USAID
FROM THE AMERICAN PEOPLE

DISRUPTING SYSTEM DYNAMICS: A FRAMEWORK FOR UNDERSTANDING SYSTEMIC CHANGES

LEO
Leveraging Economic Opportunities

REPORT NO. 47

OCTOBER 2016

This publication was produced for review by the United States Agency for International Development. It was prepared by MarketShare Associates for ACDI/VOCA with funding from USAID's Leveraging Economic Opportunities (LEO) project.

DISRUPTING SYSTEM DYNAMICS: A FRAMEWORK FOR UNDERSTANDING SYSTEMIC CHANGES

LEO
Leveraging Economic Opportunities

REPORT NO. 47

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

CONTENTS

I. INTRODUCTION 1

II. RATIONALE FOR A NEW SYSTEMIC CHANGE FRAMEWORK 3

III. UNDERSTANDING SYSTEM DYNAMICS 5

IV. A FRAMEWORK FOR UNDERSTANDING SYSTEMIC CHANGE 7

III. CAPTURING INDICATIONS OF SIGNIFICANT SYSTEMIC CHANGES 10

IV. APPLYING THE SYSTEMIC CHANGE FRAMEWORK AND DOMAINS 16

V. CONCLUSIONS 23

ANNEX I. WORKS REVIEWED 24

ACKNOWLEDGEMENTS

Ben Fowler, Tim Sparkman and Erin Markel spent countless hours reading, brainstorming, white boarding and writing up this framework. The ideas for this paper would never have come together without significant inputs from a group of very smart reviewers. MarketShare Associates would like to especially thank the invaluable input from Kristin O'Planick and Tjip Walker of USAID; Anna Garloch of ACDI/VOCA; Mike Field of DAI; Matt Ripley; Mike Klassen; Marcus Jenal and Shawn Cunningham of Mesopartner; Elizabeth Dunn of Impact LLC; and Patrick Sommerville of LINC. MarketShare Associates would also like to thank everyone who provided critical feedback on the framework at the workshops in Washington, DC and Lusaka, Zambia over this past year.

ACRONYMS

AWEF	Arab Women's Enterprise Fund
ALCP	Alliances Lesser Caucuses Program
FS&H	Food Safety & Handling
LEO	Leveraging Economic Opportunities
MSA	MarketShare Associates
MSME	Micro Small Medium Enterprise
MSD	Market Systems Development
RMG	Ready-Made Garment

I. INTRODUCTION

Systemic change lies at the heart of the basic theory of market systems development (MSD): that underlying determinants of economic behavior in a market system can be purposefully influenced to create a desired outcome. That influenced change is systemic in the degree to which it alters the market system's behaviors, with reference to the way it benefits a low-income or marginalized group, is a reasonably straightforward concept. Describing and measuring systemic change is extremely challenging, however.

This paper builds on a literature review on evaluating systems[1] conducted under the Leveraging Economic Opportunities (LEO) project[2], which found issues with the existing frameworks and indicators used for measuring systemic change. It presents a framework, illustrated in Figure 1, that outlines a pathway for systemic change, and presents a complementary set of indicator areas, or 'domains', that signal systemic changes.

THEORY OF SYSTEMIC CHANGE IN INCLUSIVE MARKET SYSTEMS

Systems are groups of **agents** that **interact** with each other, producing **emergent patterns** of collective behavior. They are **dynamic** – constantly changing – as agents are constantly acting, producing emergent patterns that in turn influence individual behaviors in a never-ending **feedback loop**.

Because systems are constantly changing, "systemic change" refers to the diversion of a system down **a new evolutionary path**, not the introduction of movement where there was none previously (there is always movement).

We can observe indications that systems are changing at two levels:

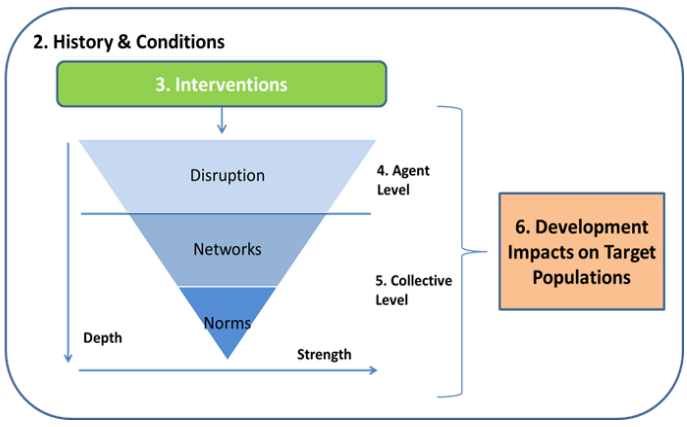
1. Behavior changes and characteristics of **individual agents** (e.g. people, businesses, other market actors); and
2. **Collective shifts in interactions** between individual agents.

Systems are constantly changing in both positive and negative ways. For the purposes of market systems development, positive systemic changes result in more sustainable, inclusive benefits to agents in the system.

A few features distinguish this Disrupting System Dynamics Framework from existing frameworks:

- It incorporates dynamism by describing a process of ongoing evolution in market systems, which are constantly changing. It provides guidance on understanding the significance of observed systemic changes in terms of their depth (particularly in norms and networks) and their strength (with respect to their scale, buy-in, and relevance).
- It expands the range of indicators that provide information about systemic changes, partly by looking at the interactions of agents in systems, in addition to the agents themselves.

Figure 1: Disrupting System Dynamics Framework



[1] Fowler, Ben and Elizabeth Dunn. Evaluating Systems and Systemic Change for Inclusive Market Development: Literature Review and Synthesis. LEO Report No. 3. 2014.
[2] For more information on LEO and access to all resources, visit www.microlinks.org/leo. Throughout this document, "project" is used in the generic sense to refer to donor-funded activities, rather than the USAID-specific definition of this word.

USAID'S LOCAL SYSTEMS (5R'S) FRAMEWORK AND THE DISRUPTING SYSTEM DYNAMICS FRAMEWORK

In 2014, USAID published *Local Systems: A Framework for Supporting Sustained Development*, It, together with its companion technical note, *The 5Rs Framework in the Program Cycle*, represents USAID's explicit attempt to introduce systems thinking into the Agency's work. The framework introduces five R's to understand systems and systemic change:

- "Resources: Local systems transform resources—such as budgetary allocations or raw materials or inputs—into outputs.
- Roles: Most local systems involve a number of actors who take on various defined roles: producer, consumer, funder and advocate.
- Relationships: In a similar fashion, the interactions between the actors in a local system establish various types of relationships. Some may be commercial; others more administrative and hierarchical.
- Rules: An important feature of local systems is the set of rules that govern them. These rules define or assign roles, determine the nature of relationships between actors and establish the terms of access to the resources on which the system depends.
- Results: The concept of "results" is expanded to include measures of the overall strength of the local system as well as traditional outputs and outcomes."

There is strong alignment between this Disrupting System Dynamics Framework and the Local Systems Framework. Both frameworks clearly underline the importance of relationships, the critical element of people in the roles that they play and the desired development results. This framework is complementary to the Local Systems Framework in that it provides a set of guidelines for understanding significant systemic changes, including characteristics of deeper systemic changes, particularly shifts in norms and networks. It also presents a specific set of domains of indicators to understand systemic change in MSD programming.

The process of developing this paper began with a review of published indicators of systemic change, systems literature (refer to Annex I for key resources) and interviews with key practitioners who are attempting to facilitate and measure systemic change. The framework builds on MarketShare Associates' work on evaluating systemic change in private sector development.[3] An early draft of the framework was presented at the Donor Committee for Enterprise Development's seminar in Bangkok in March 2016.[4] Further inputs were sought from expert MSD practitioners at the BEAM Exchange conference in May 2016 and the SEEP conference in September 2016. This paper complements a separate LEO resource, *Testing Tools for Assessing Systemic Change: A Synthesis*,[5] which documents the process of testing four tools for measuring systemic change. It also complements a second LEO paper, *Guidelines for Monitoring, Evaluation, and Learning in Market Systems Development*[6], which addresses a broader range of issues associated with ME&L in market systems and for projects that embrace a systems approach, including practical guidance for a range of audiences, formal evaluators to project monitoring staff and adaptive management champions.

[3] MarketShare Associates. DFID Malawi PSD Programme Systemic Change Methodology. 2015. Input to *External Review of DFID Malawi's Private Sector Development Programme (PO 6961) Inception Report.*

[4] MarketShare Associates. Testing Tools for Assessing Systemic Change: overview of the tool trials under USAID/LEO and DFID/BEAM. 2016. http://www.enterprise-development.org/wp-content/uploads/MSASystemicChangeAssessmentToolsBKK2016.pdf

[5] MarketShare Associates. Testing Tools for Assessing Systemic Change: A Synthesis. USAID. 2016.

[6] Dunn, Elizabeth et al. Guidelines for Monitoring, Evaluation, and Learning in Market Systems Development. 2016.

The audience for this paper is expected to include those working on and funding initiatives that want to create systemic change as well as evaluators wanting to assess how well initiatives have contributed to systemic change.

Key Definitions

A **system** is a group of **agents** that **interact** with each other, producing **emergent patterns** of collective behavior.[7] In that sense, an economy is a "massively parallel system of concurrent behavior. And from all this concurrent behavior markets form, prices form, trading arrangements form, institutions and industries form. Aggregate patterns form."[8]

An **agent** is a single actor within a system, such as a person, firm, household, community, and governmental body, among other things.[9] Systems are made up of many different agents, and agents can consist of other agents; for example, a firm is made up of many employees and a household is made up of people.

The **agent level** is where one witnesses the actions of individual agents.

The **collective level** is where we see agents interacting with one another, creating emergent patterns of behavior. Watching these patterns reveals deeper types of systemic change, including particularly changes in norms and networks that influence how agents interact and under what terms.[10]

System dynamics refer to the process and character of constant change within a system, as agents influence, and are influenced by, interactions with other agents. In other words, "[i]n the short run, actors create relations, in the long run, relations create actors,"[11] and so on.

Systemic change is the diversion of a system down a new evolutionary path. Indications of systemic change can be witnessed at the agent level and collective levels of behavior and attributes.

Significant systemic changes are those systemic changes that display greater (relative to the context) depth of change (particularly those observed at the collective level through norms and networks) and strength of change (i.e., showing signs of greater scale, buy-in of system actors, and relevance of the change to the intervener's development vision).

II. RATIONALE FOR A NEW SYSTEMIC CHANGE FRAMEWORK

As noted in Fowler and Dunn (2014), systemic change frameworks oriented to MSD programs already exist. The impetus for this Disrupting System Dynamics Framework was a recognition that other frameworks were missing important elements, and therefore do not focus on important aspects of systemic change. This

[7] Miller and Page. Complex Adaptive Systems: An introduction to computational models of social life. Princeton University Press, 2007.
[8] Arthur, Brian. Complexity Economics: A different framework for economic thought. SFI, 2013.
[9] Miller and Page. Complex Adaptive Systems: An introduction to computational models of social life. Princeton University Press, 2007.
[10] Beinhocker, Eric. "The Origin of Wealth: The radical remaking of economics and what it means for business and society." Harvard University Review Press, 2007.
[11] Padgett and Powell. "The Emergence of Organizations and Markets," Princeton University Press, 2012.

section presents key considerations that inform the Disrupting System Dynamics Framework, many of which are not reflected in existing frameworks.

1. **Systems are constantly changing, independently of external facilitation**. While systemic change is frequently of interest only to the extent that it was nudged by development funding, systems are changing constantly on their own. All systems are constantly in flux, propelled by their own energies down a path of constant change.[12] This implies that simply detecting change in a system is not insightful. When we seek to "change" systems, we are actually seeking to influence the path of change, usually so that we see a sustained benefit to a given group of people (e.g., impoverished female farmers).

2. **Systemic changes can have positive and negative impacts on target groups**. Systems can change in ways that are both positive and negative for the agents that are meant to benefit from development programming (e.g., poor people). For example, newly introduced quality standards may initially allow poor farmers to increase their returns by complying, until buyers use their power differential to appropriate the increased margin. In practice, MarketShare Associates' (MSA) application of Outcome Harvesting in Georgia identified both positive and negative systemic changes.[13] These happen everywhere, so a framework for understanding systemic change therefore needs to be open to observing negative changes as well.

3. **The potential of a system to change and ways it can change are shaped by its history and conditions**. The potential for systemic changes to happen in a way that is positive is fundamentally reliant upon the pre-existing disposition of the system being conducive to this kind of change. In other words, agent level changes do not happen independently of the context in which the system exists. In addition to informing a notion of constraints to change, the context itself defines a range of options for new system features. For example, contexts with strongly enforced caste systems will prohibit certain types of changes (e.g., the ability of low caste individuals to assume particular roles). The options for change are therefore limited by that system characteristic. Similarly, MSA's ex-post assessment of the Micro Small Medium Enterprise (MSME) project in Cambodia uncovered several initial conditions that allowed for the systemic changes that the project influenced in the input sector. These included a high density of rural farmers and input shops, as well as a favorable industry structure that valued investments in customer education.[14] Because of these factors, MSME could nudge the system toward new competitive norms in which wholesalers competed with each other to educate farmers about the benefit of their products. Similarly, MSA's application of network mapping in Sierra Leone discovered little interaction between different trading networks, meaning that innovations would be very unlikely to spread organically across the entire system unless the constraints that influenced this fragmentation (in this case, cash scarcity) were also addressed.[15]

4. **Indications of systemic changes vary in their strength**. One can observe stronger and weaker indications of systemic change. For example, the initial adoption of a new behavior by a single project partner is much weaker in its indication of a systemic change than is the widespread uptake of that behavior change by many firms in a sector. Consequently, observed changes should be analyzed in terms of their significance.

[12] In the complexity economics literature, this is known as "endogenously generated non-equilibrium," and is a response to the conventional economic notions of equilibrium states (which are not evident in reality) and reliance on exogenous influences to create change to equilibrium states. From a complex systems perspective, the economic pot boils itself. See Arthur, 2013.
[13] MarketShare Associates. Testing Tools for Assessing Systemic Change: Outcome Harvesting. 2016.
[14] Fowler, Ben. Scaling Impact: Cambodia MSME Ex-Post Assessment. 2016.
[15] MarketShare Associates. Testing Tools for Assessing Systemic Change: Network Analysis. 2016.

5. **Boundaries are needed to set limits on our focus.** Frameworks to measure systemic change are often silent on what constitutes the boundary of a system. Many users consequently define their system in terms of where they are intervening – often a subsector – and only look for systemic changes within that realm. Yet systemic changes are often unexpected; MSA's research in Georgia uncovered a number of systemic changes such as shifts in retail business diversity and the housing market that had significant impacts on the project's beneficiaries yet would have been missed by only examining changes within the project's targeted sector.[16]

6. **System behavior and systemic change are influenced by a diverse set of actors operating at varying scales**. Systemic change frameworks for MSD are typically applied to understand the behaviors of a limited set of market actors – typically firms and government departments. However, households and communities, among other agents, also experience and influence systemic changes.[17] Both establish and enforce norms of behavior. At the same time, households and communities are also systems themselves, and can influence, for example, whether or not women benefit from household income increases. These are referred to as 'nested systems', with the boundaries and scale at which one examines a system determining what is considered an agent and what is a system. Norms at one scale can restrict, for example, women's mobility and create barriers to women accessing available economic opportunities. Without analyzing these often-overlooked types of agents and scales – and how they influence other aspects of the system – our ability to understand why systems do or do not change and the broader range of impacts of systemic change is impeded.

7. **Behavior change is a necessary, but not sufficient, indication that systemic change is happening**. Current frameworks equate systemic change with changes in agent behaviors, and present a relatively limited set of agent behaviors. While changes in the behaviors of agents (e.g., adoption of a new business model, imitation of the behavior of others) can reveal the influence of norms on agents, they do not show the norms, themselves. At best, these are indications that systemic changes may be underway. There are more indications of systemic change at the individual level than we are currently considering, and there is a whole additional set of indications at the collective level that are useful in inferring systemic changes but which much of the MSD field was previously ignoring. [18]

III. UNDERSTANDING SYSTEM DYNAMICS

"The ability to collect and pin to a board all the insects that live in the garden does little to lend insight to the ecosystem contained therein."[19]

The field of market systems development can benefit by explicitly drawing from the large body of literature exploring complex adaptive systems, in a variety of fields,[20] when seeking to create a common understanding of the term "systems." This paper attempts to do so. A few basic precepts of complex adaptive systems help describe with more precision what is meant by systems (market or otherwise). For the purposes of this

[16] MarketShare Associates. Testing Tools for Assessing Systemic Change: Outcome Harvesting. 2016.
[17] Campbell, Ruth. A Framework for Inclusive Market Systems Development. 2014.
[18] However, we have noted that much of the experimentation programs undertake in developing novel ways to track systemic change examines the collective level. This suggests a widely perceived need that this framework seeks to address.
[19] Miller and Page, Complex Adaptive Systems: An introduction to computational models of social life. Princeton University Press, 2007.
[20] The relevant literature is quite vast. Some of the more influences include Origin of Wealth (Beinhocker), Complexity Econ (Arthur), and Complex Adaptive Systems (Miller and Paige).

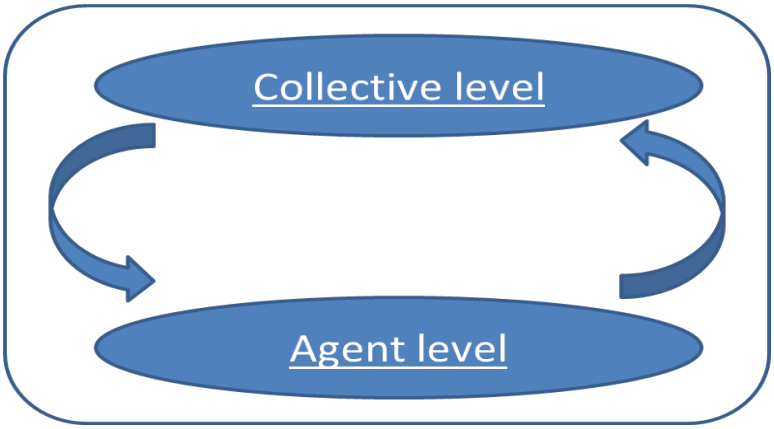
discussion, "systems" are synonymous with "complex adaptive systems," and are characterized by the following features:[21]

1. Systems are composed of agents (individuals, firms, households, communities, etc.).
2. Agents interact with each other, giving rise to "emergent"[22] patterns of behaviors that could not be inferred simply by looking at the characteristics of agents.
3. These emergent patterns of behavior influence agent behaviors, and vice versa, in a phenomenon known as "coevolution."
4. Because systems exhibit behaviors that are constantly (if at times slowly) changing, they also have a history and a unique character. The current state of a system is thus "path dependent," meaning that it is very much a function of its history (i.e., the path it took to its current state). Path dependency can have important implications on how the system can change in the future.

In this view, **systems are constantly evolving historical creatures**, and no two systems are identical. **From a systems perspective, the basic task of market development is to influence a given market system to evolve in a way that allows benefits to accrue inclusively and durably to target groups of agents.**

The dynamic pattern of change is illustrated by the following (purposefully simple) figure:

Figure 2: Dynamics of Systemic Change



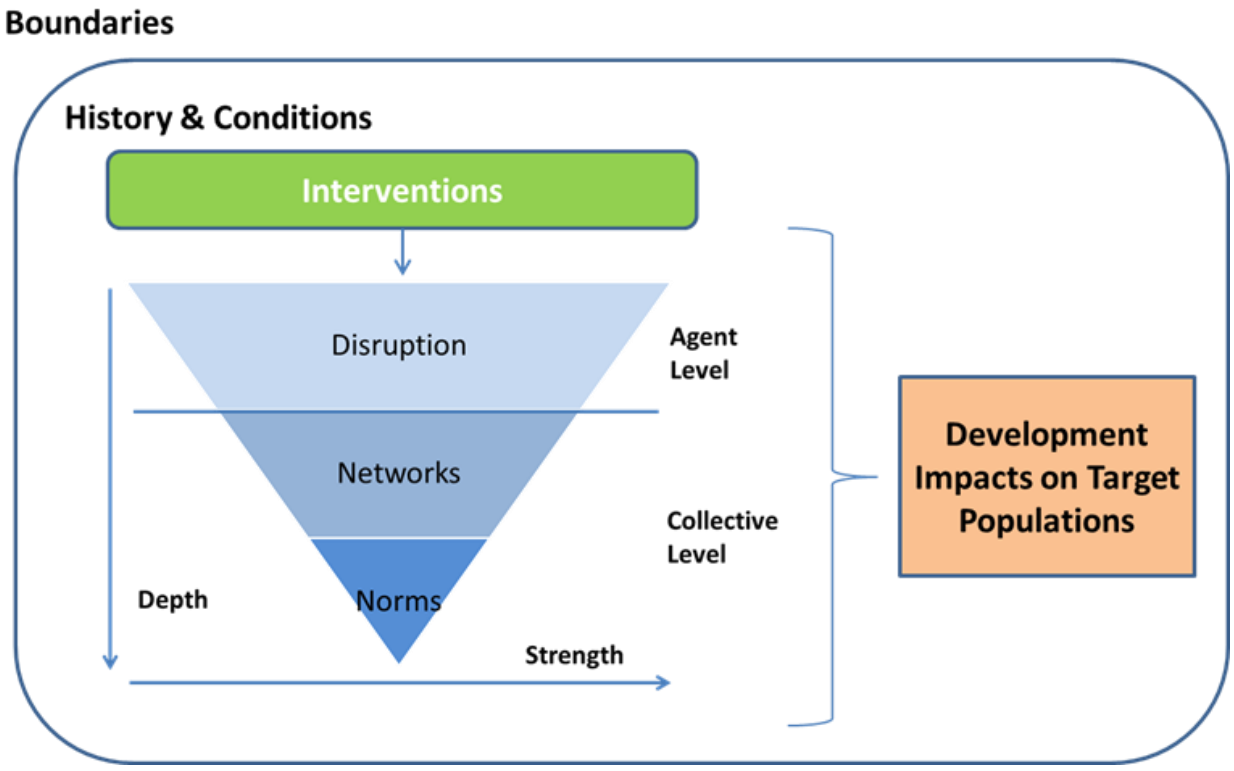
This figure illustrates that a system arises from interactions between agents, and that there are at least two levels at which MSD programs can watch systemically important behaviors and characteristics – at the **agent** level, and at the **collective** level. The process of systemic change is driven by how the collective and agent levels interact – "system dynamics" refers to the system in motion. These levels are constantly influencing each other in feedback loops, fostering the "coevolution" of agents and the patterns their interactions produce. As growing numbers of agents change their behaviors (e.g., adopting a new business model), this in turn generates emergent behaviors at the collective level (e.g., shifts in relationships), which in turn create further changes at the agent levels (e.g., reinforcing beliefs in the benefit of the new model and convincing more agents to adopt it). Both types of changes can be observed concurrently.

[21] See, for example, Sparkman et al. "Practical Tools for Measuring System Health." USAID, 2016; Miller and Page. Complex Adaptive Systems: An introduction to computational models of social life. Princeton University Press, 2007; and Williams and Hummelbrunner. Systems Concepts in Action: a Practitioner's Toolkit. Stanford: Stanford University Press. 2011.
[22] Emergence is "a phenomenon whereby well-formulated aggregate behavior arises from localized, individual behavior." Miller and Page, 2007.

IV. A FRAMEWORK FOR UNDERSTANDING SYSTEMIC CHANGE

This section introduces a new framework for understanding and measuring changes in systems that is presented in the following figure.

Figure 3: The Disrupting System Dynamics Framework



The framework has the following features, each of which is illustrated with practical examples of how to put the framework into practice.

1. **Boundaries**. The boundaries define the scope of the system in which changes will be observed. This sets the limits of what an observer wants to analyze.

PRACTICAL APPLICATION: SETTING (AND ADJUSTING) THE BOUNDARIES

Boundaries are often set up-front by project monitoring staff and evaluators to determine what will be examined. MSD projects often set boundaries uncritically around their target market systems. But the decision on where to set boundaries should be informed by a mix of **strategy** (where changes are expected to happen), **risk mitigation** (where negative systemic changes may occur and need to be monitored), and **practicality** (where change can be realistically and affordably measured). In many cases, systemic changes will occur outside of a project's focus sectors, in interrelated systems. And it is often unclear where the boundaries should be set; stakeholders may have different perspectives and it can be impossible to know ex-ante where boundaries should be. Using measurement tools that are open to capturing changes outside of pre-determined boundaries (such as narrative-based tools) can be very helpful in testing the appropriateness of a project's boundaries and deciding whether to adjust them.

2. **History & conditions**. The history of a system (e.g., its trajectory of change) and its conditions at the point at which it is analyzed heavily influence its potential to change at all, and in ways that are positive or negative for a project's target group.

PRACTICAL APPLICATION: DOING AN INITIAL SYSTEM ANALYSIS

Prior to intervening in a system, it is important to do an initial system analysis to understand the key features of that system. Such a system assessment not only informs projects on where to intervene, but also creates a baseline that enables future comparison with the initial state of the system.

The analysis should include economic factor availability and distribution, the state of infrastructure, access to technology, vulnerability to shocks and stresses, perceptions, and patterns of interactions that have characterized engagements between market actors. It should also consider how the system is distributing benefits among various actors to gauge its inclusiveness. It is important that the analysis not only look at conditions at the time of the analysis, but also at the historical patterns in these factors.

More discussion on conducting an upfront market systems assessment in the context of MSD projects is presented in MarketShare Associates. The Utility of Market Systems Analysis: Key Findings from a Landscape Review. LEO report #40. USAID. 2016.

3. **Interventions**. While the framework can describe changes in systems where no interventions by external actors have taken place, the primary purpose of this framework is to help understand how interventions have or can shape market systems to be more inclusive for target populations. Practitioners select interventions to create systems change. These interventions are invariably oriented at the agent level, as this is the only level at which interventions can directly influence, hoping thereby to indirectly influence changes at the collective level, and observe in some sense that these changes are systemic.

PRACTICAL APPLICATION: SETTING VISION FOR SYSTEMIC CHANGE, THEN SELECTING, PILOTING AND ADAPTING INTERVENTIONS

The findings of the initial system assessment should inform the initiative's vision of its desired development impacts and the systemic changes required to achieve them, based on the current state of the system. The vision for how the system should change will shape what interventions to pilot and what changes to be monitoring. Given that a vision can create confirmation bias among project staff, **the vision must be regularly reviewed and updated** as more is learned about the system and results are observed. Importantly, the vision that is outlined should not expect a system to be static, as it will continue to evolve. Rather, the vision should anticipate that the system will evolve in a more positive and inclusive path.

Selecting interventions that are designed to change systems should then be done **with the desired development impact(s) and systemic changes specifically in mind**. This should draw from the findings of the initial system assessment, which identified key characteristics of the system that are making it produce inadequate inclusive benefits for target populations, but recognize that most learning comes from watching systems respond (or not) to interventions. As the interventions are rolled out and the team starts learning about how the system is changing and what benefits are being created for target beneficiaries, the project will need to adapt its approach to respond to these signals.

4. **Agent level**. Important indications of systemic change can be observed at the agent level, whenever single agents are "acting." Agents include many types of actors, including but not limited to individuals, households, businesses, communities and government bodies.

5. **Collective level**. Collective level changes are the result of two or more actors (of any type) "interacting" to produce patterns of behavior. Collective changes are, in most cases, more profound than changes observed by examining one or several agents in isolation, indicating more substantial shifts than agent level changes.

PRACTICAL APPLICATION: CAPTURING INDICATIONS OF SYSTEMIC CHANGE

As interventions proceed, projects need to understand whether changes are occurring in agent and collective behaviors and characteristics. This can happen through looking for specific evidence of expected systemic changes. The next section provides a set of domains of indicators that can be used based on the types of systemic changes that are desired. But recognizing that systemic changes are often unpredictable, and can be negative, it is important to also use tools and methods that are open to capturing unexpected change. In particular, narrative-based approaches such as Outcome Harvesting that help to capture perspectives of key actors in the system can be quite useful. Equally, tools to map the evolution of relationships, like Social Network Analysis, can illuminate important changes in flows. More information on some tools that can be used to understand systemic change is presented in MarketShare Associates. Testing Tools for Assessing Systemic Change: A Synthesis. LEO report #41. USAID. 2016.

Monitoring for systemic change should happen from very soon after the start of a project. From an early stage, projects can use tools to look for early signs or weak signals of systemic change, such as by finding outliers who quickly begin exhibiting desired behaviors. This can give early feedback on whether initiatives are moving in the right direction and prompt course corrections. As a project's interventions gain traction, work can begin on capturing other, more substantial signs that systemic change has occurred.

6. **Development impacts**. In a development context, systemic changes are a means to an end: benefiting a project's target population. Given the recognition that systemic changes can be negative, either initially or because of subsequent shifts in norms and networks that reinforce the status quo, it is important to understand whether and to what degree benefits to target populations are emerging.

PRACTICAL APPLICATION: MONITORING DEVELOPMENT IMPACTS AGAINST THE PROJECT VISION

As interventions in the system proceed, it is critical to understand what (if any) development impacts are being created for target beneficiaries. This can be an important signal of the impacts of systemic changes that offers a lens through which to examine the associated system to see what changes in patterns of interactions might help account for it.

It is important to remember that systemic change is not always linear. For example, systemic changes can initially produce positive changes for disadvantaged groups that are then claimed by more powerful actors. Similarly, in some cases conditions may initially worsen as actors struggle against a change before benefits are later experienced. Consequently, impacts on beneficiaries need to be regularly validated rather than being extrapolated from initial checks.

III. CAPTURING INDICATIONS OF SIGNIFICANT SYSTEMIC CHANGES

Identifying *Significant* Systemic Changes

Identifying systemic changes is of interest given our belief that that deeper-rooted changes will not be easily reversed, and given that the development benefits that have been created for target beneficiaries are more likely to be sustained. Earlier in this document we argued that systemic changes vary in strength. If that is the case, it is important to understand what characterizes a "significant" systemic change that provides powerful signals that a system has changed. We have identified the following as key features that determine how significant an observed change is **from the perspective of the intervening actor**:[23]

The **depth** of the change in terms of:

- **Disruption** of existing system patterns
- **Networks** of connections within a system that shape how a system operates
- **Norms** influencing the behaviors in the system

The **strength** of the change in terms of:

- The **scale** at which the change has taken place
- The level of **buy-in** to the change by actors in the system
- The **relevance** of the change in how strongly it influences the way the system achieves (or not) the development vision

[23] The level of **contribution** of a project to the observed change is often another important factor, but is not an important consideration for all projects so has been excluded from this list.

These features should not be construed as binary, in that a change is either significant or not. It would be impossible to set out a clear dividing line of what is significant or not. Rather, they should be understood as a continuum: indications of systemic change may be more or less significant. **Significance must be defined relative to the system itself**. For example, evidence that three wholesalers have adopted a new behavior would be very significant in a system with just three wholesalers, but quite insignificant in a system of several hundred. Moreover, **these features can be reassessed over time to understand if a change is becoming more or less significant**. For instance, the imitation of project-supported behavior changes becomes a more significant sign of systemic change over time as more agents imitate the model, and as the project's role in facilitating the imitation lessens.

Each of the key features is described here:

1. Depth

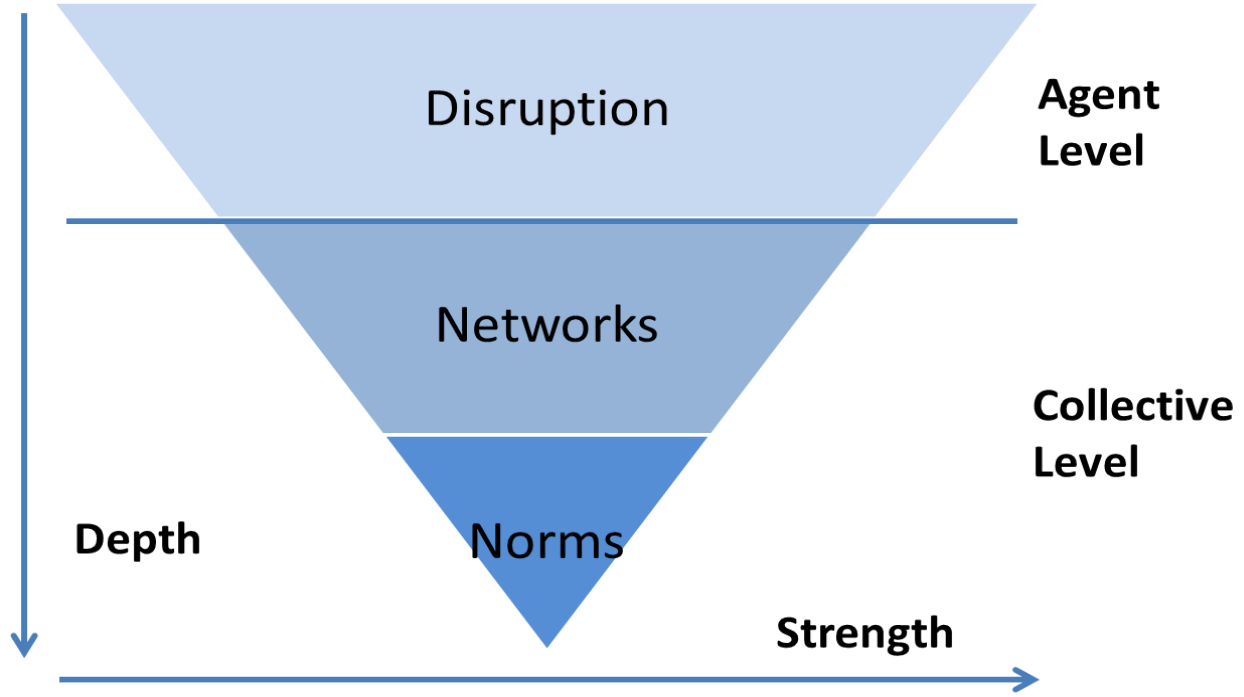
A first critical feature of significant systemic changes is that they represent deep shifts in the way that a system operates. Many changes that occur in systems are very short-term in nature, based on factors that are constantly changing. For example, falling world commodity prices for a particular product may cause a farmer to temporarily shift her crop mix, but then revert to her previous mix when they rebound. Such changes are regularly reversed as conditions continue to change. Deeper systemic changes are more sticky and influential in how the system functions.

Systemic changes can be divided into three broad categories that represent progressively more significant systemic changes: disruption, networks, and norms. The following figure, drawing on the concept put forward in the iceberg model developed by Donella Meadows, outlines this hierarchy of systemic changes. At the top are agent level changes that indicate disruption in a system. These are important but comparatively shallow signs that a system is changing. At the bottom of the inverted pyramid are deeper changes at the collective level in norms and networks. The 'depth pyramid' illustrates two features that generally hold when moving from top to bottom:

- **Changes become more significant**. Whereas agent level changes may occur on a small-scale, and may reflect superficial, temporary shifts, changes at the collective level provide better evidence that norms and networks are changing and therefore are more significant indications of systemic change.
- **Changes become less observable.** Whereas changes at the agent level are generally observable, those at the collective level are less so and norms and networks must be understood via proxy indicators.

SYSTEMS ARE CONSTANTLY EVOLVING

While our vision is that a system should generate inclusive benefits for target groups should be enduring, we should avoid expecting that a system will remain static once it has changed in the way we want. Rather, we should anticipate that systems will continue to evolve and seek to create the conditions that will allow them to continue to evolve in ways that are positive for maintaining and improving the development vision. For this reason, **resilience** and **sustainability** are less insightful characteristics of desirable systemic changes and more helpful as qualities of the development vision.



Below we discuss each of the levels and present domains for capturing changes in them. Domains are broader than indicators; they are types of change. Multiple indications are typically relevant for each domain. This paper does not attempt to set out an exhaustive set of indications. Rather, the domains indicate areas that may merit exploration in determining whether systemic change has or may occur. These domains have been created specifically to be relevant for MSD programming, though may be more broadly applicable.

a. Agent Level Behaviors and Attributes

The shallowest signals of change in a system occur at the agent level. Agent level aspects can be deduced by observing agents. These aspects signal disruption that has occurred in a system that can ultimately lead to deeper systemic change in terms of collective level shifts in norms and networks. Agent level changes have been the traditional focus of systemic change measurement frameworks and tools. Consequently, there are a number of existing domains and frameworks for capturing agent level changes. From among the tools profiled by LEO's Testing Tools for Assessing Systemic Change Synthesis Paper, standard tools are particularly helpful for capturing agent level changes.

The following table explains the main domains, explains their relevance and provides example indications. It is important to note that appropriate indications of systemic change are very context-dependent, and so the ones provided here may not be relevant in all contexts.

Table 1: Agent Level Domains of Systemic Change

Domain	Definition and Why Relevant	Example Indications
Voice	The capacity to express opinions. Voice indicates agents' capacity to shape how a system evolves and the inclusiveness of the benefits that are generated.	**Ability of reference group to voice their concerns**: the ability to speak up and negotiate is an indication of the inclusivity of a system.

Domain	Definition and Why Relevant	Example Indications
Investment	The allocation of resources (financial, human or otherwise). How resources are being allocated within the system indicates priorities, the perceived attractiveness of the system and actors' perception of future prospects.	**Investment in project-supported models**: signals the extent to which partners have ownership over project-introduced or supported models.
		Investment in building operational capacity: new investment may signal whether firms are solution-seeking (versus extractive).
		Replication of new innovations by an agent in other parts of its operations: replication throughout an agent's operations signals that new business models are taking hold
Innovation	The introduction of variety into a system via new processes, products, services, etc. Indication of the rate at which a system is evolving.	**Evolution in business models, products and processes (i.e., adaptation)**: provides an indication of the speed at which learning is happening.
		Business entry and exit rates: can signal changes in the rates at which new innovations are being adopted.[24]
		Diversity of business models: many different types of business models in a system indicate an ability to evolve faster and accomplish more sophisticated tasks, than a simpler, more homogenous population.
Perceptions and beliefs	The opinions of agents in a system. Provides insight into the incentives and perspectives of actors in a system that support or impede systemic change.	**Perception of the acceptability of a new model**: indicates whether actors are happy with a new model and so whether they are likely to continue or discontinue use of it.
Imitation	The adoption of behaviors by non-project partners. Signals the extent to which new behaviors and characteristics are acceptable to other actors.	**Number of new actors adopting an innovation:** the spread of new innovations throughout a sector signals that new business models, technologies and other changes are acceptable to agents in a system.
Institutionalization	Shifts (e.g., new formal rules, adoption of functions by actors, provision of complementary supporting functions) that reinforce changes in a system's trajectory. Signals that changes are becoming more embedded in the system.	**Formal rule change**: a shift in policies and regulations that codifies certain behavior and enables formal sanctions for violation (e.g., not meeting quality standards).

[24] If new entrants are more productive then incumbents, otherwise they don't signal a sector that shows positive change.

b. Collective level behaviors and attributes

Whereas agent level changes are typically – albeit not always – more shallow indications of change, collective level changes are generally deeper indications. At the collective level, two key factors are particularly important signs of durable systemic change: **norms** and **networks**. Both play a critical role in influencing agents' decisions. This does not imply that norms and networks are deterministic (i.e. that agents will always act the same way given a certain set of norms and networks – they will not) but that they are very influential.

Networks refer to the webs of connections between agents in a system, with connections existing between two agents when there is a flow of something between them. "Upon reflection it should come as no surprise (although in some fields it is a relatively recent realization) that the structure of such networks, the particular pattern of interactions, can have a big effect on the behavior of the system… The connections in a social network affect how people learn, form opinions, and gather news, as well as affecting other less obvious phenomena, such as the spread of disease. Unless we know something about the structure of these networks, we cannot hope to understand fully how the corresponding systems work."[25]

We define norms as the informal rules that govern collective behaviors and expectations of behavior.[26] Norms are different than people's preferences and beliefs. Beliefs are held at an agent level, while norms are a collective set of rules that govern individual's beliefs. Conforming to norms can even go against personal beliefs, attitudes and interests. Leading norm theorists such as Cristina Bicchieri note that individuals conform to norms not only because they are expected to, but also due to their belief that other people also conform to the norm.[27] Thus, norms are highly entrenched informal rules due to the common expectation of others following them. Moreover, norms are difficult to change because transgressions can be met with internal and communal sanctions to ensure compliance. Norms are most challenging to change, or become 'sticky' as social norm theorists call it, when certain individuals or agents have lots to gain from compliance, and lots to lose from deviance.[28] For this reason, norms and their sanctioning can be strongly linked to perpetuating inequality, or gains for certain agents within a system. The sanctioning of norms can be a representation of power relations.[29] In summary, changes to norms are a strong indication of systems change due to their collective nature, their strong influence on how a system functions and the difficulty in changing a norm.

Collective level changes have been less explored by practitioners and there are fewer tools available to capture them. Social Network Analysis can be particularly helpful for capturing changes in flows, while narrative-based tools (e.g., Outcomes Harvesting) and standard tools can provide insights on norms. The following table explains the main domains, explains their relevance and provides example indications. It is important to note that appropriate indications of systemic change are very context-dependent, and so the ones provided here may not be relevant in all contexts.

---

[25] Newman, M.E.J, Networks: An Introduction. Oxford University Press, 2010.

[26] Markel, Erin, et al. "The Social Norms Factor: How gendered social norms influence how we empower women in markets systems development." The BEAM Exchange. 2016.

[27] Bicchieri, Cristina; Lindemans, Jan Willem; Jiang, Ting. "A Structured Approach to a Diagnostic of Collective Practices." *Frontiers in Psychology*, 5. 2014.

[28] Marcus, Rachel and Caroline Harper. Gender justice and social norms: processes of change for adolescent girls. Overseas Development Institute. 2014.

[29] Muñoz Boudet, Ana Maria, Patti Petesch, Carolyn Turk and Angelica Thumala. On Norms and Agency: Conversations about Gender Equality with Women and Men in 20 Countries. The World Bank. 2012.

Table 2: Collective Level Domains of Systemic Change

Domain	Definition and Why Relevant	Example Indications
Norms	The informal rules that govern social behavior and expectations of behavior. Critical in shaping behaviors of agents in a system.	**(Power Dynamics) Decision-making power of reference group:** The ability of a reference group to make decisions (via-a-vis other actors) speaks to power dynamics between actors, which has a strong influence on how a system operates, how solutions are determined, and how benefits are distributed within a system.
		Role flexibility: Changes in the flexibility of roles (e.g., gender roles) indicate shifts in the norms that shape actors' abilities to take up new tasks. For example, changes in women's ability to operate as traders where that has traditionally been defined as a male role.
		Relationship duration: Changes in relationship duration can signal a change in how actors interact in a system, which in turn gives information about norms regarding organizational management.[30]
		Relationship diversity: The diversity of relationships gives information about norms regarding organizational management.
		Expected behavior: How agents in a system expect other agents to behave is indicative of their understanding of what norms are prevalent in a system.
		Compliance with formal rules: the effective enforcement of and compliance with formal rules signal that norms are permissive of changes.
Networks	A conceptualization of interactions between agents. Shapes how agents in a system interact.	**Network fragmentation:** The extent to which actors in a network interact or not. Indicates how easily flows can occur within a system.
		Flows (of information, finance, materials): Demonstrates the capacity for learning and the utility of interaction.

2. Strength of the change

The second key aspect that determines the significance of a systemic change is its strength. Each domain of depth that is outlined above can be stronger or weaker depending on these three aspects:

a. Scale

The extent to which changes are adopted within a bounded system is an important metric of the strength of a systemic change. Simply put, a change that is not adopted by or that does not influence a large portion of the agents within a system is weaker than those that do. As noted in LEO's paper on scale as an output,[31] scale is not an absolute value that can be compared across contexts; it must always be understood in relation to the total size of the system under examination. Partners often facilitate changes in the behaviors of a small set of partners that are never adopted by a large proportion of the actors in the system of interest. In many cases, this is a consequence of the underlying norms and networks in the system remaining unchanged. Consequently, the

[30] For more information on these indicators, refer to Derks, Eric and Michael Field. Shifting institutional biases: Using value chain governance to address a market's underlying systemic structures. 2016 The BEAM Exchange.
[31] Fowler, Ben et al. Reconsidering the Concept of Scale in Market Systems Development. USAID. 2016. https://www.microlinks.org/library/reconsidering-concept-scale-market-systems-development

influence of these changes on the system is weak, and the potential for reversal is stronger. In MSA's ex-post assessment of the MSME project in Cambodia, imitation of an embedded training model spread to encompass nearly the entire industry. This thus served as a very influential signal of systemic change.

b. Buy-in

Many of the changes influenced by development funding are temporary and will end once project resources are no longer available. This can be problematic to assess when a project is continuing to subsidize aspects of a model. For example, a case study conducted under the LEO project found that it was very challenging to understand whether the elements of a contract farming model were durable in which 90 percent of the cost of critical positions were being underwritten by the project.[32] As another example, a firm that imitates the business model adopted by a project's partner due to heavy involvement by project staff is a less significant systemic change than if the project had not had any involvement. Changes that are supported by agents' own resources are more significant relative to those dependent on external supports.

c. Relevance

A final characteristic of a significant systemic change is that it is relevant to our development vision. In a MSD context that means that it has an impact, positively or negatively, on whether inclusive benefits reach an initiative's target populations. Systemic changes are more significant when they are more relevant for that vision and target population. In MSA's ex-post assessment of the MSME project in Cambodia, several signs of innovation were uncovered in terms of how wholesalers were investing in consumer education. However, whereas some of those innovations continued to target small-scale swine raisers, others pivoted to serving large-scale swine raisers who could offer higher profit margins. Consequently, the relevance of those innovations for MSME's development vision was mixed.

IV. APPLYING THE SYSTEMIC CHANGE FRAMEWORK AND DOMAINS

The Disrupting System Dynamics Framework can be used by practitioners to map out how they anticipate systemic change may occur, and by project staff and evaluators to assess whether systemic change has actually happened. The following figure outlines the key elements of the pathway to analyzing systemic change. It is important to note that this is not a linear, static process. Rather, it is dynamic, as changes in each of the elements can shape others.

The following examples demonstrate how the framework can be applied to understand practical examples of systemic change.

Swine Input Supply, Cambodia

An example of the application of the framework is to the MSME project's intervention in the input sector for swine products in Cambodia. Through the USAID-funded LEO activity, MSA conducted an ex-post

[32] Case Studies on Facilitating Systemic Change in Feed the Future. USAID. 2016 (forthcoming, available at www.microlinks.org/leo).

assessment of the MSME project to understand what systemic changes had occurred, and how sustainable and scaled was the development impact five years after the project ended.[33] Given the monitoring and evaluation information that had been captured during the project's lifetime and the available budget, MSA set the boundaries for the assessment to include the key actors within the swine input sector, including wholesalers, farmers and village-based input suppliers. Second, MSA identified several historical factors and conditions that supported the ability of MSME to facilitate systemic change. These included a high density of rural farmers and input shops, which enabled new business models to reach a significant customer base at a reasonable cost, and a strong culture of entrepreneurship that facilitated innovation and imitation within the sector. Relatively limited class and social difference between wholesalers and farmers facilitated investment.

To achieve its vision of increasing the incomes of scale-scale swine raisers, MSME designed several interventions. The one that the ex-post assessment examined worked with wholesalers to scale (in some cases) and introduce (in other cases) an embedded training model for transferring technical information to swine raisers on input usage.

There were several **early signals**, limited at first to the project's direct partners that the system might be beginning to change. The initial partner's positive experience with the model shaped its perception of the benefits and led it to increase its own **investment** in expanding the model broadly throughout Cambodia. The application of the model created a significant increase in the quality and quantity of **information flows** between the first adopting wholesalers, local input providers and swine raisers.

As these flows grew, signs of *significant* systemic changes began to be observable in wholesalers' behavior. The embedded training model was steadily **imitated** by wholesalers to the point that the vast majority of wholesalers in the sector were using it at the time of the ex-post assessment. As the model was widely applied, wholesalers increasingly began to engage in **innovation** by using new models for transferring information to swine raisers, including direct farm visits and fee-based training. At the collective level, there were stronger and denser relationships between actors in the system, as characterized by stronger information and material flows.

These significant systemic changes created a response by other agents in the system, as swine raisers who were exposed to the training undertook increased **investment** in their swine businesses.

Though interviews, the ex-post assessment concluded that deeper types of systemic change had also happened. There had been a shift in the norms in the sector towards a generalized recognition that wholesalers need to invest in the technical knowledge of their customers as a competitive business practice, particularly in order to compete on quality. Project staff also anticipated that a norm change had occurred among swine raisers towards seeing swine raising as a business activity that could generate income, rather than primarily being a form of saving via asset accumulation. However, the ex-post assessment did not find evidence of this.

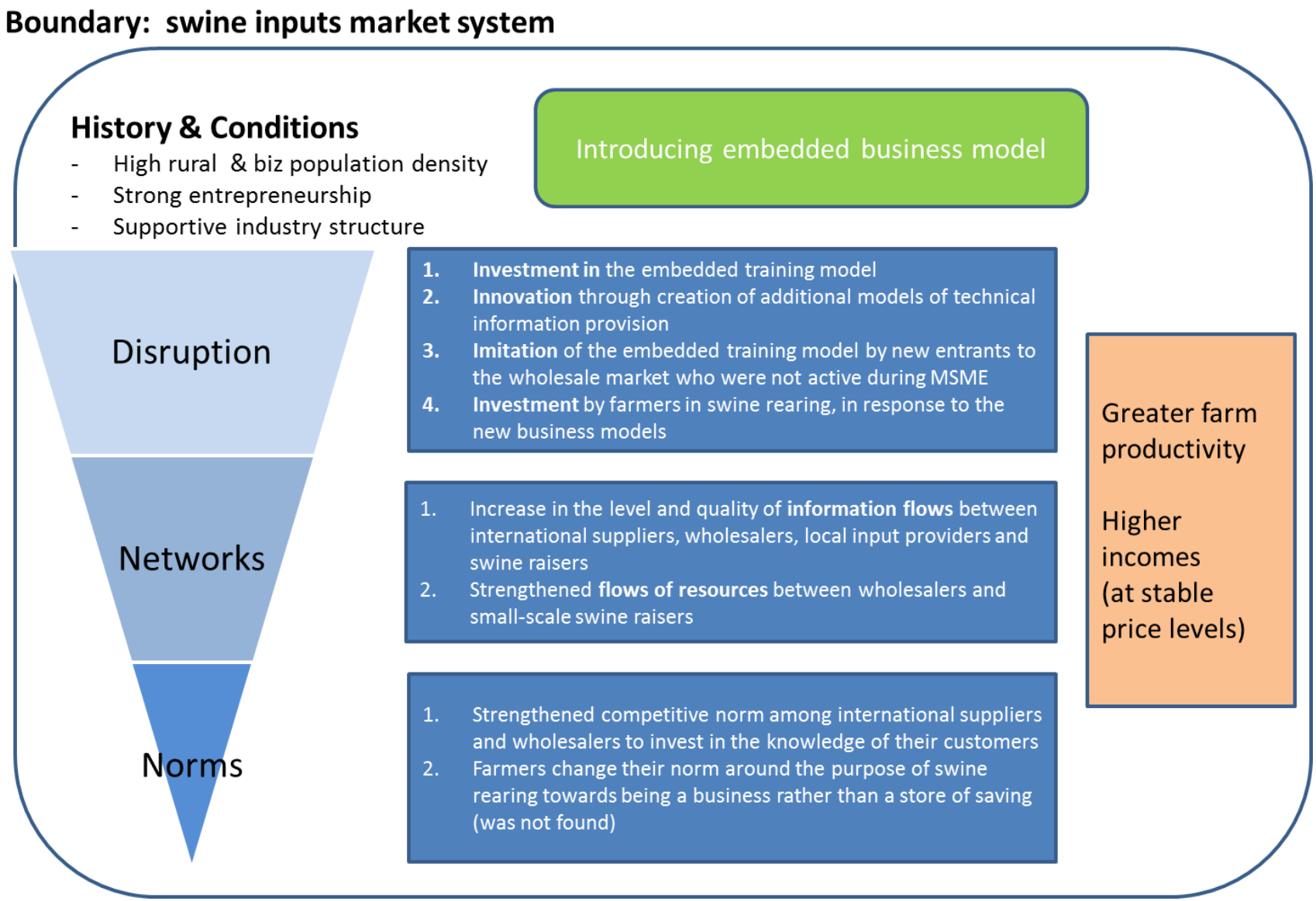
The following figure shows the systemic change framework applied to the MSME case.

CAPTURING WEAK SIGNALS OF SYSTEMIC CHANGE

For understanding whether systemic changes are significant, the scale of the change is critical. But initiatives that want to understand if they are facilitating systemic change and adapt their programming to maximize their effectiveness need early signs of whether they are on the right track. Capturing weak signals of systemic change such as outliers that have adopted desired behaviors can be critical to understanding this, yet initially will not manifest at scale. This is to be expected and should not impede the research effort.

[33] Fowler, Ben. Scaling Impact: MSME Ex-Post Assessment. 2016. https://www.microlinks.org/library/scaling-impact-cambodia-ex-post-assessment

Figure 5: Systemic Change and MSME



Livestock Sector, Georgia

The framework was also applied to Alliances Lesser Caucuses Programme's (ALCP's) work in the dairy market system in Georgia.[34] ALCP had worked for years to facilitate improvements in milk production and processing in Kvemo Kartli, a region in southern Georgia, and had ample evidence of purposeful systemic changes to which the program had contributed. MSA in early 2016 worked with ALCP to use outcome harvesting to identify unexpected systemic changes that may have resulted, at least in part, from the program's interventions, and simultaneously corroborated the purposeful changes the program had observed.

At least four initial conditions were important to understand before identifying systemic changes. First, a new road from Tsalka town in Kvemo Kartli to the Tbilisi/Marnueli highway had significantly cut the cost and time of transport to the nation's political and economic capital, where most dairy products were marketed. Second, Kvemo Kartli households already produced a significant amount of milk, processing most of it into cheese for sale in local and regional markets. Third, prevailing norms allowed women to control incomes from direct sales of household products. Lastly, the Georgian government had instituted much stricter food safety and hygiene (FS&H) requirements for dairy products, making it more difficult for households selling homemade cheese to market their products.

ALCP intervened in the dairy market system by co-investing in improved facilities for milk processors, and co-investing in training by FS&H experts to raise awareness with facility managers and household dairy producers of the new FS&H standards.

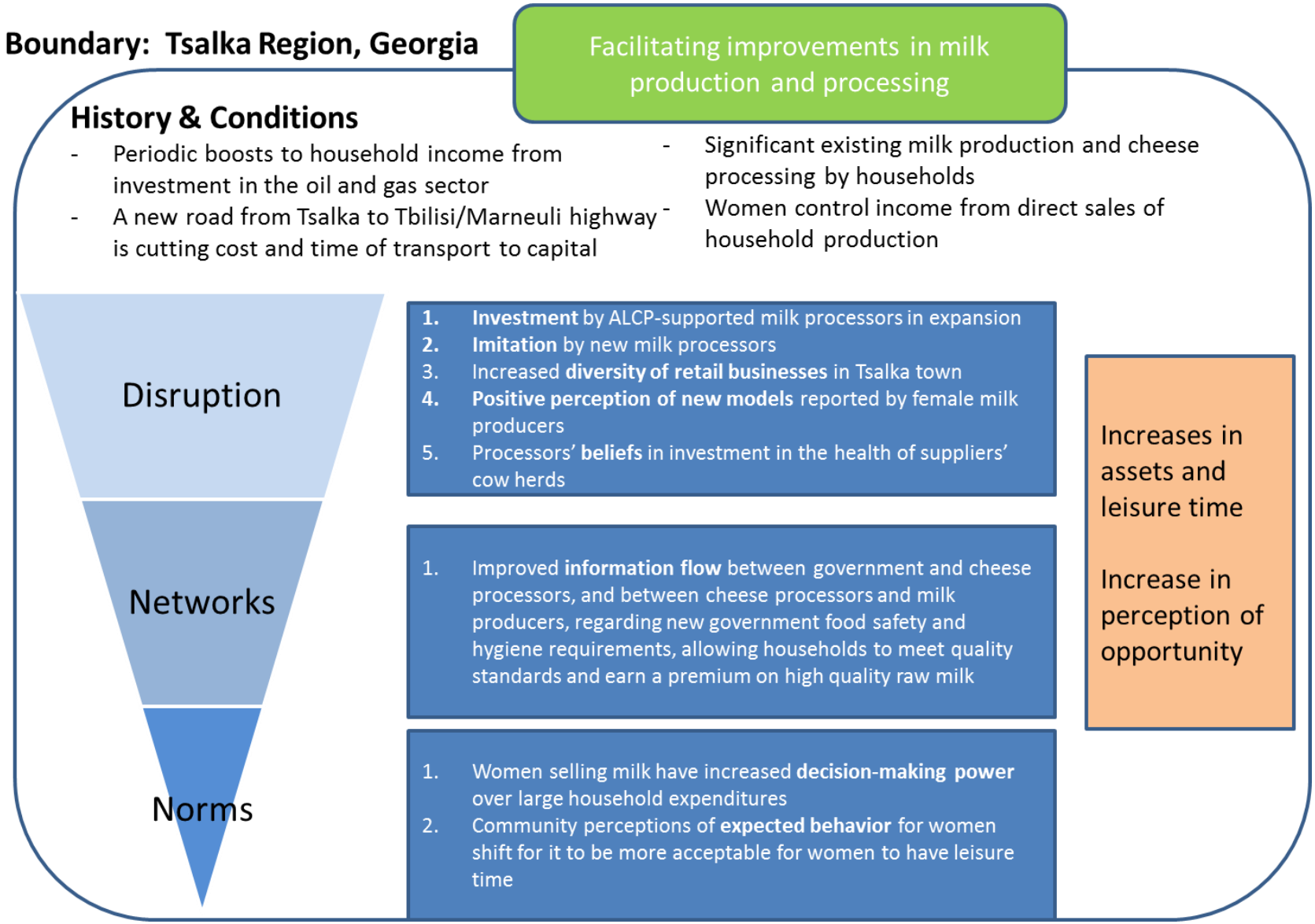
As a result, several signs of systemic change were observed at the agent level. These included the **investment** of the ALCP-supported milk processors in expanding their businesses, and the **imitation** of new processors of the business model by crowding into the Kvemo Kartli market system to buy from local milk producers. Moreover, milk processors' began to **believe** in the importance of investing in the health of the herds belonging to milk producing households, and consequently made **investments** in FS&H. Female milk producers had positive **perceptions** of the new model, and consequently continued to engage with it.

At the collective level, several changes were noticeable. Networks had changed, as the program observed improved **information flows** between government and milk processors, and between milk processors and household producers, regarding the new FS&H standards. This allowed households to meet the new quality standards and even earn a premium on sales of high quality milk.

Norms also shifted, as women gained noticeable **decision-making** influence on household expenditures. This was indicated through interviews with men and women in milk producing households and may represent change in norms around who makes decisions regarding the use of family resources. This indicated a shift in power dynamics within the household.

[34] MarketShare Associates. Testing Tools for Assessing Systemic Change: Outcome Harvesting. 2016.

Figure 6: Systemic Change and ALCP



Ready-Made Garment Sector, Egypt

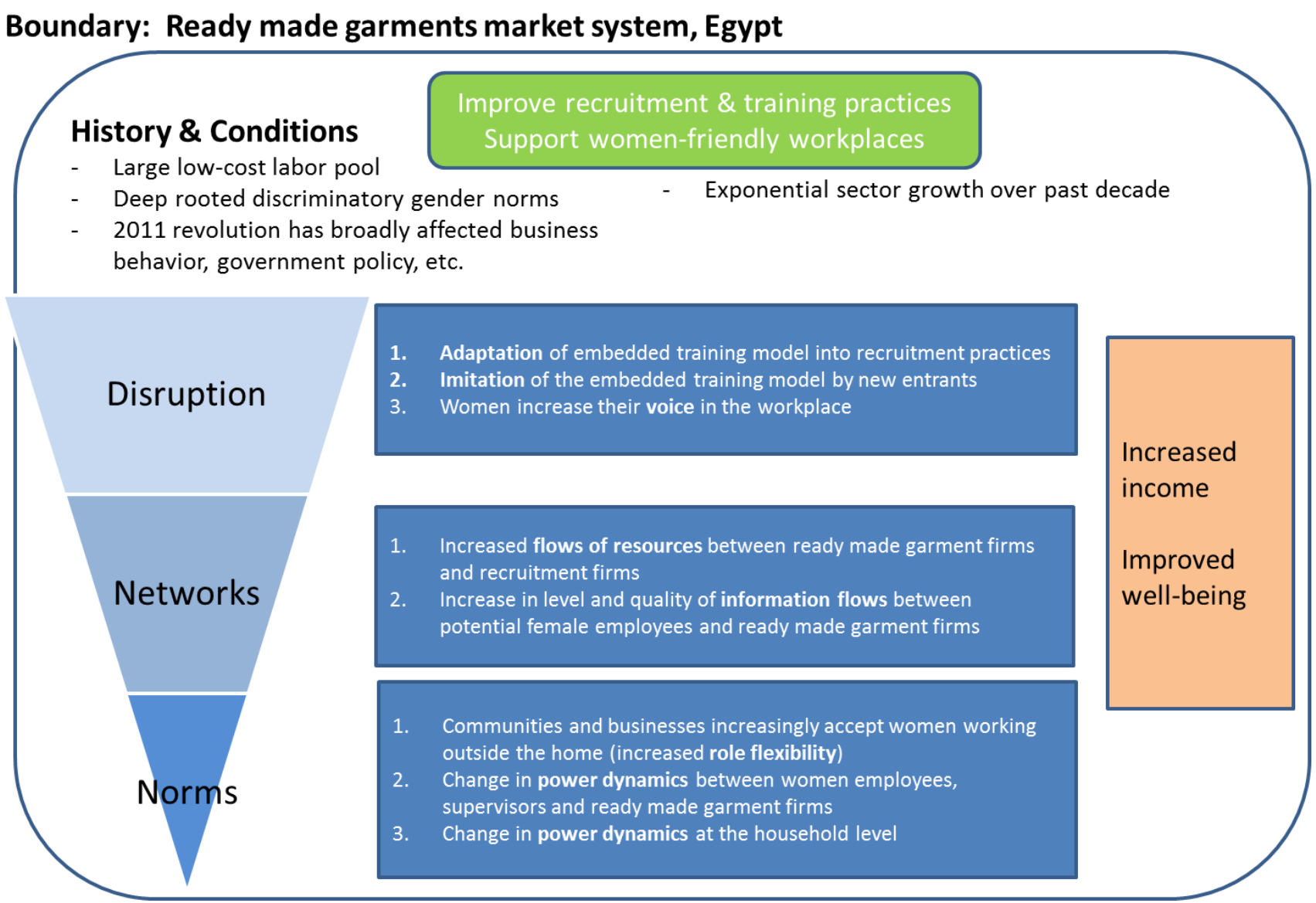
A third application of the framework was to the Arab Women's Enterprise Fund (AWEF) project in Jordan, Egypt and Palestine. MSA is currently working with Development Alternatives International London on the U.K. Department for International Development and the Islamic Development Bank-funded AWEF project. The project aims to enhance women's economic empowerment using a market systems approach, and doing so from the start of the project. The example below extrapolates from AWEF's planned intervention in the Ready-Made Garment (RMG) sector in Egypt, showing how the framework can be used to map out an anticipated pathway of systemic change.

The boundaries of the market system were set to the ready-made garment sub-sector and focused on targeting poor women within this sub-sector. The initial market research uncovered several historical factors and conditions that influence the potential for systemic change in the sector. First, the sector has a history of strong growth. Yet despite ongoing efforts by large export RMG firms to hire more women, the numbers of women working in RMG firms remain small compared to the global average. Importantly, there are deep rooted discriminatory social norms prohibiting women from entering into the RMG workforce. Other critical historical issues include the 2011 revolution and its impact on business behavior, governmental decisions and small and medium enterprise growth.

To counteract these employment trends for women in the RMG sector, AWEF plans to facilitate the improvement of recruitment and training practices to be more gender-responsive and targeted to women, along with supporting gender friendly working environments. AWEF will do this by building links between RMG companies and specialized recruitment firms (as recruitment is currently done informally), and working with the recruitment firms to develop new business models that target women and are gender sensitive. AWEF expects a result of this to be the **adaptation** of an embedded training model into recruitment practices and **imitation** of this model by new entrants into the recruitment market. These market changes will allow poor women to more fully participate in the RMG sub-sector, increase their **voice** at work.

The project hypothesizes that these changes will then lead to changes at the collective level. Networks will change as greater **flows of resources** occur between ready-made garment firms and recruitment firms while **information flows** increase between potential female employees and ready-made garment firms. Norms shift as **power dynamics** change between women employees, supervisors and ready-made garment firms. They may shift among household members, allowing women to experience increased decision-making power as it relates to their mobility, time-use and financial resources. AWEF expects to see changes in **role flexibility as** communities and businesses increasingly accept women working outside the home.

Figure 7: Systemic Change and AWEF



V. CONCLUSIONS

This paper outlines a framework for understanding systemic change and domains of indicators that can provide indications of systemic change. While it provides a basis for better understanding signs that efforts may be resulting in systemic changes, further work is needed to flesh out our understanding of these indications. In particular, there is a need to understand what systemic conditions and history lend themselves to facilitating systemic change and what may inhibit it, so as to inform initial decisions about where and how to intervene.

Perhaps more than anything, this framework highlights a need to characterize the evolutionary capacity of systems – in other words, the degree to which a system is capable of productively evolving new solutions to its challenges, creating new opportunities and allowing benefits to accrue sustainably and inclusively.

ANNEX I. WORKS REVIEWED

Arthur, Brian. Complexity Economics: A different framework for economic thought. SFI. 2013.

Beer, Tanya, et al. Eyes Wide Open – Learning as Strategy Under Conditions of Uncertainty and Complexity.

Beinhocker, Eric. The Origin of Wealth: The radical remaking of economics and what it means for business and society. Harvard University Review Press. 2007.

Bicchieri, Cristina, Jan Willem Lindemans and Ting Jiang. A structured approach to a diagnostic of collective practices. Frontiers in Psychology. 2014.

Campbell, Ruth. A Framework for Inclusive Market Systems Development. LEO Brief, USAID. 2014.

Derks, Eric, and Michael Field. Shifting Institutional Biases: How analysis of value chain governance provides a useful lens for addressing a market's underlying systemic structures. 2016.

Dunn, Elizabeth et al. Guidelines for Monitoring, Evaluation, and Learning in Market Systems Development. LEO Report, USAID. 2016.

Fowler, Ben. Scaling Impact: MSME Ex-Post Assessment. LEO Report, USAID. 2016.

Fowler, Ben et al. Reconsidering the Concept of Scale in Market Systems Development. USAID. 2016.

Fowler, Ben and Dan White. Scaling Impact: Extending Input Delivery to Smallholder Farmers at Scale. LEO Brief, USAID. 2015.

Fowler, Ben and Elizabeth Dunn. Evaluating Systems and Systemic Change for Inclusive Market Development: Literature Review and Synthesis. LEO Report No. 3. USAID. 2014.

Granovetter, Mark. Economic Action and Social Structure: The Problem of Embeddedness. University of Chicago. 1985.

Hidalgo, Cesar. Why Information Grows: The Evolution of Order, Atoms and Economies. Basic Books. 2015.

Hummelbrunner, Richard and Harry Jones. A guide for planning and strategy development in the face of complexity. 2013.

Hummelbrunner, Richard and Bob Williams. Systems Concepts in Action: a Practitioner's Toolkit. 2010.

Kessler, Adam. Assessing Systemic Change: Implementation Guidelines for the DCED Standard. 2014.

Langlois, Marc et al. Art of the Nudge – Five Practices for Developmental Evaluators. 2013.

Markel, Erin, et al. The Social Norms Factor: How gendered social norms influence how we empower women in markets systems development. The BEAM Exchange. 2016.

MarketShare Associates. Testing Tools for Assessing Systemic Change: A Synthesis. LEO report #41. USAID. 2016.

MarketShare Associates. DFID Malawi PSD Programme Systemic Change Methodology. Input to External Review of DFID Malawi's Private Sector Development Programme (PO 6961) Inception Report. 2015.

MarketShare Associates. Testing Tools for Assessing Systemic Change: Network Analysis. LEO report #42. USAID. 2016.

MarketShare Associates. Testing Tools for Assessing Systemic Change: Outcome Harvesting. LEO report #43. 2016.

MarketShare Associates. Testing Tools for Assessing Systemic Change: overview of the tool trials under USAID/LEO and DFID/BEAM. 2016. http://www.enterprise-development.org/wp-content/uploads/MSASystemicChangeAssessmentToolsBKK2016.pdf

Marcus, Rachel and Caroline Harper. Gender justice and social norms: processes of change for adolescent girls. Overseas Development Institute. 2014.

Miller and Page. Complex Adaptive Systems: An introduction to computational models of social life. Princeton University Press. 2007.

Muñoz Boudet, Ana Maria, Patti Petesch, Carolyn Turk and Angelica Thumala. On Norms and Agency: Conversations about Gender Equality with Women and Men in 20 Countries. The World Bank. 2012.

Newman, M.E.J. Networks: An Introduction. Oxford University Press. 2010.

Padgett, John and Walter Powell. The Emergence of Organizations and Markets. Princeton University Press. 2012.

Ramalingam, Ben et al. From Best Practice to Best Fit: Understanding and navigating wicked problems in international development. ODI. 2014.

Sparkman, Tim et al. Practical Tools for Measuring System Health. USAID. 2016.

Springfield Centre, Systems and Systemic Change – Clarity in Concept. 2016.

USAID. Local Systems: A Framework for Supporting Sustained Development. 2014.

USAID. Program Cycle Guidance: the 5Rs Framework in the Program Cycle. 2016.

Williams, Bob and Richard Hummelbrunner. Systems Concepts in Action: a Practitioner's Toolkit. Stanford: Stanford University Press. 2011.

U.S. Agency for International Development
1300 Pennsylvania Avenue, NW
Washington, DC 20523
Tel: (202) 712-0000
Fax: (202) 216-3524
www.usaid.gov