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Anticipate, Innovate, Transform



Defining Systems Change in
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Contents

To Transform the System, Change Our Brains	6
by John R. Ehrenfeld	
Reclaiming Values & Vision in Management Education to Create Systems Change	11
by Ron Nahser and Dwight Collins	
Systems Change Is Harder Than It Looks: Systems Shift May Be the Answer	18
by Laura E. Asiala and Neil C. Hawkins	
System Kaleidoscope, Not System Change	22
by Rachana Shah	
Force for Good: Market-Based Social Activism for Sustainability	30
by Helen Chen	
Plan B: Linking Public & Private Governance Systems for Climate Change Mitigation	35
by Sally R.K. Fisk, Michael G. Mahoney, and Michael Vandenberg	



Opening Statement

by Andrew J. Hoffman and Nicholas Poggioli, Guest Editors

Climate change, in its truest sense, is more than an environmental issue. It is a breakdown in the climate and weather systems that our economic, social, and political institutions rely on. Changes in those systems have widespread implications for human life, affecting agricultural productivity, disease proliferation, coastal flooding, drought severity, heatwaves, wildfires, and more. Adding urgency, climate change is just one of nine planetary system breakdowns caused by human transgression of boundaries that scientists warn that we cross at our peril. Doing so has led them to label a new geological age defined by human domination of the Earth: the Anthropocene. By exceeding sustainable-use boundaries on land systems, nitrogen and phosphorous cycles, and novel chemical releases, we are causing species extinctions, reducing productivity of soil, and degrading marine ecosystems. These impacts inspire widespread calls for systems change to prevent the worst projected outcomes. This first of two *Amplify* issues on this topic probes the necessary scope and scale of systemic solutions. What does systems change mean? What systems need to change, and how? Which possible future world do we want, which do we need? How can markets deliver such change?

Many have argued that systems change means we must fundamentally alter the form of our economic, political, and social institutions. Proposed solutions include moving business from reducing unsustainability toward creating sustainability, from enterprise integration toward market transformation, from incremental adjustment toward transformative change, or from our present economic institutions toward regenerative capitalism, donut economics, or a steady-state economy. These changes have been depicted as occurring in industrial sectors or society-level change via new systems of material flows and supply chains, corporate governance, valuation techniques and metrics, legal and tax structures, global ethics, cultural values, and more. Some compare the scale of needed changes to transformations like the Islamic Golden Age, the Scientific Revolution, the Enlightenment, or the Protestant Reformation. All this suggests we need a

massive systemic shift but leaves us unclear on exactly what that shift looks like and how to make it happen.

To explore this, we have invited authors and experts to consider the question, “What does systems change mean for the future of sustainable business in the Anthropocene?” The answers approach the question from two directions. The first explores what systems change means by examining the mental models we bring to the challenges we face, both at the individual level and the cultural/institutional level. The second examines the process elements of systems change to identify political and social mechanisms through which market actors can change systems.

In This Issue

What Does Systems Change Mean?

John R. Ehrenfeld begins the inquiry into “Why is the planet struggling?” by asking, “Why is this happening now?” He looks to the present model of the brain, in which fundamental rationality is taken for granted, and asks if the answer to the need for systems change lies in the ways the human brain works. This argument raises provocative and (perhaps) discouraging implications. If our economic, social, and political systems reflect the biological structure and function of the brain, what is the potential for changing those systems? Does systems change require fundamental change to cognition, and, if yes, how might that be accomplished? What are the ethical implications of equating systems outside the body with systems inside the body, given the apparent diversity of human thought and behavior? Do we risk valuing one way of thinking over others? If yes, will the privileged group occupying positions of political power decide system structure and function?

Next, Ron Nahser and Dwight Collins examine the beliefs driving the dominant capitalist and democratic systems that govern the West. They believe we need to change the way we think to imagine a future where

all life flourishes. For them (and the editors agree), social transformation must be at the scale of previous transformations like the Enlightenment and the Scientific Revolution. Accomplishing this will require change across many social systems, but Nahser and Collins target one in particular: MBA programs. The MBA is one of the most successful degree programs of the past century, and it influences people who move into decision-making roles at organizations that influence society-scale systems. The authors opine that business schools must ground MBA programs in the liberal arts and science traditions of the great medieval universities while challenging students to approach their work as a calling and using organizational methods and resources to create values-driven, society-scale change. This raises questions about whether medieval university models are appropriate for a world that is very different from the medieval period, especially in technology, global connectedness, and human impact on the natural world. Can those models address problems like fossil fuels, labor issues in global supply chains, and the denial of economic opportunity from global financial flows? Further, if MBA programs encourage values-driven change, whose values should be used?

How Can We Create Systems Change?

Next, we consider the processes and mechanisms that can create systems change. Laura E. Asiala and Neil C. Hawkins argue that systems are designed to produce their results, even when their results are far from perfect. Systems also have internal “negative feedback processes” that maintain system stability by canceling out disruptions. Overcoming these stabilizing systems can be challenging, and pushing a system far enough to initiate change can result in sudden, highly disruptive shifts to a new system. Rather than cause such disruptive change, Asiala and Hawkins advocate for incremental shifts to avoid the kind of wholesale disruption that could leave financial, social, and political systems in shambles. Incremental shifts are more likely to become ingrained, and there is evidence that courageous leadership and collaboration across sectors, including business, can lead to more reliable, accepted, and sustainable results. They focus their inquiry on the effective shift of financial systems and the demands of their investors, highlighting three cases of such shifts — two that have already delivered significant change over time and one that holds great promise. In each case, leaders who benefit from being inside the system stood apart from it and identified the key point of intervention to initiate incremental change

that would overcome negative feedback without causing disruption. The key point is about driving greater transparency to the systems and players within it. Incremental systems change starts with vision, courageous leadership, and a willingness to collaborate. We need to embrace this approach to systems change, both to overcome existing systems’ tendency toward stability and to avoid disruptive shifts that leave us worse off. Alone, incremental steps might seem insufficient, but together they can shift a system into a new state that, in hindsight, is transformative.

Rachana Shah explores system stability and points of intervention in a specific, highly complex system: the New York City Waste system. Shah uses systems theory to analyze specific actors and their actions to reveal key leverage points for change within the system. These leverage points capture the kind of incremental change opportunities advocated by Asiala and Hawkins, where a small change in a specific element can produce big change in the system. Shah prioritizes the leverage points by their potential for impact on the system, elucidating exactly what each leverage point can change, who will be affected by the change, and what effect the change could have on the system. She then explores the negative feedback processes that resist systems change, pointing out that the higher in impact a leverage point is, the more a system will resist it. Shah’s analysis demonstrates how actors can decompose a system into subsystems, identify key change points, and prioritize each change point by balancing its potential for impact against its potential to generate negative feedback from the system that cancels out the impact of the leverage point. Her focus on actors and their actions raises a valuable point for systems analysis. The way you analyze a system influences what you believe to be the key leverage points in the system and influences the effectiveness of systems change strategies built from that analysis. Conceptualizing the waste system as actors and actions highlights leverage points related to actors themselves. However, this way of viewing the system may obscure system processes and leverage points not related to actors, such as technological leverage points around material production and distribution or biophysical leverage points around waste decomposition.

Next, Helen Chen brings our focus on process and mechanisms to the domain of market-based social activism (MbSA), in which a business seeks to align its activities with moral principles to drive positive change at the society scale. Chen presents the Pyramid of Forces for Good framework that can be used to better

organize MbSA to develop a “market for virtue” in which morally sound business activities outcompete those that are morally questionable. A market for virtue applied to green performance is based on three building blocks: (1) valid and reliable green-performance measurement, (2) fair and equitable green-performance valuation, and (3) efficient and scalable green-value apportionment. Establishing a market for virtue would make green practices economically profitable, fundamentally changing the economic system that currently makes unsustainable practices more economically profitable than green practices. Chen’s approach highlights how businesses can play a role in systems change through social activism. It also shows how the competitive environment (the market) is reproduced through time by those participating in it. Like Shah’s highlight of the role of specific actors in building and maintaining a city’s waste system, Chen highlights how the market system is the product of actions taken by specific actors.

Finally, Michael Mahoney, Sally Fisk, and Michael Vandenbergh conclude this issue by analyzing systems for governing greenhouse gas (GHG) emissions in markets in the US. They argue that public-private partnerships (PPPs) have the potential to fill the void in market governance left by the failure of the government to enact comprehensive climate change legislation. The lack of federal legislation means US markets continue to reward unsustainable business practices, especially those that involve GHG emissions. Whereas Chen proposes MbSA as a mechanism to address this problem, Mahoney, Fisk, and Vandenbergh propose PPPs based on credible GHG emissions reduction targets, which the authors call “a private complement to public governance.” The authors highlight the Science Based Targets initiative (SBTi) as a tool that provides companies and other organizations with the means to make specific, credible plans to achieve decarbonization. They argue that aligning PPPs with SBTi target setting would be an effective mechanism to accelerate carbon emissions reductions. Pursuing this mechanism would inspire additional incremental changes in the US marketplace, such as transparency in GHG emissions, meaningful and clear sanctions for missing targets, and rewards for today’s actions in the form of credits under future legislative market restructuring. These initiatives resemble the incremental actions with systemic possibilities highlighted by Asiala and Hawkins, as well as the systems analysis and leverage points discussed by both Shah and Chen.

The variety of topics in this issue reflects the comprehensive change required to meet the sustainability challenge, especially on GHG emissions. Every company, industry, government, and individual participates in, affects, and is affected by the planet’s climate. We have made great progress identifying the key components of the planet’s climate system, especially on the natural-science front. However, much work remains to understand the social systems side of the climate system and how best to intervene. The articles in this issue of *Amplify* and the next complement work by organizations like Project Drawdown that are busy identifying specific actions and the actors who can take them, all focused around changing the marketplace so sustainable business practices are competitive and unsustainable practices are not.

The next issue will address the age-old challenge of linking environmental and economic systems, redefining how we think of waste, and several relevant technology topics, including innovation, IT, artificial intelligence, and blockchain.

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To Transform the System, Change Our Brains

by John R. Ehrenfeld

Are you aware that there are two of you?
Two different people live inside your skin.
One, cool and controlling — rational, too;
T'other, empathetic, unlike its twin.
The left brain offers a world, abstracted,
Defined by dead reductions from the past.
Because all meaning has been subtracted,
You're run by rules memory has amassed.
The right brain connects you to the present
Where the real you acts in the here and now.
Unlike the rule-bound left, you can invent;
Now, the creative, caring you can show.
Our modern culture has suppressed the right.
That means there's little flourishing in sight.

— John R. Ehrenfeld, "Fraternal Twins"¹

What System?

Except for revolutions, transformations come slowly, following shifts in the worldview underpinning cultural systems. Transformations differ from mere fixes in that problems disappear or dissolve, obviating the need to deal with their symptoms.

Most transformations arrive unannounced. To deliberately create one, the first step is to identify the system in which the problems originate. Since, except for the cosmos, one system is always nested within or interacting with another, discovering the relevant system can be difficult, especially for problems that management guru Russ Ackoff called "messes."²

A practical way around this obstacle is to reveal the root causes that always lie in the system or subsystem that needs to be addressed. Easier said than done, particularly in complex systems like the global ecosystem, but some established practices can help.

The Toyota Production System (TPS), of which more will be said later, offers a pathway to the root causes.^{3, 4} The method is simple but very powerful. Ask the question, "Why has this [problem] happened?" repeatedly until the last answer seems to rest at the roots. Toyota calls this the "5 Whys" because it rarely takes more than five iterations to get to the bottom of things.

Given the focus of this edition of *Amplify*, let's start with the obvious question: "Why is the planet struggling?" One possible answer is that its metabolism (the flows of energy and materials through the global socio-economic-environmental system) is out of whack. "But why is that happening?" Because the global production and consumption system is stressing the planet beyond its ability to sustain itself. The questions usually stop here, with people believing they know the right system to address. We try to improve the way we make and consume stuff (eco-efficiency), or we try to repair the global ecosystem (geo-engineering). Neither is promising, since we are ignoring what Einstein said: "We cannot solve our problems with the same thinking we used when we created them."

If we want to get past this roadblock, more questions are needed. Since humans and the Earth have coexisted for a very long time, the next question might be, "Why is this happening now?" How about, "Current human activities are upsetting the natural homeostasis of the planet." "But why after all these years?" "Because this mess is an unintended consequence (economists call them externalities) of what have become normal behaviors." "So why is this happening?" "Because we are not conscious of the connections between what we do and these side effects." We are almost there. Finally, "Why are we not conscious of both our connectedness to the problem and the impact we make when we act? Don't we care about it?" In the past, cognitive scientists, psychologists, or economists would answer this by arguing that we are, indeed, conscious of the problem, but the rational calculus we use to decide what to do at any moment doesn't value the world sufficiently.

Questioning virtually always stops here because our present model of the brain and its fundamental rationality is taken for granted. This is why most responses to global warming and other big messes try to change the rational outcome by internalizing the externalities or punting the ball to engineers or other technocrats to stanch the bleeding.

Because how we think about thinking has been accepted as a given, no one asks the question, "Can

we change how we think?" If anyone bothered to ask that, the answer might be, after the laughter subsides, "No, we can change what we think about, but not how we do it. We have known how the brain works since Descartes gave us a basic model." End of story. Or is it?

No, this is not the end! It may seem far-fetched, but the root cause of messes like global warming is to be found in a new understanding of the human brain, only recently revealed.

Stunning scholarship by British psychiatrist and philosopher Iain McGilchrist about how the human brain works helps explain why we have gotten into this mess and, more importantly, offers a way to change the trouble-causing behaviors. GDP and material wealth do not have to rule the roost. The system we must examine is the brain itself and how it controls our actions, which are always the proximate cause for changes in the world.

What Needs to Change?

McGilchrist has written two seminal books on how the human brain works (not the way we think it does) and the consequent ways (plural) it shapes the reality it produces.^{5,6} His basic claim is that each brain hemisphere attends to the world differently, offering up its own version of what we have come to believe is the "real world." That finding is stunning because it flies in the face of the model that has guided philosophers, natural and human scientists, and others throughout what we call modernity.

The modern world we exist within is largely the product of only one of the hemispheres: the left. This is the side that carries the beliefs on which we have built our settlements, economies, and cultures. Looking back, few would disagree that our species has progressed from a more primitive state to the wondrous world of today. But McGilchrist is greatly concerned, as are many others, that such progress has also led us to the brink of disaster, largely because the world the left hemisphere presents to us does not match what is really out there, the reality that ultimately decides the fate of our actions.

Reality is the final arbiter of success and failure, no matter what we think. Do our actions work as we intend them to do and, critically, in today's overcrowded planet, do they produce unintended outcomes that threaten our existence and that of the Earth? In many

key areas, the answer is no to the first part and yes to the second.

The conclusion above rests on key differences between the hemispheres. The first is that the right hemisphere is connected, via the senses, to the world of phenomena; that is, the world of everything out there. The left is not so connected to the external world, but will, nevertheless, produce its own version of a world whenever called upon for input. (Note: when I refer to the left or right hemisphere as doing something, it is only a metaphor for actions attributed to the dominance of one side or the other.)

It may seem far-fetched, but the root cause of messes like global warming is to be found in a new understanding of the human brain.

The left's world is built up by aggregating decontextualized objects; these are isolated notions with which it constructs the world it "re-presents" (McGilchrist's phrasing) to the actor. It knows how the parts interact, based on the myriad of cause-effect laws modern science has produced, but not how the system as a whole is working. Whatever re-presented world it constructs lacks the contextual richness and aliveness of the real world. Only the right hemisphere can capture that, particularly the living world of which we humans are just one species.

Most of what we do every day meets our intentions because the re-presented world is close enough to the real world. The agreement between the two comes from the repetitious nature of our individual lives, both within and outside of institutional settings. As we act, the right hemisphere reports to the left, which plucks out and abstracts pieces from the report and stores them for use in future action. When these routine or habitual acts are repeated (brushing one's teeth, driving a car, punching a time clock), the contents of the left hemisphere become ever more refined and accessible. When these separate pieces can be reliably recalled, the action is deemed to have been "learned."

The dominant hemisphere's mode of operating at the individual level coalesces into the character of a society and the subordinate institutions guiding the hurly-burly of daily existence. Over time, the culture and individual behaviors reinforce each other, more and

more firmly embedding that hemisphere's worldview as the frame for thinking and acting.

Modernity reflects the dominance of the left hemisphere. At its most foundational level, its worldview can be traced to Descartes, who led us astray when he proposed two ideas that underpin almost everything we moderns do: (1) we capture reality in our rational minds, and (2) both our own species and the world we inhabit can be treated like machines, subject to the rules science reveals. One way or another, our attempts at solving problems devolve into trying to fix the machine.

If we are to make headway against the tide of unsustainability, the right twin must be returned to its place of master.

The divided-brain model implies that we are not a single self. Rather, we are, metaphorically, a pair of fraternal twins, one directed by the left hemisphere and the other by the right. The left twin's world is a collection of lifeless resources to be used in attaining whatever intentions it has at the moment. It treats the world as a machine it runs to fulfill its intentions. The right twin acts as if he or she were part of a highly interconnected living system, aware of the concerns of the component parts. This twin's actions are empathetic and caring, taking the needs of other entities into account.

The left twin believes it knows how its actions will turn out, but it's that misplaced certainty that leads to unintended consequences. The right twin acts on the basis of what it sees at the moment, generally augmented by knowledge it accepts from the left. It understands that the desired outcome is a possibility, not a certainty. The left is a rational, analytic, calculating actor, living in its own inner world; the right is a pragmatist, always using its connections to the real world to discover what works most effectively. Learning involves both sides, with the left creating the abstract facts we use from whatever the right presents to it.

The mastery of the right is behind every great move in history. Only it can create new paradigms, leaving the left to build upon them. McGilchrist argues that, historically, cultures have vacillated between left- and right-brain domination, but that, currently, the left hemisphere's tight control has become dangerous:

However, as I also emphasized at the outset, both hemispheres take part in virtually all "functions" to some extent, and in reality both are always engaged.... I take it for granted that the contributions made by the left hemisphere, to language and systematic thought in particular, are invaluable.... But these contributions need to be made in the service of something else, that only the right hemisphere can bring. Alone they are destructive. And right now they may be bringing us close to forfeiting the civilization they helped to create.⁷

If we are to make headway against the tide of unsustainability, the right twin must be returned to its place of master. But can a change like that at the deepest roots really change the system at the level we are concerned about?

What Kind of Change?

This issue of *Amplify* is about transformational change, but we must ask what that really means. In complex systems theory, such change refers to the shift from one stable attractor to another. In the vernacular, it's from one regime to another. The attractor that has kept the planet stable for ages is being altered from within. We are moving (or already have moved) from the Holocene epoch to the Anthropocene, in which the planetary ecosystem is being affected by human activities.⁸

Today's concerns arise from the possibility that global warming will, itself, trigger a revolutionary transformational change, throwing human civilization into a new regime that cannot support the kind of cultural world to which we have become accustomed. To avoid that, we must create our own transformation, starting with the underlying worldview that created modernity (the name describing the culture of today's highly industrialized world), recognized as the source of the problems being addressed here. Modernity grew out of the ideas created during the Enlightenment, but over a long period. As McGilchrist notes, the same ideas that led to the wonders of modernity are now creating threatening forces.

Fortunately, we now have a new worldview that can create a regime in which we move toward, not away from, a flourishing world of flourishing people. First, the mastery of the right hemisphere must be restored. Then, the divided-brain model can be used to redesign the institutions guiding quotidian behaviors to produce outcomes more connected to and closely aligned with reality.

As behaviors begin to show care for the world, instead of using it, threats should lessen and signs of flourishing should appear. Exactly how this process will unfold is unpredictable, but it should be clear that actions based on care inherently aim at healing, comforting, sustaining, and so on, while those using it for instrumental intentions have opposite impacts.

However we begin, intervening in a system as complex as the global socio-environmental system is unlikely to produce the desired transformation immediately. Getting the desired results will require a long process of continual adjustment. Familiar continuous improvement systems like TPS, total quality management, Lean manufacturing/thinking, pragmatic inquiry, and other programmatic forms are built on such a process. They all rely on the right hemisphere to connect to the outside world and begin to understand it, and, only then, select relevant knowledge from the left's existing storehouse.

Each step in continuous improvement systems is merely a possibility that the outcome will be as expected, so constant monitoring is required. Continuous improvement implies caring, acting out of concern, and being empathetic and flexible. Without knowing what is happening out there, left-brain-guided actions may, and often do, make the situation worse.

What Should Business Do?

As I wrote in *The Right Way to Flourish: Reconnecting with the Real World*,⁹ business, among other institutions, has an especially important role in enabling the shift from left-hemisphere domination to right-hemisphere domination. The basic strategy is obvious: strengthen the right hemisphere and inhibit the left in anyone the business can reach.

It is worth repeating the reason why. The right hemisphere of the metaphoric brain of firms will track and reflect changes in its employees' brains, so firms must introduce new practices requiring mastery of the right hemisphere. As that shift occurs, the negative consequences of the firm's actions should begin to abate. Because employees' bodies and brains are always part of them, benefits will spill over beyond the workplace: more caring, more effectiveness, and, eventually, the emergence of flourishing.¹⁰ In any case, businesses should continue to become more eco-efficient and innovative while understanding that these achievements will not address the systemic nature of unsustainability.

In the sections below, I briefly outline a few pathways for change (part of shifting from left to right is to stop looking to experts for answers). The first step is to suspend your old beliefs long enough to let these new, challenging ideas about the brain enter. If you do, I am confident you will be as equally stunned by their power to understand and create as I have been.

Mindfulness

Mindfulness practices strengthen the right hemisphere while shutting down the left. Some businesses have started on this path, not for the cognitive impact directly, but because mindfulness practices can be broadly beneficial. Benefits include sharper reflection and focus, improved stress management, fewer sick days, more employee engagement, higher levels of trust, and greater mental agility.¹¹

Importantly, they can enhance social responsibility, a form of caring that transcends profit.¹² Installing and practicing mindfulness is truly a win-win-win game. The individual members of the firm will lead less stressful and more productive lives, the firm will prosper, and the social and environmental worlds will be better taken care of.

Pragmatic Practices

We must also begin or increase the use of pragmatic decision-making and problem-solving systems. Pragmatic inquiry is a way to connect to the world and care for what you find out there. As noted above, pragmatic inquiry/thinking relies on the connectedness of the right hemisphere to ensure that any actions reflect the immediate external world, beyond facts and theories abstracted from past experience.

Programs like TPS or its generic version, Lean thinking, include practices that have been tested.¹³ Users of the firm's offerings and others with concerns about them should be involved in their design so that the products serve what the users care about, not some manufactured need. Eventually, these practices will become part of the culture of the firm, but they should never be allowed to fade into the background where the left brain lurks.¹⁴

Business Strategy

Over time, businesses must offer goods and services explicitly designed to support the right hemisphere's

caring twin, balanced against what is now produced largely for the left hemisphere's self-interested twin. The correct balance point between the two twins will appear when the global system regains its ability to accommodate the human species.

Growth for growth's sake can no longer hide in the cloth of sustainability. The mantra "What gets measured gets managed" must give way to calls for qualitative, systemic, normative indicators. The quality, not the quantity, of life matters. The proper use of sustainability is such a quality — the ability of a living system to survive from day to day, from year to year, or, for the planet, from epoch to epoch. Humans, with their enhanced consciousness and linguistic capabilities, can strive for the more explicit quality of flourishing, which offers a normative target for guiding individuals and for designing institutions and their activities.

Conclusion

There are many obvious challenges ahead in creating the necessary transformation, but perhaps the most difficult is the need for patience and persistence. It will take a long time for changes in behavior to show up at the firm level and much longer for those changes to transform the planet's metabolism. It took a generation or more for Toyota to become a right-brain company, but look how its evolution transformed the way cars and other things are made. And that was nothing compared to what has to be done, starting right now.

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Reclaiming Values & Vision in Management Education to Create Systems Change

by Ron Nahser and Dwight Collins

Where does systems change begin? It begins in the same place it always has: in the minds, hearts, and imaginations of concerned, thoughtful individuals in organizations and communities who are able to observe, critique, create, articulate, and implement the case for change (to paraphrase Margaret Mead).

In this article, we discuss the philosophies driving the West's dominant capitalist and democratic systems and explore how we can integrate them, using the strengths of each, to improve life for all. To do so, we must change our thinking and challenge today's management education system (primarily the MBA), which is producing leaders focused on the short-term maximization of individualistic shareholder wealth, leading to vast social inequality and destruction of ecological systems.

We consider two seminal thinkers, Thomas Jefferson and recent Economics Nobel Laureate Elinor Ostrom, who developed transformative models of community. We also look at an educational management community model illustrated by Presidio Graduate School, the first MBA in sustainable management in the US.¹

Capitalism Is Societal Practice, Not Philosophy

For the past several decades, capitalism has been framed as a way to provide liberty for individuals while socialism is described as individuals controlled by the state. We have lost sight of the fact that both of these systems are simply practices for distribution of goods and services as expressions of a society's philosophies and shared beliefs.

In great part, this confusion is behind the extreme divisions of philosophy we're now experiencing in the US (see Figure 1).

A stunning May 2021 article by *Financial Times'* revered Chief Economics Commentator Martin Wolf, "The Struggle for the Survival of American Democracy," begins with a quote from US President Joe Biden's 28 April 2021 address to Congress: "The question of whether our democracy will long endure is both ancient and urgent, as old as our Republic." And Wolf, not known for exaggeration, ends his column with "[Biden's agenda] may be the most consequential gamble taken by any democratic leader in my lifetime. The future of democracy is at stake."² (That gets your attention!) Wolf is referring to Biden's trillion-dollar Build Back Better plan for infrastructure, environment, and social service investment.

We must change our thinking and challenge today's management education system (primarily the MBA).

As Figure 1 illustrates, the US is divided between those who believe the government should be taking such actions, based on community or socialist philosophies, and those who want these decisions left to the market, based on individual-liberty philosophy. Our claim is that we must integrate the strengths of each in new ways. And, since we are talking about investment decisions to develop the goods and services society needs, the MBA education should be a central place to help students think of investable ideas to address the enormous social and environmental challenges we face.

This would mean a radical change to MBA education. We reference Presidio's MBA, which was, according to cofounder Dr. Richard Gray, founded to challenge students "to create values-driven Big Ideas to change the world."³ We are inspired by two foundational ideas that changed our way of viewing the individual and the

A country divided by education, ethnicity, age and political allegiance

% of respondents who think the country is heading...

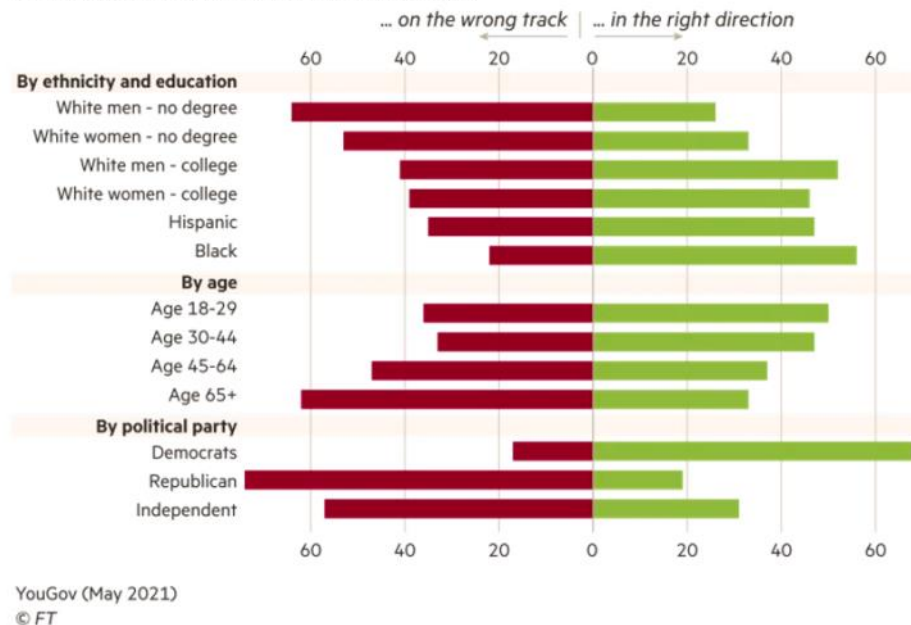


Figure 1. Divisions in philosophy in the US — Red: Republican, Green: Democrat (source: Wolf)

community working in the world: Jefferson launching modern democracy as the case for individual liberty, and Ostrom making the case for community or poly-centric governance as a way to manage complex economic systems. Jefferson's theories, Ostrom's theories, and the Presidio MBA are based on philosophies of building communities; it seems Americans, however, aren't very good at this practice of philosophical thought.

Reframing the Conceptual Foundations of the MBA Education

Political philosopher Alexis de Tocqueville said: "Less attention, I suppose, is paid to philosophy in the United States than in any other country of the civilized world. I should say that in most mental operations, each American relies on individual effort and judgment.... So, each man is narrowly shut up in himself, and from that basis makes the pretention to judge the world."⁴

This is the philosophical problem the Presidio program attempts to address. Presidio's MBA was launched in 2003 by cofounders Gray and Steven Swig. Gray provided visionary guidance and leadership; Swig served as the program's first president and provided funding to ensure financial viability until student tuition could cover the school's expenses. The authors

served with them as founding provost (Nahser) and founding faculty (Collins).

The program challenges the modern scientific/materialist methods traditional business education relies on. It posits that to move to a more holistic way of thinking, we must:

1. **Acknowledge the cognitional myth that knowing is like looking.** Simply looking fails to recognize that we all see the world through our belief filters (world-view). Intelligent understanding goes beyond collecting data to support our present views; it involves taking in all relevant data to create a more truthful explanatory narrative.
2. **Integrate analysis and synthesis in our systems thinking.** Analysis breaks the system into its component parts (left brain), and synthesis assembles the parts into a greater whole (right brain). Systems thinking moves between analysis and synthesis to more accurately understand and portray the operations of a functioning system.
3. **Transition from a values-neutral stance to a values- and vision-driven stance.** Everything we do reflects the allocation of a limited resource we all value: our attention. And our goal is, at its core, to seek out the good, true, and beautiful, as each of us understands these goals. The ancients saw this

pursuit as the source of happiness, and is what we identify as a “Calling” (this is often seen as thinking with your heart or gut); it is what it means to put a values- and vision-driven stance into action.⁵

We believe these three challenges call for a radical shift in education. Instead of transmitting existing knowledge or developing a set of functional skills, students must become comfortable with the process of thinking based on America’s unique contribution to the history of philosophy: pragmatism.⁶ Specifically, we advocate for teaching Pragmatic Inquiry®⁷ — an approach to addressing complex and ambiguously defined problems in which the resulting answers, decisions, behaviors, and actions reflect the values of the inquirer.⁸

Since Pragmatic Inquiry stresses thought development, it relies heavily on the experience of the inquirer. In contrast with reductionist scientific methods, Pragmatic Inquiry preserves the context and keeps the dynamic system as a whole in the view of the inquirer, leading to action. In this way, the management education system would transition from:

- A focus on mastery of content to mastery of inquiry (i.e., from content-centric to inquiry-centric)
- A mastery of skills to a mastery of method
- An accumulation of discrete knowledge to an ongoing process of learning

- A curriculum to domains of inquiry
- Courses of specified content over a specific duration of time to a demonstration of sufficient inquiry through the use of projects and mentor feedback (also known as experiential learning)

Instead of transmitting existing knowledge or developing a set of functional skills, students must become comfortable with the process of thinking based on America’s unique contribution to the history of philosophy: pragmatism.

Presidio has accomplished this transition in several distinctive few ways. First, it encourages students to pursue one or more Big Ideas in response to their Calling. This establishes the focus of the students’ learning experience to develop business plans and organizations to serve the well-being of humanity and the ecosystems on which we all depend.⁹

Second, it establishes a collegial approach to teaching. Faculty members focus not just on the acquisition of book knowledge, but on coaching students in navigating an “Arc of Pragmatic Inquiry,” supported by learning through personal experience (see Figure 2).¹⁰

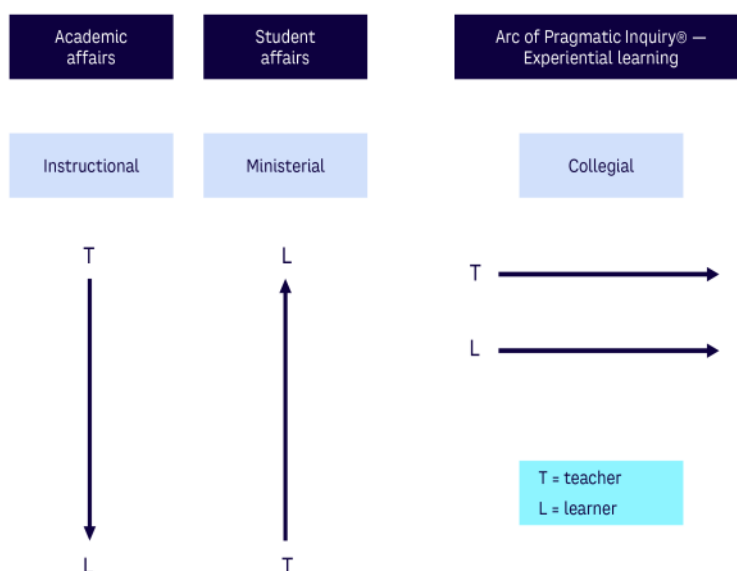


Figure 2. Coaching through the Arc of Pragmatic Inquiry® (adapted from Gray)

This approach essentially recreates the tutorial system introduced at Oxford and Cambridge Universities in the 16th century, in which professors lived and worked with students and which served as the model for the early American university experience. Presidio has followed this collegial model, with a focus on:

- **Experiential learning.** Presidio engages students in collegial learning through real-world experience. Gray believed real-world business experience should be combined with classroom time to provide students with the opportunity to reflect and learn. Students are exposed to real-world business problems, bringing authenticity to the student process of updating his or her life-path hypothesis and searching for Big Ideas via Pragmatic Inquiry.

Think of other transformational changes in history: the Scientific Method gave us a new way to look at evidence, the Reformation freed individuals to think and pray on their own, and the Enlightenment showed us new ways to think.

- **Environmental sustainability and social justice in every course.** Dimensions of environmental sustainability and social justice are woven into every course as appropriate.
- **Embracing the tension between maintaining and disrupting the business status quo.** Presidio's academic mission creates and embraces a tension between teaching for success in today's markets and teaching students how to disrupt the status quo as needed to create the world they want. By taking on the bold challenges of our time, classrooms at Presidio become incubators for transformative paradigms and effective action plans.
- **Focus on business solutions incorporating prosocial behavior.** Underlying the practice of Pragmatic Inquiry at Presidio is the idea that, in addition to our drive to compete in business, humans have the capacity (in the form of prosocial instincts) to care for one another and cooperate. This prosocial nature is incorporated into students' Big Ideas.

These strategies are all aimed at supporting the students' inquiry into the nature and source of their

Big Ideas and Calling, an educational practice at the foundation of the medieval universities we lost and must reclaim.

Marischal College, Thomas Jefferson & the Calling

Think of other transformational changes in history: the Scientific Method gave us a new way to look at evidence, the Reformation freed individuals to think and pray on their own, and the Enlightenment showed us new ways to think.

In Aberdeen, Scotland, in 1755, the faculty at Marischal College incorporated all three of these transformational ideas into one curriculum. The professors believed that philosophy had to be re-thought in light of science and, in an effort to emphasize the pursuit of knowledge, they changed the order in which they taught the subjects, moving philosophy (Philosophy of Spirits, Pneumatology, Ethics, and Logic) from the first year to the final year to follow science in the third year (including mechanics, hydrostatics, pneumatics, optics, astronomy, magnetism, and electricity).¹¹

The program became a great success and spread to the other four Scottish universities. (England at this time, with four times the population, had just two universities.) Many of their graduates went to America as faculty and eventually educated many of our founding fathers. One graduate of Marischal, Dr. William Small, went to William & Mary College and taught the new curriculum to a teenaged Jefferson.¹²

Later in life, Jefferson wrote: "It was my great good fortune, and what probably fixed the destinies of my life that Dr. Wm. Small of Scotland was then professor of Mathematics.... [F]rom his conversation I got my first views of the expansion of science and of the system of things in which we are placed." (This describes "the Calling.") Jefferson went on to say of Small, "To his enlightened and affectionate guidance of my studies while at college, I am indebted for everything.... He first introduced into both schools [of philosophy and mathematics] rational and elevated courses of study, and, from an extraordinary conjunction of eloquence and logic, was enabled to communicate them to the students with great effect."¹³

And in 1776, Jefferson would combine eloquence and logic when he wrote, "We hold these truths to

be self-evident ... unalienable Rights ... Life, Liberty, and the Pursuit of Happiness" in the *Declaration of Independence*.

Notably, "pursuit of happiness" was not a whimsical phrase but rather the foundational practice of the "moral sense" of serving others within the Scottish Enlightenment moral philosophy.¹⁴ Above, we referred to this moral sense to care for one another as our "prosocial instincts."

Over time, the sciences and quantitative methods (left brain) pushed philosophy, theology, and other studies of the mind (right brain, not to mention heart and gut) out of the curriculum. Presidio attempts to reclaim the Marischal senior year study of philosophy, the jewel of the medieval university; particularly "pneumatology," or the study of the movement of the "Spirit" and the study of how the mind works.

As in the case of Jefferson, we attempt to help our students see their place in the system of things and then to see what they are "called" to do. We want our students to feel the same sense of urgency of a "call" that led Jefferson later to begin the words that launched modern democracy: "When in the course of human events, it becomes necessary..." This movement of "spirit" or "Big Ideas" is the evidence of values and vision in action.

Values, Vision & Paradigm Change

As we said in our discussion of the challenges Presidio has addressed, the answers, decisions, behavior, and

actions yielded by Pragmatic Inquiry reflect the values and vision of the inquirer. Values are the building blocks of purpose and vision, which yield strategy and tactics for action (see Figure 3).¹⁵

Our definition of value (not the easiest definition in philosophy) is as follows: any belief, principle, or virtue held so deeply (consciously or unconsciously) that it guides our behavior, decisions, and actions.¹⁶

As students navigate an Arc of Pragmatic Inquiry, they challenge, clarify, and activate the values and vision that are in play relative to the focus of their discovery and reflection process. This process is essential as a source of transformative ideas and paradigms. Becoming comfortable with changing paradigms equips students with the capability to change the way business is done. Indeed, in "Places to Intervene in the System," author and systems thinker Donella Meadows points out that changing paradigms is the most effective way to bring about systemic change.¹⁷ In fact, only at this level is significant change possible (recall our paraphrase of Mead in the first paragraph of this article).

Figure 4 illustrates two dramatically different paradigms (world-views) for how our economic system should operate (and harken back to Figure 1).¹⁸ Nobel Prize-winning Economist Milton Friedman believed society is best served when business leaders strive to maximize profits while adhering to the rules of society reflected in the law and ethical custom (ideas originating with Adam Smith¹⁹).

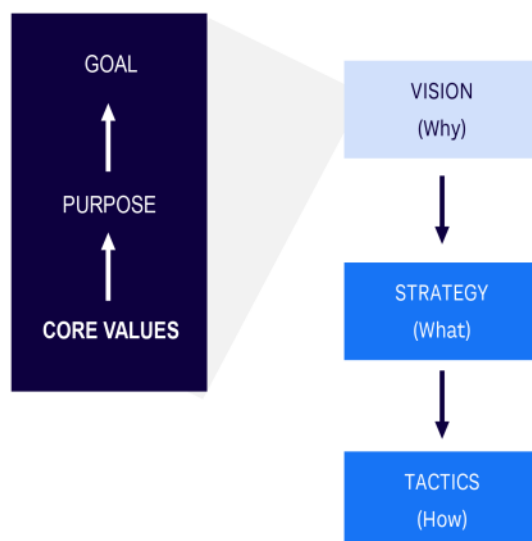


Figure 3. Values and vision drive strategy (adapted from Collins and Lazier)

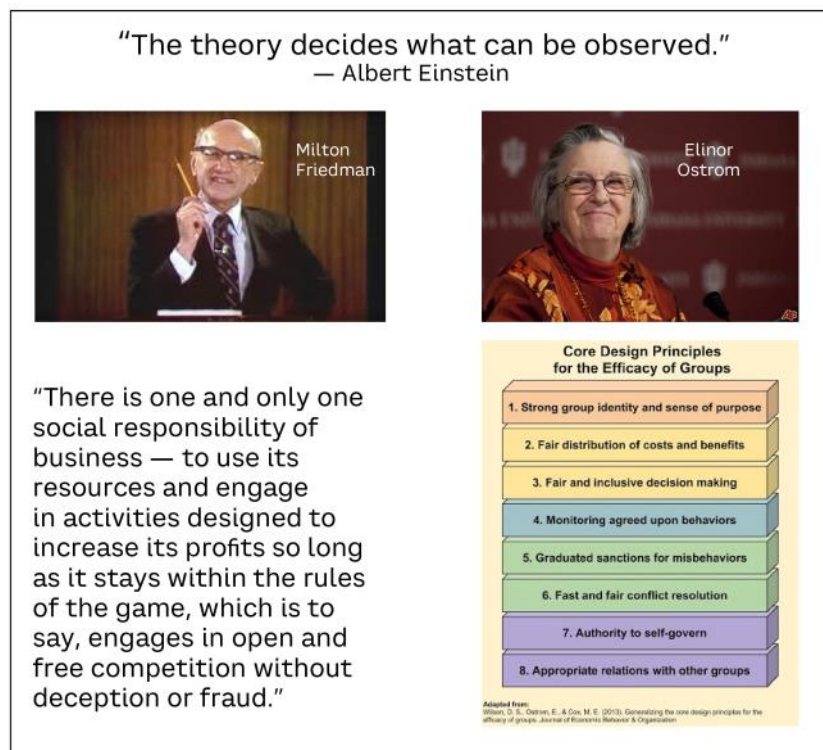


Figure 4. Opposing theories: Milton Friedman and Elinor Ostrom (adapted from Wilson)

On the opposite side, Nobel Prize-winning Economist Ostrom puts cooperation at the center of the economy (polycentric governance). Over decades of observing communities worldwide managing common pool resources (CPRs) like fisheries and forests, Ostrom saw a way to combine the best practices of free markets (capitalism) and government regulation (socialism). She saw individuals voluntarily forming into groups to address resource management challenges in a larger systems context, with "cheap talk" as the key process of negotiation.²⁰

From her study of these groups' communication practices, Ostrom identified a set of core design principles (CDPs) that, when followed, allow groups to manage CPRs successfully. Many evolutionary and sociobiological scientists see Ostrom's findings as evidence of their research findings on our gene-culture coevolution-based capacity for survival.²¹

Ostrom's empirical approach to polycentric governance provides a larger-than-life example of the paradigm-changing potential of Presidio:

- Ostrom's empirical research approach is a type of Pragmatic Inquiry.
- Like the Big Ideas developed by Presidio students, the success of groups following the CDPs identified

by Ostrom demonstrates the power of our prosocial capacity for caring and cooperation within groups.²²

- One of Ostrom's CDPs — strong group identity and sense of purpose — provides validation for Presidio's Arc of Pragmatic Inquiry. A Big Idea can bring people together to form a strong group identity, giving participants a sense of purpose in implementing the idea.²³

Taking this paradigm-changing potential to scale by introducing the Presidio model into other MBA programs, we can transform our current business system focused on investments for individual wealth into one that creates Big Ideas for organizations and communities to care for humanity and our environment; a Calling for each of us to pledge, as did our forebearers, "our Lives, our Fortunes and our sacred Honor."

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Systems Change Is Harder Than It Looks: Systems Shift May Be the Answer

by Laura E. Asiala and Neil C. Hawkins

All systems are perfectly designed to produce their results — even when their results are far from perfect. W. Edwards Deming observed that decades ago. Don't like the results? Change the system.

Potential systems change exists on a continuum, from wholesale system destruction and reconstruction to incremental system shifts. The former is often due to human (i.e., war, insurrection) or natural (i.e., floods, earthquakes, storms, flooding, drought, pandemic) events in which a system comes crashing down and requires rebuilding.

The latter shifts a system steadily over time — not comfortable, but not devastating to the system. When we live in a system that requires change, this approach is more likely to advance the improvements we wish to see and less likely to leave human, capital, and natural havoc in its wake.

It is important to understand that a long-standing system operates at a point of equilibrium: the status quo. In biology, this is known as homeostasis; in statistics, regression to the mean. Physical and biological systems revert to equilibrium unless pushed to a new set point — so do social and economic systems. (In 1997, Clayton Christensen popularized the notion of organizational “antibodies” in his classic work *The Innovator's Dilemma*.¹)

Driving a system to a new set point requires great energy and planning; overcoming the feedback

processes that preserve the existing system integrity; and identifying, strengthening, and accelerating positive processes that drive the system out of equilibrium — and then establishing these as positive feedback processes that maintain the new set point. This is especially true for the complex systems involved with sustainable development.

It is also important to note that systems change on a societal scale is not a one-way game where only internal forces need to be overcome. Rather, it's a competitive game with others trying to drive the system — in the opposite direction — to other set points at the same time (see Figure 1). We need to encourage and applaud efforts to drive “systems shift” for achieving sustainable development, even as we may long for complete systems change.

Systems shift doesn't have the sensational call to arms that “blowing up” a system has, but that's the point. It requires long vision, quiet courage, and the willingness to collaborate with anyone (friend or foe) to positively shift the system so it produces the results closer to what we want and can be sustained as a new normal on the journey to sustainability.

We advocate for the concept of systems shift for sustainable development for two simple reasons. First, a wholesale disruption is no guarantee that our financial, social, and political systems will be rebuilt or rebuilt better — the current state of global institutions and

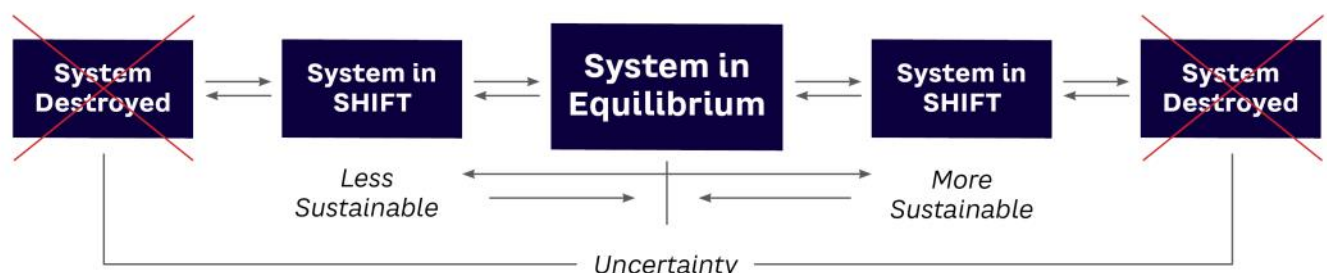


Figure 1. Sustainability systems

governments is not likely up to the task. More probably, such disruption could lead to shambles that disrupt further progress toward the goal. How sustainable is business in a war zone or in a war involving current supplies of energy that underpin major economies?

Second, incremental shifts are more likely to be ingrained, and there is evidence that courageous leadership and collaboration across sectors, including business, can lead to more reliable, accepted, and sustainable results.

A shift also sounds easy. It's not. Moving a system still requires a break in the gravitational forces that reinforce the system, and such movement is likely to activate the system's natural antibodies to prevent such movement. It requires both a collective force to move positively and a willingness to address countervailing forces that seek to prevent the shift.

"Real change, enduring change, happens one step at a time," said the late US Supreme Court Justice Ruth Bader Ginsberg.² She was referring to equal rights. The same is true for sustainable development. Collective, strategic, and collaborative incremental adjustments *are* transformative change.

The focus of this article is how financial systems can shift toward more sustainable development through sustainable companies, driven at least in part by the demands of their investors. Although the same approach could be applied to any system, we chose to focus on finance for two reasons: (1) to demonstrate the step-by-step approach required to effectively shift the system, and (2) because the financial system is a high point of leverage, driving change in other systems.

Making the Shift

Systems shift requires insight into the existing system, courage to speak the truth, persuasion to attract collaborators, intervention at key points, innovation to redefine and reframe problems as opportunities, and the collective backing to solidify changes and build new system reinforcements to secure and consolidate the gain.

We highlight three cases of such shifts, two that have delivered significant change over time and one that holds great promise: (1) Ceres/Global Reporting Initiative (GRI), (2) Financial Stability Board (FSB)/Taskforce on Climate-Related Financial Disclosures (TCFD), and (3) World Benchmarking Alliance (WBA).

In each case, leaders from inside the system, who benefitted from the system, were able to stand apart from it and identify the key point of intervention, which in each case turned out to be bringing greater transparency to the systems and players within it.

Ceres/GRI

Ceres was founded in 1989 when pioneering impact investor Joan Bavaria (then president of Trillium Asset Management) formed the Coalition for Environmentally Responsible Economies (then known as CERES) in collaboration with leading environmentalists, with the goal of changing corporate environmental practices.³

The defining event that galvanized Ceres was the Exxon Valdez environmental disaster. Until that time, relationships between environmentalists and businesses had been almost entirely adversarial. One of the organization's first accomplishments was to establish a core set of principles (the CERES Principles) and persuade key multinationals to adopt them. Ceres also started GRI out of the need for greater transparency with regard to sustainability and to establish the first guidelines.⁴

As demand and uptake for the reporting guidelines grew, GRI spun off as an independent nonprofit in 2002 and transitioned to setting the first global standards for sustainability reporting. In 2021, GRI partnered with the Sustainable Accounting Standards Board (SASB)⁵ to produce "A Practical Guide for Sustainability Reporting Using GRI and SASB Standards."⁶ GRI supports comprehensive disclosures on organizational impacts (socially, environmentally), and SASB focuses on a subset of financially material issues. The elements for the triple bottom line are now in place.

In 1989, few people could even imagine such an approach. Today, mainstream investors use GRI data to identify companies with strong performance on environmental, social, and governance (ESG) factors because positive performance on those factors most material to a firm have been directly correlated with superior financial performance. Not every company adheres to these reporting standards, but it is becoming increasingly commonplace, and the continued positive reinforcement and recognition of companies entering this group helps to push these positions toward "normal business."

Ceres and GRI set into motion a true systems shift of high and lasting impact. They could only have achieved

that through a strong commitment to collaboration with a wide variety of stakeholders. This shift did not fix all problems and challenges, but it changed the game by developing common sustainability reporting guidelines and standards.

FSB/TCFD

The Financial Stability Board established the Taskforce on Climate-Related Financial Disclosures under the leadership of Mark Carney (Bank of England) and Michael Bloomberg (Bloomberg LP) in recognition of climate change being a nondiversifiable financial risk that will have a negative financial impact on companies' revenues, expenditures, assets and liabilities, and financing.⁷

The objective was to develop recommendations for more effective climate-related disclosures that could promote more informed investment, credit, and insurance underwriting decisions. Investors need data. TCFD created the first disclosure guidelines to better illuminate the risks and opportunities caused by the effects of climate change (i.e., flooding, drought, fire, severe storms) and climate policy, previously obfuscated through more traditional (required) reporting.

The disclosure, however, did not drive change until leading investors started to *use* the data and increasingly demand that companies make such disclosures. By normalizing the expectation of climate-related disclosures within business, determined by the stakeholders of the system, TCFD helped create a virtuous reinforcing loop that provides the necessary political cover for policy makers to codify the recommendations, thereby consolidating and securing the positive movement and requiring more businesses to disclose.

The FSB/TCFD guidelines started with the GRI and SASB guidelines but went deep and specific into climate strategy, climate risks and opportunities, and corporate climate assumptions. The core group defining the guidelines were financial institutions, insurers, investors, and leading companies already managing climate risks on a corporate level.

This group created a very powerful and informative set of guidelines that have now been adopted broadly and are being used by hundreds of companies. It took the reporting of climate risks to a whole new level, and while it didn't solve everything, it did provide a powerful systems shift that promises to be long lasting.

On 21 March 2022, the US Securities and Exchange Commission (SEC) released a proposed rule: The Enhancement and Standardization of Climate-Related Disclosures for Investors, for which they will accept public comment until 20 May 2022.⁸ The proposed enhanced disclosure requirements draw directly from groups dedicated to developing effective climate-related disclosures, including the TCFD.⁹

WBA

The World Benchmarking Alliance takes systems change to the next level by aggregating the aggregators, including organizations like Ceres. It acknowledges that we cannot understand or change a system by simply addressing its individual parts and thus operates "as an alliance of users, shapers, amplifiers, and influencers through a set of Collective Impact Coalitions."¹⁰

WBA sets benchmarks for companies in key industries to strengthen accountability and performance on the most material issues in those industries. Once again, these benchmarks provide greater insight for investors. Using the data and insights generated by these types of courageous collaborations, financiers will reward those moving toward more sustainable investments and businesses. Sustainability leader and former Unilever CEO Paul Polman wrote: "The financial community really is in pole position to help us live within our planetary boundaries — a key enabler here being the move to more open and transparent reporting and the building in of externalities. If you 'measure what you treasure,' you automatically drive greater accountability for the system changes needed to shift, for example, to a zero-carbon economy."¹¹

Conclusion

We live in a system that requires change. These three cases (first Ceres and GRI, then FSB/TCFD, now WBA) demonstrate how a step-by-step approach can lead to positive shifts over time, with appropriate collaboration and deliberate action. In each case, the work was built on the foundation of earlier efforts and their leaders.

Without the courage of the first leaders of Ceres, there would have been no Global Reporting Initiative, but with GRI, insight into risks caused by climate change was possible. That insight provided the foundation for the next phase of leadership at the FSB to set the scene

for codification of climate risk through the TCFD, which has now resulted in the development of rules and guidelines in both the EU¹² and the US.

With support from multiple industries (and the reinforcing mechanisms of expected disclosure), the scene is now set for deeper dives into industry-specific guidelines and benchmarks, the work of the WBA.

That is just the kind of shift we need — that the *system* needs.

It starts with vision, courageous leadership, and a willingness to collaborate. We need to embrace, recognize, and reinforce these system shifts. Alone, each step is insufficient, but together they represent the transformative change that is essential to achieve sustainable development. Such collective, strategic, and collaborative incremental adjustments *are* transformative change.

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System Kaleidoscope, Not System Change

by Rachana Shah

Waste — the sight of it and particularly the smell of it — almost universally evokes disgust. Not all waste, however, is offensive to the senses. Some waste may be imperceptible to our immediate discernment, and the effects of this kind of waste may be more insidiously damaging to our well-being than any rotting rubbish. It recently came to light that waste is literally coursing through our veins. Researchers at Vrije Universiteit Amsterdam found “extremely small pieces of plastic debris in the environment resulting from the disposal and breakdown of consumer products and industrial waste” in the bloodstream of 17 out of 22 study participants.¹

Studying a system through the lens of complex system theory lets us broaden our arcs of optimism and strengthen our resolve to advocate for change.

The study was limited in scope and should be followed by a study with a larger sample size, but the results are not surprising given that microplastics have been detected in human placentas on both the maternal and fetal side,² in the most remote and seemingly pristine environments,³ in the depths of the ocean,⁴ and on the highest mountain peaks.⁵

Society takes a brief pause of despair or outrage upon hearing this story, but the next news cycle arrives, and we carry on. One might think humans would rather deal with waste (microplastics in this case) individually, in this most intimate of ways (running through their bloodstream), than deal with it systemically.

Of course, this is not true. Most people would not choose that, especially if asked in those clear terms. Rather, they become so overwhelmed by this information that they’re unable to think about dealing with it on a systemic level. They may move on, not out of choice, but out of the need to preserve their mental well-being in a world awash in systemic problems.

The awareness that we need “system change, not climate change” is growing, with this slogan commonly found on signs at climate-related protests. But how do we do that? The slogan does not include a roadmap.

Thinking in Systems

We can turn to the experts tasked with creating frameworks for giant, global problems like ending worldwide hunger or keeping climate change within manageable boundaries. Donella Meadows wrote the book, actually many books, on “thinking in systems.” She writes:

The central concept is that system behaviors are not caused by exogenous events, but rather are intrinsic to the system itself. The connections and feedback loops within a system dictate the range of behaviors the system is capable of exhibiting. Therefore, it is more important to understand the internal structures of the system, than to focus on specific events that perturb it.⁶

If we understand a complex system in this way, it becomes relatively straightforward to identify which measures have little (or no) impact on long-term change and which have high impact — the type of changes that aren’t obvious within one or two political cycles but create the foundation for momentum and consistent change toward the goal.

Studying a system through the lens of complex system theory lets us broaden our arcs of optimism and strengthen our resolve to advocate for change. We need not get bogged down when low-impact actions are slow to be enacted, and we can champion (and even take part in) some high-impact endeavors.

The NYC Waste System

Let us unpack the internal structures of a system — New York City (NYC) Waste (Municipal Solid Waste Generation, Collection, Processing, and Disposal) — a system I can speak to with knowledge and experience,

to understand how we can bring forth system change in one piece of one system (global waste) that is part of a broader system causing global climate change. To put NYC's waste into perspective, we must understand the role it plays in contributing to the global climate:

- Twenty percent of all methane emissions are from waste,⁷ largely due to anaerobic decay of organic waste in landfills. Methane is 84 times more potent than CO₂ in warming the atmosphere.
- Waste incineration (greenwashed as “low-carbon waste-to-energy” schemes) generates about twice as much CO₂ as the equivalent of fossil fuels because it often contains hard-to-recycle plastic waste.⁸ Incineration releases pollutants like methane and nitrous dioxide (310 times more potent than CO₂). Burning waste in open fires, a practice common in the developing world, produces additional pollutants, such as black carbon (5,000 times greater warming potential than CO₂).⁹
- Waste transportation accounts for significant greenhouse gas (GHG) emissions. The heaviest type of waste, and therefore the most financially and environmentally costly to transport, is typically organic waste.
- Plastics are currently produced using fracking for natural gas, primarily consisting of methane. According to the World Economic Forum, “Over 90% of plastics produced are derived from virgin fossil feedstocks. This represents about 6% of global oil consumption, which is equivalent to the oil consumption of the global aviation sector. If the current strong growth of plastics usage continues as expected, the plastics sector will account for 20% of total oil consumption by 2050.”¹⁰
- When exposed to solar radiation, plastic waste in the ocean or on coastlines emits methane and ethylene.¹¹

Other crises caused or exacerbated by global waste include:

- **An ecological crisis.** An estimated 33 billion pounds of plastic enter the ocean every year.¹²
- **An environmental justice crisis.** Chronically disenfranchised communities bear higher levels of pollution burdens due to global waste colonialism, including higher concentrations of particulate matter in the air, toxic releases during incineration, higher

exposure to diesel fumes from waste transportation, drinking water contamination, and proximity and exposure to hazardous waste. Waste colonialism refers to “the assumed entitlement” by high GDP countries to use land in low GDP countries “as a sink, no matter where it is.”¹³

- **A human health crisis.** As scientists begin studying the effects of microplastics in human blood (and, more recently, deeply embedded in the lungs of humans),¹⁴ other studies have already linked the endocrine-disrupting chemicals in plastics and other products to decreased human fertility rates and increased miscarriage rates.¹⁵

The consequences of not enacting system change with regard to global waste will be catastrophic, as the global plastic market size is expected to expand at a compound annual growth rate of 3.4% from 2021 to 2028.¹⁶

NYC's system of waste generation, pickup, processing, and disposal has many stakeholders (in complex systems terminology, these are called “agents”).¹⁷ Figure 1 lists many of the key agents acting together under specific parameters.

Agents act in a system to create conditions or a certain “state of the system,” also known as a “stock.” Inflows increase the stock, and outflows decrease it. Decision makers then evaluate the state of the system to determine what actions can be taken to reach the goal (see Figure 2). Figure 3 then shows how we use our perceived state of the system (e.g., mounds of black trash bags along many streets) to see the discrepancy from the goal. Increasing beneficial outflow 1 (any aspect of the circular economy) allows the reduction of harmful outflow 2 (landfill, etc.), which helps us reach the goal. Then we look for *leverage points*: places within a complex system where a small shift in one thing can produce big changes in everything, and the title of the Donella Meadows article used to guide this analysis.¹⁸

Learning Where to Intervene in a System

In Meadows's article, she describes sitting in a meeting about how new global trade regimes would (supposedly) make the world function better. She was getting upset at what she heard and eventually became so angry about the direction she believed the new regime would take the world that she interrupted the meeting by getting up, marching to the flip chart,



Figure 1. Agents in the NYC Waste system

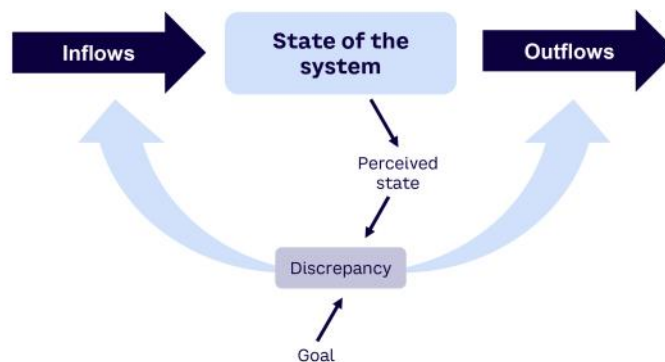


Figure 2. Evaluating the state of the system (adapted from Meadows)

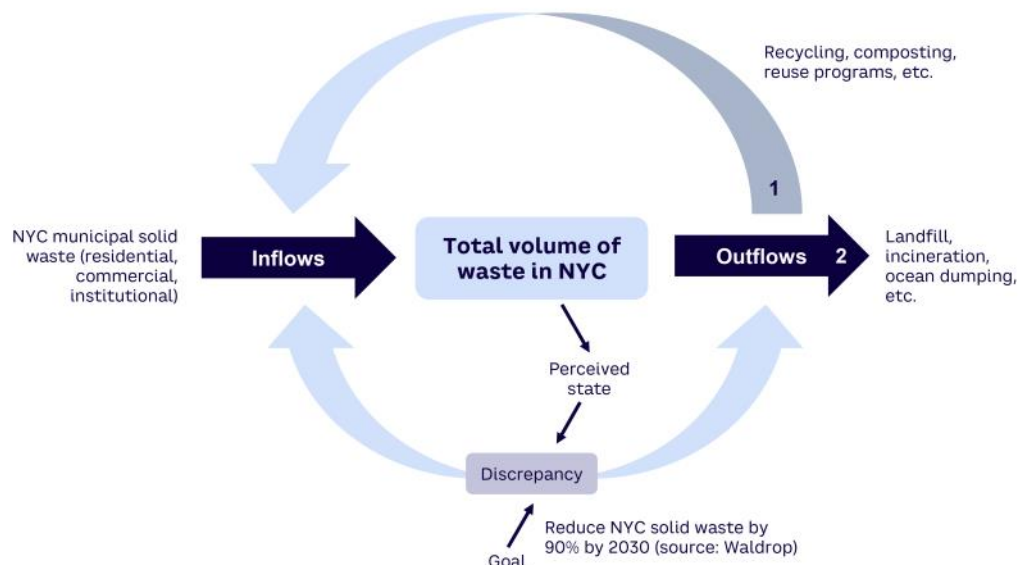


Figure 3. The NYC Waste system using the structure of Meadows's diagram

turning to a blank sheet, and writing a list showing how, in complex systems, leverage points are not intuitive:

What bubbled up in me that day was distilled from decades of rigorous analysis of many different kinds of systems done by many smart people. But complex systems are, well, complex. It's dangerous to generalize about them. What you are about to read is a work in progress. It's not a recipe for finding leverage points. Rather, it's an invitation to think more broadly about system change. Here ... is a revised list [see Figure 4].¹⁹

Grouping the leverage points into broader buckets (low, medium, and high impact) gives us an uncomplicated categorization of solutions that tells us how much energy we should invest in supporting or opposing that solution. We examine actual and hypothetical solutions as we describe the leverage points below.

Low-Impact Leverage Points

"12. Constraints, Parameters, Numbers"

Meadows puts these last on her list. She equates adjusting parameters to "diddling with the details, adjusting faucets, or arranging the deck chairs on the Titanic," even though they command 99% of our attention. That hyper-focus is logical when we realize that, for government officials with vast reign and access to power but a limited window to deliver results (or to be held accountable), number-changing is the perfect lever.

In the NYC Waste system, changing parameters include fines and tickets for littering, dumping, incorrectly setting out waste, not maintaining clean sidewalks, and improperly recycling; plastic bag fees/taxes; and increasing/decreasing assimilative capacity.²⁰ The latter refers to the acceptable levels of toxins in waterways and other shared natural resources.

Most citizens and lawmakers spend all their time and energy on these activities, but systems thinkers use their time and energy on medium- and high-impact leverage points.

"11. The Sizes of Buffers and Other Stabilizing Stocks Relative to Their Flows"

Buffers are cushions, rainy-day funds. They help deal with periods of uncertainty. The more uncertainty there is, the bigger the buffer needed. Before the ubiquitousness of plastics, almost all consumer goods

PLACES TO INTERVENE IN A SYSTEM

(in increasing order of effectiveness)

12. Constants, parameters, numbers (e.g., subsidies, taxes, standards)
11. The sizes of buffers and other stabilizing stocks, relative to their flows
10. The structure of material stocks and flows (e.g., transport networks, population age structures)
9. The lengths of delays, relative to the rate of system change
8. The strength of negative feedback loops, relative to the impacts they're trying to correct against
7. The gain around driving positive feedback loops
6. The structure of information flows (who does/doesn't have access to information)
5. The rules of the system (e.g., incentives, punishments, constraints)
4. The power to add, change, evolve, or self-organize system structure
3. The goals of the system
2. The mindset or paradigm out of which the system (its goals, structure, rules, delays, parameters) arises
1. The power to transcend paradigms

Figure 4. Meadows's list of 12 leverage points

were distributed in containers made of paper, glass, or aluminum. Two of these materials, glass and aluminum, were truly recyclable: they could be recycled infinitely and fit into the idea of a circular economy. The other, paper, was able to be recycled a finite number of times and after that point was biodegradable.

In the 1960s and beyond, as plastics became more popular, the inflows into the material stock of our system increased significantly. By 1988, the Council for Solid Waste Solutions was created by the US Society of the Plastics Industry to help "sell" the idea of plastic recycling.²¹ In doing so, they created a buffer, a cushion to absorb some of the excess waste they created. "But if a buffer [becomes] too big," Meadows warns in her article, "the system becomes inflexible." This is why in 30 years, we haven't been able to reform the plastics downcycling buffer.

Like the prior leverage point, this one involves significant time and capital, with uninspired results.

"10. The Structure of Material Stocks and Flows"

This leverage point refers to the physical structure of a system and how difficult it is to enact change once that structure has been built out. In the NYC Waste system, there is an abundance of colossal, capital-intensive physical infrastructure — from garbage trucks to massive transfer stations to waste bins and more.

In 2010, “digester eggs” were added to an existing wastewater treatment plant in Newtown Creek, Brooklyn. The five egg-shaped structures process 350 million gallons of sewage and food waste daily and turn the methane they emit into energy.²² This feat makes them appear to be a sustainable food-waste solution for NYC. However, considering it took 10 years and US \$5 billion to build them, this solution remains in the low-impact category.

Pushing for higher landfill and incineration rates appeals to corporate executives because they often use cost to justify decisions.

“9. The Length of Delays, Relative to the Rate of System Change”

In her article, Meadows describes delays in a familiar example: a shower with delayed temperature adjustment, causing “oscillations from hot to cold and back to hot, punctuated with expletives.” She reminds us that a system is not capable of responding to short-term changes when it has long-term delays.

Many consequences of the role of waste in global crises are similarly slow to reach the public. Methane emissions from waste are hard to measure (they are not done in real time; there is a delay). The health effects of microplastics are only now being uncovered, even as production hurtles forward, baselined on the growth of plastics from the past until today (when those health consequences were unknown). Educating a mass of people about the health dangers of something so woven into our lives will surely suffer delays due our innate sense of defensiveness.

Finding ways to decrease the delays of educating the public on negative consequences on human health could be considered a more effective lever than fines and taxes.

Medium-Impact Leverage Points

“8. The Strength of Negative Feedback Loops, Relative to the Impacts They’re Trying to Correct Against”

“Negative feedback loops are ubiquitous in systems. Nature evolves them, and humans invent them as

controls to keep important system states within safe bounds,” writes Meadows in her article. In NYC, citizen complaints allow city workers to respond where there are sanitation issues, so the system does not go out of bounds. Another negative feedback loop is the cost of sending waste to landfills, which rises as spaces get filled up, causing officials to search for places to accept this waste. Currently, waste picked up in the Bronx is sent to landfills in Virginia, and waste from Staten Island is sent to South Carolina. Since separating out organic waste is not yet required by law, these waste transport costs are high, and GHG emissions are considerable. At some point, the costs will be too high, and action must be taken.

Pushing for higher landfill and incineration rates appeals to corporate executives because they often use cost to justify decisions. But it means costs, rather than climate change consequences, keep the system within bounds.

“7. The Gain Around Driving Positive Feedback Loops”

Positive feedback loops are akin to vicious (or victorious) cycles. The more they work, the more powerful they become, and the more they work. In her article, Meadows writes, “Reducing the gain around a positive loop — slowing the growth — is usually a more powerful leverage point in systems than strengthening negative loops and much preferable to letting the positive loop run.” One abstract example is that more despair or fear over the future would lead to more consumption, which would lead to more waste, which would lead to more despair ... and the cycle continues. If we were to slow consumption or work to mitigate despair/fear on a societal level, it would buy us more time to handle waste.

“6. The Structure of Information Flows”

An inexpensive and high-leverage action is to simply install an information-delivery loop. “Missing feedback is one of the most common causes of system malfunction. Adding or restoring information can be a powerful intervention, usually much easier and cheaper than rebuilding physical infrastructure,” writes Meadows.

My company, Common Ground Compost, is building and launching a new digital waste management platform for businesses and real estate portfolios called WATS (Waste Administration Tracking Software). Many building and sustainability managers have easy

access to energy and water usage through metering systems, but they have almost no transparency into their waste metrics, relying solely on data provided to them by their waste haulers. Haulers generally charge by weight, so they are not an unbiased source of information. WATS allows businesses to have compelling feedback, on demand, upon which to make decisions and react nimbly to changing market conditions.²³

The investment needed is relatively low, and the knowledge gained is substantial. For that reason, systems thinkers strongly support information flows.

High-Impact Leverage Points

"5. The Rules of the System"

"If you want to understand the deepest malfunctions of systems, pay attention to the rules and to who has power over them," commands Meadows. Rules include incentives, punishments, and constraints. For example, the NYC's sustainability plan calls for establishing commercial waste zones. This would prevent private haulers from driving, for example, 128 miles in just one nightly route! Each zone would have haulers assigned to service it, keeping haulers inside geographic boundaries and significantly reducing GHG emissions from diesel trucks, among other benefits.

Another rule NYC could consider is a pay-as-you-throw program. Already functioning well in cities like San Francisco and Seattle, this rule would significantly reduce waste inflow. Because diversity of residence types adds complexity to enacting this rule, NYC officials have dragged their feet. However, densely populated cities like Seoul, South Korea, have solved this problem by offering different pay-as-you-throw programs for varying residential needs.

Thinking bigger, NYC could decide to outlaw sending waste for incineration. It could single-handedly ban all single-use plastics. The latter would require a city-wide regulation change but would push citizens toward reusables, dramatically reducing waste.

According to a UN member, in March 2022, 175 countries endorsed a landmark resolution to establish an international, legally binding treaty on the production, design, and disposal of plastic by 2024.²⁴ Rules are only as powerful as the entities that enforce them, but we can be encouraged by the fact that so many countries agreed on swift change over a tight timeline.

NYC will have a part to play in this for the US to remain in compliance.

"4. The Power to Add, Change, Evolve, or Self-Organize System Structure"

When a system self-organizes to create any structure low on Meadows's list, it's an indication we're in the midst of a revolution. "The ability to self-organize is the strongest form of system resilience. A system that can evolve can survive almost any change, by changing itself," she writes.

This lever is one of the most exciting because it reflects a stubborn insistence to do the right thing. In response to the common sight of the perfectly usable furniture, toys, and strollers that New Yorkers see next to garbage on garbage pickup days, a multitude of social media groups have formed. So-called curb alerts are generated by other members of the community. They include an address, and a community member in the group may be called on to check if the item is still there, so it can be rescued. There are also "Buy Nothing" groups emerging, package-free small businesses, repair-and-reuse pop-ups, dumpster divers, protests, die-ins, and self-initiated green teams.

These revolutionary ideas offer hope, and these solutions let system thinkers go beyond advocacy into active participation.

"3. The Goals of the System"

When there is a goal, writes Meadows, "then everything further down the list, physical stocks and flows, feedback loops, information flows, even self-organizing behavior, will be twisted to conform to that goal." The goal of the current NYC Waste system is to remove trash. Whether it's for health, sanitation, or aesthetic reasons, New Yorkers just want it gone. There is a great deal of discussion about ways to strengthen the circular economy by increasing beneficial outflows (e.g., recycle more, create citywide composting infrastructure) but only brief consideration given to decreasing the inflows.

What if the goal was to live in the city with the least amount of waste generated per person in the country? What if the goal was zero-waste kaizen? What if the goal was to participate in the least harmful waste system, avoiding negative health outcomes for any living being? What if the goal was to decolonize?

"2. The Mindset or Paradigm Out of Which the System Arises"

Whole societies "resist challenges to their paradigm harder than they resist anything else," writes Meadows. Reframing the way individuals view waste is key to creating a shift in mindset. When communicating various waste issues to audiences, there are a few ways I do this:

- Talk through a scenario where the Department of Sanitation declared landfills closed, trash pickups suspended (except for paper, glass, aluminum, and organic waste), and citizens required to keep all the waste they generated in their homes or backyards. I ask, "What's the first thing you would do?"
- Encourage a thought experiment: Every time you say "throw away" replace "away" with "in someone else's yard." Imagine a party you hosted came to an end, and a helpful friend asks: "What should I do with all these leftovers?" Would you reply "Oh, just throw them in someone else's yard"?

Changing mindsets is incredibly powerful. Ideas seep into our words and actions, then into behaviors and the behaviors of those around us.

- Challenge the audience's perceptions of what is waste: micro-plastics can appear to be specks of sand, and even while we ingest a credit card-sized amount of plastic each week, we don't taste or feel them. How can we reframe the sight of a single-use fork or a polyester t-shirt (knowing it will deteriorate into plastic particles) with the same level of disgust that we feel when we are around a dirty diaper or moldy bread?
- Describe how, in the 1950s, when plastics were introduced to consumers, their main target audience (housewives) did not receive them well. "At first, homemakers were wary of a material they associated with bad smells, a weirdly oily texture and cheap construction."²⁵ Soon, Tupperware parties were created, where a salesgirl sold directly to housewives in their homes, where they could sit with friends, see the products, and discuss the benefits. The behavior of using plastics was *learned*, which means choosing

reusable products over single-use plastics can also be learned. (Perhaps we can borrow the behavior change model, too!)

Changing mindsets is incredibly powerful. Ideas seep into our words and actions, then into behaviors and the behaviors of those around us. This snowballs into societal mindset shifts. This is happening currently, fueling the determination of many of us fighting the climate crisis.

"1. The Power to Transcend Paradigms"

Part of this lever is letting go. In other words, understanding there is no certainty in any worldview and allowing that to liberate your thinking. Part of the lever is seeing the world as having no inherent order, "like a kaleidoscope: the world is a matter of patterns that change, that partly repeat, but never quite repeat, that are always new and different."²⁶ Part of it is abandoning notions of duality, such as human versus nature. "We are part of nature ourselves. We're in the middle of it. There's no division between doers and done-to because we are all part of this interlocking network."²⁷

Achieving Lucidity in Complex Systems Analysis

The Meadows framework provides tools to analyze any complex system. Understanding the framework itself gives rise to shifts in mindset within ourselves, as we, too, are complex systems. For any system that requires system change, achieving clarity requires going through the exercise of identifying the agents, stock, inflows and outflows, and goals and discrepancies of the system, and then listing all current and possible solutions and determining whether they are low-, medium-, or high-impact leverage points.

This helps us rise above the noise of arguments over low-impact solutions. We can better cope with high levels of uncertainty and feel confident about where our energy is being spent. Although time is not on our side when combatting climate change, we can see awareness and activism gaining momentum, and we can pull out every weapon in our arsenal to ensure it continues.

As a changemaker within this system, the framework provided by Meadows allows me to understand where my energy is best spent. Adjustments to parameters are worthwhile, but not if other levers are available. The

high- and medium-impact leverage points show us that we don't need a roadmap to system change, and we don't have to drown in despair.

We need to observe the system, take part in efforts to self-organize, and look for moments of opportunity where a small shift might produce an outsized ripple effect. We connect with the notion that “complex, lifelike behavior [in a system] is the result of simple rules unfolding from the bottom up.”²⁸ We contemplate the infinity of patterns within the kaleidoscope, the transformations that take place first within ourselves, then within our communities, until the kaleidoscope encompasses everything we know to be and continues shifting, adjusting, and evolving.

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Force for Good: Market-Based Social Activism for Sustainability

by Helen Chen

Civilization is fragile, as seen in our current multitude of crises: a prolonged pandemic, increasing social injustices, and unchecked climate change. Shaken awake by these threats to humanity, civil society's drive for systems change toward a better world has never been stronger. That world would be safe and prosperous for all, as envisioned by the United Nations (UN) Sustainable Development Goals.

Market-based social activism (MbSA) seeks to align business activities with moral principles to drive positive societal changes. Its roots trace back to the 1960s.¹ Paul Polman, former CEO of Unilever, is one example of such advocacy, and there are many others.² Business has significant impact on society, for better or worse, given that it is the most influential global institution in terms of employment size and technological capabilities.³

Market-based social activism seeks to align business activities with moral principles to drive positive societal changes.

This article focuses on how MbSA can be better organized to drive positive impacts more effectively. It uses a mini case study to highlight the conflicts between MbSA and the traditional business model, discusses the building blocks of a “market for virtue,” proposes a conceptual framework to structure forces in the field that can help build a market for virtue, and reports lessons learned from current affairs and the implications for a change in basic assumptions in the community's collective mental model. The article aims to clarify MbSA's position and priorities against the broader backdrop of systems change — conceptualized as an all-for-one, one-for-all approach aligning forces for sustainability toward building a better world.

In the context of this article, the term MbSA is used interchangeably with social investing and stakeholder capitalism, since they differ in scale and scope but not in nature. MbSA is “a force for good,” a phrase borrowed from INSEAD, a pioneering business school in the movement.⁴ We refer to the force for positive change toward sustainability as “good/virtue” and the resistance to change as “evil/vice,” noting that these are not a dichotomy but two extremes on the spectrum of human conditions.

Danone's Opposing Business Models

In 2020, Danone, a global food and drink company headquartered in Paris, became France's first public *Entreprise à Mission*, a company with social and environmental objectives set in its by-laws.⁵ Emmanuel Faber, the company's then chair and CEO and a representative of stakeholder capitalism, thanked the 99% of shareholders who voted favorably for this new legal status for having “toppled the statue of Milton Friedman.” (Friedman famously professed that “the business of business is business.”⁶)

However, Faber left Danone in March 2021 after seven years at the helm and 24 years with the company, defeated by activist investor-initiated attacks based on the company's financial underperformance.⁷

Does doing good come with a cost? Could it be that Faber's triple-bottom-line approach distracted Danone from focusing on financial performance, making it vulnerable to attacks from profit-driven shareholders? Plausible, but hard to prove. If this is the case, Faber's departure from Danone could have been a do-gooder's sacrifice. As Polman pointed out, the incident “crystallized a fraught conflict within ... two opposing economic models. One focused on a few billionaires; the other focused on serving billions of people.”⁸ The Green-Grey Matrix in Figure 1 illustrates such conflicts.

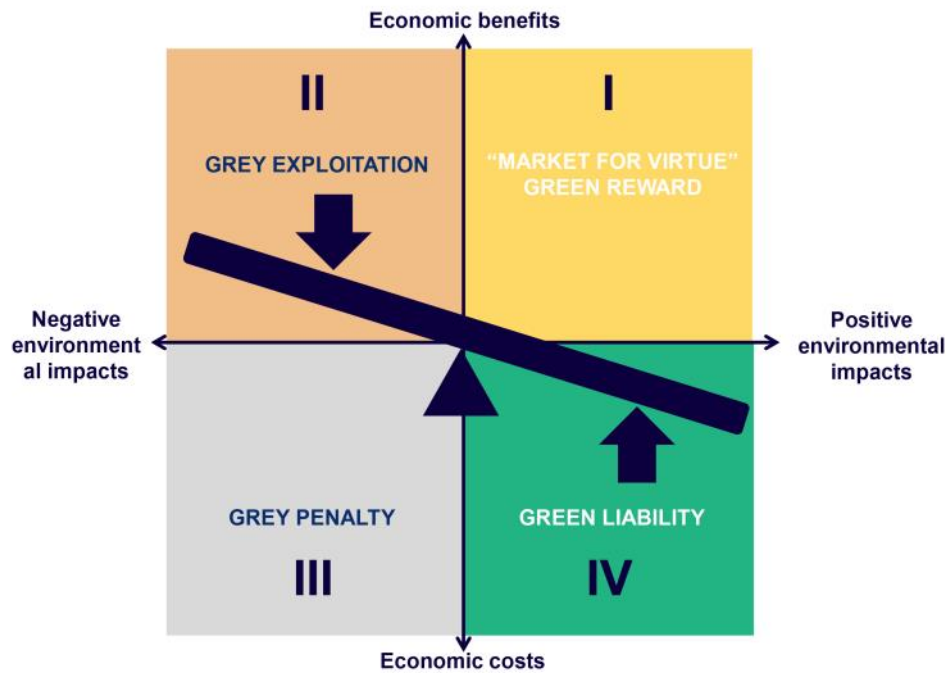


Figure 1. The Green-Grey Matrix

For simplicity, Figure 1 sets MbSA in the context of impact investing for environmental sustainability (green versus grey), but the same applies to conflicts between shareholder-centric and stakeholder-oriented business models. We can view the conflicts as occurring between two opposing camps: social investors with different priorities (profit versus impact) and time frames (short term versus long term).

All is well when their objectives align (Quadrant I, Green Reward), but conflicts occur when green leads to net costs (IV, Green Liability) or profit comes from exploitation (II, Grey Exploitation). Faber's departure from Danone might have been a case of the former, and Amazon workers' protests against unsafe working conditions could be a case of the latter.

As the planet continues to heat, so will such conflicts. And if the market does not value the externalities of business activities, do-gooders will continue to be punished for good-doing while exploiters are rewarded for exploitation. For business to scale as a force for good, such market failures must be corrected through a market for virtue, as discussed below.⁹

The matrix also suggests that it "takes a village" beyond the private sector to achieve systems change. Regulations and legislation are needed to hold accountable companies that profit from exploiting nature — pushing them to move from Grey Exploitation (Quadrant II) to Grey Penalty (Quadrant III).

Norms and values are also necessary to generate the initial impetus for change and function as a mechanism of social control. Together, they may shift the market landscape from traditional shareholder-centric to revisional stakeholder-oriented, like a seesaw game between two opposing camps.

Market for Virtue

A market for virtue needs three building blocks that must be developed in this order:

1. **Green performance measurement (GPM)** that is valid and reliable
2. **Green performance valuation (GPV)** that is fair and equitable
3. **Green value apportionment (GPA)** that is efficient and scalable

Green performance measurement is fundamental to building a market for virtue as GPM enables transparency in corporate sustainability performance. Transparency can increase efficiency in the market for virtue by reducing information asymmetry and opportunistic behaviors like greenwashing. In November 2021, the International Financial Reporting Standards (IFRS) Foundation Trustees announced the creation of the International Sustainability Standards Board (ISSB).¹⁰ Market-based

social activists are hopeful this will lead to improved transparency in corporate sustainability, which can help to build a solid foundation for the market for virtue.

A comprehensive scheme of green performance valuation must be based on valid GPM. GPV converts externalities from business activities into equivalent economic values in monetary terms for transactions to take place in the market for virtue. The development of GPV may be controversial, involving ethical and philosophical debates (e.g., monetizing the health impacts of air pollution differently in developed and developing nations). Hence, fairness and equity principles must be upheld alongside the technical aspects of GPV, taking into account relevant contextual factors.

Green value apportionment, the exchange mechanism of the market for virtue, can be developed according to the GPV scheme. GVA enables economic values of external impacts to be apportioned and allocated to responsible parties. The Pyramid of Forces for Good (PFG) — discussed more fully in the next section — can be applied to identify apportionment channels such as regulations (carbon taxes), market-based mechanisms (the price premium of electric vehicles), and intangible social capital (generated through normative and moral forces).

There are two critical success factors for a market for virtue. First, there must be a sufficiently sizable buyer-supplier pool to ensure transaction costs are affordable and exchanges are scalable. Second, there must be a

social governance system that safeguards the interests of both parties, with perhaps a new social contract based on transparency, trust, and goodwill.

Pyramid of Forces for Good

As Figure 2 illustrates, the Pyramid of Forces for Good organizes various forces for change into a coherent conceptual model. PFG is built on Maslow's hierarchy of needs¹¹ and the corporate social performance model.¹² It organizes four forces for change into a structured framework for systems change: (1) the normative force that integrates, (2) the regulatory force that alleviates, (3) the rational force that motivates, and (4) the moral force that elevates.

The *normative force* institutionalizes sustainability values, attitudes, and behaviors. It functions as a form of informal regulation that makes people, of their own will, want to do what they perceive society expects them to do to be rewarded with legitimacy.¹³ The normative force gradually assimilates into the citizenry's collective mentality and may be institutionalized as part of the culture, exerting long-lasting influences by driving environmental-regulation enactment, impact investing, or NGOs' activities. Fostering and institutionalizing the normative force is fundamental to systems change for sustainability.

The *regulatory force* threatens disciplinary actions when it sees environmental regulations violations. It has the power to alleviate unsustainability through penalizing mechanisms (e.g., fines, penalties, and lawsuits). There are also market- and nonmarket-based mechanisms (e.g., the carbon market and mandatory reporting and disclosure). Like the physiological needs in Maslow's hierarchy, the regulatory force takes precedence over higher-level needs.

The *rational force* incentivizes companies to adopt mutually beneficial green practices. It elevates sustainability by rewarding green practices and is a motivational factor for "growth needs" — meeting such needs increases motivation and leads to a self-reinforcing virtuous cycle. It is the key driving force in the market for virtue.

The *moral force* is the intrinsic motivation to do good that comes from within. It is embedded in individuals and exerts its influence through an organization's key stakeholders, including managers or investors. The moral force drives organizations to engage in actions

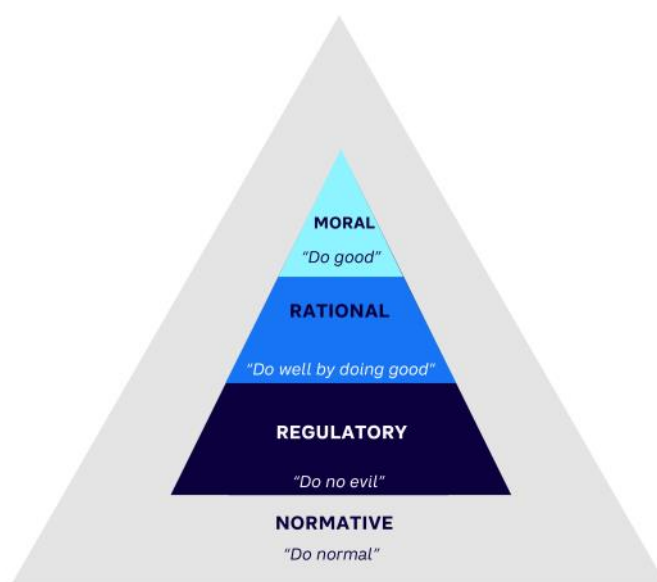


Figure 2. Pyramid of Forces for Good (PFG)

like forgoing profitable but environmentally damaging business opportunities or sharing experiences with rivals. Although it may not be intended, economic benefits may accrue to the company through its green reputation and stakeholder goodwill. The moral force is less tangible and less common, similar to self-actualization in Maslow's needs hierarchy.

PFG illustrates the multidimensionality and interconnectedness of various drivers of systems change for sustainability. It shows that none of these forces is sufficient on its own; all are necessary for systems change toward sustainability:

- The regulatory force can be a powerful impetus to generate a level of traction that exceeds resistance to change.
- The normative and moral forces must be fostered for self-sustaining motivations toward sustainability.
- The rational force can be harnessed to build a market for virtue.

Lessons for the Way Forward

This section suggests four lessons that can be learned by reflecting on current affairs. Incremental change (make do with what we have) can be achieved through a market for virtue, but fundamental change demands a paradigm shift in our mental model.

Lesson 1: Social Entropy

As in physics, social systems and institutions deteriorate over time and may break down if left untended. For example, the global security system was disintegrating for decades without us noticing until the war broke out in Ukraine. The climate crisis is of the same nature, with more dire effects over a longer timeframe.

However, to quote António Guterres, the UN Secretary-General: "We always have a choice.... To choose ... courage over complacency."¹⁴ The force for good should always be present and strong enough as anti-entropy against social issues and other threats to humanity.

Lesson 2: Self-Projection Bias

We are predisposed to see the world as what we are, not as what it is. The virtuous see innocence in vice, the

vice-prone see weakness in virtue. This cognitive bias is self-sabotaging for good and self-reinforcing for evil, as virtuous forces are weakened by their virtues, and vicious forces are strengthened by their vices (it is not uncommon to see corruption exploiting philanthropy in real life). This is a more elaborate version of "the malice of the wicked was reinforced by the weakness of the virtuous" noted by Winston Churchill.¹⁵

Do-gooders must step out of their rose-colored mental frame to become detached observers of the world, trusting but verifying rather than keeping good faith indiscriminately, lest good-doing empowers vice.

As in physics, social systems and institutions deteriorate over time and may break down if left untended.

Lesson 3: Love and Power

Love is the answer, but power is the solution. Together with the self-projection bias, this may explain why social activism has not been effective in changing the status quo. The virtuous preach/practice love while the vicious grab/grow power. Over time, this results in a stark imbalance — the stones of the former against the cannons of the latter, as seen in the futile protests of environmental NGOs against oil and gas oligarchs.

Although light can drive out darkness, this step only opens our eyes to what was hidden in the dark; it does not change what is in front of us. Love may not be able to drive out hate, as they are not necessarily mutually exclusive, and it is not clear which one is more powerful. Therefore, although social activism may be driven by love, to be effective it needs power. Just being a force for good is not enough, it must become a force for good through a "missionary-military" approach that appeals to love but first tames the darkness.

Lesson 4: Substance & Style

Humans tend to value style over substance, both in business and with people. We glorify surface glamour while ignoring what's at the core. Left unchecked, such blind spots in our mental model create loopholes in social systems, letting greenwashers get away without walking the talk. If we truly want change, we must go back to the basics by valuing character over

competence. This may include rethinking the logic of capitalism.

Conclusion

MbSA can be better organized to drive positive societal changes. To that end, in this article, we have examined the building blocks of a market for virtue (for incremental change in the private sector), proposed a conceptual framework to structure various forces (for incremental change in civil society), and examined lessons learned from current affairs (for transformational change in the MbSA community).

This will be a long and difficult battle, and we are all enlisted by default. So let us join forces to forge a better world. The times they are a-changin', and nothing that we do is done in vain.

Acknowledgment

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Plan B: Linking Public & Private Governance Systems for Climate Change Mitigation

by Sally R.K. Fisk, Michael G. Mahoney, and Michael Vandenbergh

Three decades have passed since the *Rio Earth Summit*, where world leaders signed the UN Framework Convention on Climate Change.¹ Despite this global agreement, a lack of effective governmental policies has contributed to huge increases in global greenhouse gas (GHG) emissions, growing by almost 61% in the last 30 years to 36.4 gigatons per year of CO₂ equivalents.²

Scientists know that to stabilize global temperatures at or below an increase of 1.5°C from pre-industrial levels (the aspiration of the 2015 Paris Agreement³), humanity must cut emissions sharply. The first milestone is a 45% cut from 2010 levels by 2030, then society must reach net-zero carbon emissions by 2050. Unfortunately, the trend has been in the opposite direction. This strongly suggests the need to change the governance system that has thus far failed to address climate change in the US and globally.

Thus, it is time to look beyond government alone to set realistic policies and develop appropriate instruments for regulating market behavior. Over the past decade, a system of private governance has emerged to fill some of the void created by failures in public governance systems. This has been driven by massive growth in environmental, social, and government (ESG) investments and other pressures by stakeholders that are driving companies to demonstrate meaningful progress toward sustainability.⁴

Like any governance system, these private systems have evolved, and many now include key attributes of a legitimate public governance system. These systems are also shaped by the need to standardize governance approaches across enterprises (many of which are multinational) and by stakeholder expectations for companies to become more transparent.

Some stakeholders, including governments and some advocates, remain skeptical about whether even a mature private governance system can achieve the environmental and social results desired.⁵ In this article,

we review the challenges facing both public and private governance systems in securing meaningful, verifiable carbon reductions and explore why joining the two governance systems, which have acted mostly in isolation, holds great promise.

It is time to look beyond government alone to set realistic policies and develop appropriate instruments for regulating market behavior.

Although we remain hopeful that comprehensive US federal climate legislation will pass, the year 2030 is not far away, so it is time to get creative and identify new governance systems that can lead to solutions. Joining public and private governance systems through public-private partnerships, where each bring elements of their native processes, can fill important gaps. Examples include two US State Department programs that point the way toward government-business partnerships: The Clean Energy Demand Initiative (CEDI) connects countries with companies to signal demand for clean power, enabling the countries to foster the development of credible clean-energy procurement options.⁶ The department is also responsible, with the World Economic Forum, for the First Movers Coalition, a public-private partnership to jumpstart global demand for emerging green technologies.⁷ These types of opportunities are present elsewhere in government as well.

Another opportunity for systems change lies in the intersection of private actions being taken by companies to reduce carbon emissions (aligned with the criteria of the Science Based Target initiative [SBTi]⁸) with current US government programs and initiatives, including purchasing preferences, that could incentivize and further legitimize the actions of the business community. SBTi criteria include establishing significant near-term targets to align with the

Intergovernmental Panel on Climate Change (IPCC)'s science-based 2050 global carbon-reduction targets.⁹

This article suggests steps the current US government and private enterprises can take to quickly form a public-private partnership, built on the SBTi's foundation, as an effective gap filler while support builds for comprehensive climate legislation. Importantly, success in changing the current public climate-mitigation governance system by joining it with a private governance system could create a model for addressing other complex environmental and social problems.

It is time to move from conflict to coordination through a leveraged public-private governance system.

The pandemic proved a great example of the power of public-private partnerships. BlackRock CEO Larry Fink recognized this in his 2022 Letter to CEOs, emphasizing that “when we harness the power of both the public and private sectors, we can achieve truly incredible things.”¹⁰ The US COVID response, including a rapid vaccine launch, succeeded because industry and government players recognized that they needed to change the way they had operated for years to meet patients' needs. Both sectors left the old ways of doing things at the door, took risks, and placed humanity's interest well above self-interest.

The world will suffer if this approach is not replicated to address climate change. It is time to move from conflict to coordination through a leveraged public-private governance system that builds on the strengths of each to address the deficiencies of systems operating in isolation.

Washington Remains in Gridlock, But Companies' Carbon-Reduction Commitments Grow

The US Congress and the Biden Administration have taken important steps, but carbon tax and other bills that would limit carbon emissions have unfortunately not been adopted. This is not new: gridlock on comprehensive climate action has existed for three decades in Washington, DC.¹¹ The reasons for the gridlock

are well known, and strategies to break it have been advanced by NGOs, companies, and politicians with little or no success.¹² The prospects for near-term solutions to fix the limitations inherent in the current public governance system appear bleak.

Meanwhile, many major firms have been working to reduce their carbon emissions.¹³ Company carbon-reduction commitments in aggregate are significant, yet the US government does not consider the total impact of these corporate goals when setting its strategy for carbon reductions, relying instead on more traditional levers of government.

In their June 2015 *Columbia Journal of Environmental Law* article “Beyond Gridlock,” Professors Michael Vandenbergh and Jonathan Gilligan were among the first to recognize the potential for aggregate company carbon reductions to represent a meaningful percentage of needed global cuts. They described this potential reduction as the “private governance wedge.”¹⁴

In a July 2020 *Environmental Law Reporter* article, “Under the Radar: A Coherent System of Climate Governance, Driven by Business,” Louis Leonard explained that over the past several years, a science-based approach to reducing carbon emissions has emerged in the US (and other major economies), which is resulting in meaningful climate-reduction commitments by major companies without regard to government mandates. Leonard reported that a 2018 global assessment of corporate climate commitments found that 2,175 companies have pledged at least one climate commitment under the reporting platform used by CDP, a nonprofit that runs a global disclosure system regarding environmental impacts. If the companies were to successfully achieve their climate commitment goals, global emissions would be reduced by 3.4 gigatons of CO₂ annually by 2030, an amount greater than the annual emissions of any country except the US and China.¹⁵

Reductions of this magnitude could help the US and other countries meet their nationally determined contributions (NDCs) under the Paris Agreement. However, as discussed below, there are reasons why governments have not relied on the carbon-reduction commitments made by the private sector.

Despite the potential for significant global carbon reductions from corporate action, stakeholders (the government, advocacy groups, and the public) are skeptical that companies will achieve their commitments. Last year, a *New York Times* article,

“What’s Really Behind Corporate Promises on Climate Change,” raised concerns about voluntary carbon-reduction commitments because few have identified a plan to achieve the targets (or they allow the potential use of poor-quality carbon credits to achieve the targets). The article also pointed out that many companies are not including their entire value chain emissions in their targets or being transparent about the magnitude of their emissions.¹⁶

These concerns are valid and fueled in part by emerging examples of greenwashing by companies and because environmental sustainability commitments made by major companies over the past decade have fallen short in addressing key stressed planetary boundaries. Recently, the NewClimate Institute issued its “Corporate Climate Responsibility Monitor 2022,” which analyzed pledges of 25 large companies and concluded that the commitments only reduce carbon by 40% on average, not 100% as suggested by their “net-zero” and “carbon neutral” claims.¹⁷ However, these concerns are also driving changes in expectations for carbon reductions and enhancement of the private standards that guide goal setting, monitoring, and transparency in disclosure. Together, these developments are helping increase the legitimacy of company commitments.

The phenomenon of setting ambitious targets while building the roadmap to achieve those goals is not dissimilar to the commitments governments have made under the Paris Agreement, which are ambitious but often lack the concrete plans needed to deliver their stated commitments. Thus, the public and private sectors have a shared interest in furthering mutual accountability for their carbon commitments.

A Private Complement to Public Governance Is a Viable Option

In “Under the Radar,” Leonard argues that the effectiveness of a private governance system as a complement to a public governance system calls for examination at both the systems and initiative levels. He discerns a systemwide effectiveness framework based on several “operational functions” that are expected in public environmental law.¹⁸

These same features would be expected in any system designed to complement the public governance system, the most significant being motivating participation by the threat of negative sanctions or benefits of positive

incentives; setting emission standards that align with societal science-based benchmarks; assessing and disclosing emissions data specific to individual companies to facilitate allocation of responsibility; driving implementation using tools such as subsidies, market-based instruments, and guidance; tracking progress to measure and publicly report progress against goals; and promoting the use of robust mechanisms to hold accountable those that do not comply.

In addition to a complementary governance scheme being effective, Leonard and other experts recognize that the system must be a “legitimate” form of governance that includes fair decision making for all participants and stakeholders, transparent decisions and data to attract and retain participants and build public trust and confidence in the system, and equity and justice for participants and stakeholders.

The criteria established by SBTi include many of the attributes needed for an effective public governance system, and SBTi’s efforts have addressed some of the trepidation that stakeholders have about company carbon-reduction targets.

The public and private sectors have a shared interest in furthering mutual accountability for their carbon commitments.

Aligning Public Initiatives with SBTi to Form an Effective Gap Filler

SBTi was established in 2015 by the World Resources Institute (WRI), CDP, World Wide Fund for Nature (WWF), and the UN Global Compact. It has developed criteria and guidance for science-based targets with the support of several major companies. This presents an opportunity for public and private governance to be mutually supportive in implementing a carbon-reduction gap-filling program until the passing of comprehensive legislation.

Importantly, experts from SBTi conduct a detailed review of a company’s carbon commitments against their scientific criteria to determine the legitimacy of corporate-reduction commitments. To maintain SBTi validation, companies must show meaningful progress toward the target and publicly report progress

annually. SBTi revises its criteria on a regular basis to ensure alignment with the latest climate science.

Last October, SBTi, with extensive private- and public-sector stakeholder input, published a sustainability standard that establishes additional criteria that companies will need to meet to reach validated, science-based, net-zero carbon across the entire supply chain. Importantly, SBTi's standard addresses the most significant issues in companies' net-zero carbon commitments identified by the NewClimate Institute in its 2022 report.¹⁹

As a result, SBTi's program has evolved to include many of the key attributes and operational functions identified by Leonard for a private climate change governance approach to be an effective and legitimate complement to government requirements. Not surprisingly, these are the same attributes that many leading companies have stated are needed in climate legislation, including science-based ambition, public reporting, steps to foster implementation and innovation among the regulated community, and accountability for participants.

A public-private partnership that synchronizes SBTi's program with federal government initiatives would be an effective mechanism.

There is an opportunity for government programs and initiatives to supplement SBTi's program, creating an approach that complements a future public climate-governance system. Alignment with government programs and initiatives could incentivize more companies to commit to and achieve net-zero carbon-reduction targets. This alignment also could enable the US federal government to accept firms' commitments as part of its NDC using existing or modified carbon-accounting systems to identify company emissions that occur in the US.

To become a legitimate gap filler and complement comprehensive federal climate legislation, several additional elements are needed. These include strong market-based incentives, meaningful consequences for noncompliance, disclosure of how companies estimate carbon emissions, and transparency in SBTi's internal decision making for determining the adequacy of company targets.

With more incentives to significantly reduce carbon emissions — such as preferential procurement — more companies might commit to net-zero carbon targets. And with more meaningful consequences for lack of transparency or greenwashing, the US federal government might be better positioned to focus enforcement resources on companies that fail to comply with future regulatory requirements and to accept companies' NDCs.

A public-private partnership that synchronizes SBTi's program with federal government initiatives would be an effective mechanism to accelerate carbon reductions, provide a fill-in for federal climate legislation, and ultimately complement comprehensive federal climate legislation when it is passed.

Government Programs & Resources to Supplement the SBTi System

Initiatives the US federal government has established, including the sustainability purchasing initiatives announced by the Biden Administration, hold tremendous potential to supplement the SBTi governance system in a short time frame, transforming it into a public-private climate change partnership that possesses the key attributes of a comprehensive public governance system. Across the Biden Administration and around the world, government officials have increasingly focused their attention on the private sector — treating companies not just as entities to regulate but as core partners.²⁰

Market-Based Incentives to Provide Competitive Advantage

In “The Next Phase of Business Sustainability,” from *Stanford Social Innovation Review*, Amplify Guest Editor Andrew J. Hoffman described the power of the market in addressing global environmental challenges:

The market is the most powerful institution on Earth, and business is the most powerful entity within it. Business transcends national boundaries, and it possesses resources that exceed those of many nation-states. Business is responsible for producing the buildings we live and work in, the food we eat, the clothes we wear, the automobiles we drive.... This does not mean that only business can generate solutions, but with its unmatched powers of ideation, production, and distribution, business is best positioned to bring the change we need at the scale we need it.²¹

In December 2021, President Biden signed the “Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability.”²² The Executive Order instructs federal agencies to purchase sustainable products identified or recommended by the US Environmental Protection Agency (EPA). Through its Environmentally Preferable Purchasing (EPP) program, the EPA can recommend purchasing products from companies that have established private environmental standards and eco-labels that meet the EPA’s “Framework for the Assessment of Environmental Performance Standards and Ecolabels for Federal Purchasing.”²³

The agency’s recommendation of purchasing preference to companies committed to the SBTi’s Net-Zero voluntary consensus standard (VCS, in the parlance of the EPA’s Framework)²⁴ would provide a strong incentive to help companies with their ambitious carbon-reduction targets. Eligible companies’ products could carry a certified eco-label like the US Department of Agriculture’s (USDA) organic stamp.

Other major consumers — including public entities such as EU member states; the UK’s National Health Service; the UN; municipalities; and private entities such as health insurers, Walmart, Unilever, and Amazon — are seeking to become more sustainable through purchasing preference protocols for net-zero carbon products and services. Billions of individual consumers are also seeking to become more sustainable through their purchasing decisions.

If the US government and other major consumers gave purchasing preference to products and services from companies committed to net-zero targets, companies that compete for these consumers would recognize the need to commit to the Net-Zero VCS. This would provide a market incentive to commit to net-zero and give a clear advantage to companies expending money to achieve net-zero carbon emissions. The terms establishing a government purchasing preference could also hasten the development of standard terms for private supply chain contracts, even for supply chains with no government involvement.

Transparency in Data & Estimating Emissions

Companies in the SBTi program provide data on emissions voluntarily, and no mechanism exists to guarantee that a company is including all emissions. Although SBTi has stated its commitment to improve the veracity of corporate commitments, this concern

can also be addressed with some level of involvement by the government.

The EPA has played this role through the current requirement for major emitting sources in the US to report their Scope 1 emissions. However, its role in ensuring robust disclosure of each type of GHG emissions across a company’s global value chain and progress against voluntary public goals may become less important if the US Securities and Exchange Commission’s (SEC) proposed rule on climate change disclosure moves forward in its current form and survives judicial review.²⁵ Nevertheless, the SBTi reporting and commitment system will remain an important way to reach businesses that are not publicly traded and reduce the risk that businesses that are publicly traded will go private to avoid disclosing their emissions.

In a purely private governance system, the consequences for a company that fails to achieve its emission targets are limited.

A role for the EPA will also remain for publicly traded firms because SBTi requires companies to make climate commitments (and pressure to align with SBTi-type commitments is also coming from major investors like BlackRock²⁶), but the SEC rule does not. The EPA has the expertise to confirm that SBTi’s guidance for companies’ accounting of emissions is technically sound and, as a participant in a public-private partnership, can play an important role in conducting random assessments of participating companies’ carbon emissions. Finally, CDP’s database could be used as the accounting system for the partnership and modified, if needed, to break out firms’ US emissions.

Meaningful & Clear Consequences for Not Achieving Company Targets

In a purely private governance system, the consequences for a company that fails to achieve its emission targets are limited. A company missing its targets is open to criticism by its stakeholders, reduced ESG rating scores, loss of supply chain partners, potential claims under SEC rule 10b-5 or related securities suits, breach of contract actions, and (perhaps) reputational damage. However, evidence that companies suffer

significant consequences for not achieving voluntary goals is scarce.

In contrast, the consequences for noncompliance with environmental legal requirements include significant civil and criminal penalties (if the EPA can adopt the requirements, defend them in the courts, and aggressively enforce them, all of which are difficult in the current polarized political system). And if companies are incented by the government to provide a purchasing preference to net-zero carbon emission products (a viable option even in the current polarized political system), loss of certification due to noncompliance could have meaningful market consequences.

A company that volunteered to pursue an SBTi-approved carbon-reduction pathway would need to remain on that pathway.

Companies can impose legally binding requirements on suppliers to reduce carbon based on SBTi specifications through supplier contracts. In the UK, for example, the Chancery Lane Project has developed model supply chain contract provisions for climate issues in many types of contracts.²⁷ In the US, the Environmental Law Institute is working with individuals from the private sector, advocacy groups, and universities to develop supplier-contract language for carbon reductions, and these provisions could easily dovetail with the requirements of a comprehensive public-private partnership on climate change.²⁸

Credit for Carbon Reductions in a Future Mandatory Program

As another incentive for companies to commit to SBTi's Net-Zero VCS, the EPA could account for a company's reductions in future mandatory requirements, provided the company remains in substantial compliance with VCS. In other words, a company that volunteered to pursue an SBTi-approved carbon-reduction pathway would need to remain on that pathway, but it would be credited for having done so and, to the extent possible, would not be required to exceed that pathway through new regulations.

Although the authority for crediting individual companies for early actions in this way would need to be established, this approach is not regulatory relief. Rather, it's recognition for early compliance, since the EPA is unlikely to require more than a 1.5° emissions pathway, which is what SBTi requires. In addition, the agency has accounted for these types of collaborative actions in the past. Substantial noncompliance could result in loss of this benefit.

Companies generally prefer to achieve performance-based targets using approaches that suit their operations, rather than command-and-control requirements that can be difficult to achieve cost effectively. Obtaining credit for early commitments and certainty that a 1.5° pathway can be maintained should act as additional inducements to companies to commit to net-zero carbon reductions.

What Would a Public-Private Partnership for Climate Change Look Like?

Such a partnership would have several components. Companies that have Net-Zero VCS reduction targets validated by SBTi or that commit to secure SBTi validation would be eligible to opt into the partnership.

The EPA would establish its own certification or review and accept an independent private certification for companies that have achieved science-based targets or are committed to achieve them. The certifications could be available in three tiers: (1) the highest tier for companies that have achieved net-zero targets, (2) a middle tier for companies that have committed to net-zero targets, and (3) a lower tier for companies that have committed to near-term science-based targets. An eligible company's products could carry a certification seal along the lines of "Product from a Net-Zero Carbon-Committed Company."

Companies that opt into the program would allow auditors to review its emission calculations, accounting, basis for targets, and progress in achieving targets under an EPA-approved process with EPA-approved auditors. If an auditor determined that a company's approach is not technically sound, the company would be given an opportunity to remediate. For companies subject to a future SEC climate change disclosure

regulatory regime, the EPA could grant a waiver from the audit element.

In accordance with the 2021 Executive Order on purchasing preference, the US chair of the Council on Environmental Quality would establish instructions to provide preferential purchasing to products and services from SBTi-validated companies.²⁹

Through a memorandum of understanding, the EPA can commit to account for the emissions reductions of companies that have joined the partnership in future mandatory regulatory requirements for carbon reductions if it has the statutory authority to do so. Substantial noncompliance that is not remediated in a time frame prescribed by the agency would result in loss of the benefit: the company would be given a short but practical time frame to achieve compliance with mandatory requirements.

With the company commitments established, as well as the consequences of significant failures to achieve targets, the government can then develop an accounting framework to take credit for these private-sector reductions as part of its Paris Agreement NDC.

Conclusion

The proposed public-private partnership to reduce carbon emission provides a model that can occur even with limited statutory and regulatory authority by leveraging private governance to navigate around political gridlock. Features that may be common to this new form of governance system include:

- Initial development by private organizations to fill a gap in what government agencies have the legal and political capacity to do.
- Government agencies using statutory authority to bolster the private system by providing benefits to the participants (e.g., procurement) and by signaling a willingness to fold commitments into future regulations to the extent they can do so.

Since most attributes of an effective public-private climate partnership already exist, the partnership could be launched in a few months, which is critically important, since 2030 is not far away. For this approach to succeed, both the private and public sectors need to take some risk and work together.

To address uncertainties and questions that will face the public and private sectors, the partnership can be piloted for a predetermined period. This would allow adoption and implementation concerns to be worked through while companies are recruited and a proof of concept around procurement incentives is developed. It is time to harness the systems change that can arise from collaboration between public and private governance.

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NOTES



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