"An elegant and cogent guide to what works."
—PETER SENGE, author of *The Fifth Discipline*

SYSTEMS THINKING for SOCIAL CHANGE

A Practical Guide to Solving Complex Problems, Avoiding Unintended Consequences, and Achieving Lasting Results

DAVID PETER STROH

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Chelsea Green Publishing
White River Junction, Vermont

Editor: Joni Praded
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Designer: Melissa Jacobson

Printed in the United States of America.
First printing September, 2015.
10 9 8 7 6 5 4 3 2 1 15 16 17 18

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Library of Congress Cataloging-in-Publication Data
Stroh, David Peter, 1950-
Systems thinking for social change : a practical guide to solving complex problems, avoiding unintended consequences, and achieving lasting results / David Peter Stroh.
pages cm
ISBN 978-1-60358-580-4 (paperback) -- ISBN 978-1-60358-581-1 (ebook)
1. Social change. 2. Management. 3. System theory. I. Title.
HM831.S787 2015
303.4--dc23
2015022577

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—CHAPTER 3—

Telling Systems Stories

In November 2006, The After Prison Initiative (TAPI), a program of the US Justice Fund of the Open Society Institute (OSI), convened a three-day retreat in Albuquerque, New Mexico, to accelerate progress on ending mass incarceration and harsh punishment in the United States.[1] Aptly named Where Are We Going?, the retreat brought together one hundred progressive leaders—activists, academics, researchers, policy analysts, and lawyers—to clarify what else could be done to facilitate successful reentry of people after incarceration and redress the underlying economic, social, and political conditions and policies that contribute to making the US the world's largest incarcerator among developed nations.

To give you an idea of the scope of the problem, the United States has 2.5 million people behind bars today—versus 200,000 in the 1970s—and approximately 650,000 return home each year. The meeting was grounded in a recognition of how the US criminal justice system—from the beginning and at an accelerated pace since the 1970s—is determined by race, and how society, in the words of Berkeley law professor Jonathan Simon, is increasingly "governed by crime."[2] Most of the participants at the retreat were Soros Justice Fellows or OSI grantees who competed for OSI funding at the same time that they shared a commitment to criminal justice reform.

The challenge presented by this and many similar retreats was that the diverse stakeholders required to solve a chronic, complex problem often do not appreciate the many and often non-obvious ways in which their work is connected. Taking this challenge into account, the goals of the meeting were to:

- Develop a shared understanding of why US incarceration rates and rates at which people return to prison are so high.

- End over-incarceration; create new opportunities for and remove barriers to successful reentry of formerly incarcerated people.
- Strengthen working relationships and collaborations among the advocates.
- Deepen awareness of the interdependencies (both reinforcing and potentially conflicting) among their diverse efforts.
- Identify new ways to strengthen civil society institutions and promote civic and political inclusion.

Perhaps the most radical new tool introduced at the retreat was systems thinking. Working under a grant supported by OSI, the organizers of the retreat, Joe Laur and Sara Schley of Seed Systems, recognized that tackling the same problems with the same mind-set and strategies often produces the same, largely unsuccessful, results. They believed that systems thinking might help people in the field get "unstuck," better understand their theory of change, and devise new strategies and ways of collaborating.

Joe and Sara asked me to introduce systems thinking and systems mapping to help participants create a shared story of why mass incarceration and high recidivism rates persisted, as well as to identify what more they could do to reduce these rates. This picture needed to include the contributions of all participants to the solution, an explanation of why their independent efforts fell short, and insights into what they could do more effectively given limited resources and an urgent need for change.

Storytelling for Social Change

Telling stories is a powerful way to make sense of our own experience and of the world around us. Stories shape our identity, communicate who we are and what is important to us, and move others to act. They are a primary way of distilling and coding information in memorable form. Leaders use them to inspire others. Peace builders recognize narrative as a key source of conflict (people interpret historical facts in very different and incompatible ways), and they work to help disputants both appreciate each other's narratives and modify their own. Therapists use storytelling to help people heal from trauma by supporting them to shape a new and more constructive narrative based on past experience.

Likewise, people committed to social change often share a similar story of what they are trying to accomplish and the challenges they face. Three key elements of this story are:

- The world, in the words of Martin Buber, “stands in need of us,” and we are called to contribute our gifts and resources to support those less fortunate than ourselves.
- We are not making the impact we want despite our best intentions.
- The major obstacles to our success are limited resources and the behavior of others in the system.

While the first two aspects of this story are helpful and move people to act in positive ways, the belief that the primary causes of problems are beyond their control holds people back from being as productive as they could be. By attributing shortfalls to limited resources and assuming that others need to be the ones to change, people tend to minimize the impacts of their own intentions, thinking, and actions on their effectiveness.[3] Moreover, because many of the stakeholders compete for limited funds, in this case from The After Prison Initiative, they naturally promote their own successes, downplay their failures, and sometimes may be reluctant to collaborate.

In order to optimize the performance of the entire system, people need to shift from trying to optimize their part of the system to improving relationships among its constituent parts. In the case of US criminal justice, the broader system includes how crime is currently fought, the negative unintended consequences of this system structure, and reformers’ efforts to mitigate these consequences and redesign the structure. People need to:

- Understand how focusing on their part of the system—the grantees’ reform work in this example—not only supports but might also limit the effectiveness of the whole system.
- Appreciate the non-obvious as well as obvious ways in which they are connected to one another as reformers and to others in the system.
- Recognize the unintended impacts of their intentions, thinking, and actions on both others and themselves.
- Apply this increased self-awareness to shifting how they relate to others in the system.

Even if people’s contributions to an existing situation are not obvious, it is important, in the words of Jesse Jackson, that they tell themselves, “We might not be responsible for being down, but we are responsible for getting up.” In other words, empowering themselves through greater self-awareness is the first step in changing their reality.

Systems thinking can help people tell a new and more productive story. It honors their individual efforts and surfaces the limitations of these efforts. It distinguishes the short- and long-term impacts of their actions. It aligns their diverse views and stories into a bigger picture where individual contributors can see their part in relation to the whole. Seeing the big picture and their role in it, people are more motivated and able to work together to redesign the whole.

Shaping a Systems Story

In order to tell a systems story, people need to make three shifts:

- From seeing just their part of the system to seeing more of the whole system—including why and how it currently operates as well as what is being done to change it.
- From hoping that others will change to seeing how they can first change themselves.
- From focusing on individual events (crises, fires) to understanding and redesigning the deeper system structures that give rise to these events.

SEEING THE BIG PICTURE

The ancient Sufi story of the blind men and the elephant illustrates the challenge of enabling diverse stakeholders to see the big picture (see figure 3.1). Each party touches a different part of the elephant and tends to assume that what they experience is ***the*** elephant instead of just one part of a more complex reality. Moreover, they tend to see reality in terms of what they are doing well, are rewarded for doing, and could do better if they had more resources. On the other hand, people either fail to appreciate or question the value of others' contributions. In addition, they often do not have the tools to see a more complex world and understand how their intentions, thinking, and actions interact with those of other stakeholders.

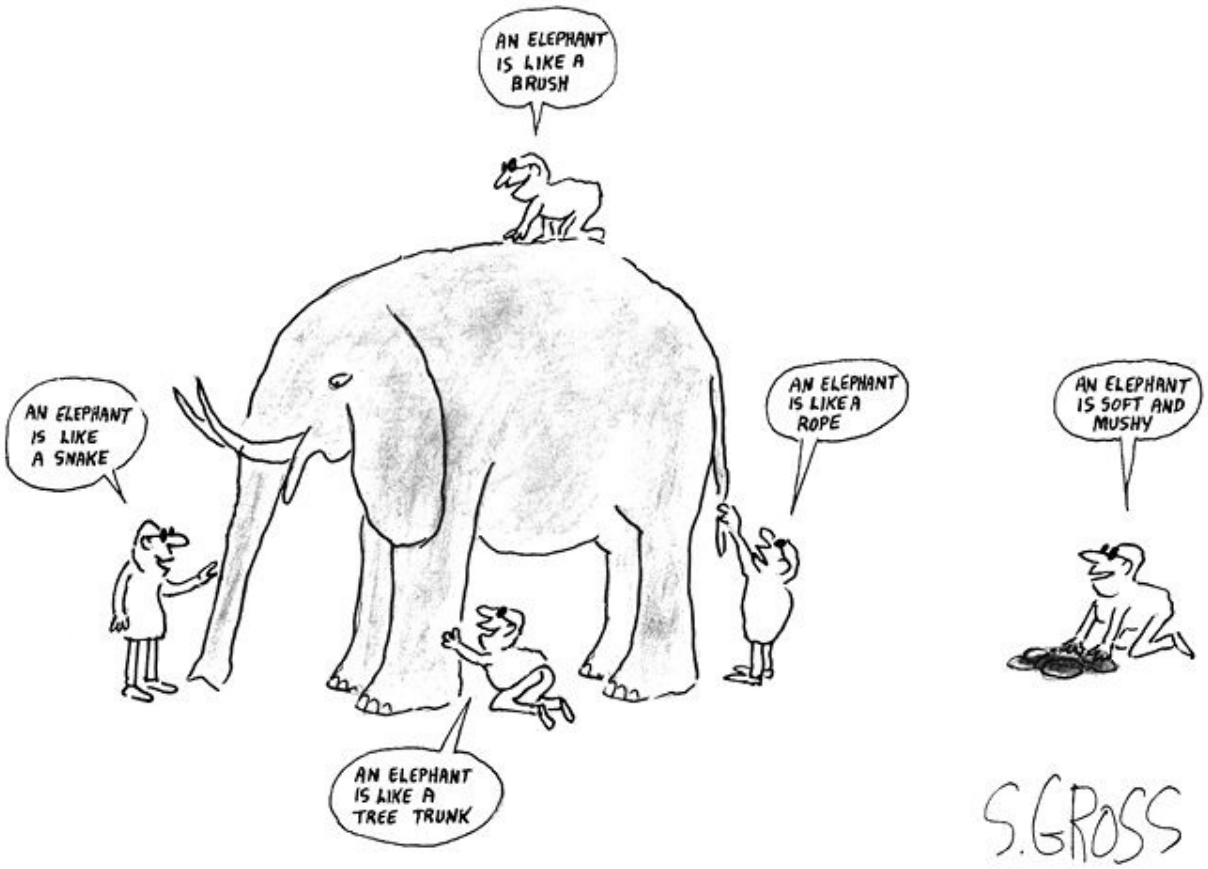

FIGURE 3.1 THE BLIND MEN AND THE ELEPHANT. Everyone sees part of a more complex reality and tends to assume that what they see is the whole picture. **Sam Gross/The Cartoon Bank**

In the TAPI case, participants naturally began by seeing solutions to the problem of over-incarceration and failed reentry through their respective specialties. Some focused on sentencing reform to reduce the length of sentences and time served, or the institutional work of resettlement and supportive services, or reorienting parole and probation policies. Others focused on challenging the prison lobby that benefits from current penal laws, or reducing the resistance of public officials to more effective and innovative approaches to reentry. Still others focused on convincing elected officials that tough-on-crime laws make for good politics but bad policy. They entered the group through their own silos. The challenge was to help them expand their perceptions by appreciating how their success depended on the success of all the other stakeholders (including those ***not*** present at the meeting), and then motivating

them to collaborate more effectively with one another (again including those not in the room) to improve public safety in cost-effective and sustainable ways.

The first step was to create a strong and safe container for people to share their different perspectives. This is what I call convening people systemically, and what Marvin Weisbord originally called "getting the whole system in the room."[4] In this case the system was represented in person by those committed to criminal justice reform, while the perspectives of tough-on-crime advocates were depicted on the systems map that included their policies, assumptions, and actions. The facilitators, Joe and Sara, built a container for the retreat participants by building diverse ways of communicating into the agenda, including: expert presentations, panels around specific issues, reports on innovations being tested by several participants, dialogues, a World Café (see more on this and other convening methodologies in chapter 5), and systems mapping.

They incorporated systems mapping because they recognized that convening people systemically is necessary but not always sufficient to mobilizing collaboration. This is true for several reasons:

- Even when people share common values and goals, as those in the TAPI meeting did, they tend to assume that the best way to optimize the system is to optimize their individual part. This assumption is often reinforced by metrics and rewards that encourage people to do what they are already doing.
- By contrast, participants might either fail to appreciate or actually blame (however covertly) others in the room for their inability to be even more effective.
- Some stakeholders are not included in such gatherings because they do not appear to share the same aspiration, are viewed as the source of the problem, and/or are more difficult to access by the conveners. In this case affirming a united front among the participants can mislead them into thinking that they are doing the best they can and others not in the room are to blame. While many TAPI participants were engaged in collaborative efforts with those not present at the meeting, it was important to reaffirm this strategy and avoid the risk of attributing breakdowns in the system solely to other stakeholders.

By contrast, one of the premises of systems thinking as described in chapter 1 is that the best way to optimize the system is to improve the relationships among its parts, not to optimize each part separately. This includes those present in a particular gathering and those who do not participate, those who support change and those who resist it. Helping people who are convening systemically to also ***think*** systemically enables them to consider collaborating with all stakeholders as a first, though not necessarily the only, option. A systems map enables individual stakeholder groups to see how they contribute to the performance of the system as a whole, both positively and negatively.

For TAPI participants, one of the key insights from the systems map (which is detailed in chapter 7) was that the underlying concern of the public and its elected representatives had more to do with the fear of being victimized by crime and racism than actual crime levels themselves. Although crime levels have actually declined since 1991 by approximately 25 percent, people's fears of being victimized by violent crime continue to rise—as does the perception that crimes are more likely to be committed by people of color, which in turn causes race-associated fear to rise. Even though the criminal justice system consumes enormous tax dollars, public officials who promote mass incarceration often fan fear deliberately to win votes or do so unwittingly by resisting efforts to ameliorate this fear. For example, they resist innovative approaches to resettling formerly incarcerated people (approaches that could reduce recidivism) and fail to distinguish technical from substantive parole violations out of their own fear of appearing soft on crime. This insight led the TAPI participants to think of new ways of collaborating with one another as well as extending themselves to reduce the fears of well-intentioned public officials and concerned citizens who were not at the meeting.

INCREASING SELF-AWARENESS AND PERSONAL RESPONSIBILITY

The natural tendency to view one's own contributions favorably in relation to those of others is intensified by competition. People with a shared aspiration often compete for resources, which increases their reluctance to either acknowledge their own shortcomings or value the contributions of others.

By contrast, a systems story uncovers how people contribute, albeit unwittingly, to their own problems despite their best intentions. Raising self-awareness in this way actually increases their abilities to be more effective. Rather than depending on others to change in order to be successful, they discover that the greatest leverage they have in a system begins with changing

themselves. They learn to recognize that taking responsibility for their own intentions, thinking, and behavior gives them more power to create what they want.

Some TAPI participants became more motivated to initiate collaborations with others in the room when they understood the key ways in which they were interconnected. Several also recognized that framing criminal justice reform as a way to help elected officials generate votes by reducing prison costs and recidivism could benefit the reform movement.

UNDERSTANDING THE DEEPER SYSTEM STRUCTURE

One tool for developing an initial picture of "the elephant" (that is, any complex system) is known as the iceberg metaphor. The iceberg is a simple way of distinguishing problem symptoms from underlying or root causes. As shown in figure 3.2, it distinguishes three levels of insight—each of which is informed by a specific question and prompts a certain type of action or response.

More specifically, the iceberg distinguishes the ***events*** level (what we see most easily) from the ***pattern of behavior or trend*** that links many events over time, and then goes deeper to expose the underlying ***systems structure***—the hidden 90 percent of the iceberg that causes the most damage because it shapes the trends and events. Systems structure includes tangible elements such as the pressures, policies, and power dynamics that shape performance. It also includes intangible forces such as perceptions (what people believe or assume to be true about the system) and purpose (the actual versus espoused intentions that drive people's behavior). The deeper people's level of insight, the greater their opportunity to change the way the system behaves.

People often focus their attention and spend most of their time on responding to individual ***events***. They want to know what is happening so that they can react quickly to the crisis at hand. For example, people who support (and oppose) criminal justice reform look at news reports on the latest crime statistics, the number of people recently returned to prison because of repeat offenses or technical parole violations, new legislation, and costs of the prison system. How people respond to a crisis can have an enormous impact on their effectiveness. Since 95 percent of people sent to prison are eventually released, and many of them are unprepared or unable to resettle productively, get-tough prison sentences often increase recidivism—further destabilizing communities and making them less safe. Moreover, the costs incurred in maintaining the system divert funds that might otherwise be available to strengthen the disadvantaged

communities from which a disproportionate number of residents are incarcerated.

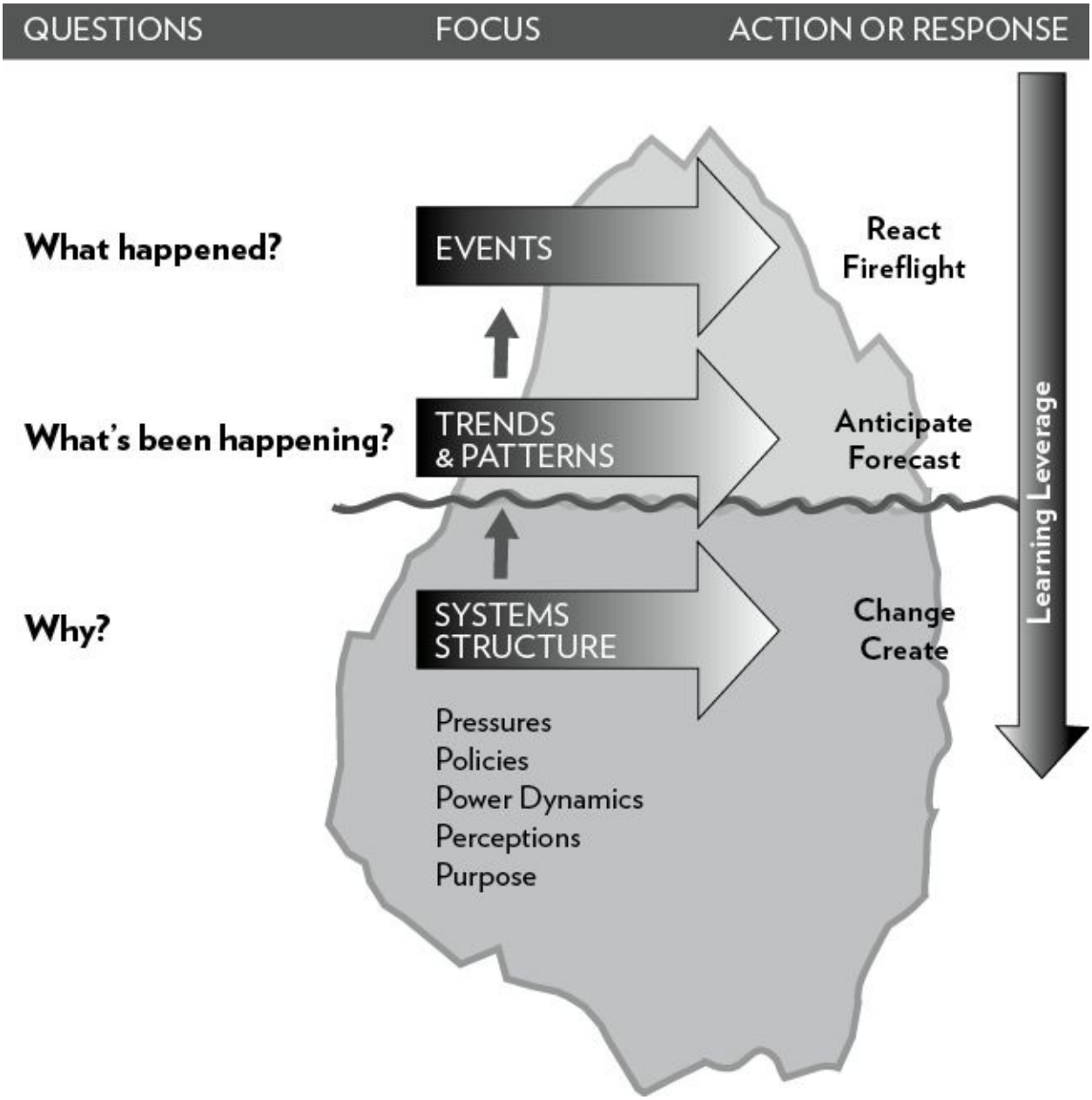

FIGURE 3.2 THE ICEBERG. The iceberg helps you to begin to distinguish a problem's symptoms from its root causes. **Innovation Associates Organizational Learning**

Sometimes people step back from individual events long enough to recognize ongoing ***trends or patterns***. They ask what has been happening over time and try

to anticipate the future based on the past. Trends can often be surprising and disturbing. For example, TAPI participants noted that incarceration levels continued to rise by an estimated 60 percent since crime levels reached their peak in 1991, ***despite*** a reduction of 25 percent in crime during the same period (see figure 3.3). This led them to conclude that fear, as well as racism, drives current criminal justice policies more than the level of crime itself. Some criminologists believe that no more than 25 percent of crime reduction is attributable to incarceration.[5] Others argue that the same trend data prove the beneficial impact of incarceration on reducing crime, which points to the importance of perceptions or mental models as another aspect of systems structure to be explored below.[6]

The root causes of a chronic, complex problem can be found in its underlying ***systems structure***—the many circular, interdependent, and sometimes time-delayed relationships among its parts. The structure includes both easily observable elements—such as current pressures, policies, and power dynamics—and less obvious factors such as perceptions and purposes (goals or intentions) that influence how the more tangible elements affect behavior.

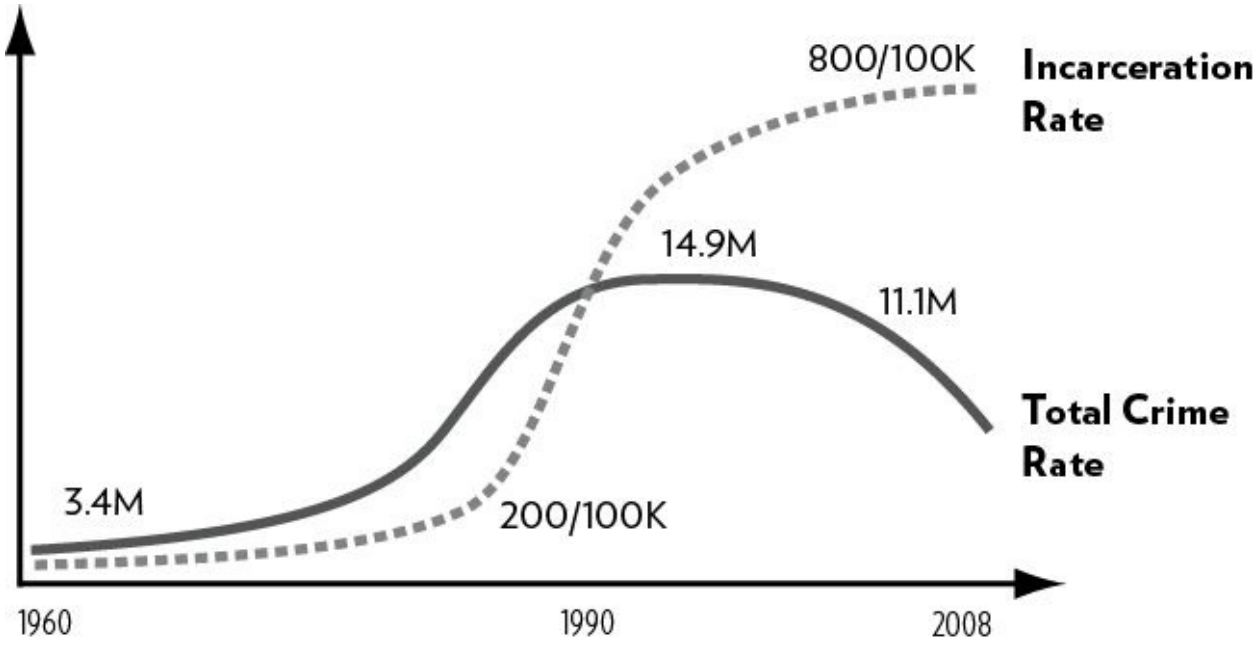

FIGURE 3.3 US CRIME VERSUS INCARCERATION RATES. The growing gap between an increasing incarceration rate and decreasing crime rate raises serious questions about the relationship between the two. **Crime rate trend adapted from DisasterCenter.com. Incarceration rate trend adapted from The Hamilton Project, Brookings Institution.**

The Elements of Systems Structure

People communicate with one another through language and often through the stories they tell. Michael Goodman, one of the pioneers of the approach used in this book and a longtime colleague of mine, explains that systems thinking can be thought of as a ***language***—a visual language that helps us understand and talk about the world in a way that is different from our daily language. The metaphor of language is important because language shapes our perceptions, and hence our behavior. The root of the magical incantation ***abracadabra*** relates the powers of speech and action, as it comes from either the Aramaic "I will create as I speak" or the Hebrew "It came to pass as it was spoken."[7] In either case, systems thinking is a language that more accurately explains complexity than our everyday language and thus enables us to work more effectively with social systems.

The most basic elements of this language are nouns, verbs, and adverbs (time delays). In addition, when we look more deeply into social systems, we discover that there are certain ***plot lines*** that appear across a wide variety of issues (whether in education, criminal justice, or homelessness) and at multiple levels of a system (for example, in homes, organizations, or communities).

The most basic plot lines are stories of amplification (called reinforcing feedback) and correction (called balancing feedback). These combine into more complex yet highly recognizable archetypal stories because they are so embedded in the human experience. Knowing the basic stories and systems archetypes gives us initial insights into many chronic, complex problems. Developing a richer and more comprehensive understanding often comes from modifying and combining archetypes—which is similar to illuminating the variations on plots and multiple interacting plots in a historical or fictional story.

Finally, we will look at the bottom of the iceberg to uncover what are described in complexity theory as ***attractors***, the pulls that shape and stabilize a system's behavior around a limited number of possible states. These deep structures are the beliefs or assumptions that people in social systems try to validate, and the underlying intentions or purposes they seek to realize. Depending on your assessment of the system's current performance, they can be viewed as either positive or negative. Attractors are the underlying drivers of both system equilibrium and its resistance to change.

BASIC LANGUAGE OF SYSTEMS THINKING

Nouns

The nouns of systems thinking are variables, those forces or pressures at play in the system. Variables "vary" over time; they can increase, decrease, or oscillate. Variables can be qualitative or quantitative and are readily framed as "Levels of ___." Common variables that Michael Goodman and I have identified include what people value (such as the level of expectation or goal), demands on the system (such as the level of need or pressure), resources to meet these demands (such as the level of investment or skills), and actual results (such as the level of performance or effectiveness). They also include perceptual factors that express how people feel and think (such as the level of fear or aversion to risk).

Since variables are the basis for systems stories, defining them is a key task.[8] Significant insights can emerge from clarifying what they are—and what they are not. For example, a breakthrough insight for the TAPI participants was that the fear of being victimized by crime can drive behavior in the criminal justice system more than the level of crime itself. In a very different situation—the effort to rebuild civil society in Burundi after its 1990–94 civil war—NGOs that developed a systems analysis of the conflict determined that the driving factor in the war was not the resources of the Tutsis versus those of the Hutus, as they originally thought, but the power of the elite versus that of the majority. They determined this by recognizing that, when Hutus wrested power from the Tutsis, Hutu leaders became the new elite. In other words, Hutu leaders displayed the same tendency to accumulate resources at the expense of the majority of the population, just as Tutsi leaders had previously fought to retain their power. This insight led them to recognize the importance of another factor, ethnic manipulation, used by elites of both groups to gain and retain power at the expense of their constituents.[9]

Some of the other key variables in the TAPI case were: number of people released from prison, problems with resettlement, technical parole violations, sectors benefiting from the current system, cost of prisons, and (lack of) money available for resettlement. Other qualitative factors included fear for personal safety, political risks, and political resistance to innovation.

Verbs

The fundamental action described in systems thinking is that an increase in one variable causes an increase or decrease in one or more other variables. This action is described pictorially as follows:

$$A \rightarrow B$$

When a change in A causes a similar change in B (for instance, an increase in A causes an increase in B, or a decrease in A causes a decrease in B), we can put an s for “similar” at the end of the arrow.

$$A \rightarrow^{S} B$$

Alternatively, if a change in A causes an opposite change in B (an increase in A causes a decrease in B or vice versa), we can put an o for “opposite” at the end of the arrow.[10]

$$A \rightarrow^{O} B$$

While this nomenclature is helpful in building the story, we normally leave it out of the final pictures and instead explain the causal directions verbally on a systems map using descriptive words. This helps people unfamiliar with systems thinking to understand the diagrams.

Time Delay

How long it takes for a change in A to cause a change in B is a critical factor in systems thinking. This is because, as noted in chapter 1, the short- and long-term impacts of the same action are often reversed. In other words, short-term improvements can produce long-term consequences that neutralize or undermine more immediate gains. Conversely, we often need to invest time, money, and effort in the short run to achieve benefits that are sustainable over time. Time delays are depicted as follows:

$$A –|-| \rightarrow B$$

Michael Goodman and I have identified at least four types of delays in complex social systems. These are the times between:

- The change in a condition and our awareness that the condition has changed.
- Our awareness that the condition has changed and our decision to act.
- The decision to act and the act of implementation.
- Implementation and a corresponding change in the condition.

For example, a current and increasingly serious example is climate change. Although carbon dioxide levels in the atmosphere have increased by more than 45 percent in the past two hundred years, it is only recently that most people have been made aware of the danger of these increases through turbulent

weather patterns and rising sea levels. Moreover, because of our dependence on energy-intensive lifestyles and carbon fuels, it has been difficult to mobilize the political will to commit to new energy policies. Assuming we can now make hard decisions, it will still take many years to shift how we conserve energy and manufacture it from environmentally neutral sources. Once we implement these changes, it will take additional time to reduce carbon dioxide levels to necessary levels, though it may already be too late to reverse some changes such as rising sea levels from melting icebergs.

Going back to the TAPI example, there are at least four significant time delays related to the penal system and criminal justice reform:

- The time between when people go to prison and are released—that is, the length of sentences and time spent in prison. Because many sentences have become harsher, it can take many years before people reenter society. The 95 percent of prisoners who are eventually released often face serious barriers to reentry, created in part by the very length of their confinement.
- The delay between the public's fear of crime and their understanding that crime has in fact declined.
- A delay between the number of people incarcerated and concerns about the costs of the penal system. In the years since the TAPI retreat took place, these costs have become even more of a strain on public budgets, reaching an all-time high of eighty-five billion dollars a year, and motivating officials to seriously consider reforms to incarceration.
- The delay between recognizing the costly limitations of mass incarceration and actually shifting funds to the more promising investment of strengthening community institutions—such as education, health care, and employment—that create safer, more prosperous communities.

Because of the pressure to show immediate results—whether self-generated or created by such factors as public opinion, budget cycles, investor expectations, and voting cycles—it can be difficult for policy makers to respect and work with time delays. Leaders can respond more effectively to this pressure when they learn to distinguish ***quick fixes*** from ***short-term small successes***. Quick fixes are solutions that produce short-run benefits, which are typically neutralized or eroded by longer-run consequences of the same actions. Short-

term small successes are improvements that are planned from the beginning with the long term in mind and are vital to encouraging persistence and maintaining momentum. This distinction will become clearer when we look at leverage points and strategic planning in greater detail, but these basics will help as we further explore systems plots.

Closing the Loop

- When faced with a complex problem that persists despite their best efforts to solve it, people tend to blame limited resources as well as promote their own successes, downplay their failures, and view others in the system competitively.
- Systems thinking helps people tell a new and more productive story that honors their individual efforts, surfaces the limitations of these efforts, and supports them to see the big picture and collaborate more willingly on behalf of the whole.
- The iceberg metaphor enables people to distinguish between more obvious events and trends, and the underlying systems structure that shapes them.
- Systems structure describes key factors in the system and how they affect one another in often non-obvious ways over time.