1950s and 1960s, when Japan rose from devastation in World War II to become the second-largest economy in the world, due to the unmatched high quality and low cost of exported products.

Finally in 1981 the RCA-based CPI paradigm diffused to the west, when Ford Motor Company engaged Deming for training (Gabor, 1990, p. 3). The reason? American auto manufacturers had lost so much market share to Japan they faced financial disaster. Ford learned and implemented Deming’s teachings so well that Ford went from the brink of bankruptcy in 1980 to the most profitable auto manufacturer in America. “Less than a decade after their first encounter [with Deming in 1981], Ford would be hailed as the model of American management” (Ibid, p4). For a cohesive review of these mega-tools see Tague (2023, pp. 13–34). Lean Startup, a specialized form of lean, “has become the standard for commercializing scientific research in the U.S.” (Blank, 2013, p. x).

“How to consistently mass produce complex products and services of very high quality and low cost” *is the same problem democratic governments have*, as demonstrated by the many unsolved problems in the global Problematique.

The process of government policy management is embedded in politics, with all its power struggles, ideological clashes, and stakeholder competition. *Policies* may thus appear to differ so fundamentally from industrial *products and services* that an RCA-based process modeled on the practices used by industry would fail. Yet large multi-national corporations operate in a highly complex context similar to that of nations. Different divisions, subsidiaries, managers, and major suppliers compete for influence, personnel resources, and budget allocation. Divergent management, marketing, engineering, and supply chain paradigms are often at odds and are constantly evolving. Pressures from multiple stakeholders and actors (competitors, the law, shareholders, operations management, boards, NGOs, unions, and customers) shape decision-making. While the details differ, these many factors cause the equivalent of the political pressures and complexities found in public governance. *Governance in industry thus differs only in degree (scale), not in kind, from governance in the public sector.*

From this perspective, *policies* are management decisions about what *products and services* a government chooses to provide to its citizens, or a corporation chooses to provide to its customers. Therefore, we see no reason why RCA-based processes cannot work equally well for industry and democratic systems.

Recommendation 2. Solving the democratic backsliding problem must be the top initial process application priority.

Of the eight problems in the Problematique, **the crux is democratic backsliding**. If that continues, all the other problems remain unsolvable. Authoritarians care only about themselves and power, not the common good. This behavior follows from:

The fundamental premise in **selectorate theory** [is] that the primary goal of a leader, regardless of secondary policy concerns, is to remain in power. To remain in power, leaders must retain support from every member essential to the success of their winning coalition. When the winning coalition is small, *as in autocracies*, the leader will tend to use *private goods* to satisfy the coalition. When the winning coalition is large, *as in democracies*, the leader will tend to use *public goods* to satisfy the coalition. ([source](#))

Public goods are services and products that once created, are available to all. Examples are environmental and safety regulations, social safety nets, and a large set of laws and the related judicial system. By contrast, **private goods** are available only to their owners, such as bank accounts and houses. Solutions for the eight Problematique problems are each a public good since they are available to all. Authoritarians reward their winning coalition with private goods like money, favorable legislation, and jobs, since private goods for a few are orders of magnitude cheaper than public goods for all. Authoritarians optimize for the minimum cost of attaining or retaining power.

There's a second more important reason the crux is democratic backsliding. Like the melting of the icecaps or extinction of a species, an acute slide from democracy to authoritarianism is usually **irreversible**. Using data from 1900 to 2019, Boese et al. (2021) found that "once a democracy enters an autocratization episode, the fatality rate is distressingly high: since 1900 a mere 19 [out of 84] episodes (23%) managed to avert breakdown at the end of the episode."

In *The Myth of Democratic Resilience*, Bianchi et al. (2025) found evidence of even more sobering behavior:

...our analysis of all countries that experienced a democratic turnaround—that is, to have gone from being democratic to authoritarian and back again—since 1994 reveals that nearly 90 percent failed to sustain the level of democracy they returned to for at least five years following the end of the turnaround.

Bianchi et al. then ask why “bounce-back resilience” fails to occur nearly 90% of the time. Based on examination of 30 cases from 1990 to 2022, they theorize that:

First, even short bouts with autocratization can have a lasting impact on democracy. Legal changes that introduce repressive legislation may *be difficult to reverse*, especially when combined with personnel changes that place antidemocratic individuals in key positions, inserting autocratic veto players into the political system. ...

The second key factor is *the desire*—not to mention the motives and incentives—of pro-democratic political leaders, parties, and coalitions *to stay in power once they have won election*. Prodemocracy alliances are often broad churches, with some members determined to promote democratic norms and others more interested in using the coalition to strengthen their own chances of taking power. It is therefore not surprising that the new governments they form often resist relinquishing the extensive powers inherited from the previous autocratic regime. ...

Finally, *the conditions for strengthening democracy globally have deteriorated over the last thirty years*. Social polarization around identity, a greater willingness among citizens to tolerate authoritarian interventions if civilian leaders fail to deliver on promises, and cross-border misinformation and propaganda campaigns—spread, for example, by Russia in parts of Eastern Europe and West Africa—have proliferated alongside rising anti-elite and anti-rights narratives. ...

Taken together, the combined effect of these factors means that *countries are unlikely to improve their democracies after an authoritarian episode*—or even to maintain the level of democracy they had beforehand for very long. ... *True resilience is rare. Durable democratic turnarounds are practically nonexistent in the contemporary world.*

Given the high irreversibility of acute backslides and the tendency of authoritarians to care only about themselves and power, we reached a firm conclusion. Of the eight problems in the Problematique, *solving the democratic backsliding problem must be the top initial process application priority.*

Democratic backsliding is a meta-problem controlling all the others. If it is not solved in time, the Problematique becomes permanently unsolvable. This will last until a new member of the Problematique, the **authoritarian governments rule the world** problem, is solved.

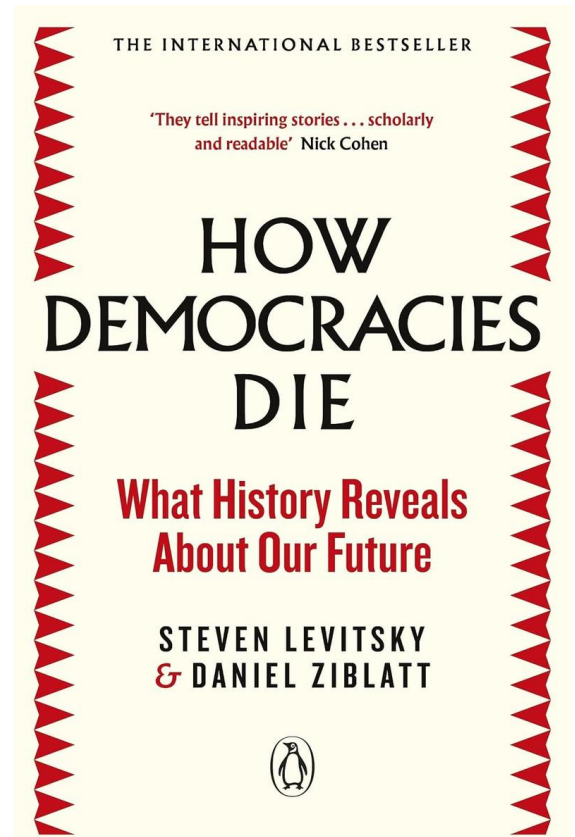
Can transitions from democracy to autocracy be reliably reversed, using techniques yet to be developed? We suspect there is over a 50% probability it can, given that RCA has never been applied to this question. *Backsliding reversal* (where fair elections no longer exist) differs completely different from *backsliding prevention* (where fair elections exist), which is what this report has analyzed as part of analyzing the Problematique. See the SFD for The Democratic Backsliding Problem on page 38.

Recommendation 3. Accelerated solutions are needed, due to the extreme urgency of some of the eight problems, particularly democratic backsliding and environmental sustainability.

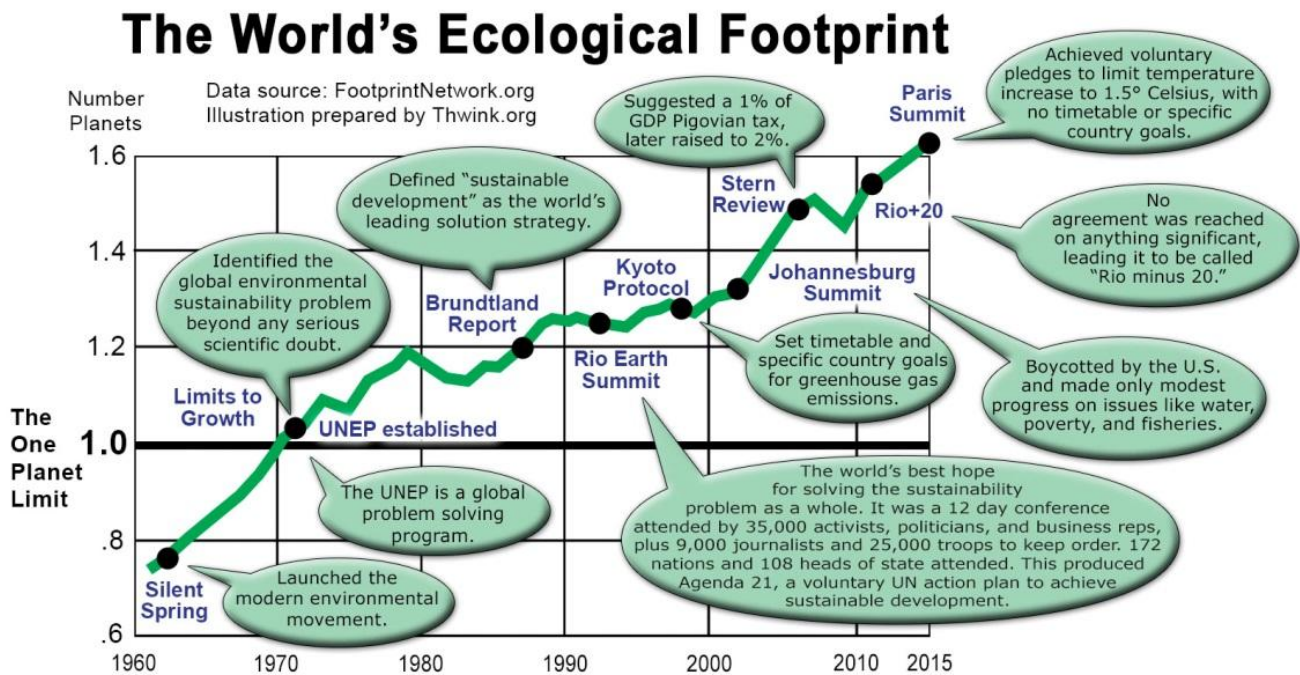
In the backsliding problem, solution urgency arises from the need to prevent a structural “point of no return” tipping point from being crossed in the world’s remaining democracies.

For each democracy, every election and executive/legislative decision counts. Every election that leaves anti-democracy leaders and their supporters in power is one more step down the slope of democratic institution erosion. Leaving anti-democratic leaders in power gives them permission to continue the hack, hack, hack of incremental democratic erosion. With each further downward step through legal means, like packing the courts, subverting the election process, muzzling the media, and repressing the opposition, more institutional damage is done, until finally it becomes nearly impossible to stop or reverse. *The “point of no return” has been crossed, and that democracy has died.* Its democratic resilience system is dead.

When a democracy dies, its *balancing loop* of checks and balances via the law, the courts, the press, congress or parliament, and the electorate has been destroyed, replaced by a *reinforcing loop* that from here on strengthens and consolidates autocratic power. This frequently causes long-term authoritarianism to evolve to extreme repression of opposition, dissent, and freedom, as seen for example in China, North Korea, Stalin and Putin’s Russia, and Hitler’s Germany. As Bianchi et al. (2025) found in Recommendation 2, it is difficult to breathe life back into a dead democracy. *“True resilience is rare. Durable democratic turnarounds are practically nonexistent in the contemporary world.”*



In the environmental sustainability problem, every year counts. Solving the problem requires limiting the world's environmental impact to a sustainable level. This has long been measured by the [ecological footprint](#) metric. Since the *Limits to Growth* (Meadows et al., 1972) identified and measured the problem 54 years ago, the world has known that every year counts. But that has not led to solution success, as the graph below shows.



The footprint measures how many planets it would take to provide the ecological services being used. The world crossed the one planet line in approximately 1972 and entered overshoot.

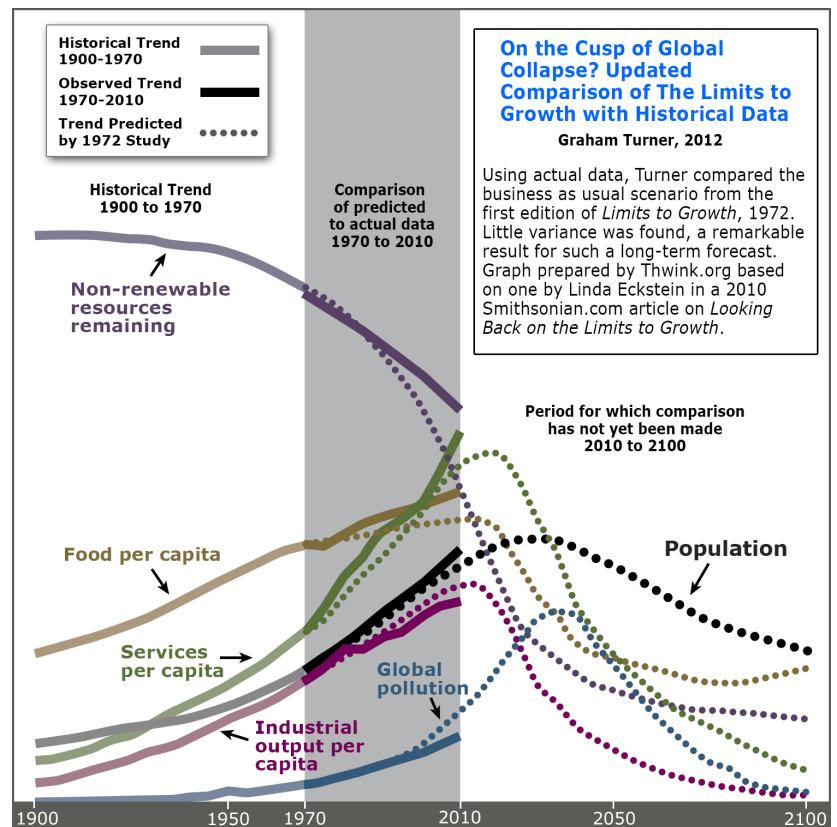
Every dot on the footprint curve is a solution that may have helped some, such as identifying the problem and its severity. But none have halted the curve's unstoppable growth. We are now living in a world of high overshoot. *If we are to begin to reverse the curve, every year counts.* The problem hovers ominously over our fragile planet and its legions of hard-working problem solvers, casting a dark shadow that portends a most unpleasant outcome if the problem is not solved soon.

How soon? Not long ago there was ample time for society to intelligently appraise the problem and mount an effective solution. In 1972 the first edition of *Limits to Growth* painted a picture of cautious optimism. It was still possible for "the world's people to strive for [a sustainable future with no collapse]. The sooner they begin working to attain it, the greater will be their chances of success." The question was *How to attain a sustainable future.* At the time it looked eminently possible.

But that window of opportunity soon closed. Only twenty years later in 1992 the second edition, appropriately titled *Beyond the Limits*, found the world was now in the early stage of overshoot. "The human world is beyond its limits. The present way of doing things is unsustainable. The future, to be viable at all, must be one of drawing back, easing down, healing." The question had shifted to *How to ease back from beyond the limits.* Despite knowing that every year counts, civilization was in severe overshoot. Now it had to somehow quickly correct course and live within its limits, or collapse would be unavoidable.

Today, no credible solution is in sight. Unsustainable overshoot continues its unstoppable rise. Collapse lies dead ahead, as shown on the right. This plots the original scenario from the first edition of *Limits to Growth* as the solid lines from 1900 to 1970, and then the dotted lines after that. Turner's (2012) data of the actual outcome from 1970 to 2010 is shown as solid lines, which continue those of 1900 to 1950.

The comparison of predicted to actual data shows that the Business-as-Usual scenario is largely on track and that the beginning of collapse is imminent. *More than ever, every year counts.* Once collapse begins, the system is weakened and begins to prioritize actions and resources toward short-term problems, like scarcity of food, water, and growing conflict (including war) over diminishing resources. Long-term problems like solving the environmental sustainability problem are quickly forgotten as the system enters a spiral-of-doom mode.



A later examination of the *Limit to Growth* scenarios is that of Herrington (2020). Using data up to 2019, this validated Turner's findings and found that the window of opportunity to align with a soft-landing scenario, via an intense Comprehensive Technology solution, is closing. *Again, every year counts.*

Finally, Nevel et al. (2024) performed an elaborate study that recalibrated the *Limits to Growth* simulation model by adjusting 35 system variables using modern datasets from 1970 to 2020. This found that the Business-as-Usual (collapse) and Comprehensive Technology (postponed collapse) scenarios still fit the observed data, both are possible, and that Business-as-Usual collapse begins slightly later than originally modeled. The Stabilized World (no collapse) scenario is no longer possible. "As a society, we have to admit that despite 50 years of knowledge about the dynamics of the collapse of our life support systems, *we have failed to initiate a systematic change to prevent this collapse.*"

While collapse can no longer be avoided, a softer postponed collapse is still possible, but only if strong unified global action occurs. This is unfortunately not happening. *Every year no longer counts.* Instead, we see an increasing stream of headlines like:

- MIT's 1972 Global Collapse Warning Revisited: Humanity Enters Make-Or-Break Decade ([article](#), 2025)
- 'We Were Warned,' Says WHO Chief as More Than 1,300+ Dead Across Europe from Climate-Driven Heat Wave ([article](#), 2026)
- Tipping Points and Ecosystem Collapse Are the Real Geopolitical Risk ([article](#), 2026)
- Gulf Stream 'could collapse in our lifetime,' warns EU climate chief ([article](#), 2025)

Recommendation 4. Further research should focus on pushing on the high leverage point of raise political truth literacy components (LTQ and AAQ) from low to at least medium.

This section describes general areas for further research, rather than specific research projects.

Prime attention should be given to further research on Truth Literacy Training, given the promising experimental results. The study needs replication, larger more representative samples, broader training, deeper investigation of the falloff effects with longitudinal questionnaires, testing in multiple nations, testing on real-world political statements and other forms of persuasion like videos and social media, and finally, testing on real elections.

How to embed the training into education systems should be examined. *Universal truth literacy is just as important to the health of democracy as reading literacy*, because if people cannot “read” the truth, they are blind to what the truth really is. They are easily controlled by any politician who uses deception to hoodwink the masses into supporting positions against their own interests.

Reasons for additional solution elements

Pushing effectively, efficiently, *and rapidly* on the high leverage point requires more than Truth Literacy Training, for these reasons and more:

1. Many news sources are untrustworthy and are getting better at appearing just as reliable as trustworthy sources.
2. Many claims are too complex to easily evaluate with the Personal Truth Test, such as “This budget will work.”
3. Many citizens will feel too busy or distracted to take the time to consciously apply the training, will lose motivation to prevent being fooled, will reach different levels of competency after training, or may not recognize their own cognitive weaknesses.
4. There will be intense resistance and ingenious adaptation from those working for the Race to the Bottom. They cannot afford to let the majority learn how to tell truth from deception. For example, use of AI will trigger an arms race between people’s growing DTQ skills and the deceivers’ AI-designed disinformation that’s harder to detect with LTQ, confuses the AAQ response, and is so well micro-targeted that a person’s defenses are weakened.
5. The mushrooming amount of fake news and disinformation in social media exists because it maximizes profits and drives the business model of “digital capitalism.” Curtailing this requires government regulation (Buckingham, 2019).

Additional solutions elements

The above reasons point to the need for research on additional solutions elements such as the list below. Many more fundamental solutions and variations are possible.

1. Freedom from Falsehood – This provides citizens with the legal right to Freedom from Falsehood from sources the public must be able to trust. These sources include all “servants” of the people, such as politicians, public employees, and corporations, though we should start with politicians. A **servant** is an agent created or employed by *Homo sapiens* to do something useful for humanity. All servants must remain subservient to *Homo sapiens* and keep the interests of humans above their own, which includes telling the truth.

What is not prohibited by law is permitted by implication. Therefore, if people do not have the legal right to Freedom from Falsehood, then by implication it's okay for those in positions of political power (and other servants of the people) to manipulate citizens by the use of spin, lies, fallacies, soothing half-truths, the sin of omission, and all the forms of deception, propaganda, and thought control available. The goal of this solution element incentivizes governments to provide the other solutions elements, *making it the foundational element*.

Activists are intuitively coming to the conclusion that Freedom from Falsehood is essential. For example, in an article on May 15, 2007, Julian Burnside, a prominent Australian barrister, advocated almost exactly that. Here's the beginning of the [article](#):

The Future Summit, being held in Melbourne this week, is a hotbed of ideas, solutions and attempts to imagine a better world.

Global warming, reliance on fossil fuels, the growing gap between rich and poor, all have been debated by academics, captains of industry, religious, community and political leaders. But one solution — put forward yesterday by the top silk Julian Burnside, QC — met with more acclaim than any other, and received rapturous applause.

'If we really want to make things better, *I suggest we introduce a law that makes it an offence for politicians to lie,*' he told the conference.

2. Politician Truth Ratings – These measure the average level of truth in a politician's important statements. This solution element is applied by using the **Rating Rule**: If a person is unable to evaluate the truth of a statement from a rated politician, they can substitute the rating for applying their LTQ skills. **LTQ** (Logical Truth Quotient) is the ability to logically tell whether a political claim is true or false. The truth of a claim ranges from zero to 100% true, as do Truth Ratings. The closest example of this is [Politifact's Speaker Scorecards](#). These accumulate as a byproduct of running fact checks and are not designed to be a comprehensive accurate rating based on random sampling of claims.

3. Politician Corruption Ratings – These measure how corrupt a politician is. The higher the rating, the more a politician is usually against solving common good problems and is more likely to lie, in order to get or stay in office and support the powerful special interests behind the corruption. The Rating Rule is used. While this does exist per country, such as Transparency International's [Corruption Perceptions Index](#), we could not find an example of corruption ratings for politicians.

4. News Source Truth Ratings – These measure the average truthfulness of important claims in news articles, videos, TV shows, etc. News source with high ratings can serve as reliable gatekeepers for the public, as major newspapers and TV organizations once did before the arrival of social media and biased news sources. The Rating Rule is used. An existing example is NewsGuard and their [News Source Reliability Ratings](#).

5. Continuing Truth Literacy Training in Journalism – The Truth Literacy Training experiment showed that full training for DTQ (group 3, LTQ and AAQ), is persistent but falls slowly over time. There is thus a need for continuing training and reinforcement. This can become a normal part of a person's day if journalists begin teaching political truth literacy as part of reporting stories. Due the prevalence of political deception and its destructive impact on democratic systems, it is in fact the biggest part of many news stories. For example, a lede might begin with "The real story here is not what Johnson said, but the clever fallacies he used to say it. He has done this time and time again. His favorite is cherry picking, which in his hands works like this...." For many news consumers, this might also be their only training if they have not already received Truth Literacy Training. Or it might serve as supplemental training.

This solution element is not that large of a change for journalists. In *The Elements of Journalism*, a seminal book for journalists that outlines the core principles (elements) of journalism, Kovach and Rosenstiel (44, 47 2021) state that:

Journalism’s first obligation is to the truth.

The desire that information be truthful is elemental. Since news is the material that people use to learn and think about the world beyond themselves, the most important quality it can possess is that it be useful and reliable. ... This desire for truthfulness is so powerful, the evidence suggests it is innate.

As the modern press began to form with the birth of democratic theory, the promise of being truthful and accurate quickly became a powerful part of even the earliest marketing of journalism. The first identifiable regular newspaper in England proposed to rely “on the best and most certain intelligence.” The editor of the first paper in France, though his enterprise was government owned, promised in his maiden issue, “In one thing I will yield to nobody—I mean in my endeavor to get at the truth.” Similar promises to accuracy are found in the earliest papers in America, Germany, Spain, and elsewhere.

6. Regulation of disinformation in media – An example is the [EU 2024 Digital Services Act](#), designed to mitigate systemic risks from illegal and harmful content in online platforms, including hate speech and [disinformation](#). However, the Code of Practice is voluntary. Another example is the [US 1954 Fairness Doctrine](#), designed to reduce bias in public broadcasting. It was abolished in 1987.

7. Fact-check App – This is a reliable, searchable online database app of human and AI generated fact-checks that can also be generated on request. Citizens can compare its truthfulness rating of a “fact” to their own, and can drill down for information on how the rating was calculated, as well as further information about the fact. An example is [FactBot by Snopes](#). Any good AI chatbot, like Gemini, Claude, and ChatGPT, can check facts if a question is sharply posed, including providing the text with the statement in question.

8. Personal Truth Test App – This is a phone or browser app that runs the Personal Truth Test on a claim and explains why it’s true or not. This is not the same as fact checking. The test is simple but requires somewhat strong reasoning skills, and is shown on the Truth Literacy Training questionnaire, page 53. No examples of this exist.

AI will soon be able to do most of the work for some of these solution elements. Furthermore, AI-powered Truth Literacy Training using an educational tool like Khan Academy’s Khanmigo *is now feasible and could be rapidly implemented at low cost* (Tyrangiel, 2024).

Efficiently searching solution landscapes

High leverage points are fundamental solution strategies. Pushing on high leverage points well requires understanding of how root causes, high leverage points, and fundamental solutions are found in complex problems.

A **solution landscape** (aka [fitness landscape](#)) represents an all solutions space by drawing a three-dimensional landscape, as shown on the next page. Solutions are spread out over the surface of the landscape. Closer solutions are more closely related. The higher the altitude, the better a solution can solve a problem. Poor to good solutions are found at lower landscape peaks, called **local peaks**. The very best solution is found at the **global peak**.

Solution landscapes were developed to conceptualize how evolution caused species to evolve into successively higher levels of fitness. Evolution is a trial-and-error process that landscape theory calls **hill climbing**. Trials occur when life reproduces. Each trial is a genetic mutation with one or more new behavior traits. Over time, the process of evolution leads life to slowly navigate the solution landscape by climbing uphill, since organisms with higher fitness will out replicate others. When a peak is reached further significant evolution ends, a species becomes genetically stable, and its ecological niche is filled. Large mutations may allow other peaks to be discovered.

The elegance of solution landscapes lies in the way they may be used to illustrate any process based on trial-and-error. If searching a solution landscape by trial-and-error leads to a high enough peak, the solution will work. For the three landscapes shown the global peak is the optimal solution and works. All other peaks are suboptimal and may or may not work sufficiently well.

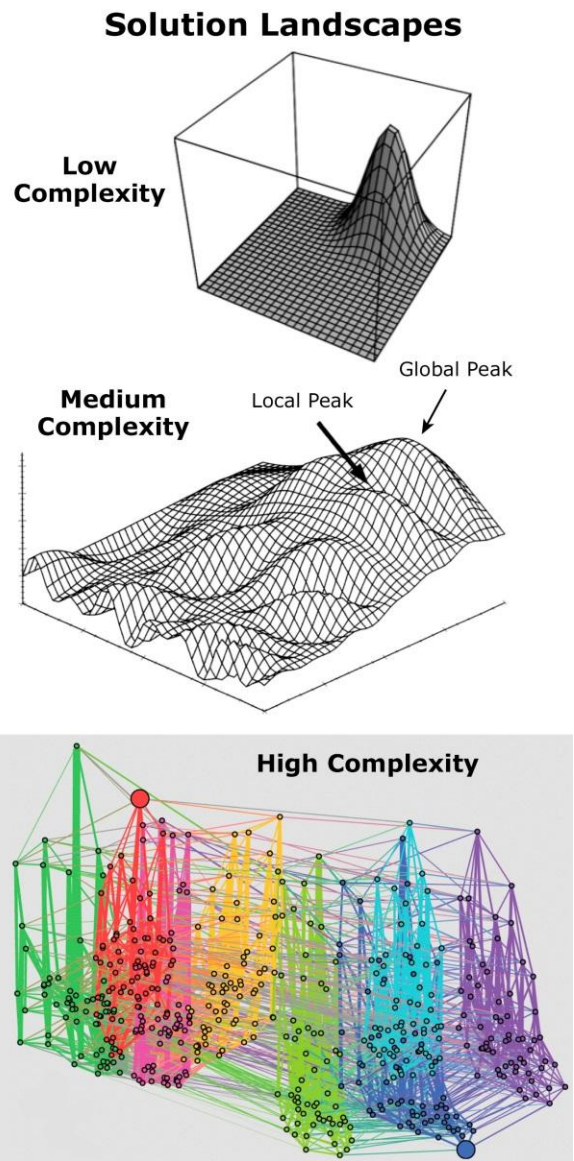
Solutions landscapes illustrate why the Superficial Solutions Trap occurs. If search is based on incremental intuitive trial-and-error, then one can become stuck on a local peak and never find the global peak. This because once on the local peak, any nearby solutions are worse. The global peak may be far away and never found.

Note what has occurred in our case. Due to use of SFDs, we have such a small solution landscape to search for fundamental solutions that it can easily be searched intuitively, using expert opinion, system examination, and the literature. There is no need to search it exhaustively. We only need solutions that are good enough to resolve the root cause. Building the list of Additional Solution Elements plus Truth Literacy Training was relatively easy. The hard part was finding the high leverage point.

Contrast this to the thousands of popular solutions addressing the eight problems of the Problem-atique. A few will accidentally push on the high leverage point. However, because these are a small few out of thousands and there is no correct causal theory behind their selection, problem solvers will dissipate their energy and fail to develop them to the point of effectiveness. This is why our research failed to detect any major solutions pushing on the high leverage point. This behavior arises from the Superficial Solutions Trap and lack of a method to efficiently search a high complexity landscape.

In fact, every solution on our list, as well as Truth Literacy Training, *has* been proposed or attempted in some form before. But none moved forward into a major successful research program because they were not accompanied by a correct causal theory and because of lack of focus on a precisely defined high leverage point.

Intuitive analysis works on problems of **low complexity** because they have a small solution landscape that is easily searched. Hill climbing, aka trial-and-error, will usually eventually find the single peak (or a small number of peaks) in such a landscape.



For problems of **medium complexity**, more capable methods are required like comparative case study, statistics, and simulation modeling. This allows a landscape with multiple local peaks and one global peak (or a small number of them) to be efficiently searched. This is the approach of conventional methods.

But for **high complexity** problems like the Problematique, conventional methods simply cannot efficiently search the landscape because they are still forms of trial-and-error. They rely on random jumps around the landscape to explore new areas using tools like **brainstorming**. *They have no rule for how to navigate a high complexity landscape* and find the portion of it that is effectively a smaller and lower complexity landscape. RCA provides those rules. Each successive WHY question walls off vast areas of the landscape as “no search needed,” leaving a successively smaller landscape for the next WHY question until only a very small landscape remains. Then the root cause, high leverage point, and fundamental solution candidates are relatively easily found. The navigation trail of WHY questions becomes the causal structure of the problem, and is recorded in a tool like SFDs.

SFDs provide an additional process step for the Five Whys. Once a collection of failed superficial solutions and their low leverage point and intermediate cause is identified, that area is walled off as “no search needed” because it has proven to be ineffective.

That conventional methods have no rule for efficiently navigating a high complexity landscape may be seen in political and social science textbooks. *No explicit analytical method for generating a causal relationship hypothesis is given in any of these textbooks:*

- *Political Science Research Methods*, Ninth Edition (Johnson et al., 2019, pp. 34, 77)
- *The Fundamentals of Political Science Research* (Kellstedt & Whitten, 2009)
- *Designing Social Inquiry: Scientific Inference in Qualitative Research* (King et al., 1994)
- *Theory and Methods in Political Science, Third Edition* (Marsh & Stoker, 2010)
- *Research Methods for Political Science*, Third Edition (McNabb, 2021, p. 160)
- *Empirical Political Analysis, Ninth Edition* (Rich et al., 2018, p. 18)
- *The Craft of Political Research, Ninth Edition* (Shively, 2013)
- *Approaches to Social Research, Fourth Edition* (Singleton & Straits, 2005)

The closest any came to providing a method was Johnson et al. (p77): “A hypothesis is a *guess* (but of an educated nature) that indicates how an independent variable is thought to affect, influence, or alter a dependent variable.” *No explicit method for creating good guesses is given* in any of the above textbooks, beyond seeking statistical correlations (to provoke hypotheses) and experimentation (to test them). Singleton and Straits (p27) go so far as to say “There are no logical rules that Durkheim could have followed to devise his theory.” Later they ask “But how does one identify such a [causal] relationship?” (p57) and then discuss what is meant by causality and how to assess whether a hypothesis is a bona fide relationship. Apparently “identify” means “assess” rather than “find.”

We argue that for difficult large-scale social problems, the gap of how to find the many high-quality relationship hypotheses that essential causal structure consists of must be filled by a suitable RCA-based method. RCA is an excellent method for generating “good guesses” about complex causal relationship structures.

APPENDIX

Four supplementary materials files are available:

1. [Study results data spreadsheet](#) - With raw answers, correct answers, and all data analysis.
2. [Questionnaire description](#) - This is extensive and runs 46 pages.
3. [Simulation model description](#) - This is extensive and describes model structure and the simulation runs.
4. [Vensim simulation model](#) - For those who wish to examine the construction and behavior of the simulation model.

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