SYSTEMS THINKING
ANNOTATED LITERATURE REVIEW

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- Journal for Awareness Based Systems Change
- Monitoring and Evaluation for Thinking and Working Politically
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- The Dawn of System Leadership
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- Navigating Complexity in International Development: Facilitating Sustainable Change at Scale
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The Water of Systems Change

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Transforming Partnerships in International Cooperation

What's Missing? Adding Context to the Urban Response Toolbox

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Thinking Fast & Right in Complex Environments

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Development & Complexity

Leverage Points: Places to Intervene in a System

Systems Innovation: An Interactive Learning Journey

Systems Leadership for Sustainable Development: Strategies for Achieving Systemic Change

What is Complex Systems Science?

When Collective Impact Has Impact: A Cross-Site Study of 25 Collective Impact Initiatives

Journals

Health Inequality as a Large-Scale Outcome of Complex Social Systems: Lessons for Action on the Sustainable Development Goals

Matheson, A. (2020, April). International Journal of Environmental Research and Public Health, vol. 17.

doi.org/10.3390/ijerph17082684

Keywords: sustainable development goals, relationships, health inequality

Action on the Sustainable Development Goals (SDGs) needs to become real and impactful, taking a "whole systems" perspective on levers for systems change. This article reviews what we have learned over the past century about the large-scale outcome of health inequality, and what we know about the behavior of complex social systems. This combined knowledge provides lessons on the nature of inequality and what effective action on our big goals, like the SDGs, might look like. It argues that economic theories and positivist social theories which have dominated the last 150 years have largely excluded the nature of human connections to each other, and the environment. This exclusion of intimacy has legitimized arguments that only value-free economic processes matter for macro human systems, and only abstract measurement constitutes valuable social science. Theories of complex systems provide an alternative perspective. One where health inequality is viewed as emergent, and causes are systemic and compounding. Action therefore needs to be intensely local, with power relationships key to transformation. This requires conscious and difficult intervention on the intolerable accumulation of resources; improved reciprocity between social groups; and reversal of system flows, which at present ebb away from the local and those already disadvantaged.

Understanding how human driven systems behave needs to become more sophisticated. We need ways to comprehend human systems that can see past social identities and relations. Theories of the behavior of complex systems provide a way forward.

Why it's important: A key concept of complexity theory is that the whole is greater than the sum of the parts. The multi-level and locally compounding nature of the causes of health inequality need to be factored in. Local geographic areas have proven singularly important in the reproduction of health inequalities. Local areas connect people to each other, and to their

histories, and to social, physical and service environments—those places where people spend most of their time and are most connected.

Application: Action on the 17 SDGs can take some lessons from this knowledge.

- Inequality itself cannot be separate from other goals as it is integral to the "whole system" through its deeply relative and relational nature.
- Levers of change need to recognize the undervaluing of the local and pay attention to the way that power relationships limit real action and real reversals in the flows of information, resources and agency.

From what we know about health inequality, linear, siloed approaches to solutions will not work. More than this, a reified understanding of interactions between and among goals is not sufficient for effective action. Rather, action needs to happen on real systems focused on real interactions in the context of system behavior—real human systems that exhibit emergence, feedback and sensitivity to initial conditions.

Journal for Awareness Based Systems Change

jabsc.org

Keywords: systems

The Journal for Awareness Based Systems Change (JABSC) is a place for creative scholarship that is breaking new ground in research and further evolving this emergent field.

Awareness-based systems change is an action research approach to transformation that considers systems change from the view of evolving consciousness. It is an emergent cross-sectoral, inter- and transdisciplinary field focused on the process of co-inquiry into the deep structures, or interiority, of social systems—what we call social fields—in order to see, sense and shift them toward greater collective well-being. Through its focus on social fields, awareness-based systems change approaches shine a light on the less visible dimensions of social and relational reality creation: the dynamics, processes and particularly the levels of awareness that underlie and shape individual and collective behavior.

Monitoring and Evaluation for Thinking and Working Politically

Aston, T., et al. (2022, October). Evaluation, Vol. 28, Issue 1, 36-57.

doi.org/10.1177/13563890211053028

Keywords: context, method, politics, evaluative, challenges, learning, MEL, uncertainty

This article explores the challenges of monitoring and evaluating politically informed and adaptive programs in the international development field. We assess the strengths and weaknesses of some specific evaluation methodologies which have been suggested as particularly appropriate for these kinds of programs. We suggest that those methods which assume generative causality are particularly well suited to the task. We also conclude that factoring in the politics of uncertainty and evidence generation and use is particularly important in order to recognize and value diverse experiential knowledge, integrate understandings of the local context, accommodate adaptation and realistically grapple with the power relations which are inherent in evaluation processes.

Application: There are several methodologies that show promise; these can also be considered in combination. Given our focus on practice, the article focuses on MEL methodologies with which the authors have had personal experience and fit with our understanding of TWP. We recognize that various other participatory and theory-based methodologies might also be a good fit.

Realist evaluation/synthesis:

- Summary: Generative and comparative methodology which develops hypotheses around the articulation of context, mechanism, and outcome (CMO) statements that can be synthesized and aggregated into middle-range theories.
- Technical features/challenges: Focus on what works, in which circumstances, and for whom. CMO statements can appear more certain than intended. The approach can be theoretically and technically challenging and time-consuming.
- Evaluative and political context features/challenges: Given its emphasis on hypothesis testing and its method neutrality, realist evaluation can be more palatable to decision makers who prefer positivist and/or "quantitative" evaluations.

Qualitative comparative analysis:

- Summary: A rigorous qualitative methodology for comparative analysis of multiple cases in/of complex settings/interventions.
- Technical features/challenges: qualitative comparative analysis combines case study and cross-case study analysis. Qualitative comparative analysis can be technically challenging. Supportive evidence is not always adequate, and verification is challenging.

- Evaluative and political context features/challenges: The use of summary tables and the degree to which the presence or absence of key factors is demonstrably verifiable, including potential of algorithms to identify combinations of attributes in larger data sets, provides for a "mixed methods" approach which is politically useful/palatable.

Process tracing:

- Summary: Case-based and mechanistic method which uses evidence tests to assess inferential strength and compares alternative hypotheses.
- Technical features/challenges: Bayesian logic, evidence tests and rival hypothesis testing make inferences less vulnerable to bias and can be theoretically and technically challenging, and highly time-consuming.
- Evaluative and political context features/challenges: If done in a participatory way, evaluation stakeholders can play a key role in defining which evidence is valued. Requires technical training which can impede ownership and participation at the beginning of the process.

Outcome harvesting:

- Summary: Participatory, actor-focused, within-case method. Works backwards from evidence of outcomes to assess the program contribution.
- Technical features/challenges: Straightforward and easy-to-use method. Drafting quality outcome statements is crucial. However, risk of positive and confirmation biases due to limitations in triangulation.
- Evaluative and political context features/challenges: As outcomes are typically drafted by program participants, the method can be empowering. However, it relies heavily on evaluators' perspectives. Westernized focus on SMART (Specific, Measurable, Achieved, Relevant and Timely) reporting is a strength, but culturally limiting.

Systems Thinking in International Education and Development

Faul, M. (ed.), & Savage, L. (ed.) (2023, February). vol. 4. NORRAG.

www.norrag.org/new-book-systems-thinking-in-international-education-and-development-edited-by-moira-v-faul-and-laura-savage/

Keywords: education, approaches, feedback loops, learning

Too many education systems around the world are failing. In 2019, 53% of ten-year-olds worldwide were unable to read and understand a short age-appropriate text. Student learning trajectories in some countries have been declining over the past decades, despite significant financial investment and reform efforts. One survey conducted in Uganda in 2013 showed that only one in five teachers understood the content of the curriculum they taught. The existing learning and equity crises have been further exacerbated by the COVID-19 global pandemic, causing the most widespread school closures in history.

Current so-called common sense or expert solutions have not even led to improved basic literacy rates, much less many of the other education and life outcomes promised in Sustainable Development Goal (SDG) 4: "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."

We believe that to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" fundamentally requires systems approaches.

Application: The authors offer the following useful behaviors informed by systems thinking:

- Define the system you are working with: The majority of this volume's authors take a broad definition of systems as (1) elements: human, social and technical, (2) the relations between them that structure their interactions, and (3) existing within specific contexts that affect and are affected by those elements and their relations. Whether you are working with or researching a handful of schools, a network of teachers or a whole country's education sector, you need to be clear about where you are drawing the system's boundaries.
- Support collaborative problem identification: The next step is to better understand how the system works. Within this system, what are the processes, structures and incentives that hold the system where it is? Who are the actors with the most power, and what do they want? Where are the potential leverage points that could move the system towards better supporting quality learning for all? Starting with understanding the problem and why previous reform attempts have affected change is better than starting with a solution and assuming that it is going to work.
- Be conscious of your role: Systems analysts and practitioners must accept the limitations of their ability to drive systems change in one direction or down one particular path. No single actor or group of actors can change a system. We can identify the levers that might nudge change in the direction we want and then examine the feedback loops and unintended consequences to work out where next to engage.

- Design policies and programs focused on people and dynamics rather than interventions and numbers: The system elements studied in this work include a diverse set of actors and considerations. In systems approaches, these elements are not treated as if they exist in isolation because they do not.
- Do not assume that scale means big: Inherent to systems thinking are the concepts of context and constant flux. Systems theory shows that reforms cannot be simply copied from one system to another; certain system factors must align for policy innovations to travel. If an intervention is rolled out at scale it may be incoherent with the incentives within the systems into which it is scaled. Recognising this, systems approaches move beyond designing a single intervention that is implemented or scaled into all contexts. Instead of considering the fidelity of scaling, attempts to repeat an intervention in a new place must be considered as trialing, with tight feedback loops of test–learn–adapt; interventions must be adjusted to respect the local context and distinctive response to the intervention that arises as it is implemented in that context.
- Enable test–learn–adapt approaches that work with tight feedback loops: Working towards change that can enable learning for all will require being comfortable with uncertainty and being able to change course. Doing the same thing in different places, at different times or with different people does not yield the same result.
- Adopt a glossary of terms that you use consciously: Reflect on other words often associated with system change. "Solution" is a word we would urge you to use with caution; it prompts a mindset of simple, linear pathways that run from funding to implementation to success. There is no single solution to the global learning crisis, and the sooner we appreciate this fact and adjust expectations, the sooner we stop looking for quick fixes.

The Dawn of System Leadership

Senge, P., et al. (2015). Stanford Social Innovation Review.

doi.org/10.48558/yte7-xt62

Keywords: learning, leaders, systems leadership

The purpose of this article is to share what we are learning about fostering collective leadership. We hope to demystify what it means to be a system leader and to continue to grow as one. Though system leaders differ, they have a remarkably similar impact: they have profound

commitment to the health of the whole; they can see reality through the eyes of others; they build relationships based on deep listening, creating networks of trust; and one of their greatest contributions can come from the strength of their ignorance, which gives them permission to ask obvious questions and to embody an openness and commitment to their own ongoing learning and growth that eventually infuse larger change efforts.

As these system leaders emerge, situations previously suffering from polarization and inertia become more open, and what were previously seen as intractable problems become perceived as opportunities for innovation. Short-term reactive problem solving becomes more balanced with long-term value creation.

Application: Clearly the path to becoming a system leader is not a simple journey. As in any daunting undertaking, it is useful to have a few simple guides to keep in mind.

- Learning on the job: Growing as a system leader is a process that never ends, and to be successful it must be woven into the work itself. Although training and other episodic interventions can help, they are most useful when embedded in a work culture that fosters ongoing reflection and collaboration.
- Balancing advocacy and inquiry: All change requires passionate advocates. But advocates often become stuck in their own views and become ineffective in engaging others with different views. This is why effective system leaders continually cultivate their ability to listen and their willingness to inquire into views with which they do not agree.
- Engaging people across boundaries: We are often most comfortable with those with whom we share a common history and views. But operating within our comfort zones will never lead to engaging the range of actors needed for systemic change. Though always challenging, reaching across boundaries can have immense payoffs.
- Letting go: System leaders need to have a strategy, but the ones who are most effective learn to "follow the energy" and set aside their strategy when unexpected paths and opportunities emerge. Sometimes, reframing or changing the method used to address a problem will allow that problem to be addressed more easily and efficiently.
- Building one's own toolkit: The variety of helpful tools and approaches available today is large and growing, and system leaders should be knowledgeable about what is available. In our work, tools we use regularly come from a variety of places, including a few mentioned here: the "five disciplines" approach to systems thinking and organizational learning, Theory U and Presencing, Appreciative Inquiry, Immunity to Change, Roca's

peacekeeping circles, and the Change Labs and scenario planning of Reos Partners. But it is important to remember that building a tool kit is more than just putting arrows in your quiver. It is about learning, over time, through disciplined practice, how to become an archer.

- Working with other system leaders: Growing the capabilities to become a more effective system leader is hard work. It needs to happen in difficult settings and under pressure to deliver tangible results. It is naïve, even for the most accomplished system leader, to think that she can do it alone. We know of no examples where effective system leaders achieved broad scale success without partners.

The Implications of Complexity for Humanitarian Logistics: A Complex Adaptive Systems Perspective

Schiffling, S., et al. (2020, May). Annals of Operations Research, vol. 319, 410-1379.

doi.org/10.1007/s10479-020-03658-w

Keywords: humanitarian, logistics, supply chain, learning, complexity

In this study we argue that recognising humanitarian logistics as a complex system is a key step in developing supply chain design and management strategies that meet the needs of stakeholders. This study draws on complex adaptive systems theory to examine the characteristics and implications of complexity for humanitarian logistics. Recognising humanitarian logistics as a complex system is a key step in developing supply chain design and management strategies.

Through complex adaptive system-study research of humanitarian responses in Haiti and Pakistan, characteristics of complexity across organizational boundaries are identified. We find that the complexity of the context impacts the outcome of the humanitarian response and conclude that humanitarian logistics must not only react to its environment, it must also create its environment. While this paper focuses on humanitarian logistics, wider applicability to other complex logistics operations is also discussed, informing the design and management of contextually specific supply chains.

Application: Underestimating how a humanitarian response reacts to and creates its environment could be a major reason why tools and techniques from commercial logistics do not always apply in a humanitarian context. In complex operating environments, logistics functions must adapt and become more anticipatory, however the authors of this article

propose that is insufficient and that in some instances humanitarian logistics must proactively create the conditions under which humanitarian relief can be delivered.

The authors present the five following propositions:

- Limited connectivity between agents inhibits the ability of humanitarian logistics to self-organise resulting in a negative impact on the speed of the humanitarian response.
- The diversity of approaches to interactions with military and political entities gives agents greater autonomy to make decisions at a local level, and amplifies differences in outcomes in parts of the humanitarian response.
- Developing routines as part of the humanitarian response has a significant positive impact on the humanitarian logistics outcome and professional standing.
- In the context of humanitarian logistics the behavioural response by agents has the potential to increase the level of complexity.
- A humanitarian relief effort must react to and create its environment, therefore bespoke approaches to humanitarian logistics are essential.

The authors note that while standardisation has its place, even within complex logistics operations, we cannot approach every humanitarian response in the same way. It is important to consider behavioural complexity (e.g., agents' connectivity, inter and intra complex adaptive system competition, competing values of agents and willingness for shared learning).

The Relational Work of Systems Change

Milligan, K., et al. (2022, January). Stanford Social Innovation Review.

doi.org/10.48558/MDBH-DA38

Keywords: relationships, collective impact, power dynamics

Collective impact efforts must prioritize working together in more relational ways to find systemic solutions to social problems.

Why it's important: Sometimes we lose sight of a simple truth about systems: They are made up of people. Despite all of the frameworks and tools at our disposal and all of our learning as a field of practice, purely technical, rational approaches to systems change will not make much of a dent in shifting power or altering our most deeply held beliefs. If most collective impact

efforts fall short of supporting people to change in fundamentally consciousness-altering ways, then, the system they are a part of will not significantly change either.

Application: The authors present 5 key ideas for systems change:

- Deep Relational Work: Everything we know about systems tells us relationships are the core. Most collective impact leaders ascribe to the mantra: If you want to change the system, get the system in the room. By deep relational work, however, we mean a fundamentally different way of being in relationship. This starts with creating a space for the work that is viewed by all, especially those who do not have institutional power, as a safe environment where participants can express themselves freely and be vulnerable, connect with each other, and experience their common humanity.
- Cultivating Space for Healing: Unresolved, unhealed trauma is a force to be reckoned with in most, if not all, of the largest systemic issues we face. And it is far more common than we acknowledge among people involved in collective impact work.
- Serendipity and the Sacred: Working together in a way that invites in the sacred and welcomes serendipity is perhaps the most difficult of the five qualities to capture on a page, in large part because people often equate words like sacred with religion or think it refers to faith-based initiatives. On the contrary, bringing the sacred into the process does not require or even assume everyone involved has a spiritual orientation.
- Inner and Outer Change: People who work with collective impact efforts are all actors in the systems they are trying to change, and that change must begin from within. The process starts with examining biases, assumptions, and blind spots; reckoning with privilege and our role in perpetuating inequities; and creating the inner capacity to let go of being in control. But inner change is also a relational and iterative process: The individual shifts the collective, the collective shifts the individual, and on and on it goes. That interplay is what allows us to generate insight, create opportunities, and see the potential for transformation.
- Transforming Power Dynamics: Collective impact efforts must be intentional about not replicating the power imbalances of the systems they work in.

What is Systems Thinking? A Review of Selected Literature Plus Recommendations

Monat, J., & Gannon, T. (2018, July). American Journal of System Science, vol. 4, 11-26.

Doi.org/10.5923/j.ajss.20150401.02

Keywords: relationships, mental models, tools, definitions, systems thinking

Systems Thinking is a popular current topic in the world of Systems Engineering. However, as yet there is no commonly accepted definition or understanding of it. In this paper, we analyze some of the popular Systems Thinking literature and attempt to identify common themes. We conclude that Systems Thinking is a perspective, a language, and a set of tools. Specifically, Systems Thinking is the opposite of linear thinking; holistic (integrative) versus analytic (dissective) thinking; recognizing that repeated events or patterns derive from systemic structures which, in turn, derive from mental models; recognizing that behaviors derive from structure; a focus on relationships vs components; and an appreciation of self-organization and emergence. Specific Systems Thinking tools include systemigrams, system archetypes, main chain infrastructures, causal loops with feedback and delays; stock and flow diagrams; behavior-over-time graphs, computer modeling of system dynamics, Interpretive Structural Modeling (ISM), and systemic root cause analysis.

Application: Systems Thinking requires that we recognize that in human-designed systems, repeated events or patterns derive from systemic structures which, in turn, derive from mental models.

The Iceberg Model is a core element of systems thinking. The Iceberg Model argues that events and patterns (which we can observe) are caused by systemic structures and mental models, which are often hidden. Systemic structures are the organizational hierarchy; social hierarchy; interrelationships; rules and procedures; authorities and approval levels; process flows and routes; incentives, compensation, goals, and metrics; attitudes; reactions and the incentives and fears that cause them; corporate culture; feedback loops and delays in the system dynamics; and underlying forces that exist in an organization. Behaviors derive from these structures, which are (in turn) established due to mental models or paradigms. A fundamental systems thinking concept is that different people in the same structure will produce similar results—per Deming, the structure causes 85% of all problems; not the people! In order to understand behaviors, we must first identify and then understand the systemic structures and underlying mental models that cause them.

The following are fundamental tools of systems thinking:

- Systems Archetypes: In systems thinking, archetypes are problem-causing structures that are repeated in many situations, environments, and organizations. There are 10 common

archetypes: Accidental Adversaries, Fixes that Fail (policy resistance), Limits to Growth, Shifting the Burden (addiction), The Tragedy of the Commons, Drift to Low Performance (eroding goals), Escalation, The Rich get Richer, Rule Beating, and Seeking the Wrong Goal.

- Behavior over Time Graphs: Behavior Over Time graphs plot the values of pertinent system variables over time. They are often useful first steps in developing an understanding of systemic behavior and of how variables inter-relate.
- Causal Loops Diagrams with Feedback and Delays: System behavior is usually determined by the presence of reinforcing and balancing processes. These are sometimes obvious (such as the reinforcing process of compound interest) and sometimes not (as in the stabilizing impact of terrorism on international collaboration). In either case, drawing causal loop diagrams helps to see the interrelationships among all system components. These can become quite complicated as cause-and-effect relationships, many of which are hidden (or at least hard to see), are identified.
- Systemigrams: Derived from the words "Systemic Diagram," systemigrams attempt to translate a system problem (expressed as structured text) into a storyboard-type diagram describing the system's principal concepts, actors, events, patterns, and processes.
- Stock and Flow Diagrams: Systems often involve accumulators or stores of "things." In systems, these quantities of things are called stocks. Stocks may increase or decrease due to flows into or out of them. Stock and flow diagrams show the stocks, inflows, and outflows. They are often developed in conjunction with causal loop diagrams, and they are important precursors to system dynamics modeling.
- System Dynamics/Computer Modeling: System Dynamics is the study and analysis of system behavior over time (feedback loops, time delays, non-linear behavior). It is difficult to understand a system without understanding its behavior over time, which is often non-intuitive. Modeling of a system helps understand why the system (company/ individual/ department) behaves as it does.
- Systemic Root Cause Analysis (RCA): RCA is a class of problem solving methods aimed at identifying the root causes (not the symptoms) of problems or events. It is especially good for solving problems caused by the system (and many are).

- Interpretive Structural Modeling (ISM): ISM is a computer-aided interactive learning process that attempts to identify systemic structures by transforming vague, poorly defined mental models into clear, well-defined graphic representations. ISM begins by first identifying relevant variables and plotting them as points on a graph. Those elements that are related are connected by a directional line. The existence and nature of the relationships are determined by a brainstorming group whose collective judgment determines the final model; it is thus a group learning process.

Books

Aid on the Edge of Chaos: Rethinking International Cooperation in a Complex World

Ramalingam, B. (2013). Oxford University Press, 1st ed..

odi.org/en/publications/aid-on-the-edge-of-chaos-rethinking-international-cooperation-in-a-complex-world/

Keywords: aid, relationships, learning, complexity

It is widely recognized that the foreign aid system - which today involves every country in the world - is in need of drastic change. But there are conflicting opinions as to what is needed. Some call for dramatic increases in resources, to meet long-overdue commitments, and to scale up what is already being done around the world. Others point to the flaws in aid, and bang the drum for cutting it altogether - and argue that the fate of poor and vulnerable people be best placed in the hands of markets and the private sector. Meanwhile, growing numbers are suggesting that what is most needed is the creative, innovative transformation of how aid works. Aid on the Edge of Chaos is firmly in the third of these camps.

In this ground-breaking book, Ben Ramalingam shows that the linear, mechanistic models and assumptions on which foreign aid is built would be more at home in early twentieth century factory floors than in the dynamic, complex world we face today. All around us, we can see the costs and limitations of dealing with economies and societies as if they are analogous to machines. The reality is that such social systems have far more in common with ecosystems: they are complex, dynamic, diverse and unpredictable.

This book showcases the insights, experiences, and often remarkable results from the emerging network of aid practitioners, researchers, and policy makers who are experimenting with complexity-informed responses to development and humanitarian challenges. From transforming approaches to child malnutrition, to rethinking processes of economic growth, from building peace to combating desertification, from rural Vietnam to urban Kenya, Aid on the Edge of Chaos shows how embracing the ideas of complex systems thinking can help make foreign aid more relevant, more appropriate, more innovative, and more catalytic. Ramalingam argues that taking on these ideas will be a vital part of the transformation of aid, from a post-WW2 mechanism of resource transfer, to a truly innovative and dynamic form of global cooperation fit for the twenty-first century.

Foreign Aid and Its Unintended Consequences

Koch, D.-J. (2023, September). 1st ed. Routledge.

https://doi.org/10.4324/9781003356851

Keywords: complexity, feedback loops, alternative pathways, emergence, adaptation

Foreign aid and international development frequently bring with it a range of unintended consequences, both negative and positive. This book delves into these consequences, proving a fresh and comprehensive guide to understanding and addressing them.

The book starts by laying out a theoretical framework based on complexity thinking, before going on to explore the ten more prevalent kinds of unintended effects of foreign aid: backlash effects, conflict effects, migration and resettlement effects, price effects, marginalization effects, behavioral effects, negative spillover effects, governance effects, environmental effects, and ripple effects. Each chapter revolves around a set of concrete case studies, analyzing the mechanisms underpinning the unintended effects and proposing ways in which policymakers, practitioners, and evaluators can tackle negative side effects and maximize positive side effects. The book also includes personal testimonies, a succinct overview of unintended effects, and suggestions for further reading.

Why it's important: "Complexity thinking can be a particularly useful approach to understanding the unintended effects of international cooperation efforts by providing an 'understanding of the mechanisms through which unpredictable, unknowable, and emergent change happens.' Outputs, outcomes, and effects are linked in many ways, leading to multiple layers of unintended effects."

Application: Koch describes how feedback loops, interconnections, non- linearities, alternative impact pathways, and adaptive agents can help us understand each of the effects explored in the book, offering concrete and practical approaches for tackling complex problems in international development. For example, to address conflict effects, Koch recommends the following:

- For policymakers: realize that neutrality is often a myth, promote providing materials that are less easily misappropriated, and explore less coercive alternatives.
- For practitioners: work in conflict-sensitive ways, realize that armed groups are highly adaptive agents, be open about your risk appetite, and communicate openly about uneasy facts from the intervention area.
- For evaluators: acknowledge and measure the potential militarization of refugee camps and humanitarian aid and tap into local contextual knowledge.

Leadership and The New Science: Discovering Order in a Chaotic World

Wheatley, M. (2006, September). Berrett-Koehler Publishers, 3rd ed.

http://margaretwheatley.com/books-products/books/leadership-new-science/

Keywords: humanitarian response, relationships, leaders

We live in a time of chaos, rich in potential for new possibilities. A new world is being born. We need new ideas, new ways of seeing, and new relationships to help us now. New science–the new discoveries in biology, chaos theory, and quantum physics that are changing our understanding of how the world works–offers this guidance. It describes a world where chaos is natural, where order exists "for free." It displays the intricate webs of cooperation that connect us. It assures us that life seeks order, but uses messes to get there.

Leadership and the New Science is the new science to organizations and management. The book describes how the new science radically alters our understanding of the world, and how it can teach us to live and work well together in these chaotic times. It will teach you how to move with greater certainty and easier grace into the new forms of organizations and communities that are taking shape. You'll learn that:

- Relationships are what matters–even at the subatomic level
- Life is a vast web of interconnections where cooperation and participation are required

- Chaos and change are the only route to transformation

Navigating Complexity in International Development: Facilitating Sustainable Change at Scale

Burns, D., & Worsley, S. (2015, October). Practical Action Publishing.

https://www.ids.ac.uk/publications/navigating-complexity-in-international-development-facilitating-sustainable-change-at-scale/

Keywords: methods, learning, water, education

We know that change is complex and nonlinear. It poses a challenge to linear planning and log frame approaches, but what are the alternatives? Over the past decade theorists and practitioners have started to recognize the challenge of complexity, but what does development that engages with complexity look like and how can it be operationalised? What might a complexity based framework for intervention mean for donors, NGOs, and grassroots practitioners? These questions are the focus of Danny Burns' new book Navigating complexity in international development. He engages with themes ranging from complexity based approaches to scale and sustainability; how to construct "emergent" adaptive intervention processes; how to combine technical and participatory complexity methods; how complexity informs how movement based approaches to change can be nurtured.

Burns articulates two strategies: large scale learning systems embedded across programs, at times traversing whole cities and regions (Systemic Action Research) and more organic processes akin to "movements" (Nurtured Emergent Development). Examples are drawn from a range of projects including on water and sanitation in East Africa; schooling for girls in Afghanistan; livestock markets in Kenya; and the growth of Community Led Total Sanitation.

Systems Concepts In Action: A Practitioner's Toolkit

Williams, B., & Hummelbrunner, R. (2010, October). Stanford University Press.

www.sup.org/books/title/?id=18331

Keywords: tools, diagnostic, learning

Systems Concepts in Action: A Practitioner's Toolkit explores the application of systems ideas to investigate, evaluate, and intervene in complex and messy situations. The text serves as a

field guide, with each chapter representing a method for describing and analyzing; learning about; or changing and managing a challenge or set of problems.

The book is the first to cover in detail such a wide range of methods from so many different parts of the systems field. The book's Introduction gives an overview of systems thinking, its origins, and its major subfields. In addition, the introductory text to each of the book's three parts provides background information on the selected methods. Systems Concepts in Action may serve as a workbook, offering a selection of tools that readers can use immediately. The approaches presented can also be investigated more profoundly, using the recommended readings provided. While these methods are not intended to serve as "recipes," they do serve as a menu of options from which to choose. Readers are invited to combine these instruments in a creative manner in order to assemble a mix that is appropriate for their own strategic needs.

System Failure? Why Humanitarian Assistance Can't Meet Its Objectives Without Systems Thinking—and Why It Finds It so Hard to Use It

Levine, S. (2015, September). Applications of Systems Thinking and Soft Operations Research in Managing Complexity, 291–305. Springer International Publishing.

doi.org/10.1007/978-3-319-21106-0_13

Keywords: approaches, emergency, USAID

Thinking in terms of systems is surely as old as any other kind of intelligent contemplation, but even if the creation of “systems thinking” as a separate intellectual discipline is much more recent, academic approaches to analyzing “soft systems” have been around for at least two generations.

The fact has to be faced, though, that the impact of more structured approaches to systems thinking have been extremely limited, with most of the world stubbornly continuing to address the obvious failings of the various systems that we need by tinkering with a few of the components, despite the evidence of decades that such approaches inevitably disappoint.

Systems theorists have perhaps not helped as much as they could, being seen too easily as creating as esoteric jargon that seeks to describe in opaque terms what was already abundantly clear to everyone anyway—but not really offering a way forward that anyone connected with the problem could actually find helpful. (More recently complexity theorists seem to be repeating the same path.)

This chapter describes a system (emergency response to droughts in the Horn of Africa) that was clearly not functioning well in the eyes of those who were working in it. It tells the tale of a diagnosis that did not start with system theory, but which found itself forced into understanding the problems in system terms, and which tried to find a system solution to avoid future repeated failures. It is a story of both hope and disappointment with lessons that are hopefully of wider applicability than just for the humanitarian system that it describes.

Ultimately the initiative did not succeed in establishing the processes that were needed. And it is hopefully instructive because systems thinking itself reveals why the initiative was so likely to fail: it is a sad truth that institutional diagnosis tends to be reserved for problems and is rarely used ex ante in assessing the institutional (or system) feasibility of proffered solutions.

Systems Thinking Handbook for Humanitarians

Campbell, L. (2022, August). Global Alliance for Urban Crises.

www.urban-response.org/help-library/systems-thinking-handbook-for-humanitarians

Keywords: perspectives, mental models, relationships, urban, humanitarian assistance

This handbook introduces the "how" of systems thinking for humanitarians – specifically the particular skills that systems thinkers need to practice and seven basic tools for systems thinking.

Systems thinking emphasizes relationships between groups of different interacting or interdependent things that combine to achieve some purpose (parts of a system, unlike a heap) and the value of multiple and diverse perspectives. Systems thinking is used to address complex problems, where linear (think logframes) and reductionist (think sector siloes) approaches don't work. Systems tools are helpful but systems thinking is primarily about how we think.

Though some problems may be complicated, not all problems are complex. In the humanitarian sector, we face a mixture of both.

Application: There are six competencies for systems thinking:

- Perspective awareness: Perspective awareness means that a person is aware of their own (and other people's) perspectives and mental models (assumptions and beliefs), and how they influence behavior. Perspective relates to the framing you use to understand a problem; it affects how you look at something. You need to be aware of the perspective you have, where it comes from and how it may differ from the perspectives of others.

- Perspective versatility: Perspective versatility is about improving one's understanding by using multiple perspectives consistently and intentionally. Systems thinkers should challenge themselves to consider perspectives that are unfamiliar, non-obvious and which may conflict with their original perspective. Looking at a situation through a perspective different to our own provides us with an opportunity to rethink and makes our understanding of an issue more Thorough.
- Improving mental models: Improving mental or changing mental models is often one of the things that has the greatest impact when trying to make change within a complex problem. When accurate, mental models can save us time and energy. Unfortunately, they are often inaccurate and out of sync with the real world. Flawed mental models cause us to miss critical information, and act on incorrect assumptions. We can improve our mental models by learning. But to learn, we need to exercise humility, surfacing and testing our assumptions – and admitting when they have been wrong.
- Understanding relationship impact: What is understanding relationship impact about? In a complex problem nothing lives alone; from a systems thinking perspective, complex problems are a series of connected issues that cannot be successfully addressed in isolation. Interconnectedness is like a spiderweb: "pulling on any one strand … will affect, directly or indirectly, every other strand in the web." When we can see cause and effect as a circular, interdependent process, we can better anticipate the dynamics of these connections.
- Working the structure: The structure of a system determines its behavior. By understanding a system's structure, you can take action that influences the system to perform in different ways. By accepting that the structure is responsible for system behavior, using appropriate boundaries, supporting self-organization, identifying patterns and finding the best leverage points, you can learn to use the structure to achieve the greatest impact.
- Iterative action: Iterative action means monitoring the situation over time, making changes based on what is appropriate, being proactive and not becoming paralyzed by uncertainty. "A systems thinker needs to have the ability to move forward… despite the uncertainty inherent in any complex system… without simply stopping work, becoming stuck or making inappropriate decisions." In this way, systems thinkers hold the tension of paradox and controversy without trying to resolve it quickly.

The Fifth Discipline: The Art and Practice of the Learning Organization

Senge, P. (2006, March). Doubleday.

systemdynamics.org/product/the-fifth-discipline/

Keywords: mental models, relationships, tools

The Fifth Discipline by Peter M. Senge is based on fifteen years of experience in putting Peter Senge's ideas into practice. Senge makes clear, in the long run the only sustainable competitive advantage is your organization's ability to learn faster than the competition. The leadership stories demonstrate the many ways that the core ideas of the Fifth Discipline, many of which seemed radical when first published, have become deeply integrated into people's ways of seeing the world and their managerial practices. The five disciplines for creating a learning organization that Senge's book highlights are: A Shared Vision, Mental Models, Team Learning, Personal Mastery and Systems Thinking. Senge describes how companies can rid themselves of the learning blocks that threaten their productivity and success by adopting the strategies of learning organizations, in which new and expansive patterns of thinking are nurtured, collective aspiration is set free, and people are continually learning how to create the results they truly desire.

The Tyranny of Experts: Economists, Dictators, and the Forgotten Rights of the Poor

Easterly, W. (2013). Basic Books.

harvard.com/book/9780465089734_the_tyranny_of_experts_economists_dictators_and_the_forgotten

Keywords: aid, development, politics

Over the last century, global poverty has largely been viewed as a technical problem that merely requires the right expert solutions. Yet all too often, experts recommend solutions that fix immediate problems without addressing the systemic political factors that created them in the first place. Further, they produce an accidental collusion with benevolent autocrats, leaving dictators with yet more power to violate the rights of the poor. In The Tyranny of Experts, economist William Easterly, bestselling author of The White Man's Burden, traces the history of the fight against global poverty, showing not only how these tactics have trampled the individual freedom of the world's poor, but how in doing so have suppressed a vital debate about an

alternative approach to solving poverty: freedom. Presenting a wealth of cutting-edge economic research, Easterly argues that only a new model of development, one predicated on respect for the individual rights of people in developing countries, that understands that unchecked state power is the problem and not the solution, will be capable of ending global poverty once and for all.

Donor Reports

Driving Change: Strengthening Local Systems in the Water and Sanitation Sectors

IRC, et al. (2021, December).

http://www.globalwaters.org/sites/default/files/driving_change-_strengthening_local_systems_in_the_water_and_sanitation_sectors.pdf

Keywords: water, sanitation, infrastructure, learning alliance, stakeholders, USAID

Water, sanitation, and hygiene (WASH) services are provided by networks: networks not only of infrastructure, but also of institutions and individuals. The term WASH system describes all the actors (people and institutions) and factors (infrastructure, finances, policies, environmental conditions, etc.) that are vital to the quality and sustainability of WASH services. Changing WASH systems for the better requires vision, champions, and continuous adaptation while making lots of mistakes. This guide offers insights, tips, and advice to improve public services like water and sanitation through multi-stakeholder collective action and action research. The aim of the guide is to equip the reader with some of the tools and knowledge needed to become a champion and "systems leader" for radical improvements in public services.

This article focuses heavily on learning alliances. A learning alliance is an approach to social learning and collective action whereby a group of stakeholders is engaged in a formal platform(s) for problem definition, solutions development, and testing, in pursuit of a shared goal.

Application: This article presents a number of useful recommendation sections, one of which we have included here.

Tips, Tricks, and Pitfalls to Avoid:

- Engage enough of the right people. Determine the critical mass or "saturation" level for systems understanding and systems change. Working with a few actors alone or in a single district has limited scope for influence, unless the learning alliance really works to identify and support champions who can unlock change in the surrounding system. This means that even when the learning alliance seems to be going well, it is important to invest time and resources into building the coalition and contacts and into reaching higher levels. At the same time, be careful not to lose track of the core commitment to learning alliances and district systems.
- Recognize that building systems understanding might be more about changing and broadening perspectives than about directly building technical knowledge. Unsurprisingly, many local actors understand their systems well but know less about how other stakeholders think about the same problems. Technical analysis of systems can be useful, but it is the joint analysis among stakeholders with different perspectives that has proven especially important. When the definition of the problem is clearer and more widely shared, it is easier to objectively discuss different possible solutions.
- Do not try to measure everything. When trying to understand a local system or a particular problem, it can be tempting to perform numerous baseline studies and analyses to assess the complexity from many angles. Current emphasis on evidence-informed thinking can also push donors or decision makers to encourage continuous data collection (e.g., to specifically study service delivery, inequality, gender, policy, media influence, etc.). Consider the wisdom and expertise of the learning alliance members, and explore less-costly rapid assessments or methods for using dialogue to explore critical topics more objectively. Also, be realistic about how much information any one person (or project) can process and act on at a given time. "Paralysis by analysis" is a real problem, so it is better to make the most of a smaller set of data rather than overwhelm a project team and stakeholders with too much information. Also, accept that some things cannot be measured quantitatively.
- Acknowledge different types of expertise and consider rigor by inclusion. Academic knowledge is only one type of knowledge; some academic methods prevent genuine participation by stakeholders with different technical (or non-technical) backgrounds. Consider using tools that a wider set of stakeholders can understand and interact with. "Rigor by inclusion" can be achieved by unlocking local expertise and enabling insights from a diverse range of stakeholders in order to mitigate bias.

The following is an example timeline during which a learning alliance is established and engaged in change making:

Phase 1: Initiating (years 1-2).

- Partnerships and trust building.
- Socializing the challenge and concepts.
- Consensus building.

Phase 2: Learning & testing (years 2-5).

- Joint research planning.
- Piloting and documentation.
- Learning at scale: testing ideas, refining in messy real world environment.
- Feeding research results into policy dialogue.

Phase 3: Scaling up & systemic impact (years 3-10).

- Systemic changes at policy and organization level.
- Scale up emerges through adoption and replication.
- Legacy planning to support a continuous process of learning.

Education System Reform and Aid Effectiveness

EQUIP2, & USAID (2010, November).

www.edu-links.org/resources/education-system-reform-and-aid-effectiveness

Keywords: education, politics, leaders, development, USAID

EQUIP2 Education System Reform research funded by USAID focuses on the dynamics of education system reform from two perspectives: the political and institutional factors that influence technical reform, and the role of donors in support of sustainable improvements. After more than fifty years of development assistance, with both the rationale and structure of international assistance mechanisms under intensive critical review, meaningful and actionable insight into effective donor support for national education systems has never been more urgently needed.

The report is presented in three sections: Section One provides a literature review of the key concepts of aid effectiveness, education systems reform, and systems thinking, and presents an analytic framework for education system reform; Section Two presents the findings of case studies of education reform over almost twenty years in five countries: Egypt, El Salvador, Namibia, Nicaragua, and Zambia; and Section Three presents a synthesis of the findings, conclusions, and implications for education reform programs.

The case studies do not represent evaluations of specific projects, programs, or reform strategies, and the report does not seek to stipulate what policies should be adopted, but to articulate what orientations and realities enable the identified goals of sustainable policy and system change, and how external assistance can support such change.

Application: This review of the experiences of five countries in reforming education provides a useful and important sample of the efficacy of international assistance to education in a larger universe of developing countries. Among the necessary components for effective education reform for donors are these four:

- Ownership is a central tenet of development. Countries and the various stakeholders within them must own reforms for the effects of intervention to be positive and sustainable. The commitment and leadership of each stakeholder group and actor in the system is essential.
- Project Modality. The experience reported in the case studies demonstrates the crucial importance of policy dialogue directed at ownership. USAID's Greatest strength and comparative advantage in project modality is its support of policy dialogue that enables societal consultation that fosters the political will and civil society infrastructure needed for fundamental reforms.
- Sustainability in the context of system reform is more complex and subtle than simple continuation of project activities or initiatives. Sustaining change and activities requires an alignment between institutional leadership and ownership by the people involved, supported by policies and procedures that reinforce behavior and provide incentives for commitment over time and across political loyalties.
- Scaling Up. Scale requires that other components of reform be successfully addressed, that the changes have been introduced in sufficient depth as to have genuine ownership and leadership at all levels; that the interventions and policies have proven to be effective; and that the reforms are sustainable over time and conditions. When all of

these conditions are in place, scaling up is possible, but remains one of the greatest challenges, requiring both patience and persistence.

USAID policy and programming recommendations for effective results in international education:

- Engage at the policy and system level in ways that are responsive to particular conditions that allow or constrain establishment of and support of processes and structures needed for long-term development and sustainable improvement.
- Develop and foster a shared philosophy of development in USAID officers that helps define in operational terms the organization's role in enabling development, and the implications for relationships with ministries, civil society, and other stakeholders.
- Define partnership and strategies for what "accompanying reform" means in each specific country.
- Articulate a nuanced sense of the strengths, weaknesses, opportunities,and threats that exist with the capacity to respond flexibly.
- Explore meaningful ways of measuring and reporting on systems and process support that focus attention and incentives on the process aspects of development.
- Manage policy engagement and reform support activities in ways that balance accountability for program accomplishment and delivery schedules with the scheduling of process activities that require policy engagement and agreement of multiple partners.
- Emphasize the continuing importance of high quality technical work,concrete work products and deliverables, or any of the traditional areas of support such as training, pilot activities, materials development, curriculum reform, etc.
- Balance bi-lateral agreements to government partners with the need for long-term reform.
- Develop and continuously improve guidelines for structuring and conducting evaluations in ways that address particular issues in specific locales, and promote evaluations that acknowledge systems approaches rather than static snapshots of project status.

Facilitation Approach at USAID: A Discussion Paper

KDAD (2015, July). USAID.

usaidlearninglab.org/system/files/resource/files/the_facilitation_approach_at_usaid_07.28.2015.pdf

Keywords: development, facilitation, local, USAID

There is a growing call within the development community for interventions that promote country-led, context-specific efforts to address development problems. In alignment with this call, the United States Agency for International Development (USAID) Forward initiative includes local solutions as a key focus area. USAID also developed the collaborating, learning, and adapting (CLA) framework to strengthen its programming through adaptive learning and closer coordination and collaboration with partners. Facilitation is one approach USAID and others can use to encourage and support both local solutions and CLA.

The facilitation approach focuses on creating widespread, systemic change without direct intervention in a system. This can enable more resilient and sustainable outcomes as local actors are more likely to take ownership of development efforts and maintain long-term changes in behaviors. Adopting a facilitation approach requires all development stakeholders, including donors, implementers, and local partners, to shift their thinking about programming.

This paper provides an overview of the facilitation approach with information drawn from its use in market systems development. It is not designed to include all the relevant issues and debates related to the approach.

Why it's important: Using a facilitation approach can help ensure that development efforts align with local priorities, foster local ownership, and support sustainable, systemic change. Understanding the system and identifying incentives that will increase local actors' willingness to self-select and change their behaviors can help an activity determine when a facilitation approach might be appropriate. A CLA framework can then help implementers continuously monitor the systemic changes and adapt to any shifts in the environment. As with all development efforts, the facilitation approach comes with its own set of challenges, many of which have been described in this paper. Through further discussion and testing on the part of donors and implementers, the true potential of the facilitation approach can be better explored and its applicability across development programming can be known.

Application: The facilitation approach focuses interventions at strategic leverage points within a system, such as economic or social structures and incentives, in order to optimize its functionality and inclusiveness for improved development results. Although a facilitation

approach may not be appropriate for every context, It can be useful for activities in complex environments where outcomes are not always predictable.

Implementers use a "light-touch" in activities, minimizing their presence in the system and reducing the direct provision of material goods or services. This allows local actors to more fully engage in development efforts through a process of "self-selection." With these actors taking a more central role, an activity can increase local ownership, enhance the likelihood of sustainable behavior change, and expand the potential for increased impact and scale of activities over time.

The success of an activity implementing a facilitation approach depends on several enabling conditions, including:

- Emphasis on stimulating systemic change: Donors and implementers should aim to catalyze widespread, sustainable change within a particular system.
- Identification of effective incentives for behavior change and self-selection: An activity taking a facilitation approach will want to find leverage points within a system that incentivize behavior change and mobilize actors to participate through a process of self-selection.
- Commitment of donors and implementers to adaptive management principles, and to integrating learning throughout the life of an activity: Facilitated activities are non-linear, and systemic changes are not always predictable. Implementers can incorporate the CLA approach into activities by continuously shifting their work to adjust to activity learning and changes in the system. To do this, they should incorporate non-traditional management approaches.

Implementing a facilitation approach comes with its own set of unique challenges. It is important to consider these during the design and implementation of an activity. Potential challenges include:

- Addressing risk among system actors by building trust: One challenge that facilitated activities may encounter is that local actors may be reluctant to trust their fellow stakeholders.
- Demonstrating results: With a facilitation approach, tracking results using traditional monitoring and evaluation approaches can be complicated and even misleading.

- Assembling an implementation team with the right skills for facilitation: A facilitation approach requires internal team structures and interactions that may be unfamiliar to donors and implementers and may require new skills.
- Working within existing contracting mechanisms: USAID's Local Systems Framework (2014) calls for donors and implementers to "embed flexibility" into activities so that they can adapt to shocks and adjust interventions based on new learning.

Local Systems and Market Systems

Campbell, R. (n.d.). USAID & LEO.

www.marketlinks.org/sites/default/files/resource/files/LEO_Brief_-_Local_Systems_and_Market_Systems_FINAL_-_508_compliant.pdf

Keywords: local, frameworks, market, development, USAID

USAID has invested time and resources into two independently produced, but highly complementary frameworks: The Local Systems Framework and the inclusive market systems framework. This briefing paper does not seek to fully explain the theory of either of these approaches, but provides an overview of the complementarities of the two frameworks.

A local system is a set of interconnected actors within a country—government, civil society, the private sector, academia, and others—that together produce a development outcome. Since the breadth and scope of development outcomes can vary greatly, local systems can be defined at the community, provincial or national level.

A market system is a dynamic space in which individual and institutional private and public actors collaborate, coordinate and compete for the production, distribution and consumption of goods and services.

Local systems and market systems are therefore closely related, but not necessarily synonymous: not all local systems are market systems, and not all market systems are only local.

Application: The Local Systems Framework articulates ten good practices for engaging local systems. This section will consider each of these practices with reference to inclusive market systems.

1. Recognize there is always a system: Both the local systems and inclusive market systems approaches explicitly recognize the importance of systems thinking. The market systems framework considers the influence of interconnected systems, such as health systems,

education systems, socio-cultural systems, and ecosystems—which are also part of the local system. Recognizing interconnections between systems can be important in finding leverage points to trigger broad-scale change in the market system, as well as understanding—and potentially mitigating—negative impacts on interconnected systems.

2. Engage local systems everywhere: The market systems framework differentiates among various types of systems, including simple, complicated and complex. The approach for engaging with market systems, therefore, depends on the nature of the intervention.
3. Capitalize on USAID's convening authority: One of USAID's key strengths is the ability to bring together a wide range of actors to address development challenges. Market systems development similarly needs to convene market actors to build inter-firm trust and commitment to a vision of industry competitiveness.
4. Tap into local knowledge: Market systems development recognizes that actors are motivated by a range of conflicting or mutually reinforcing incentives that may be economic, political or social in nature; and that are based on perceptions, beliefs and habits as much—or sometimes more—than they are on "objective" facts. Market systems analysis therefore includes the capture of local knowledge, but also probes perspectives and opinions in order to understand why the system works as it does.
5. Map local systems: Mapping value chains is a well-established process to identify actors, their linkages, and flows of information, goods and services, and finance and other benefits. The participative process of developing value chain maps has proved useful in creating a shared vision and increasing understanding of the roles played by various actors.
6. Design holistically: The commitment to design holistically is reflected in the market systems framework's insistence on analyzing the opportunities, constraints, relationships and incentives of the system as a whole. Many activities have a narrow mandate and limited resources—and certainly no one activity can address all constraints within a system. But understanding and mapping these constraints allows donors and their implementing partners to build more realistic causal models, prioritize interventions, and monitor for unintended consequences.
7. Ensure accountability: Feedback channels and accountability in relationships are essential for local systems to remain effective, flexible and sustainable. Market systems similarly

require transparent information flows and supportive formal and informal policy, regulatory, and normative environments to function effectively.

8. Embed flexibility: Much of the intent of market systems development is to change behavior, but behavior change is a complex process. The process of internalizing learning and turning it into new behaviors leading to improved performance is not easily predicted, and projects and activities cannot assume a simple progression during design and implementation. Embedding flexibility into project designs and management systems is therefore essential, enabling implementers to scale up effective interventions and scale back less successful ones.
9. Embrace facilitation: Facilitation—intervening in a way that stimulates changes in market systems, while avoiding taking a direct role in the system—ensures that local and international market actors, rather than donors or their implementing partners, remain responsible for the development of a more competitive, inclusive and resilient system.
10. Monitor and evaluate for sustainability: Participatory monitoring and evaluation that captures local perspectives on the change process not only empowers system actors, it also indicates whether observed changes are likely to be sustainable.

Local Systems Practice: User's Guide

LSP consortium (2022, January). LINC.

linclocal.org/wp-content/uploads/2022/01/LINC-LSP-Users-Guide-FINAL.pdf

Keywords: local, best practices, tools, Local Works, social network analysis, causal loop diagrams

This guide provides insights on several methodologies that can assist Local Works Missions and local organizations with applying a systems lens to drive their own development.

Why it's important: A systems analysis can highlight potential areas of tension or dynamism. It can provide clues about how the system may change. What factors might be most influential? Who is marginalized and why? And how might Local Works' engagement affect the system? Systems analysis can help developmental efforts avoid unintended consequences that may distort the system or undermine existing local capacities.

Application: Systems analysis can be conducted with a range of tools and methods. These tools and methods may be used in isolation, or in combination.

The authors offer four main tools. With each tool there is a thorough description, ways to use, and a case study.

- Social network analysis: Social network analysis (SNA) has been called an "X-Ray" for complex systems. It makes visible the critical but hidden web of relationships that make systems function. SNA results in a visual representation of a network, allowing for the identification of critical actors, key gaps, and leverage Points.
- Causal loop diagrams: Causal loop diagrams are used to conceptually model dynamic systems in a holistic manner, mapping how variables (i.e., factors, issues, processes) influence one another. These diagrams are particularly useful in uncovering a system's underlying feedback structures, and in identifying high and low leverage intervention points in a system. These diagrams also reveal the natural constraints within the system, helping us develop more realistic expectations regarding our ability to bring about change.
- Ethnography: Ethnography allows us to gain an "insider's perspective" to increase our understanding of complex social dynamics in a given context or community. Ethnography can assist in the identification of actors,processes, and institutions which are commonly perceived as influential within a complex social process, while uncovering those which tend to be hidden. Ethnography also increases our understanding of local logics and rationale which deepens our ability to interpret behaviors and norms within a system.
- Participatory systems analysis: Participatory systems analysis (PSA) puts the emphasis on the system actors and the processes that allow them to interact, learn from each other and find feasible areas for collaboration. PSA is not a tool that we can use to analyze the system; instead, it is an approach where multiple tools and techniques (including the ones in this guide) can be used to help the actors analyze the system they belong to. PSA must also promote a cyclical movement between analysis and synthesis (zooming in and zooming out).

Scaling Solutions Toward Shifting Systems: Approaches for Impact, Approaches for Learning

Grady, H., et al. (2018, September). Rockefeller Philanthropy Advisors.

www.rockpa.org/wp-content/uploads/2018/10/10-20-RockPA-Scaling-Solutions-02-WEB-1.pdf

Keywords: relationships, learning, theory of change

Realizing that the world's pressing challenges are becoming more complex, and often seemingly intractable, many philanthropic funders are reflecting on how to create more transformational impact. They wonder whether they are putting their resources to best use, and what they could do differently to create more sustainable solutions to the challenges they aim to address.

To help answer that question, the Scaling Solutions toward Shifting Systems (Scaling Solutions) initiative was launched in 2016 as an inquiry: Can we encourage funders to work more collaboratively to place longer-term, adaptive resources to fund and accelerate scalable solutions targeting systemic changes around pressing global issues? Since then, the initiative's Steering Group and team, with representation from the Skoll, Ford, and Draper Richards Kaplan Foundations, Porticus, and Rockefeller Philanthropy Advisors, have examined when, how, and why certain solutions were able to grow and achieve the system-level shifts that were anticipated.

Why it's important: This report summarizes findings from some 25 funder collaboratives spanning geography, size, age, duration, and form. It illustrates how those aimed at systems change operate, what they are learning, and their achievements and challenges.

Application: Our initiative confirmed what others have found: funder behaviors that undermine grantees' ability to achieve their missions are norms not grounded in formal policies, tax laws, or governance requirements, but rather practices that have nonetheless become ingrained in the sector. On the positive side, when funders do things differently, the sky doesn't fall. Instead, new possibilities for collaboration are opened, and grantees are buoyed by a pattern of support that enables their solutions and impact to scale.

Here are 7 points of note that may be helpful to those considering collaboratives as an approach to transformational change:

1. For funders seeking systems change, collaborations can be more effective and rewarding than going it alone. Funders interested in systems change tend to expand their participation in collaboratives once they have tried it because they find them effective, conceptually stimulating, and sometimes more efficient.
2. Organic growth of the collaborative based on pre-existing relationships provides certain benefits and a stronger growth trajectory. Most systems change collaboratives start with a small number of funders with existing relationships and grow from there. Organic growth keeps the emphasis on creating learning and impact rather than negotiating process details.

3. Identifying and supporting strong leadership is an important foundation for collaborating on long-term systems change. Collaboratives need good leaders who are accountable to the collaborative's purpose, and can balance a range of competing institutional and sometimes individual interests. More efforts should be made to identify and support individuals taking on these roles.
4. Collaboratives united by geography or supporting specific population groups are characterized by thoughtful, responsive practices that can serve as models to be adopted more widely. These collaboratives emphasize community-based dialogue, listening, and deep conversations between funders, grantees, and communities. But any collaborative can build these strengths with Intentionality.
5. Aligning on theory of change (TOC) and embracing the complexity of systems change translate to a higher likelihood that funders can and will successfully pool funds. There may be one overall TOC, or TOCs around specific issues or regions. Appreciating how to craft and measure them, and embracing the complexity required, helps funders provide aligned support.
6. Funder collaboratives want to delve more into monitoring and evaluation processes for assessing systems-level progress and results. More guidance on measurement of systems change was a common and largely unmet need. Funders need to invest more as a systems change funder community, as well as within each collaborative, in exploring effective and appropriate monitoring and evaluation systems.
7. Systems change collaboratives frequently experience the same set of obstacles, and resolving these creates a stronger basis for success. Common challenges to be overcome include limitations on length of funding commitments, different appetites for risk, diverse institutional approaches to what should be measured, and heavy reporting and relationship-building responsibilities put on a small number of staff at the center.

Our initiative identified two broad areas as next steps. First, funders interested in scaling solutions toward shifting systems must intentionally double down on improving their internal policies and practices with grantees and other funders. Second, a more structured network for learning about funder collaboratives is needed.

The RISE Education Systems Diagnostic

RISE (2023). riseprogram.org/tools/rise-education-systems-diagnostic.html

Keywords: education, diagnostics, facilitation

The RISE Education Systems Diagnostic is a set of tools to support local actors in selecting high-level strategic priorities to improve student learning based on the latest education systems research. The Diagnostic can be implemented at the national, regional, or local levels. The Diagnostic has so far been used for a range of objectives, including:

- Policy prioritization
- Program design
- Retrospective policy analysis

Why it's important: Challenges facing education systems are complex. Systemic educational challenges involve interactions and feedback loops among different actors, structures, processes, and resources. These interactions mean that introducing a standalone policy reform can have unpredictable consequences for schools, classrooms, and students. Instead, we need to look at education systems holistically and to identify reform priorities strategically.

Application:

The RISE Education Systems Diagnostic has three purposes:

- Diagnose: Facilitate the use of systems thinking to diagnose the components of the education system that are not working together as well as they could to deliver learning.
- Prioritize: Facilitate high-level prioritization of one or two key areas of the system for reform in order to create better alignment around improving learning outcomes.
- Build consensus: Foster a common understanding across stakeholders of both the diagnosis and the priorities.

To achieve this, the Diagnostic analysis involves three components:

- Identifying the main alignment(s) of each accountability relationship between different actors in the education system.
- Identifying key misalignments within the education system.
- Identifying priorities for intervention to improve system outcomes.

Typically, the Diagnostic is led by a local team. This team could be based at a range of organizations, such as a think tank, government advisory organization, civil society organization, consultancy, or a university. It often involves collaboration with government.

Overview of the six phases of applying the RISE Education Systems Diagnostic and the desired outcome for each phase:

- Inception: A well-equipped team and well-designed plan for implementing the remaining phases of the Diagnostic.
- Desk review: An informed preliminary hypothesis about the main alignments and misalignments of the education system, along with a list of information gaps that need to be filled in order to confirm or revise this hypothesis.
- Stakeholder workshops and interviews: A shared understanding—not only within the diagnostic team, but also among workshop and interview participants—about dominant alignments and misalignments within the education system, with particular attention to gaps between officially articulated policies and what actually happens in classrooms, schools, and government offices.
- Analysis: A consolidation of information from the desk review and observations from the workshops/interviews, organized according to the framework in the analysis tools
- Prioritization workshop: Consensus about priority areas and recommendations for education reform based on Diagnostic findings
- Final report and dissemination: A brief, digestible, and compelling summary of the priorities that emerged from Diagnostic and how they are justified by the findings of the Diagnostic.

The Secret Sauce of Development Professionals: Tools for Assessing TOR Potential to Source Scalable Learning Interventions

Barton, A. (2023, March). RISE.

riseprogram.org/sites/default/files/2023-03/Secret%20Sauce%20of%20Development%20Professionals_FINAL.pdf

Keywords: terms of reference, procurement documents, development

Terms of reference (TORs) are procurement documents that shape, constrain, and signal program priorities and possibilities. This project explores such best-practice knowledge around TOR review, seeking to support the design and implementation of educational programs that can improve learning at scale in developing contexts.

TORs represent a key moment to translate evidence on "what works" into high impact practice on the ground. TORs, then, are key artifacts that codify and communicate conceptions of "what works," "what is missing," and "what to do" to a broad range of collaborating stakeholders. TORs exert great programmatic influence; they shape how money reaches frontline practitioners, and how those implementers conceptualize educational change on the ground. In practice, however, they are often treated as no more than an administrative box-checking exercise. Organizations rarely afford these key documents the conceptual importance they deserve. This mismatch presents a clear opportunity for institutions and individuals to reimagine TORs that can foster sustainable systems transformation.

Application: The authors provide a reflective checklist for TOR development and review. These guiding questions can scaffold TOR development and review in line with experts' best-fit practice evaluative processes. This tool mirrors the questions successful professionals ask themselves when evaluating TOR potential to source programming that can successfully improve learning at scale in developing contexts. Development professionals can use this list to systematically assess the ways in which their procurement documents demonstrate—or could be altered to demonstrate—focused attention on each question. Before using this list, practitioners must first reflect on the purpose(s) of their planned intervention. This section presents the ten reflection questions guiding successful procurement. Various sub-questions follow from each major question:

1. Aligning with existing government and civil society activities: To what extent does this intervention align with existing government and civil society activities?
2. Tapping political will and community appetite: To what extent does this intervention tap into, or propose to cultivate, political will and community appetite?
3. Demonstrating an iterative and experimental mentality: To what extent does this intervention demonstrate a mentality of iteration and experimentation?
4. Cultivating implementer capacity: To what extent does the funder adopt the role of a nurturing collaborator?
5. Prioritizing implementer organizational characteristics relevant to systemic change: To what extent does implementer selection prioritize the organizational characteristics most likely to enable systemic change?
6. Targeting mindset and behavioral change: To what extent does this intervention logically respond to a clear problem statement?

7. Responding to a community-based problem statement: To what extent does this intervention target mindset and behavioral change to support intended practice improvements?
8. Framing in terms of systems-level outcomes: To what extent does this intervention logically lead to systems-level outcomes?
9. Grounding in localized knowledge and expertise: To what extent is this intervention based on localized, contextual knowledge and expertise?
10. Tying measurement and evaluation to internal program logic: To what extent are measurement and evaluation criteria justified by core program logic?

NGO & Think Tank Reports

How to Reform Aid Agencies to Generate Contextual Knowledge

Ang, Y. (2014). GDN.

www.gdn.int/sites/default/files/NH%20Essay%20Contest%202014%20-%20Ang%2C%20YY%20-%20Final_0.pdf

Keywords: aid, best practices, development, governance

The aid community has tried to transplant best practices from the developed world to the developing world. It is increasingly recognized, however, that this approach does not work and may even backfire. Aid programs work best when they are tailored to local contexts. Yet while the idea of a best-fit approach is widely embraced in principle, actualizing it is easier said than done. For meaningful changes to take root in practice, we must first identify the obstacles to localizing development assistance and suggest ways to address these problems.

Contextual knowledge is essential for the success of localized, best-fit approaches in development assistance. To assist poor communities in meaningful ways, we must first learn to respect their stories and care about the details that they care about as seriously as we cherish our own stories. Doing so requires seeing people of poor, so-called backward societies as equals, rather than as people that privileged members of the developed world are valiantly trying to teach and help.

Why it's important: Three decades ago, the Asian Development Bank launched the Bali Irrigation Project, a massive irrigation project in Bali, Indonesia. The project aimed to "modernize" the irrigation system: it would replace the traditional subaks (water temples)—manifested in the shape of terraced rice fields—with a centralized canal system, equipped with metallic gates.

Unfortunately, the reality did not pan out as expected. Stephen Lansing, an anthropologist, found that Balinese farmers removed the new metal gates installed in their canals as soon as they could. It wasn't that these farmers resisted modern technology or change. Rather, the new and expensive devices simply didn't work. The intervention made it impossible for the farmers to schedule water distribution among themselves, which they had done effectively for centuries under the cooperative subak system. Worse problems followed. The farmers were also encouraged to buy "technology packets" (pesticides and fertilizers) on credit. The traditional subaks had provided a natural hydroponic system of fertilization and pest control. But the use of the technology packets ratcheted up the resistance of rice crops to pesticides. Pest populations exploded. Excess fertilizers flowed from the paddies into the river, clogging the coastline with high levels of nitrogen and algae growth.

The tragedy of the Balinese farmers is a sobering reminder of a long-standing problem in aid policies: interventions that are intended to help local communities often end up hurting them. The problems highlighted by this story of Bali still persist today and in other aid-receiving sites.

Application: Targeting each of the problems outlined, I propose three actions to help "make details matter."

1. Build a bank of knowledge about unorthodox practices that work: Development and aid practices have been profoundly guided by the assumption that "good governance" is necessary for economic success, and that good governance must follow a checklist of features found in wealthy, democratic countries: professional bureaucracies, formal protection of private property rights, modern courts, formal rules, transparency, and so forth. However, the insistence that poor countries should "get governance right" so as to develop economically leads to an intractable chicken-and-egg problem. If good governance is necessary for growth, then how in the first place can poor countries achieve good governance? Precisely because they are poor, these societies lack the requisite capital, resources, and modern capacities to rapidly achieve good governance.

2. Diversify expertise: Development assistance can be greatly enhanced by diversifying expertise within aid agencies. As Scott Page, a leading scholar of complexity and diversity, explains, "People from different backgrounds have varying ways of looking at problems, what I call 'tools.' The sum of these tools is far more powerful in organizations with diversity than in ones where everyone has gone to the same schools, been trained in the same mold and thinks in almost identical ways."
3. Carve experimental pockets within aid agencies: Designing aid programs according to a single package of best practices versus tailoring programs to diverse local settings are two completely different tasks. The success criterion of the former is measured in terms of "did you follow the rules and conventions?", whereas that of the latter is "how well did this program fit local realities?" While assessing compliance with best practices is relatively straightforward, measuring the success of localized solutions is extremely tricky. As local contexts vary wildly from case to case, development officials cannot rely upon a universal template to design and evaluate solutions.

Localising Aid

ODI (2012, July).

odi.org/en/about/our-work/localising-aid/

Keywords: local, development, relationships

ODI's Localising Aid aims to address whether and how to provide funds directly to local actors through literature analyses, country visits, and interviews. Five individual research reports each address one of the following topics:

- a whole society approach
- risk in localizing aid
- strengthening local actors through ways of localizing aid
- sustaining change in the public, private and civil society sectors

The empirical evidence indicates that, even in fragile states, appropriately managed localized aid can strengthen institutions, both governmental and non-governmental. It is also important to be clear that localizing aid does not mean relinquishing control over donor money, and that a spectrum of options exists for mitigating the fiduciary risks associated with localizing aid.

Why it's important: While there is mixed evidence on the overall importance of localizing aid, this report finds that non-localised aid may potentially have higher risks of program and strategic failure.

Application: Ten headline messages have emerged from the research:

- Localizing aid to the state can work in all country contexts.
- More aid should be localized to the private sector.
- International civil society organizations have an important role to play.
- There is more than one route to aid effectiveness.
- Localized aid is no more risky than non-localised aid.
- Information is still very poorly shared.
- The complexity of systemic change should be operationalised by donor agencies.
- Donors should focus more on principles and human capital than rules.

Mutual Accountability Is the Key to Equity-Oriented Systems Change

Lo, L., et al. (2021, October). Urban Institute.

urban.org/research/publication/mutual-accountability-key-equity-oriented-systems-change

Keywords: relationships, equity, learning

In the face of increased national attention to long-existent and worsening racialized gaps in health, wealth, and well-being, some philanthropic organizations are reexamining what and how they fund to create initiatives that advance equity through durable shifts in policy and practice. Funders and their grantees need to collaborate within a framework of mutual accountability that has explicit commitments: substantive actions with associated mechanisms for ensuring progress toward goals. Our proposed framework calls on them to identify shared goals, clarify the commitments needed to achieve them, establish expected results, and continually improve the alignment between those elements as partners learn together. Within this framework, three strategies have the potential to advance equity in philanthropic investments: obtaining multiple types of explicit commitments, especially from powerful partners; aligning commitments to the goals and capacity of grantees and related actors; and establishing explicit ways to ensure stakeholders are responsible to one another for fulfilling their promises.

Application: The Urban Institute has three recommendations for funders and practitioners:

- Obtain multiple types of explicit commitments, especially from powerful partners: Commitments reflect how one partner may use its influence and power in pursuit of shared goals. Some of the most valuable commitments are when well-resourced partners such as hospitals or philanthropies commit to changing their business-as-usual practices or offer other non-financial commitments. For mutual accountability to work, partners need clarity in the commitments both sides must offer each other (or secure from external parties) to achieve shared goals. Commitments can be communicated and tracked through voluntary agreements, grant agreements, contracts, pledges, or codes of conduct.
- Align commitments to capacity and goals: The first step in planning an initiative is an honest assessment of what each actor can realistically contribute and achieve with the available, committed resources and within the specified time frame. Equitable grantmaking involves understanding that the least empowered actors cannot be solely or even primarily responsible for shifting the behavior of the most empowered entities. This requires funders to intentionally make more patient and creative commitments (i.e., more funding over longer periods, along with more nonfinancial support and power shifting) to communities subject to long-term disinvestment (e.g., rural or small town, Black or Hispanic, or low income). Given time and sufficient leverage, disinvested groups may extract meaningful commitments from powerful local actors.
- Establish mutual accountability mechanisms for results based on commitments: A system of mutual accountability requires explicit enforcement mechanisms that allow partners to hold those who have made commitments (or still need to make commitments) responsible for following through. Ideally, mutual accountability is a cooperative approach founded on trust and shared goals, but it often requires addressing power imbalances between partners and others. Between funders and grantees, mutual accountability may be accomplished through annual reviews of both parties' commitments and achievements, and it may require data tracking.

Rethinking Systemic Change: Economic Evolution and Institution

Cunningham, S., & Jenal, M. (2016, December). Beam Exchange.

www.mesopartner.com/fileadmin/media_center/Other_Publications/systemic_change_technical_paper_01.pdf or www.beamexchange.org

Keywords: economic, development, market

Economic systems are constantly changing and evolving – in most cases without purposeful external development input. Some countries and regions have managed to reduce poverty and improve the wellbeing of their populations without using development instruments such as market systems development approaches or any form of external funding. "Systemic change" as a development outcome by itself lacks meaning and is ambiguous. Too often in our work we see programs claiming to work towards achieving systemic change while they are busy fixing narrowly defined problems guided by very specific objectives in very short time frames, while ignoring the broader systemic context. They then expect to be able to "scale-up" the solution they have found and through that make it "systemic." We instead advocate an approach to "systemic change" that is based on a deeper understanding of how economic systems change naturally and how we can influence that change to give it a different spin or accelerate it where possible (although some things will take time). Inspired by scholars such as Gary Klein and David Snowden, we could call such an approach naturalistic economic development.

Application: To translate the theory into practice, seven principles are suggested that can be applied to market systems development practice. The principles are not intended to be a recipe for market systems development practitioners on what to do in their programmes or for donor programme managers on how to design future programs. Rather, they point out important considerations when market systems development programs are conceived, planned, implemented and evaluated.

1. Shift from changing allocation to enabling evolution: Rather than fix market underperformance, market systems development needs to adopt an evolutionary approach to promoting economic change and the emergence of institutions that enable the poor and marginalized to access economic opportunities. This requires development actors to shift away from a focus on developing solutions to specific problems. Rather, they need to adopt a mind-set of exploration of what is possible from where the system is now. Development actors, however, are not the main actors in this exploration. On the contrary, development actors must make sure that relevant actors in the society and their networks actively lead the process of shaping evolution by adopting exploratory approaches themselves.
2. Shift from market failure to market fitness: Markets need to be recognized as enablers of a decentralized search and discovery process to find ideas and solutions that work in a society. Market development actors can support this process by making markets more effective as mechanisms for evolution to work.

3. Strengthen variety by embracing diversity: Variety is a prerequisite for evolution to work. Variety not only strengthens the evolutionary process by providing ideas to choose from, but the ability of a system to generate variety also creates resilience. Building up a repertoire of ideas, modules and concepts that can be tried in different combinations, even if they are not used immediately, enables actors to design novel responses to unexpected situations.
4. Create and maintain situational awareness: The principle strengthen variety and embrace diversity discussed above shows how important it is for development actors, but even more crucially for the actors in the system, to be aware of what is happening around them. This awareness is central to a process of continuous exploration, learning and adaptation. Being situationally aware means that the actors can construct and maintain a cognitive map that allows them to integrate diverse inputs, feedback loops, observations and the real-time status and performance of their programme's operations into their current understanding of the situation and adapt their strategy and interventions accordingly.
5. Manage the complicated and explore the complex: The difference between complicated and complex systems and problems is a difference of type and paradigm, not of degree. Complicated and complex situations need to be approached differently.
6. Strengthen organizations that encourage and support self-discovery: In working economies that work well, so-called meso organizations emerge that support or shape all kinds of economic transactions. These organizations need to adapt and evolve in response to a changing socio-economic context.
7. Continuously link top-down and bottom-up development: Top down is when new ideas are introduced in an autocratic or controlled way, regardless of which level of a hierarchy, organization or society it originates from. Bottom up is about participation, about democracy and about collectively choosing between alternatives. There are instances where top down makes sense, such as when it comes to adopting international standards for food safety. In other cases, an imperfect local solution agreed to by many stakeholders can be more powerful than a mandated one that people do not adhere to.

Seven Tools for Measuring Systemic Change

Fowler, B. (2015, March). Beam Exchange.
beamexchange.org/community/blogs/2015/3/5/benfowler/

Keywords: tools, measurement, MEL

This paper addresses possible methods, tools, theories and frameworks with potential application to understand and measure systemic changes in the market systems.

These collected resources were intended for a number of different purposes. Some frameworks (e.g., the Adapt-Adopt-Expand-Respond Framework) were most helpful for identifying potential systemic changes rather than measuring them. Others were quite interesting but would either require extensive adaptations to be relevant to market systems facilitation or were focused on a narrow subset of systemic change (e.g., governance reform). This process of elimination led us to a shortlist of seven tools. These include, in no particular order:

- Most significant change
- Outcome mapping
- Outcome harvesting
- SenseMaker
- Social network analysis
- Systemic action research / participatory systemic inquiry
- Standard measurement tools to capture key indicators

Systems Thinking to Transform Schools: Identifying Levers that Lift Educational Quality

Fuller, B., & Kim, H. (2022). Brookings Institute.

www.brookings.edu/wp-content/uploads/2022/08/Brookings_Brief_Systems-thinking-to-transform-schools_v13.pdf

Keywords: education, schools, local, learning

Nations around the world—whether they are rich or poor—have dramatically widened access to education over the last century. But results remain mixed and unfairly distributed in terms of basic literacy and human development. International voices grow louder to improve the quality of schooling and transform the core aims and practices of the education sector.

This brief argues that policy makers and educators must grasp the levers of organizational change inside education institutions to rethink goals and lift school quality. Systems thinking

offers key tools for leveraging gains inside classrooms and enriching the quality of teaching and student engagement. This brief shares differing pathways for sparking systems change and details country and state cases that have raised student learning by deploying the powerful tools of systems analysis.

Why it's important: The United Nations has set forth an ambitious vision for education systems around the globe: cultivating life-long learning from early childhood through an individual's civic and work life. But in the wake of the global pandemic, virtually every country in the world is far behind. The pandemic has only deepened the learning crisis and widened achievement gaps. But how to define educational systems and then reshape them remains poorly defined. We cannot merely utter this ambitious goal without precisely defining how to surround the system, identify potent levers for change, and rethink the aims and means of human learning on a fragile planet.

Application: For education leaders responsible for lifting school quality and tangible results for children and families, we suggest the four questions below to provide useful starting points for reflection:

1. Learn about key parts of the education system: What is the interplay among key components? Do offices talk to one another? Who is keenly focused on improving the conditions in which teachers work, the rigor and caring qualities of their classrooms?
2. Investigate the levers for affecting positive change in the system: Which organizational levers inside the ministry foster gains for teachers and classrooms, and which organizational mechanisms only serve to distract you?
3. Consider how the objectives will contribute to society's sustainable future: Do the end-goals of education—what children are to learn in school—truly fit what is relevant for their local context and the vitality of your society?
4. Find partners: Who outside the state-run system is shaping children's learning and deeper socialization that could aid school-improvement efforts?

Stepping Back: Understanding Cities and Their Systems

Campbell, L. (2016, October). ALNAP.

www.urban-response.org/help-library/stepping-back-understanding-cities-and-their-systems or reliefweb.int/report/world/stepping-back-understanding-cities-and-their-systems-enar

Keywords: networks, urban, urban design/planning

The world we live in is increasingly urbanized; 54% of the world's population now lives in an urban environment. Having developed to respond to crises in rural settings and refugee camps, the humanitarian sector today is unequipped to deal with the realities of urban contexts. Despite organizations adapting their approaches, and developing tools and pilots, fundamental gaps remain. Humanitarians are increasingly recognising the systems and stakeholders which exist in urban areas, but there is no clear, common understanding of what "urban systems" are, or what humanitarians really need to know.

It is important for humanitarians to understand urban contexts, to ensure a response is not disconnected, or lead to negative impacts or exacerbate tensions. Understanding will also mean that crucial information isn't missed and local actors will not be undermined.

Systems thinking is useful to understand urban areas. A systems approach focuses on the linkages, interconnections and interrelationships between different parts of a system.

Looking at urban contexts through a systems approach means:

1. Recognising that cities are systems;
2. Getting comfortable with uncertainty and complexity;
3. Accepting the changing nature and resilience of urban systems;
4. Understanding urban contexts at different scales;
5. Taking the whole of the urban system into account, not just the separate pieces;
6. Acknowledging hierarchies and relationships; and
7. Focusing on urban spaces without excluding the wider picture.

Understanding urban systems also requires that we look at the various stakeholders in an urban environment, including their functions and responsibilities, capacity and vulnerability, power and influence, access, interests and perceptions, and the relationships between different actors.

This paper reflects on the nature of urban contexts, and how they may be conceptualized as systems. In doing so, it advocates the importance of understanding urban contexts and presents an approach which organizations might use to understand urban environments.

The Water of Systems Change

Kania, J., et al. (2018, May). Foundation Strategy Group.

http://fsg.org/resource/water_of_systems_change/

Keywords: equity, mental models, systems change

The Water of Systems Change presents interdependent conditions that typically play significant roles in holding a social or environmental problem in place and can act to impede systems change. These conditions exist with varying degrees of visibility. Foundations involved in systems change can increase their odds for success by focusing on less explicit but more powerful conditions for change, while also turning the lens on themselves.

Change makers must look beyond any single organization to understand the system by identifying all of the actors that touch the issue they seek to address. One must then go further to explore the relationships among these actors, the distribution of power, the institutional norms and constraints within which they operate, and the attitudes and assumptions that influence decisions. These are the conditions that significantly impede or enable social change.

Why it's important: If you care about achieving change, understanding systems change is important to your work. Systems change is about shifting the conditions that hold a problem in place.

Application: The paper's goal is to clarify what it means to shift conditions that are holding a social or environmental problem in place. Bringing the lens of these conditions to their work can help foundations both internally and externally improve their strategies for systems change, as well as the implementation and evaluation of their efforts.

Shifts in system conditions are more likely to be sustained when working at three different levels of change: explicit, semi-explicit, and implicit.

- Explicit conditions (policies, practices, and resource flows): Foundations, nonprofits, and other social sector actors have long worked at this first level of the framework to inform government policy, promote more effective practices, and direct human and financial resources toward their chosen goals. Changing these structural conditions can have powerful effects. The results are readily observable and can often be assessed through traditional evaluation and measurement techniques. But without working at the other two levels, shifts in system conditions are unlikely to be sustained.
- Semi-explicit conditions (relationships and connections, and power dynamics): Transforming a system is really about transforming the relationships between people who make up the system. For example, far too often, organizations, groups, and

individuals working on the exact same social problems work in isolation from each other. Simply bringing people into relationships can create a huge impact.

- Implicit conditions (mental models such as racism and gender biases): Mental models are habits of thought—deeply held beliefs and assumptions and taken-for-granted ways of operating that influence how we think, what we do, and how we talk. Mental models pose the greatest challenge and, for many foundations, is the newest dimension of their work. Most systems theorists agree that mental models are foundational drivers of activity in any system. Unless funders and grantees can learn to work at this third level, changes in the other two levels will, at best, be temporary or incomplete. Our mental models shape the meaning we assign to external data and events and guide our participation in public discourse.

These conditions can be independently defined, measured, and targeted for change; they are also intertwined and interact with each other. The interaction can be mutually reinforcing or counteracting.

Time to Listen: Hearing People on the Receiving End of International Aid

Anderson, M., et al. (2012, December). CDA Collaborative Learning Projects.

cdacollaborative.org/publication/time-to-listen-hearing-people-on-the-receiving-end-of-international-aid

Keywords: local knowledge, local systems, paradigm shift, locally led development, collaboration

Why it's important: "Time to Listen" represents the cumulative evidence of five years gathering evidence from people living in societies that are recipients of international aid. CDA's Listening Project organized teams of "listeners" across 20 countries and contexts to gather the voices, insights, and lessons from people both inside and outside the aid system. This publication represents the lessons that have come forth through conversations with nearly 6,000 people. Using their words, their experiences, and their ideas, we describe why the cumulative impacts of aid have not met expectations and describe a way forward to make changes that, according to those on the receiving end, will lead to more effective results. "The theory of change that lies behind [this] alternative approach may be stated as follows: The role of international assistance in promoting positive social, political, and economic change in

countries where it is offered is to expand the range of options that people in that society can consider, to engage with them in weighing the costs and benefits of each option, and, from this, to co-develop and co-implement a joint strategy for pursuing the changes they seek."

Application: "Time to Listen" proposes a new paradigm for international development, one that is more collaborative as opposed to externally driven (see p. 138 of the report). Many of the elements of this new paradigm reiterate a systems perspective, for example: focusing on supporting / reinforcing capacities and identifying local priorities (vs. a focus on "needs"), developing context-relevant programs jointly with communities (rather than imposing pre-determined programs), sharing decision making power, and evaluating and rewarding staff for the quality of their relationships and sustainability of results (rather than managing projects "on time" and "on budget"). Their conclusion also provides practical recommendations for how funders and policymakers can improve policies, procedures, and resources to facilitate this paradigm shift. For example, providing "early listening" funding to inform activity design, developing systems for collaboratively monitoring funds, and simplifying reporting requirements and deciding together with the recipient on an appropriate schedule and format.

Transforming Partnerships in International Cooperation

Peace Direct (2023, September).

www.peacedirect.org/transforming-partnerships/

Keywords: partnerships, global north, global south, humanitarian development, peacebuilding, learning

Partnerships between individuals and organizations in the Global North (GN) and Global South (GS) have become common practice in the humanitarian, development, and peacebuilding sectors. They aim to address critiques of international aid and development approaches by increasing local participation and ownership, and improving development outcomes. Despite ongoing reform processes emphasizing improved and equitable partnerships, many approaches still reflect neo-colonial hierarchies, undermining the value and dignity of local partners. Our aim for this report is to provide a series of accessible approaches to building and sustaining better partnerships between civil society actors in the Global South and Global North donors, INGOs and intermediaries. Findings:

- Transactional: A considerable portion of the funding in the humanitarian, development, and peacebuilding sectors is highly transactional in nature. Donors, and by extension

many INGOs, tend to prioritize short-term activities aimed at achieving specific project objectives, rather than the long-term transformation of communities and societies. This leads to partnerships themselves becoming an instrument for the delivery of outputs, rather than being mutually beneficial and transformative, both for the partners and for the communities they serve.

- Neo-colonial: Many Global North actors continue to hold neo-colonial attitudes that have not been acknowledged or even recognized. This is seen by Global South actors as one reason for the failure of Global North actors to develop equitable partnerships. This is compounded by the reluctance of Global South actors to raise these issues for fear of losing funding. These attitudes and behaviors undermine any prospect for more equitable partnerships.
- Power: Local actors believe that Global North donors and INGOs actively avoid addressing the power imbalances in their relationships with Global South organizations. This reluctance is attributed to Global North actors' desire to preserve their own power, a deliberate ignorance of existing power imbalances, an inability to envision a world without their influence, or a lack of skills and experience in engaging in discussions about power.

Application: Some of these recommendations are aimed at Global South actors, or Global North actors, or both. The recommendations highlighted as "both" are applicable to both groups, while the "joint" recommendations should be undertaken together.

The authors have an extensive set of recommendations, including:

Changing mindsets and worldviews:

- GS: Allocate time with your staff to share alternative narratives that challenge dominant discourses and perspectives in international development.
- GN: Encourage an internal culture of openness to critique by encouraging Senior Leadership to hold difficult conversations about racism and power imbalances both internally and externally.
- BOTH: Educate yourself. Learn how the current international system of cooperation has been influenced by Global North thinking. Learn about how Global North actors have directly and indirectly imposed their ways of thinking across the international humanitarian, development and peacebuilding sectors.

- JOINT: Explore together, through a facilitated conversation, differences and similarities in ideologies and motivations underpinning concepts such as "development." By promoting mutual learning and recognising the value of diverse knowledge systems, you can challenge the notion that expertise solely resides in the Global North.

Communication and language

- GN: Practice active listening in conversations with your partner, paying close attention to what they may not be telling you.
- BOTH: Practice communication techniques to clearly express your perspectives, needs, and concerns in partnerships. This includes educating yourself around cultural norms in communication and taking these into account when communicating with partners from other countries.
- JOINT: Agree on how to cultivate a safe space in which difficult issues can be raised without fear of retribution or defensiveness.

Roles and responsibilities

- GS: Use approaches such as Appreciative Inquiry to identify your organizational strengths and assets, rather than gaps, in order to help inform the roles and responsibilities that you should take.
- GN: Unlearn assumptions about who holds technical expertise and what technical expertise is. Reflect on how much of your work is focused on technical vs transformative outcomes.
- JOINT: Commit to reassessing how roles and responsibilities will shift over time, in particular how any role assigned to the Global North partner should diminish.

Program design

- GS: Build inception phases into projects to enable the project design to be "stress tested" in communities and then adapted following feedback.
- GN: Ensure that project/program design is led by the Global South partner and agree how they can challenge and/or refuse any imposition of ideas and activities.
- BOTH: Unlearn any prejudice you might hold about the value of indigenous knowledge.
- JOINT: Review program documentation together, before sign-off, to minimize the risk of any misunderstandings.

What's Missing? Adding Context to the Urban Response Toolbox

Campbell, L. (2018, April). ALNAP.

library.alnap.org/help-library/whats-missing-adding-context-to-the-urban-response-toolbox or reliefweb.int/report/world/whats-missing-adding-context-urban-response-toolbox

Keywords: humanitarian response, context, diagnostic, tools

Recognition of the need for humanitarian response to be "context-relevant" has been increasing. Despite this awareness, there is little clarity about what context relevance looks like or how to achieve it. For urban humanitarian response, context relevance requires grappling with complex, interconnected environments. In order to explore the potential of this growing body of tools, this paper addresses the following question: Can tools to understand context improve humanitarians' ability to think and act more effectively in urban environments?

The paper is based on a literature review of over 400 documents, 76 key informant interviews (KIIs), and a detailed study of 25 tools.

Application:

- What is context? Context is the environment and circumstances within which something happens and which can help to explain it. It exists outside any situation which may have occurred, and is broader than the experience of any individual or group.
- Why is context important? Understanding context can improve urban humanitarian response by informing and improving programming, building on what already exists in the urban environment, and having a holistic, and ideally shared, view of what's happening and how things are interconnected. Urban humanitarian response to date has frequently been disconnected from context, demonstrating a lack of action. There is an urgent need to address this gap.

Tools: "Context tools" come in many shapes and sizes, names and methodologies. There is a need to improve the evidence base around the use of context tools, but use so far has found these tools to add value for local/national and international actors. Despite their many differences, they all help improve an understanding of context. They have been grouped as follows:

Sixteen "Core" tools – developed for, or used in, urban or sub-national contexts in an emergency or crisis context, and deal in whole or in part with context.

- ACF's Assessment of Sustainable Livelihoods and Urban Vulnerabilities
- Concern Worldwide – Contextual Analysis
- Context Analysis using the Web of Institutionalisation
- Impact Initiatives – Area Based Toolkit
- Integrating Peacebuilding and Conflict Sensitivity (IPACS)
- IRC's Urban Context Analysis Toolkit
- JIPS Displacement Profiling
- Market Analysis with Sustainable Livelihoods Framework and Political Economy Analysis
- Mercy Corps – Strategic Resilience Assessment (STRESS)
- Oxfam Italia - Local Authority Profiling Tool
- RCRC City-Wide Risk Assessment: Do it Together Toolkit for Building Urban Community Resilience
- Save the Children – Urban Situation Analysis Guide and Toolkit (USAGT)
- UN-HABITAT City and Neighbourhood Profiles
- Women's Refugee Commission – Service Provision Mapping
- World Vision's Citywide Assessment
- World Vision Context Analysis of Juba

Six "Supplemental" tools – these deal in whole or in part with context. Some focus on a country or an urban level in a crisis context but in a development or planning context.

- CARE – Governance Context Analysis
- London Context and Character Analysis
- OECD Resilient Systems Analysis (RSA)
- SDC Context Analysis and Monitoring System for Development-Related Changes (MERV)
- SIMLab – Framework for Context Analysis for Inclusive Technology Projects
- UNDP Institutional and Context Analysis (ICA)

Three "Related" tools – these tools have been considered because they do address context in some way, but have a larger focus on, for example, needs or conflict.

- Good Enough Context Analysis for Rapid Response (GECARR)
- Urban Multi-Sectorial Vulnerability Analysis Tool (UMVAT)
- WFP Integrated Context Analysis (ICA)

How to use tools to understand context: There is no one right moment to use tools to understand the urban environment. There are, however, some common themes in the literature and tools reviewed, which suggest that context tools can/should be used at the following times:

- Pre-crisis, as a preparedness/anticipation activity
- At key moments in the program cycle (at start of response, part of M&E process, etc.)
- Whenever there is a major event/change (or one is anticipated)
- To align with strategic and planning processes and with other analyses processes etc.
- To align with the context
- In a modified way on a continuous basis

Whole System Change: Capturing the Change Process in the Ghana Rural Water Sub-Sector

Lockwood, H., & Duti, V. (2015). IRC.

ircwash.org/resources/whole-system-change-capturing-change-process-ghana-rural-water-sub-sector

Keywords: water, learning, facilitation

Over the past five years IRC and its partners have sought to bring about a systemic change in Ghana's rural water sector – change that will enable the sector to deliver safe water reliably to people in rural communities around the country. Most of this work has been conducted under Triple-S (Sustainable Services at Scale), a learning initiative carried out from 2009-2014 in Ghana, Uganda, and at the international level.

IRC, which took the explicit approach of working in partnership at multiple levels, and with a particular emphasis on collective learning and reflection, based on its work with learning

alliances. Additionally, IRC established partnerships with key organisations, ensuring government leadership, heightening awareness of the sustainability challenge, and diagnosing the specific gaps and problems in the sector.

Why it's important: Although the result of these implementations take some time to manifest as systemic improvements take hold and the system changes, this project led to encouragingly significant physical improvements in service delivery on the ground (i.e., more reliable, better quality water flowing for more of the time in rural communities).

Application: IRC has focused on four core elements, namely learning, action research, facilitation and communication, and partnerships.

- Joint learning and reflection: this is a core activity focusing on systems and organisational development of Community Water and Sanitation Agency (CWSA) that will enable it to be well grounded and equipped with the necessary policy instruments and tools to lead the drive towards service delivery in the sub-sector. In practice this has involved regular reflection meetings between CWSA and IRC, and external reflection meetings with representatives of the pilot districts and other sector organisations who share in the vision and undertake complementary activities.

- Action research to develop alternative approaches and solutions: action research is key to the Triple-S approach as a method to jointly identify areas of service delivery that need improvement. CWSA and local governments are supported in diagnosing the underlying causes of failure of water systems; and, in consultation with sector stakeholders, co-generating alternative solutions and testing ideas. These have been applied in the form of experiments in three pilot districts across Ghana to establish their effectiveness in addressing barriers to sustainable water services.

- Facilitation and communication: it has been of critical importance to IRC in Ghana to embed the work of Triple-S action research – the experiments – into the broader sector dynamics and dialogues, so that they do not remain as isolated efforts, however interesting or relevant in their own right. To this end, IRC has put a strong emphasis – and committed significant resources – to both communicating the results of its work (and that of others) and to facilitating sector dialogue around these experiences. IRC identified the need for a continuous process of learning, communication, and feedback is critical to making progress towards a common vision of improving service delivery.

- Partnerships: the Triple-S initiative in Ghana was hosted by the Community Water and Sanitation Agency, which was responsible for both operational and content management, including the project governance arrangement, alignment with country processes and coordination of field activities. This core partnership extended to the district level (in the three pilot districts) and with broader sector players, including UNICEF, SNV, WSA, the World Bank and others.

YouTube

Collective Impact for Global Grand Challenges

youtu.be/Z2ZDUw-A_7c?si=ter4AiRzbYDuNeQj

Kushner, J. (2023, August). Cabrera Lab, YouTube.

Keywords: global grand challenges, sustainable development goals global, learning, relationships

This presentation was given by Dr. Jennifer Kushner on the use of collective impact to address Global Grand Challenges. Dr. Kushner is the Director of CALS Global at the University of Wisconsin-Madison, where she leads and supports international engagement in agriculture and the life sciences.

Drawing significantly from John Kania and Mark Kramer's paper titled "Collective Impact," Kushner highlighted five essential conditions for achieving effective collective impact:

- Common Agenda: Sustainable Development Goals (SDGs) and Global Grand Challenges are good common agendas.
- Shared Measurement: The system of shared measurement needs to be closely coupled with the common agenda. Both the common agenda and the related system of measurement are mental models that should be evolved over time based on data and evidence.
- Mutually Reinforcing Activities: Each collaborator should perform its respective activity with a deep understanding of the expertise, niche, and contribution of the other collaborators. Each collaborator should perform its own task in a way that is mutually reinforcing to other collaborators.

- Continuous Communication: Within the collective impact framework continuous communication and backbone support are essential for maintaining partnerships. Continuous communication is about establishing shared tools and processes for sharing information and learning.
- Backbone Support: Within the collective impact framework, coordination and consistency for effort should be provided to facilitate the implementation. In some cases, that support rests with a single organization, and in other cases it can be distributed or located within another type of structure. Backbone support importantly is different from leadership. It has to do with maintaining support and coordination for the functions of the collective.

What's needed: We need to demand and create more opportunities to achieve collective impact. There's a lot that we do that on the surface presents like collective impact, but it doesn't have systems thinking behind it and therefore, it really doesn't play out as intended.

Here are five actions for marrying systems thinking with collective impact and engaging these together in service of Grand Challenges:

- Encourage and employ systems thinking and mapping for building our common agendas.
- Build a commons of evidence. More specifically, a systems based commons related to Grand Challenges. It is important that we make connections between the facts available and understand the system.
- When embarking on a collective impact effort with collaborators, be very intentional and develop strategies to deeply understand each other. Seek and value diversity in your collective.
- Center learning is a key purpose for communication. Systems will be most adaptive and resilient the faster they learn.
- Identify what is needed as a backbone to hold it all together. Agree on who and how that support will be provided. Revisit this regularly and don't confuse it with leadership.

Thinking Fast & Right in Complex Environments

Cabrera, D. (2023, August). Cabrera Lab, YouTube.

youtu.be/IjIaN6sO2Rg?si=NaG6DdLIabs4mpJg

Keywords: mental models, bias, tools

This is a presentation given by Dr. Derek Cabrera. Dr. Cabrera serves on the faculty at Cornell. His presentation is how we can improve our thinking with an emphasis on systems thinking.

One of Cabrera's central recommendations is that we need to accept reality as it truly is:

We have to learn to love reality. We have to accept reality as it is and seek the truth, even when uncomfortable. We must be aware of our desires and how they influence our perception of reality. We have to care about getting it right, seeking the truth, even when it hurts. That means paying particular attention to the signs around you but also means paying particular attention to the bias that's inside of you to be aware of what you desperately want to be true.

Accepting reality is the hardest part of learning systems thinking. Every other aspect of systems thinking is a matter of practice.

Often those learning systems thinking have to learn to first listen to the system before trying to fix it. Sometimes people feel as though they know how to fix the problem, when instead they need to first listen to the system.

Mental models, thinking, and bias:

Our thinking is important because it drives predictions, behaviors, emotions, and decisions. Whether you're aware of it or not, behind your thinking are mental models. When what you think or your mental models align with the way things actually are, the decisions you make will work out as planned. The inverse to this statement is also true: when things don't work out the way you planned, that's reality telling you your mental model was wrong.

The real world is volatile, uncertain, complex, and ambiguous or adaptive (VUCA). However, that really isn't a problem. The problem is that while the real world is what we call VUCA, the way we tend to think about the world is linear, anthropocentric (meaning human centered), mechanistic, and oftentimes overly ordered (LAMO). The problem is the mismatch between how we think the systems work and how the systems actually work.

The world is nonlinear and includes feedback and webs of causality. Yet we think in linear and causal ways. We look for single root causes, and we implement silver bullet policies and solutions. Problems with webs of causes require webs of solutions.

We all suffer from cognitive bias. There are many biases, but the root bias that underlies all of them is reality bias. Reality bias is that even though we think we experience the world directly as it is, the truth is that we experience the world through the veil of our mental models. The

solution to reality bias is the simple awareness of and recognition of our mental models. Because of this we need to test our mental models in the real world often.

Applications: Be aware of the mental models you use, and your biases. Try hard to understand the systems that you are trying to affect change in and try to fine tune your mental model to give yourself the best picture possible.

Thinking is similar to a practice such as music or martial arts. In the same way you can practice thinking. These are five "moves" you can practice.

Ask yourself these five questions:

- What things am I choosing to see? (and not see)
- How are these things grouped? (and not)
- How are these things related? (and not)
- Do these relationships have parts?
- From what or whose perspective?

Other Sources

Developing Principles for Working Across Local Systems

Hill, M., & Wolstenholme, H. (2023, October). The Health Foundation.

http://q.health.org.uk/blog-post/developing-principles-for-working-across-local-systems/

Keywords: relationships, leaders, stakeholders

Efforts to recover from the effects of COVID-19, on top of long-standing system pressures, have led to crucial improvements. But the question remains: where will transformative and enduring change come from?

The Health Foundation conducted interviews with over 40 people who are developing shared, system-wide improvement approaches and synthesized the collective experiences of participants into five principles.

Why it's important: These principles are designed to help people working at system levels to engage their stakeholders in ways that enable effective and sustainable change in practice.

Whether developing an improvement strategy for your local system, considering your own leadership, or taking part in cross-system improvement work, these principles can help start conversations and guide your approach.

Application: The Health Foundation presents five principles for working across local systems to develop shared improvement approaches.

- Define scope and goals together: Involve stakeholders from across your system to define how shared approaches add value. Remember the purpose: to improve health outcomes and experiences for your population.
- Build relationships and trust: Invest time and energy in developing relationships and building connections across the system. This underpins the success of shared improvement approaches.
- See diverse expertise as an asset: Focus on the core ideas shared by different methods. This will help make system-wide improvement more accessible, inclusive, practical, and productive.
- Develop shared system leadership: Collective ownership and leadership are needed to make progress. Identify the different roles needed and who is most suitable to lead each part.
- Use an improvement mindset: Try out different things, learn from them and make changes. Don't be afraid to fail and learn from what doesn't work, as much as what does work.

The principles don't tell you what your system's shared improvement approach should look like, but they can help guide you when the path forward feels complex and challenging. On a practical level, use them to start conversations with your stakeholders and discuss how they can help shape the culture in which this work takes place. The principles support a shared endeavor, bringing people from across your system on board.

Development & Complexity

Barder, O. (n.d.). Center for Global Development.

www.cgdev.org/sites/default/files/archive/doc/multimedia/Development_and_Complexity_Slides.pdf

Keywords: aid, best practices, development, governance

This presentation by Owen Barder is about the implications of complexity theory for economics in general, and especially for development. Barder argues that we should think of development as a property of the economic and social system itself.

Two statements that sum up ideas in this presentation:

- The economy is made up of adaptive people, products, firms and institutions, which means that it behaves as a complex adaptive system. Development is not a series of individual successes but a property of the system as a whole. It is the emergence of self-organizing complexity.
- Development policy should not try to look for missing ingredients or try to engineer poverty reduction. It should try to harness the strength of adaptation and complexity. It should embrace experimentation and look for ways to nurture the adaptation and evolution which may help to bring about change in ways which not only accelerate evolution but also shape it consistent with social values and goals.

The economy is part of a complex adaptive system, and development is what is called an "emergent property" of that system. The countries we call "developed" have experienced a largely spontaneous rapid change to a more complex, self-organized system which does a better job of supporting the capabilities of their citizens. But something about the dynamics of the system in other countries means that this change has not yet occurred. One possible explanation is that adaptation and change are suppressed by powerful elites who have nothing to gain, and everything to lose, from a process of creative destruction.

What does all this mean for people who are trying to change their economic and social systems, and those of us who want to try to assist that from the outside?

Applications: The author suggests seven policy conclusions from the analysis.

1. Resist engineering: The first policy conclusion is that it is very difficult to engineer solutions in a complex adaptive system. This means that instead of trying to replace evolutionary processes, as the former command economies tried to do and as the development industry tries to do today, we should be trying to harness them.
2. Resist fatalism: Although evolution means that systems will evolve on their own, that does not mean that we can't intervene to get a better result.
3. Promote innovation: Are there characteristics of the system which tend to promote, or tend to dampen, innovation, which is a key part of the adaptive process?

4. Embrace creative destruction: But it is no use having all this innovation unless you also have selection. The system has to incorporate feedback loops which promote adaptation suitable to that environment.
5. Shape development: Clearly it is desirable that there are effective mechanisms for innovation, and that there is effective feedback and selection to accelerate the process of adaptation. But the fifth policy conclusion is that it is desirable that the fitness function which that selective pressure enforces represents the goals and values of that community.
6. Embrace experimentation: We should explicitly embrace the idea of greater experimentation as a component of the development process.
7. Act global: There is a lot we do not understand about how, or even whether, we can shape the dynamics of economic, social and political evolution in other countries. A good place to start might be to make a bigger effort on the things we can control such as agreements that promote equity.

Leverage Points: Places to Intervene in a System

Meadows, D. (1999, December). Sustainability Institute.

donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/

Keywords: leverage points, paradigms, information, feedback loops

Leverage points are places within a complex system (a corporation, an economy, a living body, a city, an ecosystem) where a small shift in one thing can produce big changes in everything.

Application: Places to Intervene in a System (in increasing order of effectiveness):

- Constants, parameters, numbers (such as subsidies, taxes, standards): If the parameters change but the system doesn't then the system isn't going to change much.
- The sizes of buffers and other stabilizing stocks, relative to their flows: There's leverage, sometimes magical, in changing the size of buffers. But buffers are usually physical entities, not easy to change.
- The structure of material stocks and flows (such as transport networks, population age structures): The only way to fix a system that is laid out wrong is to rebuild it, if you can.

- The lengths of delays, relative to the rate of system change: If you're trying to adjust a system state to your goal, but you only receive delayed information about what the system state is, you will overshoot and undershoot.
- The strength of negative feedback loops, relative to the impacts they are trying to correct against: The strength of a negative feedback loop is important relative to impact it is designed to correct. If the impact increases in strength, the feedbacks have to be strengthened too.
- The gain around driving positive feedback loops: A negative feedback loop is self-correcting; a positive feedback loop is self-reinforcing. The more it works, the more it gains power to work some more. As a result it is beneficial to slow the growth of a positive loop in some cases.
- The structure of information flows (who does and does not have access to information): Who has information about a system or how available certain information is will change the use of or system itself.
- The rules of the system (such as incentives, punishments, constraints): The rules of the system define its scope, its boundaries, its degrees of freedom. Power over the rules is real power.
- The power to add, change, evolve, or self-organize system structure: The most stunning thing living systems and some social systems can do is to change themselves utterly by creating whole new structures and behaviors. The ability to self-organize is the strongest form of system resilience.
- The goals of the system: Most negative feedback loops within systems have their own goals. Those goals are important leverage points for pieces of systems, and most people realize that.
- Mindset or paradigms: Paradigms are the sources of systems and the source of our deepest set of beliefs about how the world works. How do you change paradigms? By finding a new paradigm and then continuously pointing at the anomalies and failures in the old paradigm.
- The power to transcend paradigms: There is yet one leverage point that is even higher than changing a paradigm. That is to keep oneself unattached in the arena of paradigms, to stay flexible, to realize that NO paradigm is "true," that every one, including the one

that sweetly shapes your own worldview, is a tremendously limited understanding of an immense and amazing universe that is far beyond human comprehension. It is to "get" at a gut level the paradigm that there are paradigms, and to see that that itself is a paradigm, and to regard that whole realization as devastatingly funny.

Systems Innovation: An Interactive Learning Journey

Global Knowledge Initiative.

http://globalknowledgeinitiative.org/systems-innovation-an-interactive-learning-journey

Keywords: learning, resources, USAID

The Global Knowledge Initiative created a free resource to help understand systems thinking for the Accelerating Innovation for Resilience pilot program. The program was supported by USAID's Bureau of Humanitarian Assistance and done in partnership with Spring Activator.

The Global Knowledge Initiative takes you through 4 phases of learning:

Discover

- Step 1: Recruit the Network
- Step 2: Map the System
- Step 3: Define the Challenge

Design

- Step 1: Design the Challenge
- Step 2: Launch the Challenge
- Step 3: Co-Create Solutions

Activate

- Step 1: Test Solutions
- Step 2: Convene & Compete

Sustain

- Step 1: Galvanize Champions
- Step 2: Choose Modalities
- Step 3: Leave Resources

Learn

- Prioritize ongoing learning and adaptation over end-of-project measurements.
- Rely on methods suitable for experimentation and non-linear learning and regular adaption of plans, strategies, and technical approaches.
- Incorporate consistent reflection and insight into decision-making for future interventions.
- Employ participatory approaches to engage key stakeholders throughout the entire process.

Systems Leadership for Sustainable Development: Strategies for Achieving Systemic Change

Dreier, L., et al. (2019). Harvard Kennedy School.

www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/Systems%20Leadership.pdf

Keywords: sustainable development goals, stakeholders, leadership

The 2030 Sustainable Development Agenda includes 17 inter-related Sustainable Development Goals (SDGs), each representing complex systems – such as climate, food, health, cities – with myriad stakeholders. Achieving progress on this agenda requires a departure from traditional top-down, hierarchical and linear approaches to implementing change. Instead it requires innovative and adaptive approaches that engage broad networks of diverse stakeholders to advance progress toward a shared vision for systemic change. This approach is called Systems Leadership.

Why it's important: Systems Leadership is designed to support the collective journey of systems change. It enables stakeholders to tackle issues whose complexity and scope has defied resolution. It can build the adaptive capacity of a system, enabling it to better respond to future challenges in addition to improving outcomes for today. As a result, it can be a valuable tool to support efforts to realize the 2030 Agenda for Sustainable Development.

Application: Participants in systems-change initiatives often describe the experience as a collective "journey" of discovery that evolves over time. Many stakeholders encounter similar experiences, which often crystallize in an "Aha! Moment" – a new insight that describes the dynamics at a given moment in the journey, such as those described below.

- "No one is in control": No single entity has authority over the entire system.
- "It's up to us": Stakeholders recognize a collective responsibility to address the challenge themselves.
- "Everything is Connected": Collective mapping and learning about the system generates new insights.
- "That's our North Star": The group agrees on a shared goal or vision to guide and align their efforts.
- "To Go Far, Go Together": Engaging and securing buy-in from a wide array of stakeholders is essential.
- "We'll find a way": Challenges and setbacks can spur innovation and collaboration.
- "I can make a difference": One person, organization or small group can have significant impact.
- "We need coordination": As the initiative grows, a coordinating team or Secretariat is often needed.
- "Wow! Change is happening": Demonstrating and celebrating progress helps maintain momentum.
- "We're in it together, for the long haul": Reaffirming commitment and evolving to meet changing needs enables long-term success.

What is Complex Systems Science?

Krakauer, D. (2019). Santa Fe Institute.

www.santafe.edu/what-is-complex-systems-science

Keywords: complexity

Taken from the Santa Fe Institute website:

“It has been the great triumph of the sciences to find consistent means of studying phenomena hidden by both space and time, overcoming the limits of cognition and material culture. To hide in space means that phenomena lie beyond the scope of our everyday senses because they are either too small or too distant to be detected without amplification. Things can be hidden in time by being too fast for us to perceive or too slow for a single lifetime to encompass.

The scientific method is the portmanteau of instruments, formalisms, and experimental practices that succeed in discovering basic mechanisms despite the limitations of individual intelligence.

There are, however, on this planet, phenomena that are hidden in plain sight. These are the phenomena that we study as complex systems: the convoluted exhibitions of the adaptive world — from cells to societies. Examples of these complex systems include cities, economies, civilizations, the nervous system, the Internet, and ecosystems. Paradoxically, the complex world is one that we can, in many senses, perceive and measure directly. Unlike distant stars or nearby minerals that require a significant increase in optical capability to arrive at insights into their elementary properties, behavior — both individual and collective — seems to present itself in ways that can be investigated rather modestly through observation or experiment.

But the way in which complex phenomena are hidden, beyond masking by space and time, is through nonlinearity, randomness, collective dynamics, hierarchy, and emergence — a deck of attributes that have proved ill-suited to our intuitive and augmented abilities to grasp and to comprehend."

When Collective Impact Has Impact: A Cross-Site Study of 25 Collective Impact Initiatives

ORS Impact (2018, February).

orsimpact.com/blog/When-Collective-Impact-Has-Impact-A-Cross-Site-Study-of-25-Collective-Impact-Initiatives.htm

Keywords: collective impact, relationships, local

This study looked at 25 collective impact sites in the US and Canada. The study is intended to add to the body of knowledge related to collective impact, building a better understanding of when and where it has an impact.

In the sites studied, the most common type of population change was in education (8 sites), followed by outcomes related to health (4 sites), homelessness (3 sites), economics (2 sites), environment (2 sites), food (2 sites), and justice (1 site).

Application: Collective impact is the commitment of a group of important actors from different sectors to a common agenda for solving a specific social problem at scale. Collective

impact initiatives are distinct from other forms of collaboration in their cross-sector composition and their implementation of the five conditions of collective impact:

- Common agenda
- Shared measurement
- Mutually reinforcing activities
- Continuous communication
- Backbone support

Additionally, this study recommends the following eight principles for collective impact initiatives in achieving systems change:

- Design and implement the initiative with priority on equity
- Include community members in the collaborative
- Recruit and co-create with cross-sector partners
- Use data to continuously learn, adapt, and improve
- Cultivate leaders with unique system leadership skills
- Focus on program and system strategies
- Build a culture that fosters relationships, trust, and respect across participants
- Customize for local context

There are 4 implications from this study for the collective impact approach:

1. Collective impact is a long-term proposition; take the time to lay a strong foundation. Many of the study sites achieving population-level change have been around for more than a decade, and none for fewer than three years. The findings indicate that there are specific steps initiatives can take up front to increase their likelihood of success over the long-term, including:

- Recognizing it is worth the time upfront to clearly define the problem and target population.

- Not rushing to get the five conditions in place, but rather first investing thoughtfully in the two that are most foundational: backbone and common agenda.

- Find a credible, skilled, and ready backbone (composed of one or more organizations) who can build trust, convene the right people, and apply the technical skills needed to maintain an effective collaborative environment focused on systems change.

- Develop a strong common agenda using an inclusive, effective process, even if the stakeholders are struggling with "process fatigue."

2. Systems changes take many forms; be iterative and intentional. There are many different routes to driving change, such as informal partnerships leading to formal changes across organizations, formal changes in one organization leading to changes across organizations, and changes in one system leading to changes across multiple systems. There was not one path or a simple pattern that can be replicated. In fact, the pattern that was found is as simple as: Systems change is iterative and not fully predictable, with a wide variety of systems changes playing valuable roles toward population changes.

3. Equity goes beyond achieving a set of outcomes; it requires intent, shifting power, and meaningful inclusion along with targeted problem definition and action. Equity is broader than simply targeting actions toward a specific group. For collective impact to achieve its full and lasting potential, it is necessary to re-think the systems and structures that produce inequity to begin with. Successful equity outcomes stem from capacity for equity work with the backbone and throughout the initiative partners. Backbones who have equity capacity are staffed by individuals with lived experience in leadership and the work, and are engaged in reflective practice about their own power within the system.

4. Collective impact initiatives take on different roles in driving change; be open to different routes to making a difference. The collective impact approach made a difference in a diverse set of circumstances, sometimes as a driver of change, sometimes leveraging

existing regulations and conditions and going further, and sometimes as a meaningful support to other critical efforts happening within communities.