

# Rolling complex rocks up social service hills: A personal commentary

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In this always informal, sometimes tongue-in-cheek paper, the author reports on his work bringing introductory complexity concepts to purveyors of social services. With an ethnographic tone he talks about some of the core problems practitioners try to contend with and how it is that complexity thinking allows them to see those problems in a different and potentially more useful way. The key to this commentary is the phrase “nonlinear dynamic systems,” the three concepts that are illustrated one at a time by examples from the author’s previous work. The serious subtext of the essay is this: The parallels between complexity and social service issues suggest a transformation blocked primarily by the thicket of regulations and hierarchical structures maintained by governments and funders. With political will for change at the top, a variety of new experiments in more effective and efficient social services could be tried.

Not so long ago, it seems like a lot of people in organizations started having the same complaints. They complained that the number and frequency of surprising changes they dealt with had increased to the point where they couldn’t write a plan. They said they couldn’t find any simple causes of problems, because too many things happened and they were all interconnected. The bosses and supervisors said that people close to the ground knew more than they did about what was happening and what to do about it, but still, they said, they had to run the place and take responsibility for it.

The old-fashioned recommendations were: get things under control, get better information, standardize procedures, create new departments, do more of whatever you were already doing, just do it better.

But the old-fashioned recommendations weren’t working. It wasn’t that the old-fashioned way needed to be fixed. It was that the world had changed so that the old-fashioned way only made things worse.

While this wave of complaints continued to grow, another wave grew and fell into synchrony with it. This one had a name: complexity theory. It blossomed in the popular imagination in the late 1980s/early 1990s with a couple of bestsellers – James Gleick’s *Chaos: Making a New Science* and Mitchell Waldrop’s *Complexity: The Emerging Science at the Edge of Order and Chaos* – and with the founding of an independent thinktank called the Santa Fe Institute.

Complexity grew out of problems in science, not in organizations, but some of those problems sounded similar. Consider economics, to take an example closer to our everyday world than the quantum physics or molecular biology that preoccupied many of the founders. The economy, said the new complexity economists, acted in ways that old-fashioned economic theory couldn’t handle. It produced unexpected bubbles and crashes. It had too many causal arrows going every which way. The humans on the ground – the consumers and investors – behaved in ways that made “economic man” look like the unreal stick-figure robot that he in fact was.

Organizations – especially the corporate world – watched the complexity theory that the scientists were inventing. Actually the watching was mutual right at the beginning, since CitiBank funded the Santa Fe Institute in the early days. The “business roundtable” remains an active part of the Institute today; a lucrative one, since membership fees run to a pretty penny.

A few years ago, I decided that I would take on a new mission. My mission would be to steal complexity from the private sector and translate it for the public sector. I'd be a memetic Robin Hood: I'd take corporate ideas and distribute them to the poor. Well, a Robin Hood with a modest consulting fee. Even Robin had to pay *some* bills.

I described this new mission to my colleague Bruce Abell of Santa Fe Associates International. Bruce founded and ran the Santa Fe Institute business roundtable for many years. He's a veteran of the Reagan White House. When I first met him and told him about my mission, he laughed. It'll never work, he said. Social services can't adapt. This paper will show why Bruce was – still is – right, but why with a little political will he doesn't have to be.

I talked with another colleague and said, why isn't there a "social services" roundtable as well as a "business" roundtable? By then I'd worked with a couple of programs and seen how interested they were, for all the reasons I mentioned earlier: frequent surprises, too many things going on to find a simple cause, and the contradiction between people on the front line who knew the story and people in charge who didn't.

I asked my colleague if we could figure out a way to set up a social services roundtable that would do the same kind of thinking about organizational applications as the business roundtable. No, probably not, he said in a sympathetic way, there just wasn't any money in it. True enough, considering social services budgets, especially in the current age of "compassionate conservatism" that has decimated them.

There are good reasons for skepticism that echo my colleagues' comments, good reasons that Peter Drucker pointed out in his 1985 book *Innovation and Entrepreneurship*. The two main reasons are regulation and budget. Social services operate in a dense regulatory thicket full of contradictory demands. And the obvious fact: Social services don't make money; they rely on the kindness of strangers, whether government or foundation.

I'd like to add another reason that no

one talks about much, a reason born of my own decades of experience in the arcane world of evaluation research. The business of social program evaluation skyrocketed with the Great Society programs that Lyndon Johnson developed in the 1960s. The skeptics in Congress said, OK, you win, but you'd better *evaluate* the program or we won't fund it. Thus was the field of evaluation research converted from a medical bench science known as "clinical trials" into a social services boom town.

But evaluation suffered from the same envy of nineteenth-century chemistry as the rest of social science. So the booming evaluation field came up with an unrealistic clinical trials version. Set up a control group and an intervention group using random sampling, measure them at time one, do exactly the same thing to every member of the intervention group, measure them all at the end. Did the intervention group show effects of the program to a statistically significant degree? The evaluation had to assume that all other things remained equal, so that any effect had to be due to the program and nothing else. If so, then the evaluator could reject the null hypothesis that the program had no effect.

Anyone who has ever worked in a human organization of any kind knows that this is a delusional list of assumptions and procedures that don't fit how any social world works. How do those in the private sector handle this problem? They don't use clinical trials. Their major indicator tells them how the company is doing much more quickly: the clichéd but all-important "bottom line." When they tinker with the organization, they can watch the bottom line and see what it does. It will send a signal pretty quickly. It won't be an outdated conclusion years after the fact based on assumptions that don't correspond to what actually happened. It will be more like a gauge you can read continually, a "dashboard" my modeling friends call it.

So, in addition to thinking about regulation and resources, we also need to rethink just what "evaluation" means. Aren't there some equivalents to the "bottom line" in social services, things we can watch and check on a continual basis to tell us how we're doing? If

we dive into the details of a program, can't we find a few? I think we can, and I hope the cases to come in this paper show that this isn't just a delusion.

One final reason for the lag in using complexity in social services. Whether private or public sector, the shift from command and control to fluid, complex form is not an easy change, especially not for those at the top of the hierarchy.

Responses to complexity in my own work vary. In general, the closer to the ground you are – practitioners and clients being about as close as you can get – the more likely it is that complexity ideas will engender enthusiasm. Obviously issues of power and respect are part of the equation here, since the lower reaches of the hierarchy gain in both with complexity. Some notable exceptions to this general tendency exist, high-level social service figures who will be mentioned later. But fresh in my memory is a recent project for a court system. Results were greeted with enthusiasm in the courthouse where we worked, but they proved annoying and eventually vanished without a trace in the higher administrative altitudes and came to nothing in the end. Giving up some control in service of better performance had little appeal to the top of the bureaucracy.

In this paper, though, I want to reassure myself that there's a point to it all, that rolling complex rocks up the hill does, like Camus said, make some kind of sense, or at least can be made to. Let me begin with a helicopter ride over the complexity territory through the eyes of a social service guide and see how it provides a lens to see those services in a different – and, most importantly, useful – way.

“Complexity” is an ordinary word, one you'll hear around the house every day, as Groucho used to say on his old TV show *You Bet Your Life*. The ordinary word was a poor choice, as it turns out, since it doesn't mean what the scientists do. Complexity doesn't mean complicated.

For the last several years I've consulted with social service organizations, on my mission to steal complexity ideas from the private sector and import them into the public. Social

services are way behind on the curve because of dense layers of regulations and the paltry sum of cash that accompanies the shift from selling to helping. I use complexity to show social service practitioners a different view of themselves and their world. The response is, more often than not, a little overwhelming. What is it that turns them on about complexity?

You know the old joke: “You want to make God laugh? Tell him *your* plans.”

The simple fact of frequent and surprising change is one reason the people I've consulted with get interested in complexity. That and the fact that the social service powers-that-be ignore that simple fact. The powers-that-be want a plan, predictability, stability over time, equilibrium, long-range outcomes that can be measured. In return, they provide money. Practitioners know that running a program, more so now than ever before, resembles doing origami in a hurricane. They adapt as best they can to changing uncertainties born of worlds near and distant to their site, uncertainties over most of which they have little or no control.

Complexity theory seeks the patterns in that surprising changing story. Old-fashioned research and evaluation and program planning and policy pretend that the world is under control.

Change has always been with us, but lately it seems to have lit its afterburners. Change comes in several types, but lately it seems like there are days when major transitions happen back to back. Alan Toffler saw this coming decades ago in *Future Shock*. Change, he said then, is increasing at an increasing rate. Those who run social service programs day to day struggle with this fact. Those in the heights who fund and regulate policies and programs do not. They need to get out more.

How does complexity make sense of continually changing worlds? It takes change for granted and helps think about it in a different way. It becomes normal rather than a deviation to be brought under control. In the jargon, a complex system is an example of a *nonlinear dynamic system*. Let's use those three words to explore it, “dynamic” first.

“Dynamic” means a changing system moving through time. Where it is now depends on where it just was, and you can’t rewind it. You can’t go back and start over.

Consider an example, a TB screening program in Baltimore. At the end of two years of funding the program was a mess. From the point of view of the funders, nothing had worked out as expected. From the point of view of the staff, the program was a failure. From the point of view of the research evaluators, outcome scores were in the cellar.

They asked me to go in and take a look. I wish I had a nickel for every time this has happened. Programs hope an ethnographer can go in and find something positive to justify the millions of dollars. We always can and always do. We also find some new negatives as well. In the end it turns into a love/hate relationship.

I thought of the program as a story, a system moving through time in a dramatic way, rather than as a failed plan that couldn’t make its evaluation numbers. So the program template didn’t fit the reality. When do they ever? Instead of worrying about the old story, I wondered what story did fit the program. What were the program dynamics, and how did they help understanding of what happened?

Dynamics meant the program had a past. It took shape within limits set by some historical trajectory. For example, we learned how conflict patterned across social differences that had a long-standing and contentious history long before the program started, differences that would continue long after it ended. Black and white, religion and science, community and professional – strong scattered forces of history gathered together inside the program process and came to a hot focus. We called it the “parabolic mirror” effect.

A problem, more often than not, wasn’t always – or maybe even mostly – specific to the program moment where it surfaced. It was often history coming to life, the trajectory of the institution and the environment within which the program operated showing their past. A problem was often something that had been developing for years in a story of relations between a prestigious university medical cen-

ter and an alliance of church ministers in the adjacent African-American neighborhood.

“Dynamic” was part of the present as much as it was of the past. The present was filled with contradictions, conflicts, competing constraints. For example, the “community-based partnership” between the medical school and the consortium of churches provided the threads that held program activities together. Those same threads pulled against each other, all the time. Different histories, different languages, different values, but the same goal. Most everyone, I believe, truly wanted to improve health in that East Baltimore neighborhood.

And when I looked back at the original proposal, who would have guessed how different the future would be? “Dynamic” meant that the story unfolded in unforeseen ways. The worst surprise came when those medical school–community threads finally snapped in the second year, to the horror of both sides. The different worlds that pulled at each of them pulled the two of them apart.

And who would have thought that the major positive surprise would have nothing to do with the discovery of TB cases? The program failed on that measure. Instead, the positive news turned out to be outreach worker activity, the lowest-paid job on the totem pole, a job taken for granted as self-evident in the original proposal. The outreach workers surprised me when I interviewed them, because they were the only ones who corrected me when I spoke of failure by saying no, the program was a success. And then they launched into long descriptions of why that conclusion was in fact true.

The outreach workers had turned themselves into community organizers, built their own local social service networks, and then accomplished something, case by case, in terms of general health improvement and social change. They considered the program a success. Their activity wasn’t part of the plan. In fact, it ran counter to the plan in both program and research terms, but it accomplished more than the official proposal promised to do.

A dynamic story like this one isn’t unusual. It’s the norm rather than the exception. We are, at any moment, riding a wave

of time. The past shaped where we are; “path dependency”, in the jargon. *The Road Not Taken* and all that. History matters more than we used to think it did. In the land of fast food and quarterly reports, telling someone they’re history is an insult. “History is bunk,” said Henry Ford. Not with complexity. It’s the wind at our backs that sailed us to where we are now. History reveals how the current situation makes sense. Dynamic systems are explained in part by their past trajectory.

The past is dynamic. So is the present. It isn’t actually a moment in time. “Now” is also in motion, dynamic, and it’s usually choppy like the water in a washing machine. The present is a series of conflicting constraints and we humans move through them, drawing on experience and experimenting and learning along the way. Living systems, they say in the jargon, are “far from equilibrium.”

Then, while we deal with the present, we look ahead and what do we see? Like the weather forecaster, odds are that we see the near future pretty well. But out on the horizon something *won’t* happen like we expect it to, and something else *will* happen that we didn’t expect at all. The late Mo Udall, one of the few congresspeople with an actual rather than ghost-written sense of humor, called it the Law of Unintended Consequences. Whatever you expected a new law to do it wouldn’t, and whatever it did do you won’t have expected.

Flowing along in time, figuring out the patterns and how they change and then taking action that changes them in turn – it makes sense to many social service colleagues I’ve worked with. The powers-that-be tell them to write a plan with an evidence-based practice and implement it. How things really work is that they dive into a sequence of crises born of local real-world details and just as they get going, everything changes anyway. It’s like someone gives them a sailboat to travel down river rapids, forgets to mention that it needs an engine to get out of the channel, and as they cast off they figure they need to take the interstate instead, so if they could just bolt some wheels to the hull...

The official requirements call for planning and implementing and standardizing, but the requirements are written by funders and

regulators ignorant of local history and local reality and local possibility. A social service has to pretend that those requirements are received truth in order to get funded. That’s one reason social services people, at least some of them, like it when I talk about complexity. Taking action during a flow through time in conversation with a changing environment is what they actually do, or try to. Co-evolution it’s called. Stewart Brand of *Whole Earth Catalog* fame started calling it that in his magazine *CoEvolution Quarterly* in 1974. Complexity has refined it to a fine art.

**T**hat introduces the “dynamic” in nonlinear dynamic systems.” What about the “nonlinear?”

Remember linear equations from high school? The equation of a straight line?  $Y = ax + b$  on the neat two-dimensional graph paper we used? So “a” is the slope of the line and “b” is where the line crosses the vertical Y axis. Nothing to it. Everything else is nonlinear.

The math part is simple. The meaning of “nonlinear” for social services produces a migraine.

During my professorial days, a student from psychology or sociology would tap shyly on my office door and ask if I were busy. “No,” I’d say, putting the phone down and turning away from the computer screen. The voice was a 911 call to a paradigm paramedic. I knew what was coming and I felt sorry for the victim.

Most students from psychology and sociology live in the world of old-fashioned social science. For old-fashioned social science, linear is a wet dream. The correlation coefficient is a measure of how well a straight line fits the data. Multiple regression is a measure of the weights on all the different “x”s that add up to the result, the dependent variable, the “y.”

The students who knocked on my door had figured out that an answer to the question they care about wouldn’t look like a linear equation. They walked in, pulled out a crumpled diagram, looked at it like it was an arrest warrant, and set it on my desk.

“See,” a hypothetical student might say, “I want to explain why some women get abortions and others don’t. My adviser wants

me to sample from four clinics and get demographic data and give them this standardized test called the W.C. Fields scale of child attraction.” Then the student points at the diagram. It has a lot of words, sometimes in boxes, sometimes in circles, with arrows connecting them every which way.

“But you know,” continues the student, “when I was an undergrad a couple of friends got abortions and another one decided to keep the baby. I could never have gone through what they did, agonizing for weeks, talking to everyone, one day yes, one day no, the clinics and the chaplain treating them different ways, maybe talking to their mom or aunt or older sister or something, I don’t know. The one who kept the baby really surprised me, but maybe that’s just because of my bias. A lot happened and I never knew how it was going to turn out until it did. Look.”

The student would show me the diagram again, a fingertip sliding across the paper like a hockey player who can’t find the goal.

“Can you help me? Would you be on my Ph.D. committee?”

This is the moment I hated, part of the reason I left the university. Students from these old-fashioned social sciences came to me because I was an anthropology prof, and anthropologists are (in)famous for doing weird social research. We’re more like a hybrid of historian and investigative reporter and simultaneous interpreter and Columbo, but the twisted history of academia insists we belong with the psychologists and sociologists.

The students’ problem is really about nonlinearity. The nonlinearity this particular student found isn’t all that different from the nonlinearity that the clinic faces, or the nonlinearity of the young women who decide whether to abort or not.

Nonlinearity is about several things that are true of most human systems, things that are obvious to most everyone except old-fashioned social scientists bound and determined to corral the dependent variable “y.”

The first truth is that a lot of things are relevant to understanding the problem. That’s why the student diagrams are always crowded

with words in circles or boxes. The second is that those things influence each other in a variety of ways. That’s why the student diagrams have arrows going every which way.

And all those boxes and arrows move. They link and disconnect, influence and don’t, in different ways over time. Nonlinearity is a movie, not a snapshot. And with that, we return to the “dynamic” described earlier. The movie isn’t in the student’s diagram. But it is in the examples the student describes to explain why they made the diagram in the first place. In advanced complexity, the movement turns into a visually sophisticated computer model because – as the students have discovered – linear equations won’t describe it. They need to put nonlinearity in motion to see what it can lead to, because it won’t just lead to only one thing. There will be a space of possibilities.

Nonlinearity means there’s no simple equations that describe what a system will do. Worse than that, it means that you won’t know exactly what a system will do until it does it. All those relevant things link up into numerous feedback loops, negative ones that brake change and positive ones that amplify it. A little tweak can have major effects and a major push can have no effect at all.

Nonlinearity takes the problem so far away from old-fashioned social science that it disappears over the horizon. Nonlinearity, like dynamics, brings students and researchers and practitioners to complexity. They know there are too many relevant things interacting in too many different ways. They want a framework that helps them understand a problem, not a framework whose basic assumptions make that understanding impossible.

But, back in the halls of academe in the old days, I had to tell students that they were right, but that they should never think about it or talk to anyone like me again until after they got their dissertation signed. Otherwise they’d be intellectually tortured and possibly failed by their committee. Even if I was the fifth outside member, I couldn’t help much. I tried it a few times and then quit doing it because it was hopeless. Just answer the right question the wrong way, get the union card, and then think differently later. Well, maybe after tenure.

This is no way to run a university. Or a railroad for that matter.

And it's no way to run social services either, but funders and governments still want things to be linear even though those who haven't lost touch with reality know better. Social problems, whether you study them or treat them or have them or make policy about them, are nonlinear. There is no simple dependent variable. There is no simple addition of independent variables to calculate the value of the problem. As any social service practitioner knows, there are a lot of things interacting with each other over time, and what those things are and what they produce can surprise the hell out of you.

Complexity takes this for granted. The linear mind has to ignore it to function at all.

**W**hat about the “system” in the phrase “nonlinear dynamic system?”

Systems theory and cybernetics, two of many ancestors of complexity, have been around for a while. In fact, some mental health programs grew out of those earlier traditions. For example, the concept of “systems of care” in youth mental health, created by Bob Friedman and his colleagues at the Florida Mental Health Institute in the 1980s, drew them into complexity right away as a logical next step. Carmen Fernandez in Mexico City runs the nationwide Centro Integración Juvenil, a group dominated by family therapists. Family therapy came out of cybernetics at the Palo Alto VA hospital in the 1950s. Fernandez found complexity and used it to make youth drug intervention in Mexico more flexible and dynamic in a way the U.S. should emulate immediately.

My colleagues got interested because they saw that old-fashioned systems theory, like old-fashioned social science, just can't handle complexity.

An old-fashioned cybernetic system aims to maintain homeostasis. It monitors its environment and then compares what it senses with what it wants the environment to be. A controller minds its own business as long as sensed value and desired value are in tune. But if the sensed value is too high or too low, the

controller activates the interconnected parts of the system until the sensor tells it that the value it desires is back within the range it wants. A thermostat is the famous simple example.

The problem is that social services don't work that way. Healthcare reform tried a new sensor – “capitation” – and healthcare is worse than ever. Educational reform decided that standardized tests would steer the system right. Now teachers teach to the test, juggle the analysis of scores to survive, and quit the job in droves.

You do get dynamics with old-fashioned cybernetic systems, but it's a graph over time that oscillates around the value the system maintains. You do get nonlinearity with old-fashioned systems, but the positive and negative feedback loops are coupled tightly to maintain homeostasis. In fact, the term “cybernetics” was coined because of its Greek root, meaning the “steersman,” the guy who handles the rudder and keeps the ship on course.

There are times and places when an old-fashioned cybernetic system is exactly what you want. Like when you drive your car. Or turn on the faucet. Or apply for Social Security. Good luck to the youth of America with the Social Security, though. It changed from an old-fashioned system into a complex one once we figured out that there were a lot more old people ready to take money out and a lot fewer young ones ready to pay money in. The problem is the powers-that-be are still looking for an old-fashioned solution.

A few years ago a drug treatment program in Baltimore called me up. They'd seen an op-ed piece I'd written in the *Baltimore Sun* and hoped I'd do another about them. They were falling apart and wanted the world, or at least the Baltimore and Maryland world, to know why.

Their story was the reverse of Social Security. They'd started out as a complex system, but then the state wanted them to get old-fashioned, quick, as a condition of funding. The change was destroying them.

Here's what happened. A Baltimore foundation looked around at a city crippled by serious drug dependence – crack and heroin –

and shook their heads. They found a community group and gave them a little money. The foundation basically said, here, nothing works, try something different.

So they did. Everyone did several jobs. The same guy might do outreach, intake, counseling, and so on, depending on a lot of different things. Everyone was a generalist. The first thing that happened if you walked in the door was a cup of coffee and a conversation. Paperwork later and insurance questions only if you had some. Staff wandered around the neighborhood and visited in general, with everyone from people waiting to cop on the corner to a grandmother watering the flowers on her front porch.

I didn't do any formal research, but I got the picture. In the jargon, the program had "self-organized." People from the neighborhood, people from outside, they went to work and tried different things and debated what worked and what didn't. The program self-organized and emerged out of the energy of the people involved in creating and running and using it. No one had had a plan for what it would look like when they started.

A scene in the movie *Apollo 13* comes to mind, after the famous "Houston, we have a problem" line. The boss puts the engineers in a room and lays out some material that they have in the capsule out there in space: duct tape, insulation material, I can't remember what. He says to the engineers, here's what they've got, here's what they need to do, figure out how to get there from here. They did, too.

That's what self-organization and emergence are about. Give a group a problem and then get out of the way. Who knows exactly what they will do? Who cares, within the bounds of morality, as long as they figure it out? Why try to control the process from a distance when those in the middle of things know more about it?

The program turned into something that didn't look like any traditional drug treatment model in the evidence-based catalog. Did it work? They were in the ballpark for dollar/patient ratios, though "patient" is the last thing they would have called anyone. And they were hitting home runs on a regular basis as far as suc-

cesses go. The problem was that they couldn't really "measure" what everyone saw and knew, the usual problem with old-fashioned evaluation. But that's another story. In social services the most important results aren't things it's easy to count.

Einstein had a sign hanging in his office: "Not everything that counts can be counted, and not everything that can be counted counts."

The staff and "patients" I spoke with talked about the graduation ceremony, told stories about the changes in people's lives, about their attitudes, the expressions on their faces, how they were looked up to in the neighborhood after the program. Graduates dropped in, met regularly, and helped out.

Self-organization and emergence worked like a charm. They don't always, of course. But they did in this case.

Their success was noticed by all. So, when the foundation money was about to run out, the state took them over. They wanted to benefit from the results of this successful experiment.

The state was, and is, an old-fashioned cybernetic system. Its "sensors" picked up many differences between the local program and how it expected a program to look. Its feedback loops went into overdrive. The local group, they said, needed to maintain the following forms, file the following reports, define jobs in an exact and mutually exclusive way, obtain certifications for staff or hire new ones who had those certifications, follow the manuals and implement standardized procedures and outcome measures.

They killed them – harshly, not softly – with their song. I don't believe they meant to – in fact, I believe they meant to do the opposite – but kill them they did.

The program, to follow the neo-Darwinian logic that guides much of complexity, faced an environmental shock from which it could not recover without losing its identity. In other words, it was about to go extinct.

I tried, but the newspaper didn't run the op-ed piece I wrote. Staff from the original program trickled away. So did I. It made me angry and depressed at the same time, the occupational disease of anyone who works in

the drug field. I left Baltimore shortly afterwards so I don't know how the story ended. But it did teach me a complexity way to implement programs.

That way, as it turns out, corresponded to something that makes sense to some social services people I've worked with as well. Instead of old-fashioned systems with their command-and-control, homeostasis-maintaining approach, complexity calls for self-organization and emergence. The shift is profound.

It rests on the premise that those on the front line know a great deal about problems and experiment more with solutions than the controllers at the top. Since most social service practitioners, in most every field I've consulted with, see themselves as knowledgeable and creative people who have to spend most of their time managing interference from the distant experts – the funders and regulators – this premise has wide appeal.

The premise is inefficient from the point of the view of traditional system controllers. They want standard procedures and indicators that apply everywhere, the same procedural map from person to outcome wherever you go. It makes their work manageable and allows for operations that can take advantage of economies of scale.

Ideas from complexity offer a middle ground here. Oddly enough, to me as an old peacenik, the Marine Corps were among the first to develop them. Combat is a model of unexpected changes with a premium on quick, locally informed response. The Marines learned complexity and then rewrote their field manual to bring operations into line with that simple fact. It made no sense for a colonel in a command post to micro-manage combat units in the field. Instead, the command post should be a center for communication and support and maintain focus on the point of it all, in their case to win the battle.

If social services followed the Marine Corps model, the program in Baltimore would still be running and experimenting with new ideas even as I write this. The command post – the state – would have seen that, whatever those in Baltimore were doing, it was in ser-

vice of the big picture, to prevent and treat drug dependence. The command post would not have decided that, since they were doing things differently, they needed to be brought back into line. Instead, command would have learned from their innovation, continued to support it, and communicated it to other programs and to the rest of the drug field. If our governments insist on calling it the War on Drugs, they ought to at least read the Marine Corps manual.

This complexity version of the old term “system” is another reason it resonates with social service colleagues. “System” no longer means a controller sensing what are often things that miss the point, a controller that has to be manipulated in order to gain resources. Instead, “system” means a program that the people involved in create, drawing on experience and knowledge and local realities, within the broad limits of a goal shared by resource providers. It means that innovations, if successful, will be rewarded and widely communicated, even if they don't fit established ways of doing things. It means that experiments are encouraged, even though some will fail, as long as something worthwhile is learned to the benefit of the system as a whole.

For many on the ground trying to provide social services, this is music to their ears. Most of them, dedicated as they are, try to do this anyway, but usually it's in spite of larger systems that regulate and fund them, rather than with their encouragement and support.

**T**here is more – much more – to be said on the topic of complexity and social services. This commentary only exemplifies a few of the core concepts in a metaphorical way. We could talk about the math behind it, the related chaos theory, computer models, and many other things.

But complexity isn't only math or computers. In fact, history may well judge its formal details as less important than its global effect on thinking, its reflection back onto and application by the human minds that created it. In social research, you figure out, about when you're ready to retire, that methodology and data collection are less important in the long

run than creating a conceptual system through which old problems can be seen in a new and useful ways.

Complexity is a conceptual system, a way of seeing the world and acting in it. It will probably change our thinking about ourselves and our institutions, much like Newton's impact on the history of his time. Just as Newton shifted to a view of the world as predictable and governed by mathematical laws, complexity is shifting to a view of the world as nonlinear, dynamic, and, in the long run, unpredictable – understandable only through the experience of many examples, real and virtual. Sometimes I think they should call complexity "Hegel's revenge."

The shift is profound and it is diffusing rapidly, the rate of diffusion increasing with a person's proximity to events on the ground and decreasing with age. It may well be a classic case of the paradigm change that Thomas Kuhn wrote of decades ago.

Complexity types talk about an organization on the "edge of chaos." The phrase is controversial, but the general meaning is clear. Pure order means the organization is dead. Any change in its world and it will march bravely on until it falls off a historical cliff. Pure disorder means nothing gets done. The organization wanders unpredictably through its space of possibilities. The right mix of order and disorder translates into effective interaction with an environment together with a reservoir of possibilities to draw on when that environment changes. Co-evolution, in other words.

Social services are too far out on the "pure order" end of the scale. In an interconnected world that produces surprising change with some frequency, social services need new strategies as much as the private sector does. The problem is that resource flow depends on adherence to top-down micro-regulation from funders and governments. The local program usually knows better.

Unfortunately, what it knows – and does – is blocked by the usual evaluation design. Any implementation of complexity in social services requires a dramatic rethinking of how to evaluate a program. Among many other things, we need the social service equiva-

lent of a "bottom line" that signals the effects of change in a timely manner and on a continual basis. The issue of a new evaluation framework goes well beyond the scope of this paper, but I hope that the examples I've described show that a new framework is possible.

A fair number of creative and energetic people close to the social service ground experience an "aha" reaction when introduced to complexity. They see a conceptual system that helps them articulate what they already know on an intuitive level. Through the new lens they see ways to change – and to keep changing – to work more effectively in service of a national value articulated by Franklin Delano Roosevelt in 1933:

*The test of our progress is not whether we add more to the abundance of those who have much, it is whether we provide enough for those who have too little.*

Based on my recent experiences, I know that the intelligence and energy are available to move in this direction in the social services world in a more effective and efficient way. Complexity concepts help clarify the possibilities. The main question is whether funders and governments will allow the experiment to develop and continue.

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