SCALING SOLUTIONS TOWARD SHIFTING SYSTEMS

Assessing Systems Change:
A Funders' Workshop Report

July 29 - August 1, 2019

Contents

ROCKEFELLER Philanthropy Advisors

I.   Background and Workshop Structure

In our **Scaling Solutions Toward Shifting Systems Initiative**[1], Rockefeller Philanthropy Advisors (RPA) and the Initiative's Steering Group members discovered a great interest in deeply exploring the question of how to monitor and evaluate systems change, since this is different from assessing a specific project, program, or grant. In response to this, we hosted a 3-day residential workshop for funders to explore this theme with the intention of improving our understanding and practices in this area. We invited outstanding, thoughtful experts on evaluation of systems change – Margaret (Meg) Hargreaves, Glenn Page, and Zenda Ofir (*please see their full bios in Appendix A*) – who created and led the rich learning experience. Between them, they have designed, implemented and evaluated strategy on a wide range of themes in systems change and transformation, including climate change, governance response to ecosystem change, the food/water/energy nexus, policy advocacy, decent work, poverty reduction, food systems, child protection systems, disparities in health care, juvenile justice, and more.

The resource team designed the workshop around three overarching themes: **seeing systems change**, **facilitating systems change**, and **assessing systems change**. The first two are foundational to the third; without the capacity to see dynamic attributes of systems and to leverage the pathways and mechanisms that facilitate systems change, it is not possible to assess whether or how systemic change has occurred. Each theme was split into multiple 'acts', of a dynamic 'play' that starred resource team members, philanthropic and evaluation participants, RPA staff, and workshop advisors. Through the seven acts of the workshop, participants became a community of practice that reviewed key concepts from systems and complexity theories. Since each participant had identified a 'system of interest' prior to joining the workshop, they also applied and reflected on key concepts in the context of their own specific work and returned home with an action agenda.

Prior to the workshop, RPA shared two webinars to ensure all participants had a 'floor' of understanding about the concepts that would be used. The first webinar brought the resource team together to provide an overview of the workshop; the second webinar featured Michael Quinn Patton, a leader in the evaluation field, who introduced the concepts of transformation, theories of transformation, and Blue Marble Evaluation as well as key definitions and principles.

Equally important, our 30+ curated participants brought a wealth of experience from different sectors and backgrounds, which ensured that we had a rich palette to draw upon at the workshop. (*Please see Appendix B for a list of and contact information for all attendees.)* They came from 8 countries and nearly 30 different organizations, which collectively focus on each major region of the planet. A pre-workshop survey revealed what they believe are the barriers to adopting systems evaluation approaches within their philanthropic institutions and across the sector as a whole. Highlights include (in no order):

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[1] The Scaling Solutions toward Shifting Systems Initiative was launched in 2016 as an inquiry: Can we encourage collaborative, 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 RPA – has examined when, how, and why certain solutions were able to grow and achieve the system-level shifts that were anticipated. For more information please contact Heather Grady at hgrady@rockpa.org.

- Lack of resources (e.g. money, human capital) and time
- Lack of understanding by colleagues about the resource intensity of good evaluations
- Lack of knowledge on how to design an evaluation system, which methods to use, or on who to commission for an evaluation
- Lack of shared goals, questions, and understanding of the key variables to measure, many are only interested in understanding discrete pieces rather than the cohesive whole
- Lack of appreciation for the full nature and scope of the 'global problem space'
- The dominant 'logic model' paradigm, which is ideal for evaluating programs or projects but not systems change
- Lack of comfort with changes that cannot be causally attributed to an investment
- Avoiding questions of systemic inequity, while focusing on the impact of charitable giving
- Out-of-date concepts of accountability, expertise, and impact; evaluation is too rarely used as a learning and adaptation opportunity
- Improper or competing definitions of systems change; general lack of clarity around terms
- Assessing the actions of specific organizations, rather than how the entire system is producing better outcomes
- Unaligned organizational culture, incentives, and decision-making structure, which can lead to risk aversion, difficulty in committing to long time horizons, hubris, etc.
- Challenges with change management at the staff level
- Lack of clarity of roles and expectations at the board level
- Despite having evaluation expectations of grantees, not providing sufficient financial and technical resources to support the work; even when resources are provided, they typically go to single or partner grantees, rather than toward diverse stakeholder collaborations
- Grantees owe too many different funders different evaluation products
- Gaps between academic theories and best practices, and the realities of resource constraints felt by social change agents on the ground
- Lack of transparency and accountability among funders and experts

The resource team was attentive to participants' need to overcome some of these barriers in the coming months and years. So, in addition to developing participants' competencies, the resource team helped participants explore how to **develop philanthropic capacity for assessing systems change.** In fact, this is the intention of the Scaling Solutions initiative – to generate new learning and action to address the urgent, systemic challenges that people and our planet face.

To synthesize the concepts covered during the workshop, the report is organized as follows:

1. **Seeing Systems Change**
2. **Facilitating Systems Change**
3. **Assessing Systems Change**
4. **Developing Philanthropic Capacity for Assessing Systems Change**
5. **Calls to Action**

Though this report isn't exhaustive, it includes the most salient concepts. We hope this serves as a 'sensitizing' introduction, and we strongly encourage you to go deeper through self-study.

Please note that the writers of this report are on their own journey toward understanding systems change, so please excuse any omissions, oversimplifications, mischaracterizations, or other mistakes.

II. Seeing Systems Change

Echoing some of the barriers identified by participants, the resource team kicked the workshop off by describing the social change sector's dominant approach to evaluation today: focusing on discrete programs and projects, using reductionist analytical methods (e.g. linear theories of change), oversimplifying complex system dynamics, and overlooking emergent dynamics. Before describing the alternative approach – systems change evaluation that is consistent with the scale and complexity of pressing problems – the resource team introduced a few foundational concepts:

- **System:** An integrated whole, distinguished by an observer, whose essential properties arise from the relationships among its parts; from the Greek word for "to place together"; a system can be objective (i.e. hard) or socially constructed (i.e. soft)
- **Interrelationships:** The relationships between components or elements (including subsystems) within a system based on factors such as influence and dependence
- **Boundary:** The borders of the system, determined by the observer/s (and their perspectives) that define where action can be taken; boundaries can be drawn too big or too small, and even in ways that exacerbate social injustices
- **Perspective:** A way of experiencing that is shaped by our current state, circumstances, and unique personal and social histories; a single system can be seen from multiple perspectives spanning mental models, levels of power, etc.
- **System of interest:** The product of distinguishing a system (in a situation and in relation to an articulated purpose) in which an individual or a group has an interest/stake; a constructed system that is of interest to one or more people, used in a process of inquiry
- **Systemic thinking:** Refers to the understanding of a phenomenon within the context of a larger whole; to understand things systemically is to put them in a context, to establish the nature of their relationships

(*Please see Appendix C for definitions of other relevant concepts.*)

Underlying the need for systemic thinking is the reality of **complexity**, which is characterized by high uncertainty regarding what will actually work, high disagreement on what should be done to solve a particular problem, emergent outcomes (both positive and negative), feedback loops, unpredictability, unclear cause-and-effect relationships, and more.
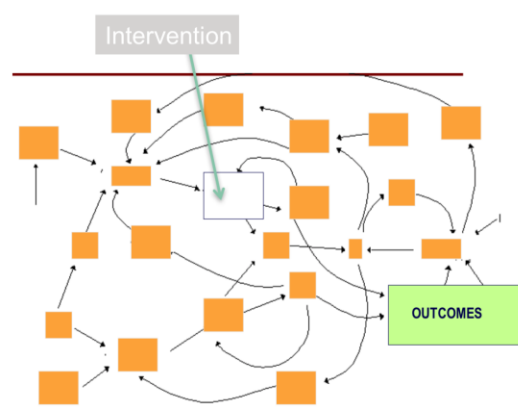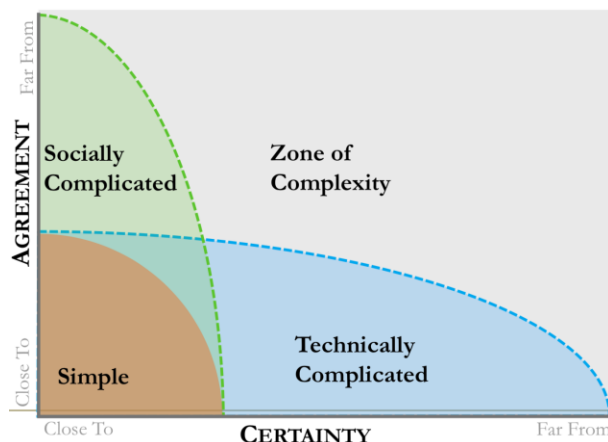
(*Please see Appendix D for key complexity concepts.*)

Complexity can be seen in all aspects of social change efforts, such as in: the context (e.g. the historical, economic, political, sociocultural, ecological, and other factors that have a bearing on the intervention); the nature of the intervention; the interactions among stakeholders; the nature of systemic change; and the nature of the evaluation process itself. And complex situations demand different behaviors and skills from both leaders of interventions and evaluators.

There is no single recipe for making sense of **complex adaptive systems**. When understanding systems that are constantly changing, or designing interventions and evaluations, we must avoid imposing pre-determined frameworks (e.g. linear cause-effect logic or SMART goals). Instead, we must **match** our methods to each situation at hand, by acting less like experts and more like diagnosticians.

Though we'll never have perfect information (it is impossible to consider all possibilities in a complex system) we can use **heuristics**, or shortcuts that can help us in sense-making, framing & informing decisions, and sequencing & prioritizing what to do. Heuristics are key to 'seeing' systems, and can be likened to the various **dimensions** we can use to understand the system of interest. Some commonly considered dimensions include:

- Scales/levels of the system, and the interaction between subsystems
- The timeline and geographical area over which a system has unfolded, which can help us consider history, context, etc. over time
- Perspectives of key and marginal stakeholders
- Quality of connections in a collaboration, network, supply chain, etc.
- How information flows – what information is available, who has access, and who does not
- Policies/laws, enforcement parameters, incentives, and punishments present in a system
- The paradigms (i.e. mental models) that have led to the very existence of the system

One method for 'seeing' a system of interest is visualizing these dimensions – i.e. **mapping the system**. A map can take many forms, but good system maps highlight the essential attributes of a system without overwhelming us. They also help us set boundaries for what is to be evaluated, understand different perspectives, consider the importance of context and culture, and more. Though there are many ways to map a system, the process typically includes:

1. Highlight system attributes
2. Show dynamics & interconnectedness
3. Communicate understanding
4. Identify knowledge gaps, intervention points, and insights

(For step-by-step guidance, the resource team pointed to the Centre for the Evaluation of Complexity Across the Nexus' "Participatory Systems Mapping" guide.)

There are many types of mapping, ranging from two-dimensional diagrams to other approaches such as Agent-based Modeling, GIS analysis, Social Network Analysis, Sensemaker, Critical Systems Heuristics, and more.

TYPES OF SYSTEM MAPPING

BEHAVIOUR OVER TIME GRAPHS — ICEBERG MODEL — CAUSAL LOOP DIAGRAMS — CONNECTED CIRCLES
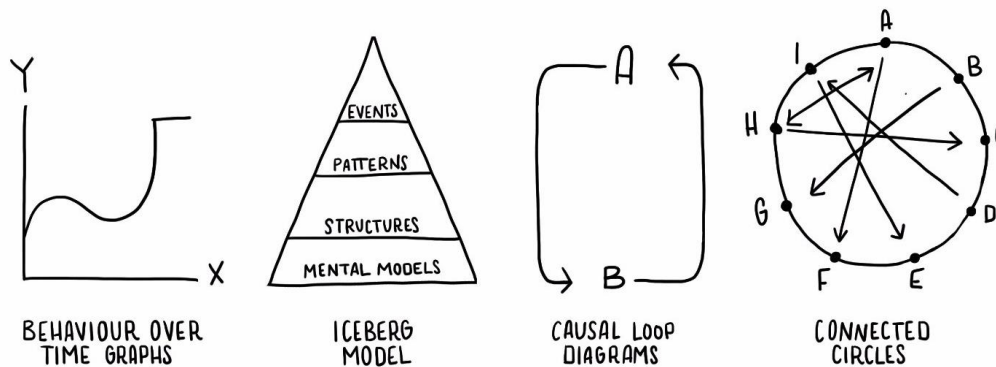
When mapping a system, it can be useful to ask the following:

- What attributes have we identified that can be used to draw a map of the system?
- How would we draw the key actors who influence and are influenced by each other through their different roles, perspectives, power, and culture?
- Where are feedback loops?
- Where are we having trouble, getting stuck? What other information do we need to improve the map? Where would we get that information?

And, when considering the time dimension specifically, it may be useful to ask:

- How did we get to the system we have today?
- What changes occurred over time, before and after our influence started?
- What events, factors, or change processes facilitated or constrained change?
- What evidence leads us to this conclusion?

To illustrate these concepts, the resource team shared a [case study of work in the western region of Ghana](#) (which attempted to build capacity for adaptation to a rapidly changing coastal zone) and explored its system dimensions. The Ghana case had multiple dimensions mapped to illustrate an integrated system mapping approach, which demonstrated the importance of "triangulating" between multiple frameworks and inquiries. to better 'see' a complex system.

Then, the resource team led participants through exercises to identify the key dimensions of their own system of interest, create a portfolio of maps for each system, and draw a timeline to show the evolution of that system from the past and into the future.

III.   Facilitating Systems Change

After exploring the many ways through which systems can be 'seen', the workshop moved on to how systems can be changed. The resource team emphasized that, on its own, the term "systems change" does not suggest a particular kind of ambition or scale of change. We can attempt **different types of systems change**:

Type of Change	Description	Scale Type	Example	Learning Mode
Incremental	Improves performance within existing rules	Doing more of the same through replication and adaptation *(i.e. scaling out)*	Reduce waste	*Single Loop*, to catch and fix mistakes; i.e. "Are we doing things right?"
Reform	Revises rules and reorganizes structures to change systems and their parts	Changing policies and laws *(i.e. scaling up)*	Enact waste recycling policies	*Double Loop*, to understand causes and inform action; i.e. "Are we doing the right thing?"
Transformation	Creates previously unimagined possibilities and new ways of thinking through visioning, experimentation, & invention	Spreading big ideas in the "memes sphere" to enable emergence and shift all other systems *(i.e. scaling deep)*	Create a cradle-to-cradle product lifecycle and cultural expectation	*Triple Loop*, to explore our values and understand how we make decisions that frame our work; i.e. "How do we establish 'rightness'?"

These different types of change suggest **different places of a complex system where one can intervene** – **i.e. leverage points** – where a small shift in one area of the system can yield big changes everywhere else. There are several leverage points – described in Donella Meadows' *Thinking in Systems* – which can be grouped as follows (in order of impact potential):

1. **Components**: parameters and practices within the system (e.g. subsidies, taxes, standards)
2. **Contextual dynamics**: strength of feedback loops and structure of information flows (e.g. stock market corrections following new information regarding supply/demand)
3. **Structures & rules**: the stipulations that provide certain degrees of freedom (e.g. constitutions, laws, punishments, incentives, informal agreements)
4. **Goals**: the ends toward which the system is working (e.g. capital accumulation)
5. **Paradigms**: the deepest beliefs – often unstated and unquestioned – from which a system's goals, rules, & structures arise (e.g. the belief that land can be 'owned')

'Pushing' on a leverage point can occur in a few different ways: destroying something, creating something new, confronting those maintaining the status quo, or collaborating with others. In

turn, these approaches suggest **different strategies to change systems**:

Change Strategy	Archetype & Approach	Example
Forcing Change	*Warrior*: Destroys and confronts; typically involves organizing others	Strikes or boycotts
Directing Change	*Missionary:* Destroys and collaborates; typically involves negotiating with others	Financial pay-offs
Doing Change	*Entrepreneur:* Creates and confronts; typically involves empowering others	Media campaigns
Co-Creating Change	*Lover:* Creates and collaborates; typically involves partnership and co-production	Religious coalitions

Considering the types of change, places where one can intervene, change strategies, and more, one can start to develop a **Theory of Change** (TOC) – a living document that captures current understanding of the causal links in a system and how planned interventions contribute to the intended impact. TOCs must be credible (i.e. theoretically sound, empirically based) and useful. The process of developing a TOC can be ongoing, which would enable "structured experimental learning" for adapting to new information in iterative cycles of design, implementation, monitoring, evaluation, and learning. TOCs can be developed for any kind of intervention (e.g. event, project, program, policy, strategy, organization) and any kind of situation – e.g. simple situations where incremental change interventions can be tightly planned, or complex situations where transformational interventions need to be responsive to emerging issues and unexpected changes. The resource team shared some tips to consider when drafting TOCs:

- TOCs are more than linear logic models of inputs, activities, outputs, and outcomes; they may include multiple levels, feedback loops, contextual elements, hypotheses, assumptions, data, insights, etc.
- Diagrams need to strike a balance between two conflicting requirements – easy to read but detailed enough to match the complexity of the real world.
- Common diagram errors include unlabeled connections between boxes, missing connections between boxes, and missing elements.
- Do not just buy into dominant theories about how "change" or "development" happens; instead, view the world through a complex adaptive systems lens and apply these concepts in designing, planning, and evaluating interventions.

(For more on developing TOCs, the resource team recommended Hivos' "[Theory of Change Thinking in Practice: A Stepwise Approach](#)".)

TOCs can also help guide **transformational social innovation**, i.e. new interventions that seek to address a social problem by transforming the social institutions (at all scales from micro to macro) that created the problem in the first place. In fact, we can even develop a **Theory of Transformational Change** (TOTC), which integrates multiple TOCs across collaborating actors, local knowledge, different levels of various systems, and more.
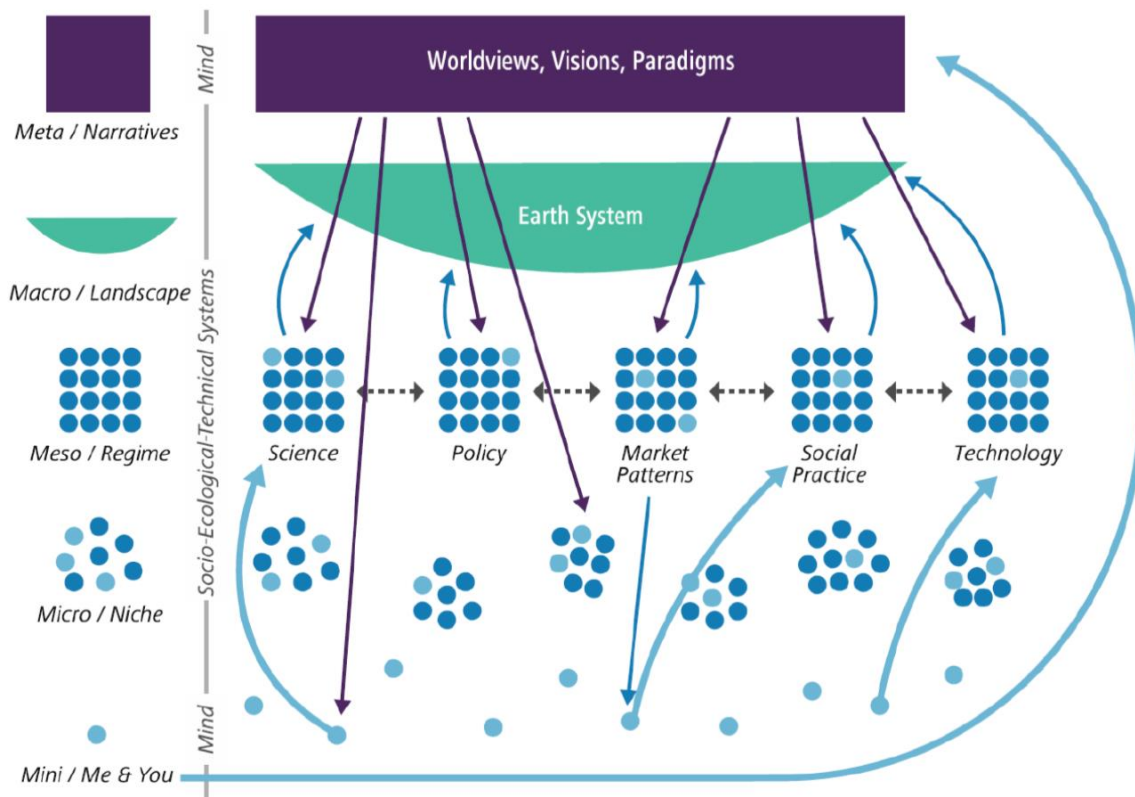
(Though literature on transformation and TOTCs is just emerging, the resource team pointed us to several resources, including Steve Waddell's *Change for the Audacious: A Doer's Guide* (preview), the SDG Transformations Forum, the recently launched Blue Marble Evaluation field of practice, and the Global Environment Facility's "Evaluation of GEF Support for Transformative Change".)

To illustrate these concepts, the resource team shared several examples, such as The California Endowment's theory of change for its Building Healthy Communities initiative (see page 4 for the 'virtuous action cycle, an iterative principles-based process). They also shared the striking example of China's transformation (clearly obvious from before and after pictures of cities like Shenzhen over the last few decades) via Yuen Yuen Ang's book *How China Escaped the Poverty Trap*. According to Ang, transformation cannot be attributed to a single cause; rather, it arises from a contingent, interactive, adaptive, coevolutionary process that she calls "directed improvisation". In China's case, local, state, and market actors were empowered to improvise many creative solutions to continuously changing problems. Reflecting on this case, the resource team shared a nugget of wisdom: when developing a TOTC, ask yourself, **"how can we *release the energy* of a society?"**

Then, the resource team led participants through an exercise to develop a TOC/TOTC for their system of interest. Participants were guided by the following questions:

- What are the implications for different variables and key actors (e.g. change agents, affected populations, status quo representatives, funders, evaluators) in the system?
- What are the dimensions of control, influence, and beyond?
- What common vision do you have for a desired future state of your system? How are you working together to contribute to that change?

- What opportunities for action are you responding to?
- What barriers or resistance are you experiencing?
- How are you testing and adapting your TOC/TOTC?

Once participants developed a TOC/TOTC, the resource team then asked them to reflect on the following questions:

- What was it like to shift from a project to a collective action focus (from "me" to "we")?
- How were power differences between roles balanced?
- How integrated were the pathways of activity?
- How hard was it to consider the TOC/TOTC, reflect, and adapt?
- What is different about funding projects vs. seeing/facilitating/assessing change?
- How possible is this to do in the real world?

The resource team concluded this section of the workshop by sharing an emerging field of evaluation practice – **Blue Marble Evaluation** (BME) – that integrates other evaluation lenses (e.g. developmental, utilization-focused, and principles-focused evaluation) and many of the concepts described above (e.g. local to global action). It is a framework for developing, adapting, and evaluating major systems change initiatives involving complex networks of stakeholders. BME responds to the moral imperative of our moment by focusing on the transformation of the largest possible system – the entire planet. It is guided by four overarching principles:

1. *Global Thinking*: apply whole Earth, big picture thinking to all aspects of systems change
2. *Anthropocene as Context*: know and face the realities of the Anthropocene , and act accordingly; time is of the essence (i.e. we need to take collapse scenarios seriously)
3. *Transformative Engagement*: engage consistent with the magnitude, direction, and speed of transformations needed and envisioned
4. *Overarching Integration Principle*: integrate Blue Marble principles in the design, implementation, and evaluation of transformational systems change initiatives

To showcase BME in practice, the resource team described its role in the Global Alliance for the Future of Food, a strategic alliance of nearly two dozen funders working together with others to transform global food systems, in order to impact the areas of health & well-being, climate, agroecology, and true-cost accounting. (Pablo Vidueira is the dedicated Blue Marble Evaluator.)

Before moving onto the next section – assessing systems change – the resource team cautioned participants: it does not help to assess systems change if what "lies underneath" the theory/design will never work because insights about complex adaptive systems behavior were never applied.
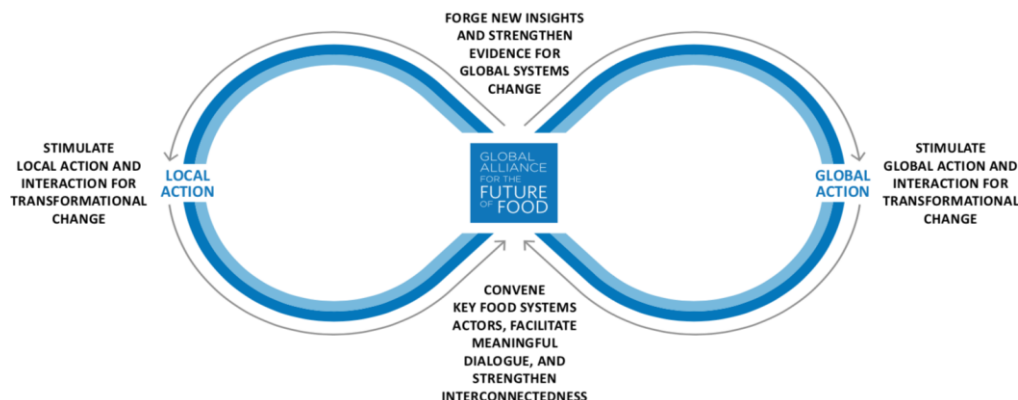
IV.   Assessing Systems Change

After grounding participants in seeing and facilitating systems change, the resource team reminded participants that assessment "lies at the heart of it all" because complex situations don't give us another choice. I.E. Assessing systems change is essential to systems interventions.
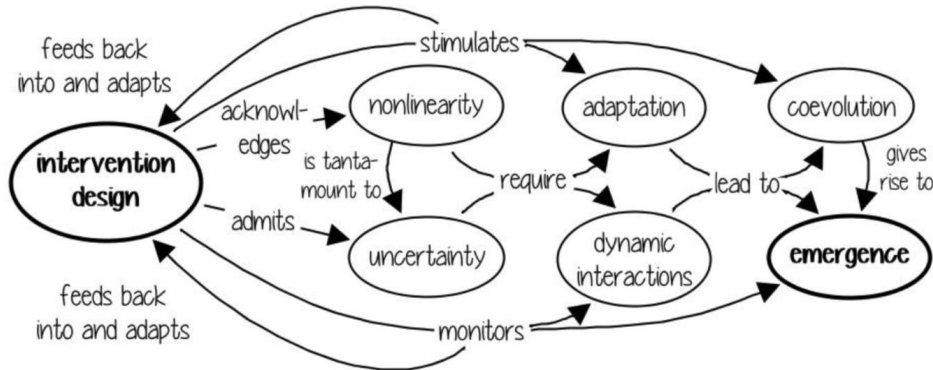
Therefore, systems change demands a **different approach to evaluation**:

Moving from traditional evaluation …
(Center for Disease Control's framework)

… toward systemic change evaluation.
(Margaret Hargreaves' framework)

Characterized by:
- Focus on programs and projects
- Uses reductionist analytical methods e.g. linear theories of change
- Does not address emergent dynamics in complex systems
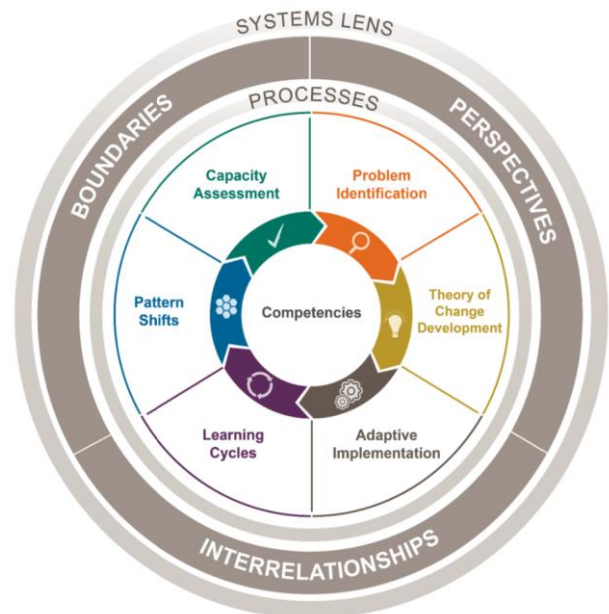
Characterized by:
- Systemic understanding of problems
- Developing a systemic theory of change
- Adaptive implementation
- Iterative learning cycles
- Assessing pattern shifts
- Building sustainable capacity for MEL

Systemic change evaluation can be completed for either ongoing program development or for assessing what contributed to change; the resource team recommended doing both. Though a deep-dive into all relevant **approaches and methods** for conducting systemic change evaluations was beyond the scope of this workshop, the resource team highlighted specific ones and encouraged participants to explore these themselves:

| Evaluation Approaches/Frameworks	Methods/Techniques
- Realist Evaluation - Theory-Based Evaluation - Utilization-focused Evaluation - Developmental Evaluation - Principles-focused Evaluation - Blue Marble Evaluation	- Outcome Harvesting - Outcome Mapping - Contribution Analysis/Tracing - Comparative Case Studies - Process Tracing - Most Significant Change - Participatory Impact Assessment & Learning Approach (PIALA) - Qualitative Comparative Analysis - Ripple Effect Mapping - Participatory Action Research - Rapid Cycle Testing

In addition, the resource team shared notable **resources**:

- "Leveraging Systemic Change: Evaluating What Works" by Margaret Hargreaves (*working paper*)
- "Principles for Effective Use of Systems Thinking in Evaluation" by the American Evaluation Association's Systems in Evaluation Topical Interest Group
- "A Transcultural Global Systems Perspective: In Search of Blue Marble Evaluators" and *Blue Marble Evaluation: Premises and Principles* by Michael Quinn Patton
- "Inclusive Systemic Evaluation for Gender Equality, Environments and Marginalized voices (ISE4GEMs): A new approach for the SDG era" by U.N. Women
- *Dealing with Complexity in Development Evaluation: A Practical Approach*, edited by Michael Bamberger, Jos Vaessen, Estelle Raimondo
- *Evaluating Climate Change Action for Sustainable Development*, edited by Juha I. Uitto, Jyotsna Puri, Rob D. van den Berg
- "Managing for Sustainable Development Impact", by Cecile Kusters, Karen Batjes, et al.
- (*Please see Appendix E for a list of many other resources, compiled by the resource team.*)

And workshop participants shared a few resources that they've found to be helpful:

- Grantmakers for Effective Organizations' Systems Grantmaking Resource Guide (which itself includes a compilation of tools & resources)
- The Omidyar Network's "Systems Practice" workbook
- FSG's "The Water of Systems Change"
- Innovation Network's Social Movement Learning Project
- Stanford Social Innovation Review articles on systems

The resource team advised participants to use **multiple approaches & methods, which can be nested to meet different needs**. (They shared that, despite having worked on many evaluation projects, they have never applied the same 'recipe' twice.) In fact, evaluations can help us understand both short-term results and long-term outcomes, and contribute to both task control and strategic control. For example, an evaluation may use: quality improvement and performance measurement methods for project-level process improvements and incremental change projects; rapid program evaluation methods for organizational-level and institutional reform programs; and developmental evaluation methods for large-scale transformation initiatives. Evaluating an initiative from task, organization, and systems perspectives enables us to trigger change more effectively, at multiple leverage points.
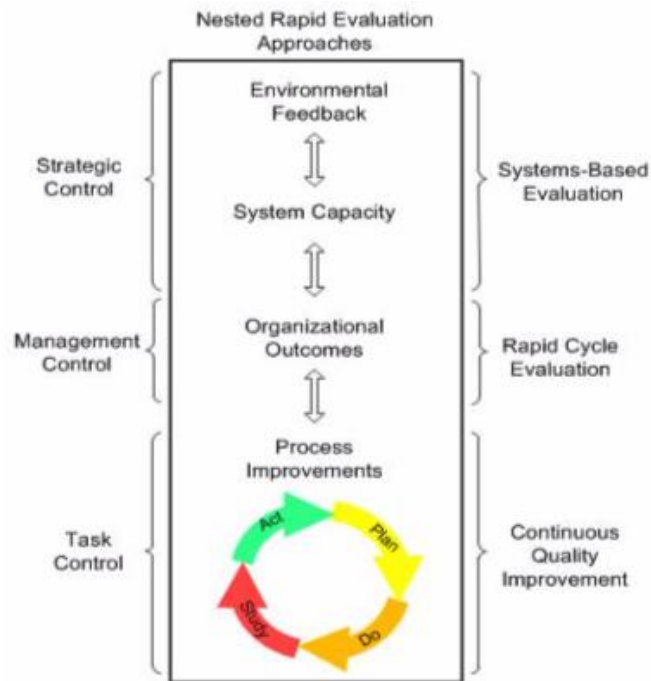
Also, this nesting suggests that a **variety of indicators** can be used for monitoring complex systems:

- *Flexible Indicators* change as the program is adapted over time, especially at the output level.
- *Bedrock Indicators* are meaningful and durable signals of change at the outcome level; these are fixed over the adaptive life of a program (i.e. the goal posts are kept in place).
- *Learning Process Indicators* track experimentation and learning cycles; e.g. a program may get credit for undertaking an adaptive learning process.
- *Open-Ended "Concrete Change" Indicators* enable us to track unanticipated outcomes that have emerged following an intervention; for example, a program may commit to delivering a target number of improvements without pre-specifying what those improvements might be (such data can be gathered through techniques like Outcome Harvesting).
- *Baskets of Indicators* are collections of indicators that track multiple change pathways.

Unfortunately, complex adaptive systems pose challenges throughout the assessment process – for which the resource team had several suggestions:

Challenges posed when ...	... which can be mitigated by:
Engaging Stakeholders	• Identify different perspectives, values, and power dynamics of diverse evaluation users and stakeholder groups, including their interests and incentives for engaging in the intervention. • Identify project boundaries, timeline, budget constraints and other resource needs, data availability, political constraints, client schedules, and evaluation expertise and capacity and how complexity issues can be addressed within those constraints. • Clarify the purposes of the evaluation and central evaluation questions and the extent to which complexity issues should be addressed to meet client expectations in these areas. • Do not place excessive burdens on overworked clients and staff.
Describing the Program	• Describe the program's purpose, size, scope, nested levels, diversity of activities, locations, actors, organizational complexity, • Describe the program's theory of change, pathways of change, direct and indirect effects, and range of outcomes. • Describe the dynamic context in which the intervention is embedded and how historical, economic, political, sociocultural, administrative, and legal factors are influencing the intervention. • Describe the interactions of the actors involved in the program as well as in governance, coordination, management, communication, and monitoring, learning, and evaluation functions.
Focusing the Evaluation Design	• Develop an integrated mixed methods approach to draw on multiple data sources, evidence stream, emergent designs, and multiple stages. • Determine what combination of methods can be used to address relevant complexity challenges and what innovative methods should be used to address the questions of attribution and contribution in the evaluation. • Develop a process for monitoring and responding to shifting dynamics of the evaluation in response to shifting stakeholder priorities, program activities, timing, speed, and delays. • Expand the scope of the evaluation and/or introduce novel data collection and analytic methods that capture complexity dimensions.
Gathering Credible Evidence	• Introduce and explain evaluation methods that are not well-known, and how they will work in the evaluation. • Clarify the data collection processes of the evaluation, how they will capture and address emergent outcomes, and the extent to which these sources of complexity should be addressed to meet client expectations. • Create and maintain a flexible and responsive project management approach to identify and manage changing project dynamics. • Be opportunistic and draw on whatever data sources are found or become available, as part of a developmental evaluation process.

Justifying Conclusions	• Determine the mechanisms and processes to be used to involve stakeholders in the process. Identify the costs and benefits of using specific participatory sensemaking methods in the evaluation. • Break down systems into identifiable parts, and units of analysis into smaller activities or levels of intervention, for data collection and analysis. • Then reassemble the findings to understand how components work in context and look at particular parts across interventions, taking care to map their complexity dimensions. • Use holistic approaches that seek a comprehensive understanding of an intervention in its context.
Sharing Lessons and Ensuring Use	• Report how different parts work, for whom, and in what conditions. Be flexible to the information needs of stakeholders, by addressing the most pertinent questions with relevant answers. • Ensure stakeholder buy-in by addressing complexity issues, multiple and nonlinear causal pathways, and actual outcomes. • Prioritize learning and its role in changing client mindsets, and developing capacity at individual, organization, and systems levels.

Taken together, these concepts can help inform **evaluation design and strategy**. Key considerations include:

- What are the important design choices and trade-offs?
- What questions are we prioritizing and why?
- What challenges are we facing when choosing methods?
- What technical assistance and guidance do we need?

To illustrate these concepts, the resource team shared a few cases of systems change assessment and the approaches/methods used in each: the Alliance for Strong Communities' Change in Mind Initiative evaluation, which exemplifies rapid cycle learning; the Washington State Adverse Childhood Experiences (ACE) Public-Private Initiative evaluation, which exemplifies a retrospective systemic change evaluation; and the Capital Institute's Regenerative Communities Network, which is currently using the Blue Marble Evaluation approach. Also, the resource team revisited the Global Alliance for the Future of Food case, which is using the utilization-focused, principles-focused, developmental, and Blue Marble evaluation approaches to:

- pose different and complementary questions, and facilitate learning;
- assess the extent and ways in which an intervention is truly global, addresses multiple interrelated factors, and contributes to diverse interconnected outcomes;
- connect global and local perspectives, knowledge, and understanding in support of change;
- integrate and coordinate interventions across sectors, issues, problems, programs, etc.;
- successfully navigate the complexity of food systems transformation; and
- inform future action.

V.   Developing Capacity for Assessing Systems Change

After exposing them to key assessment concepts, approaches, methods, and tips, the workshop turned participants' gaze toward themselves, their institutions, and the sector. Participants had shared (through the pre-workshop survey) barriers to supporting, funding, operationalizing, and institutionalizing systems change evaluation, and they now had the space to think on how to overcome these at all levels. Treating this reflection as a mini-systems analysis of its own, the resource team guided participants with the following questions:

- What is your organization's learning and evaluation system?
- Who is leading the learning and for what purpose?
- What is the accountability and to whom?
- Who is benefitting from the lack of use of systemic evaluation? And how?
- What ought to happen? What *should* be your organization's learning and evaluation system?
- What are current barriers to the use of systems change evaluation in your organization?
- What are current dynamics that can be leveraged?
- What are potential strategies for addressing those barriers at different levels?
- **What is your theory of change for developing and sustaining this capacity?**
- **What is your action agenda?**

During the conversation, one participant shared a related resource, the Centre for Effective Philanthropy's "Benchmarking Foundation Evaluation Practices" report, which includes additional discussion questions:

1. What is the purpose of evaluation at your foundation?
   a. How do your foundation's evaluation efforts align with its goals and strategies?
   b. How does leadership at your foundation use information from the foundation's evaluation work, if at all?
   c. How do your foundation's evaluation efforts align, or not align, with its organizational culture?
2. How does your foundation make decisions about each of the following:
   a. How much to budget for evaluation work?
   b. Which costs will be categorized as evaluation costs (e.g., salaries of staff with evaluation responsibilities, third party evaluators, data collection efforts, etc.)?
3. How are responsibilities for evaluation work structured at your foundation?
   a. How many staff have evaluation-related responsibilities at your foundation?
   b. What are the evaluation-related job responsibilities of these staff members? On what do they spend their time?
   c. In which department or area do staff with evaluation-related responsibilities work, and why?
4. How, if at all, does your foundation use information from its evaluation work to inform programmatic decisions?
5. How are decisions made about with whom evaluation information will be shared – inside and outside of the foundation?
6. What changes would you like to see regarding evaluation at your foundation?
   a. What would you hope would happen as a result of these changes?

For example, if the situation at hand calls for a developmental evaluation – which would involve a close, collaborative relationship in which the evaluator is part of the intervention team and provides rapid feedback on the intervention – then what will it take for a funder to support this work over the long term? Or, if the situation calls for a principles-based evaluation – which would involve turning attention away from short-term signals of impact and toward how well principles were adhered to – then what will it take to build a funder's comfort with such an approach?

Though capacity-building efforts will be unique to each funder, systems change also demands a new **culture of learning** across the sector. The resource team highlighted the key components of such a culture:

- Engaging in a reflective practice
- Building relationships across cultures, sectors and silos; learning from lived experiences
- Sharing failures and successes; embracing failure as a learning moment
- Resisting the temptation to want what is efficient and scalable
- Building a high tolerance for ambiguity and paradox; being comfortable with not knowing
- Supporting measurement systems that help to iterate and adapt
- Funding experimentation and net-weaving across scales/sectors, which requires support for coordination and communication

Participants also had the opportunity to discuss their challenges and strategies among each other and with the resource team. For example, one participant shared that their organization had rebranded its "Monitoring, Evaluation, and Learning" team as the "Adaptive Management" team and, in lockstep, deprioritized support for external evaluations while prioritizing the development of evaluative thinking among staff. Another participant asked how one can shift the fixed mindsets of board members, and the resource team suggested finding early adopters and building a dream team of collaborators who share the burden of sparking change.

By the end of the workshop, participants had stitched together an **action agenda**, which included elements like addressing barriers and developing capacity. Though they acknowledged that the day-to-day realities of their work make it difficult to change institutions, participants committed to exploring some of the concepts at a deeper level and acting on their visions over the coming months and years.

VI. Conclusions & Takeaways

Reflecting on their own role in running the workshop, the resource team described their work as designing the necessary infrastructure for the sector. They emphasized that what they shared in the workshop isn't just a new tool; rather, it's a **new way of thinking.** It represents a move away from simple, reductionist cause-and-effect analysis, toward something much more complex – a bit like going from Newtonian physics to particle theory. This was echoed in the second pre-workshop webinar, during which Michael Quinn Patton described the **thinking transformations** needed today:

1. Thinking beyond programs and projects, toward major systems change
2. Thinking globally, because global problems (e.g. climate change, refugees, economic turbulence, dying oceans, cyber-terrorism, weapons trafficking, multi-national corporate collusion) transcend national and agency boundaries
3. Thinking beyond bottom-up / top-down distinctions, and toward connections between the micro, meso, and macro levels
4. Thinking integratively and holistically
5. As evaluators, becoming interdependent, i.e. having skin-in-the-game

Moving forward, the resource team needs early adopters and collaborators, and so they asked participants: how can we go deeper as a community of practice? how can we bring others along? But they warned that this work is demanding and requires training well beyond workshops. Fortunately, demand is growing, which could someday upend today's dominant practices.

To push participants along, Zenda Ofir distilled her insights – derived from years of experience – as advice for participants to take back to their respective organizations:

1. Strive to understand and use the basic concepts of complexity. Use systems mapping to 'see' the system and its boundaries.
2. Shift focus. Evaluate in an honest manner for contributions to large-scale change. While

retaining some focus on outcomes/impact, focus more intensively on whether an intervention has been designed and implemented using a complex adaptive systems lens. In other words, evaluate design approaches or principles, or do process evaluation, that focuses on matters such as whether synergies or synergistic effects were considered, leverage points sought, influences or progress identified, and adaptive management/learning implemented.

3. Use theory-based evaluation where it makes sense. Determine the operating perspectives and relationships, and always analyze the underlying assumptions. See what patterns arise.
4. Innovate. There are no methodology recipes, although many established methods are useful for systems-informed evaluation. Read about the state of the art. Try to expand what exists.
5. Every evaluation will need a 'bricolage' – a combination – of methods. Use mixed methods, combining the strength of each, and work with 'big', 'thick', and 'warm' data wherever this makes sense.
6. ALWAYS systematically track unanticipated outcomes. Especially negative ones.
    a. For example, the Green Revolution increased cancer and farmer suicide rates, and some gender programs disempower men enough to turn them violent.
7. Work intensively with the implications of different societal worldviews, perspectives, norms, and contexts. Do NOT automatically buy into dominant models and narratives about development or about how change works.
8. ALWAYS reflect on where power in the system lies, and what that means for an intervention and its evaluation.
9. The world is not static. Think about trajectories of change when dealing with systems and interventions.
10. If implementing all these aspects sounds too complicated, start small. For example:
    a. include the question "Why" across your evaluation; this identifies the influences on the intervention, highlighting the interconnectedness of things;
    b. include just a few complexity-aware evaluation questions in the next RFP/TOR;
    c. use evaluation criteria that are complexity-aware; or
    d. draw a useful systems map to inform a Theory of Change.

> "The process starts with each of us taking stock of our own practices and considering how we each move forward. It takes humility of spirit, rigor of intellect, and depth of compassion to travel this path."
> –Rob Ricigliano, "The Evolving Operating System of Philanthropy"

VII. Calls to Action

Before you move on from this report, please consider which of the following calls-to-action you can take on, over the short- and long-term. Thank you!

At Your Organization

1. Find and internalize your own reasons for why this new way of thinking is important—i.e. how it can manifest as better grantmaking and, ultimately, greater impact.
2. Carve out the time to understand these and related concepts for yourself, from your own perspective.
3. Organize a learning journey for your colleagues and close peers at other organizations— e.g. setup a lunch where they can come together, read this report, and discuss.
4. See your institution as a system itself—who and what needs to be targeted in order for dominant mindsets to evolve?
5. Put your action plan into motion!

In Our Sector

Please help build the field of systems change evaluation: the field of evaluation must be transformed in order to evaluate transformation, and there is an urgent need by funders to take action. You can contribute to the development of this promising field in the following ways:

- **Develop the infrastructure:** with the upcoming launch of Blue Marble Evaluation, participants can support the infrastructure needed to broadly disseminate this important work including website development, training modules, case studies, certification programs, and advice and support structures.
- **Learning by doing**: invest in a set of reference sites in each continent to apply the principles of Blue Marble Evaluation. Such sites would illustrate a wide range of cross-scale, multi-institutional, interdisciplinary efforts addressing the wicked challenges of our time. The sites would illustrate ongoing adaptive learning, cross-site comparison, and collective knowledge sharing. Such curated, real-world examples that illustrate large scale systems change would be ideal for locating future workshops, training, and conferences so that the convenings are contributing to change dimensions they are illustrating.
- **Help build a community of practice:** identify individuals, groups, and organizations within your networks who may be interested in learning more about how systems approaches to evaluation that embrace complexity concepts can transform their work. Share website links, references, training modules, case studies, certification programs, and advice/support structures that are emerging and encourage them to support the reference sites described above.
- **Cultivate donor collaborations**: convene leaders from other funders who are interested in this and identify entry points on how they can become more involved with systems change. Learn from thematic efforts such as the Global Alliance for the Future of Food and place-based efforts such as the Regenerative Communities Network, which have both embraced Blue Marble Evaluation as the guiding philosophy for the design, implementation, and evaluation of innovative, cross-scale global efforts.

VIII. <u>Appendix</u>

APPENDIX A: Resource Team

Margaret (Meg) Hargreaves M.P.P., Ph.D.
Senior Fellow, NORC, University of Chicago
margaret@norc.org
Meg has for the past two decades directed research and evaluation projects of complex place-based and system transformation initiatives, working across health care, public health, child welfare, early child development, public education, juvenile justice, housing, and economic development sectors to address a range of social and health equity issues. Topics include reforming juvenile justice systems, increasing economic mobility, preventing and addressing child abuse and neglect, supporting healthy child development and school readiness, building healthy communities, implementing the Affordable Care Act, and responding to climate change. She has developed valid and reliable measures of collective community capacity to enact systemic change.

Glenn Page
President and CEO of SustainaMetrix
gpage@sustainametrix.com
Glenn's career over the past 30 years has focused on large scale systems change and the transformative potential of measurement and adaptive learning in the Anthropocene. He is the Lead Councilor of the Evaluation for Transformation Working (E4T) group of the SDG Transformations Forum, and founding President/CEO of SustainaMetrix LLC an international consultancy. He is co-leading the development of Blue Marble Evaluation infrastructure with Michael Quinn Patton and serves as Systems Convener of COBALT (Collaborative for Bioregional Action Learning and Transformation) in the Gulf of Maine. His work focuses on cross scale, transboundary, interdisciplinary issues of coupled social and ecological systems. His work has been recognized with numerous national and international awards and he publishes in a wide range of academic journals.

Zenda Ofir
Independent Evaluator and Honorary Professor, Stellenbosch University
zenda@zendaofir.com; www.zendaofir.com
Zenda is an independent evaluation specialist from South Africa, currently based in Geneva. She has worked in more than 40 countries, primarily in Africa and Asia, for bi- and multilateral as well as government agencies, foundations, universities, international NGOs and science councils. A former President of the African Evaluation Association (AfrEA) and Board member of the American Evaluation Association (AEA), she is at present Vice-President of the International Development Evaluation Association (IDEAS), Lead Steward of the Transforming Evaluations Steward Team of the SDG Transformations Forum, and 2019 Richard von Weizsaecker Fellow of the Robert Bosch Foundation in Germany. Since 2014 she is an Honorary Professor at the School for Public Leadership at Stellenbosch University in South Africa. She serves on the editorial boards of several evaluation journals and is a widely read blogger on Evaluation for Development.

APPENDIX B: Participants

Anna Zimmermann Jin
Manager, Analysis & Insight, Skoll Foundation

Atje Drexler
Senior Vice President International Relations
Europe, Robert Bosch Stiftung

Ayo Atterberry
Senior Associate, Annie E. Casey Foundation

Dana Bourland
Vice President, The JPB Foundation

Dara Menashi
Managing Director, Child Welfare, Case Commons

Devon Ysaguirre
Manager of Strategy and Learning,
Democracy Fund

Federico Bellone
Regeneration and Sustainability Specialist

Georgia Pessoa
CEO, Humanize Institute

Greg Ratliff
Vice President, Rockefeller Philanthropy Advisors

Guilherme Antunes
Program Director, Fundação Lemann

Gurpreet Singh
Analyst, Skoll Foundation

Laurie Lane-Zucker
Founder and CEO, Impact Entrepreneur, LLC

Liz McKeon
Head of Portfolio, Climate Action, IKEA Foundation

Maria Claudia Santos
General Coordinator, Fundación Arturo & Enrica
Sesana

Nicole McDonald
Program Director, Indigenous Initiatives, J. W.
McConnell Family Foundation

Heather Grady
Vice President, Rockefeller Philanthropy Advisors

Heather McGray
Director, Climate Justice Resilience Fund

Irene Krarup
Executive Director, V. Kann Rasmussen Foundation

Jeanne Wardford
Program Officer, W. K. Kellogg Foundation

Jen Heeg
Manager of Strategy, Learning & Impact, Humanity
United

Jennifer Ho
Senior Learning Officer, Conrad N. Hilton
Foundation

Jennifer Kou
Narada Foundation

John Fullerton
Founder & President, Capital Institute

Kathy Reich
Director, Ford Foundation

Kecia Bertermann
Learning & Impact Director, Luminate

Kelly Diggins
Program Coordinator, Rockefeller Philanthropy
Advisors

Richard Margoluis
Chief Adaptive Management and Evaluation Officer,
Gordon and Betty Moore Foundation

Roberto Navas
Director, Fundación Arturo & Enrica Sesana

Ruth Rominger
Collaborative Networks Program Director, Garfield
Foundation

Savi Mull
Senior Evaluation Manager, C&A Foundation

Nicole Sherren
Scientific Director, Senior Program Officer, Palix

Qing Gu
Program Officer, Ford Foundation

Shaheen Kassim-Lakha
Director, Strategic Partnerships, Conrad N. Hilton

Yanni Peng
CEO, Narada Foundation

APPENDIX C: Selected Key Concepts

Several key systems concepts were used throughout the workshop – the list below is taken from Ray Ison's 2010 book *Systems Practice: How to act in situations of uncertainty and complexity in a climate-change world* *(2nd ed.).*

Boundary: The borders of the system, determined by the observer(s) that define where control action can be taken; a particular area of responsibility to achieve system purposes

Connectivity: (Interrelationships): The relationships between components or elements (including subsystems) within a system based on factors such as influence and logical dependence

Environment: That which is outside the system boundary and coupled with, or affects and is affected by, the behavior of the system; alternately, the "context" for a system of interest

Networks: An assemblage of entities in relationship, e.g., organisms in an ecosystem; networked entities may be totally parallel, embedded, or partially embedded (structurally intersected)

Perspective: A way of experiencing that is shaped by our current state and circumstances, as these are influenced by our unique personal and social histories, where experiencing is a cognitive act

Resources: Elements (e.g., matter, energy, or information) that are available either within the system boundary or present outside the system in a manner the system can access and that enable a desired transformation

System: An integrated whole, distinguished by an observer, whose essential properties arise from the relationships among its parts; from the Greek word for "to place together"

System of interest: The product of distinguishing a system in a situation in relation to an articulated purpose, in which an individual or a group has an interest (a stake); a constructed or formulated system of interest to one or more people, used in a process of inquiry

Systemic thinking: Refers to the understanding of a phenomenon within the context of a larger whole; to understand things systemically is to put them in a context, to establish the nature of their relationships

# APPENDIX D: The Visual Representation of Complexity

Please see the high resolution version of Dr. Joanna Boehnert's poster on the CECAN website.

1. Feedback

When a result or output of a process influences the input either directly or indirectly. These can accelerate or suppress change.

EXAMPLES
- A stampede in a crowd, as individuals panic, others around them panic more (positive feedback).
- We sweat or shiver to maintain a constant body temperature (negative feedback).
- As the climate changes, permafrosts melts and releases more greenhouse gases. These feedback into the climate system (positive feedback).

LEARNING POINTS
- Feedback loops can lead to runaway effects, or can create inertia through dampening of effects – two extremes.
- Positive feedbacks are reinforcing and accelerate change.
- Negative feedback suppress change and are stabilising/regulating.
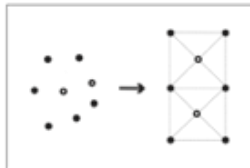
2. Emergence

New, unexpected higher-level properties can arise from the interaction of components. These properties are said to be emergent if they cannot easily be described, explained, or predicted from the properties of the lower level components.

EXAMPLES
- A market price is an emergent property, arising from the interaction of many buyers & sellers.
- A traffic jam is an emergent phenomena, caused by the interaction of drivers.
- Consciousness is an emergent property of the interactions of the neurons in our brain.

LEARNING POINTS
- Completely new and unexpected properties or things can arise simply from the interaction of lower level entities. These new properties can be difficult and sometimes impossible to predict.
- Consider how to understand unpredictable emergent phenomena in your domain.

3. Self-organisation

Regularities or higher-level patterns can arise from the local interaction of autonomous lower-level components.

EXAMPLES
- Shoals of fish, flocking of birds.
- The formation of lines of people moving in opposite directions on a crowded pavement.

LEARNING POINTS
- Simple and autonomous behaviour can create order at larger scales.
- This higher level order requires only local (or lower-level) interactions.
- Order arises spontaneously without top down control, and hence can often remain in place even if part of the system is disrupted.
- Emergence and self-organisation are closely related concepts. Self-organisation can cause emergent phenomena, but emergent phenomena do not have to be self-organised.
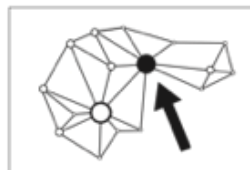
4. Levers and hubs

There may be components of a system that have a disproportionate influence because of the structure of their connections. How these behave can help to mobilise change, but their behaviour may also make a system vulnerable to disruption.

EXAMPLES
- A community champion can be a hub, but if she leaves, an initiative may stop being promoted.
- If a keystone species becomes extinct there may be cascading extinctions amongst other species.
- A bank collapsing may lead to multiple knock-on effects across the financial system.

LEARNING POINTS:
- Identifying hubs and levers can help identify best places to intervene in complex systems.
- Structure matters: knowing the structure of interactions in a system is crucial to understanding how it will behave, change or fail.

5. Non-linearity

A system is non-linear when the effect of inputs on outcomes are not proportional. The behaviour of a system may exhibit exponential changes, or changes in direction (i.e., increases in some measure becoming decreases), despite small or consistent changes in inputs.
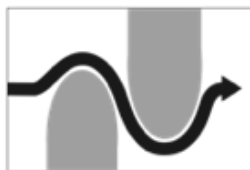
EXAMPLES
- Braking distance in a car at 30Mph is more than twice that at 20Mph.
- A new product may be slow to take-off but after a point sales will accelerate, before slowing again.

LEARNING POINTS
- In social settings, few things are actually linear.
- Non-linearity can mean that the relationships between things can be just as powerful in determining outcomes as the structure of interactions. In non-linear systems when we double or half an input, the output will not be double or half its original value, and may be completely different.

6. Domains of stability

Complex systems may have multiple stable states which can change as the context evolves. Systems gravitate towards such states, remaining there unless significantly perturbed. If change in a system passes a threshold, it may slide rapidly into another stable state, making change very difficult to reverse.

EXAMPLES • The melting of Antarctic ice. The planet may be stable with or without ice caps, but not at intermediate states. • Poverty traps: Low or reasonable incomes are stable, but not intermediates.
LEARNING POINTS • Knowledge of domains of stability can be used to effect change in a system. If we can push a system into a different, more desirable, stable state with a policy intervention then we have changed the system in a robust way. • We do not need to put in continuous effort to keep the system in the new state. • We may try to use policy to change the positions of domains of stability.
- What is possible in a system is often discontinuous and sticky. Not everything is stable.

7. Adaptation

Components or actors within the system are capable of learning or evolving, changing how the system behaves in response to interventions as they are applied. So, for example, in social systems people may communicate, interpret and behave strategically to anticipate future situations. In biological systems, species will evolve in response to change.

EXAMPLES • Bacteria evolve to become resistant to antibiotics.
- A new tax/regulation is circumvented.
LEARNING POINTS:
- The rules of the game change as you play it. • We have to be prepared to adapt our interventions in response to how the system reacts to previous input. • We should be aware of the pressures to adapt that we are putting in place in systems. • We also need to be prepared for individuals – and systems – to adapt in response to an intervention in ways we didn't anticipate.
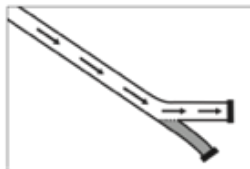
8. Path dependency

Current and future states, actions, or decisions depend on the sequence of states, actions, or decisions that preceded them – namely their (typically temporal) path.

EXAMPLES
- The first fold of a piece of origami paper will determine which final shapes are possible; origami is therefore a path dependent art.
- The organisation chosen to lead a new policy initiative influences which other organisations also become involved.
- VHS v Betamax, or railways v gauges – once one option is adopted it would be impractical to switch.
LEARNING POINTS
- What paths are we 'locked into'? What paths might our actions lock us into? What is it that makes a particular change impossible because of path dependency? Which 'lock-ins' might shift soon?

9. Tipping points

The point beyond which system outcomes change dramatically. Change may take place slowly initially, but suddenly increase in pace. A threshold is the point beyond which system behavior suddenly changes.

Examples
- The gradual, then sudden gentrification of a neighbourhood
- Social unrest increasing leading to a regime change
- A species' population reducing in numbers such to the extent that it cannot re-establish itself in the wild.
Learning points
- Sudden change can happen and we might not know it is coming.
- Knowledge of tipping points can be used to affect change in a system. We can aim to get a system past a tipping point (as also described in the 'domains of stability' definition).
- A system may be pushed towards and past a tipping point by positive feedback of some kind.

10. Change over time

Complex systems inevitably develop and change their behaviour over time. This is due to their openness and the adaption of their components, but also the fact that these systems are usually out of equilibrium and are continuously changing.

- A local community partnership changes direction when one of the constituent partners changes its policies. Social norms evolve over time.
- What constitutes the political 'centre', or what is viewed as 'politically correct', shifts over time.
- Ecosystems undergo succession over time: e.g. from annual plants, to scrub, to woodland.
LEARNING POINTS
- We cannot automatically assume that complex systems have reached a stable state.
- Do not rely on the system being the same in the future.
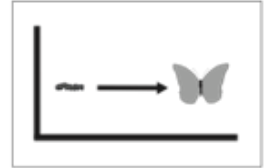
11. Open system

An open system is a system that has external interactions. These can take the form of information, energy, or material transfers into or out of the system boundary. In the social sciences an open system is a process that exchanges material, energy, people, capital and information with its environment.

EXAMPLES
- A food production company changes in response to changes in food fashions or in the cost and availability of ingredients.
LEARNING POINTS
- Open systems are impossible to bound.
- Open systems mean that we must be alert to outside influences.

12. Unpredictability

A complex system is fundamentally unpredictable. The number and interaction of inputs/ causes/ mechanisms and feedbacks mean it is impossible to accurately forecast with precision. Random noise can have a large effect. Complex systems are fundamentally unknowable at any point in time - i.e. it is impossible to gather, store & use all the information about the state of a complex systems.

EXAMPLES and LEARNING POINTS:
- In the economy and other systems, it is impossible to know the intentions and interactions of all actors.
- We can't forecast the future, instead we must explore uncertainty with rigour.
- Predictive models will always be limited in complex systems, however they can be used to explore and compare potential scenarios, and system behaviours.
- Precise prediction is impossible in the long term.

13. Unknowns

Because of their complex causal structure and openness, there are many factors which influence (or can influence) a system of which we are not aware. The inevitable existence of such unknowns mean we often see unexpected indirect effects of our interventions.
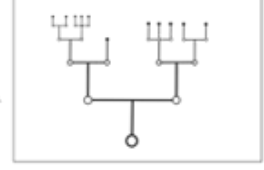
EXAMPLES
- A powerful social grouping operating in a policy area not anticipated by a policy maker.
- An undiscovered plant in a rainforest with numerous potential health applications.
LEARNING POINTS:
- Expect the unexpected.
- Be prepared to learn as the system unfolds it will become apparent that it might influence or be influenced by completely unexpected things.
- A new technology might enable a fundamental change, leading to widespread social effects.

14. Distributed control

Control of a system is distributed amongst many actors. No one actor has total control. Each actor may only have access to local information.
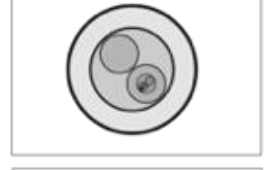
EXAMPLES
- A smoking cessation intervention's success may be determined by the many health professionals 'on the ground' running events and offering advice, rather than the central agency.
- Political parties' local groups and government may have differing views to the central parliamentary party. The central and distributed groups may conduct political work in contradictory ways.
LEARNING POINTS
- There is no top down control in complex systems. Decisions and reactions happen locally and the interactions of all these lower level decisions can give us system level properties such as stability, resilience, adaptation or whole system emergent regulation.
- The best we can do is to "steer" the system.

15. Nested systems

Complex systems are often nested hierarchies of complex systems (so-called 'systems of systems').

EXAMPLES
- Brain -> person -> society -> planet
- An ecosystem is made up of organisms, made up of cells, made up of organelles which were once free-living bacteria, made up of complex metabolic processes intertwined with genetic systems (each nested level is a complex system).
LEARNING POINTS
- When studying a particular system, it is useful to be aware of the larger system of which it is part, or the smaller systems operating within it.
- Mechanisms of change (as in realist evaluation) may be taking place at a higher or lower level to the one where an intervention is taking place.

16. Multiple scales and levels

Actors and interactions in complex systems can operate across scales and levels. For this reason systems must be studied and understood from multiple perspectives simultaneously.

EXAMPLES
- Health issues can be considered at the scale of the individual physiology or behaviour, the household, community, society (social norms) or nation (economy, health system). Usually more than one domain is required to fully understand a problem.
LEARNING POINTS
- Tackling obesity requires thinking about individuals' eating habits and activity, but also social norms, economic factors and even town planning. No one level is sufficient. • We need to think broadly about systems at multiple scales and fields as properties or dynamics of one scale often feed up or down to affect others domains.
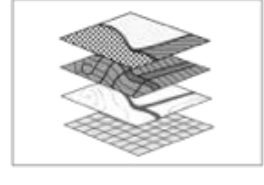
APPENDIX E: Workshop Resource List

1. Systems Thinking and Complexity Science

Boehnert, J. (2018). The visual representation of complexity. Guilford, U.K.: University of Surrey Centre for the Evaluation of Complexity across the Nexus (CECAN).

CECAN. (2019). Participatory systems mapping: A practical guide. Retrieved from https://www.cecan.ac.uk/sites/default/files/2019- 03/PSM%20Workshop%20method.pdf

De Domenico, M., Brockmann, D., Camargo, C., Gershenson, C., Goldsmith, D., Jeschonnek, S., Kay, L., Nichele, S., Nicolás, J .R., Schmickl, T., Stella, M., Brandoff, J., Martínez Salinas, A. J., & Sayama, H. (2019). Complexity explained: #ComplexityExplained. Retrieved from https://complexityexplained.github.io/ComplexityExplained.pdf

Glouberman, S., & Zimmerman, B. (2002). Complicated and complex systems: What would successful reform of Medicare look like? Discussion Paper No. 8. Retrieved from https://www.alnap.org/system/files/content/resource/files/main/complicatedandcomp lexsystems-zimmermanreport-medicare-reform.pdf

Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. Policy Sciences, 4(1), 155-169.

Snowden, D., & Boone, M. E. (2007). A leader's framework for decision making. Harvard Business Review, pp. 69-76.

Stroh, D. P. (2015). Systems thinking for social change. White Junction, VT: Chelsea Green Publishing.

Williams, B., & Hummelbrunner, R. (2011) Systems concepts in action: A practitioner's toolkit. Stanford, CA: Stanford University Press.

Williams, B. (2015). Prosaic or profound? The adoption of systems ideas by impact evaluation. IDS Bulletin, 46(1), 7-16.

2. Systems Thinking for Sustainable Development and Climate Change

Bamberger, M., Vaessen, J., & Raimondo, E. (Eds.) (2016). Dealing with complexity in development evaluation: A practical approach. Los Angeles, CA: Sage.

Burns, D., & Worsley, S. (2015). Navigating complexity in international development: Facilitating sustainable change at scale. Rugby, U.K.: Practical Action Publishing.

Ison, R. (2017). Systems practice: How to act in situations of uncertainty and complexity in a climate-change world (2nd ed.). London, U.K.: Springer.

Ofir, Z., Singh, G., Beauchamp, E., Lucks, D., D'Errico, S., & El-Saddick, K. (2015). From monitoring goals to systems-informed evaluation: Insights from SDG14. IDS Bulletin, 46(1), 1-6.

Olsen, S. B. (2003). Frameworks and indicators for assessing programs in integrated coastal management initiatives. Oceans and Coastal Management, 46, 347-361.

Page, G., Wise, R. M., Lindenfeld, L., Moug, P., Hodgson, A., Wyborn, C., & Fazey, I. (2016). Co-designing transformation research: Lessons learned from research on deliberate practices for transformation. Current Opinion in Environment Sustainability, 20, 86-92.

Pitt, R., Wyborn, C., Page, G., Hutton, J., Virah Sawmy, M., Ryan, M., & Gallagher, L. (2018). Wrestling with the complexity of evaluation at the boundary of science, policy, and practice. Conservation Biology, 0(0), 1-9.

Ramalingam, B. (2013). Aid on the edge of chaos: Rethinking international cooperation in a complex world. Oxford, U.K.: Oxford University Press.

Uitto, J., Puri, J., & van den Berg, R. D. (eds.) (2017). Evaluating climate change action for sustainable development. Cham, Switzerland: Springer Open.

United Nations Sustainable Development Group (n.d.). Sustainable development goals: acceleration toolkit. Retrieved from https://undg.org/2030-agenda/sdg-acceleration- toolkit/.

3. **Pathways of System Change and Transformation**

Capra, F., & Luisi, P. L. (2016). The systems view of life: A unifying vision. Cambridge, U.K.: Cambridge University Press.

Climate Investment Funds Transformational Change Learning Partnership. (2019). Learning about transformational change from CIF's experience. Washington D.C.: Climate Investment Funds.

D'Agostino, G., & Scala, A. (Eds.) (2014). Networks of networks: The last frontier of complexity. Rome, Italy: Springer Publishing.

Eoyang, G., & Holladay, R. (2013). Adaptive action: Leveraging uncertainty in your organization. Stanford, CA: Stanford University Press.

Green, D. (2016). How change happens. Oxford, U.K.: Oxford University Press.

Holscher, K., Wittmayer, J., & Loorbach, D. (2018). Transition versus transformation: What's the difference? Environmental Innovation and Societal Transitions, 27, 3.

Kehrer, D. (in press, 2019). Transforming our work: Getting ready for transformational projects. Bonn, Germany: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

Meadows, D. (1999). Leverage points: Places to intervene in a system. Hartland, VT: The Sustainability Institute.

Meadows, D., & Wright, D. W. (2009). Thinking in systems: A primer. Abingdon, Oxfordshire, U.K.: Routledge.

Plastrik, P., Taylor, M., & Cleveland, J. (2014). Connecting to change the world: Harnessing the power of networks for social impact. Washington, D.C.: Island Press.

O'Brien, K., & Selboe, E. (Eds.) (2015). The adaptive challenges of climate change. Cambridge, U.K.: Cambridge University Press.

Seelos, C., & Mair, J. (2017). Innovation and scaling for impact: How effective social enterprises do it. Stanford, CA: Stanford University Press.

Sharma, M. (2017). Radical transformational leadership: Strategic action for change agents. Berkeley, CA: North Atlantic Books.

Sharpe, B., Hodgson, A., Leicester, F., Lyon, A., & Fazey, I. (2016). Three horizons: A pathways practice for transformation. Ecology and Society, 21(2), 47.

Stachowiak, S. (2013). Pathways for change: 10 theories to inform advocacy and policy change efforts. Retrieved from http://www.pointk.org/resources/files/Pathways_for_Change.pdf

Waddell, S. (2016). Change for the audacious: a doer's guide – Large systems change for a flourishing future. Boston, MA: Networking Action Publishing.

Waddell, S. (2018). Four strategies for large systems change. Stanford Social Innovation Review, pp. 40-45.

Westley, F., Zimmerman, B., & Patton, M. Q. (2006). Getting to maybe: How the world is changed. Toronto, Ontario, Canada: Random House Canada.

Westley, F., Mc Gowan, K., & Tjornbo, O. (2017). The evaluation of social innovation: Building resilience through transitions. Northampton, MA: Edward Elgar Publishing.

4. Theories of Change

Anderson, A. (2006). The community builder's approach to theory of change: A practical guide to theory development. New York, NY: The Aspen Institute Roundtable on Community Change. Retrieved from http://www.theoryofchange.org/pdf/TOC_fac_guide.pdf

Davies, R. (2018). Representing theories of change: Technical challenges with evaluation consequences. CEDIL Inception Paper 15. London, U.K.: Centre of Excellence for Development Impact and Learning.

Funnell, S., & Rogers, P. J. (2011). Purposeful program theory. San Francisco, CA: Jossey-Bass.

Rogers, P. J. (2011). Using program theory to evaluate complicated and complex aspects of interventions. Evaluation, 14(1), 29-48.

Valters, C. (2015). Theories of change: Time for a radical approach to learning in development. London, U.K.: Overseas Development Institute (ODI).

Van Es, M., Guijt, I., & Vogel, I. (2015). Theory of change thinking in practice. Hague: NL: Hivos. Retrieved from http://www.theoryofchange.nl/sites/default/files/resource/hivos_toc_guidelines_final_nov_2015.pdf

Weiss, C. H. (1995). Nothing as practical as good theory: Exploring theory-based evaluation for comprehensive community initiatives for children and families. In J. Connell, A. Kubisch, L.B. Schorr, & C. H. Weiss (Eds.), New approaches to evaluating community initiatives: Volume 1, concepts, methods and contexts (pp.65-92). New York, NY: Aspen Institute.

5. Systems Evaluation Approaches

Davies, R., Mayne, J., Befani, B., Forss, K., Stame, N. & Stern, E. (2012). Broadening the range of designs and methods for impact evaluations (DFID Working Paper 38). London, U.K.: Department of International Development.

Kusters, C., & Batjes, K. (2017). Managing for sustainable development impact: An integrated approach to planning, monitoring, and evaluation. Rugby, U.K.: Practical Action Publishing.

Patton, M. Q. (2011). Developmental evaluation: Applying complexity concepts to enhance innovation and use. New York, NY: Guilford Press.

Patton, M. Q. (in press, 2019). Blue marble evaluation: Premises and practices. New York, NY: Guilford Press.

Pawson, R., & Tilly, N. (1997) Realistic evaluation. Thousand Oaks: CA: Sage Publications.

Stephens, A., Lewis, E. D., & Reddy, S. M. (2018). Inclusive systemic evaluation: A new approach for the SDG era. New York, NY: UN Women.

Systems in Evaluation Topical Interest Group. (2018). Principles for effective use of systems thinking in evaluation. American Evaluation Association. Retrieved from https://www.systemsinevaluation.com/wp-content/uploads/2018/10/SETIG-Principles-FINAL-DRAFT-2018-9-9.pdf

Williams, B. (2019). Systemic evaluation design: A workbook. Retrieved from https://gum.co/evaldesign

6. Systems Evaluation Methods

Befani, B., & Stedman-Bryce, G. (2016). Process tracing and Bayesian updating for impact evaluation. Evaluation, 23(1), 42-60.

BetterEvaluation. (n.d.). BetterEvaluation: Sharing information to improve evaluation. Retrieved from https://www.betterevaluation.org/

Byrne, D. (2016). Qualitative comparative analysis: A pragmatic method for intervention. Note No. 1. Centre for the Evaluation of Complexity Across the Nexus (CECAN). Retrieved from https://www.cecan.ac.uk/sites/default/files/2018- 01/DAVE%20B%20PPN%20v2.1.pdf

Chazdon, S., Emery, M., Hansen, D., Higgins, L., & Sero, R. (Eds). (2017). A field guide to ripple effects mapping. Minneapolis, MN: Minnesota Evaluation Studies Institute.

Davies, R., & Dart, J. (2005). The "most significant change" technique: A guide to its use. Retrieved from: https://www.alnap.org/help-library/the-most-significant-change-msc- technique-a-guide-to-its-use

Earl, S., Carden, F., & Smytylo, T. (2001). Outcome mapping: Building learning and reflection into development programs. Ottawa, Ontario, Canada: International Development Research Center.

Forss, K., Marra, M., & Schwartz, R. (Eds). (2011). Evaluating the complex: Attribution, contribution and beyond. New Brunswick, NJ: Transaction.

Hargreaves, M. B. (2010). Evaluating system change: A planning guide. Cambridge, MA: Mathematica Policy Research. Retrieved from www.mathematica-mpr.com/.../health/eval_system_change_methodbr.pdf

Hargreaves, M. B. (2014). Rapid Evaluation Approaches for Complex Initiatives. Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services. Cambridge, MA: Mathematica Policy Research. Retrieved from www.aspe.hhs.gov/sp/reports/2014/evalapproach/rs_evalapproach.cfm

Mayne, J. (2001). Addressing attribution through contribution analysis: Using performance measures sensibly. Canadian Journal of Evaluation, 16(1), 1-24.

Ofir, Z. (2018). Updating the DAC evaluation criteria, part 5: Non-negotiable criteria. In Evaluation for Development. Retrieved from http://zendaofir.com/updating-dac- evaluation-criteria-part-5/.

Teddlie, C., & Tashakkori, A. (2009). Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences. Thousand Oaks, CA: Sage Publishing.

Van der Merwe, S., Biggs, R., Preiser, R., et al. (2019). Making sense of complexity: Using SenseMaker as a research tool. Systems, (7)25, 2-19.

Wilson-Grau, R. & Britt, H. (2012). Outcome harvesting. Cairo, Egypt: Ford Foundation. Retrieved from https://www.intrac.org/wpcms/wp- content/uploads/2017/01/Outcome-harvesting.pdf

Wilson-Grau, R. (2018). Outcome harvesting: Principles, steps, and evaluation applications. Charlotte, NC: Information Age Publishing.

Yin, R. (2013). Case study research. Design and methods. Thousand Oaks, CA: Sage.

7. Systems Evaluation Exemplars

Hargreaves, M. B., & Dudley, D. (2016). Building healthy communities: Aligning state and local endowment investments to support policy and systems change in South Sacramento. Gaithersburg, MD: Community Science.

Page, G. (2013). Our coast, our future: West region of Ghana. Building capacity for adapting to a rapidly changing coastal zone: Lessons learned. Prepared for USAID. Portland, ME: SustainaMetrix.

Page, G. (2015). A synthesis of issues affecting the management of coral reefs and recommendations for long-term capacity building in U.S. institutions. Prepared for the National Oceanic and Atmospheric Administration (NOAA). Portland, ME: SustainaMetrix.

Page, G. (2017). Episode study report: Understanding IUCN's role in unlocking FLR finance. Prepared for the International Union for Conservation of Nature (IUCN). Portland, ME: SustainaMetrix.

Patton, M. Q., McKegg, K., & Wehipeihana, N. (Eds.) (2016). Developmental evaluation exemplars: Principles in practice. New York, NY: Guilford Press.

Verbitsky-Savitz, N., Hargreaves, M. B., Penoyer, S., Morales, N., Coffee-Borden, B., & Whitesell, E. (2016). Preventing and mitigating the effects of ACEs by building community capacity and resilience: APPI cross-site evaluation findings. Washington, D.C.: Mathematica Policy Research. Retrieved from https://www.mathematicac-mpr.com/our-publications-and-findings/publications/final-report-preventing –and-mitigating-the effects-of=aces-by- building-community-capacity

8. Philanthropy and Systems Evaluation

Cox, J. (2019). What's stopping us? Commissioner and contractor perspectives on complexity approaches to evaluation. CECAN Workshop on Commissioning Complex Evaluations. London, U.K.: CECAN.

Patrizi, P, Heid Thompson, E., Coffman, J., & Beer, T. (2013). Eyes wide open: Learning as a strategy under conditions of complexity and uncertainty. Foundation Review, 5(3), 50-65.

Preskill, H., Gopal, S., Mack, K., & Cook, J. (2014) Evaluating complexity: Propositions for improving practices. Retrieved from http://www.pointk.org/resources/files/Evaluating_Complexity.pdf

Van Oijen, L. (2016). Complexity from the perspective of philanthropic foundations and their evaluation practices. In M. Bamberger (2016). Dealing with complexity in development evaluation: A practical approach. Los Angeles, CA: Sage Publishing.