Measuring systemic change is challenging due to system complexity and scope. **This measurement methodology identifies key indicators on important "pathways to change" in a system map, supports the interpretation of results in the system context, and suggests ways to validate and update the measurement approach.** The methodology cycles through the steps of defining, measuring, and validating indicators against a system map, enabling both indicators and system map to be **updated as better understanding of the system emerges**.

This document summarizes key points from the accompanying technical report.
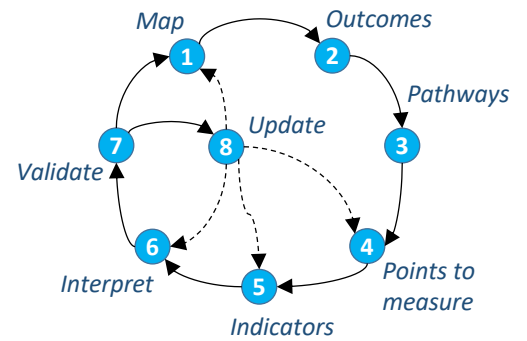
1 Create or update system map
Map the system to capture the interactions among actor behaviors, actor relationships, and market conditions that enable or prevent system change.
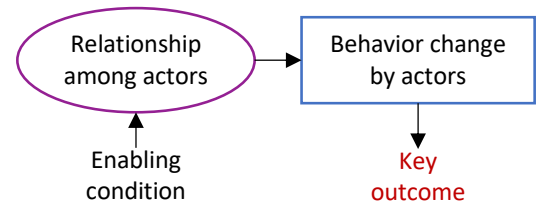
2 Identify key outcomes
Identify the key outcomes, or desired changes, within the system map, based on program goals, stakeholder and expert input, system structure, and other information.

3 Determine important pathways
On the map, identify important pathways to and from key outcomes and key enablers (such as interventions). Pathways are similar to results chains but may be linear, cyclical, branching, etc.
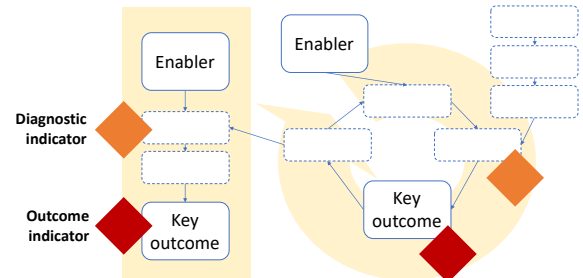
4 Select map elements to measure
Identify behaviors, relationships, and conditions along key pathways to measure as indicators. "Outcome indicators" measure outcomes, while "diagnostic indicators" measure intermediate steps on a pathway, to see early signs of success or barriers to change.

5 Define measurable indicators
Define a quantitative measure for each selected map element on a 0-1 scale, such as "percent of actors who adopted this behavior change."

6 Measure, analyze, and interpret indicators
Collect data, compute indicator values, and compare to expectations. Consider results on the system map: multiple indicator ratings show change along a pathway; multiple pathway ratings show change across the system.
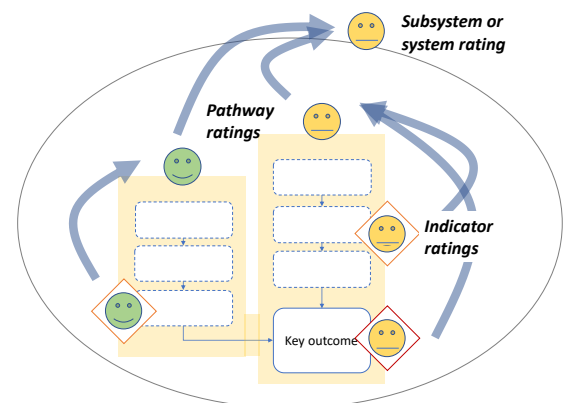
7 Validate set of indicators
Assess both indicator validity, through "validation cards" for each measurement point, and also whether the set of indicators enables a sufficient measurement of system health, by diagnosing potential measurement problems if expectations are not met.

8 Update indicators and/or map
Adapt both measurement approach and system map as more is learned about the system through the measurement process.

The measurement methodology was applied to two portions of Uganda's agricultural market system, show in this example is the the financial subsystem.

In this case, the relevant portion of the **system map** (step 1) is shown, in one case spanning multiple subsystems, with **key outcomes** in red (step 2) and **key pathways** highlighted and labeled (step 3). **Measurement points** are shown as diamonds, orange for diagnostic indicators and red for outcome indicators (step 4). **Measurable indicators** were defined for each measurement point (step 5); a sample is shown in the tables below, colored by pathway. Once measured, results can be **interpreted** (step 6) on the map.

Goal: develop indicators for measuring change in the financial subsystem.

Step 1

In order to examine the financial sector, a standing system map was used as the basis for the BRC map needed for step 1. This map had been developed in many iterations and the section dealing with finance was extracted to use for identifying indicators.

Step 2

Then, the key outcome was identified from this section of the map. It was selected because of its importance, goals of the project and its influence on other subsystems. It was made red to stand out on the map.
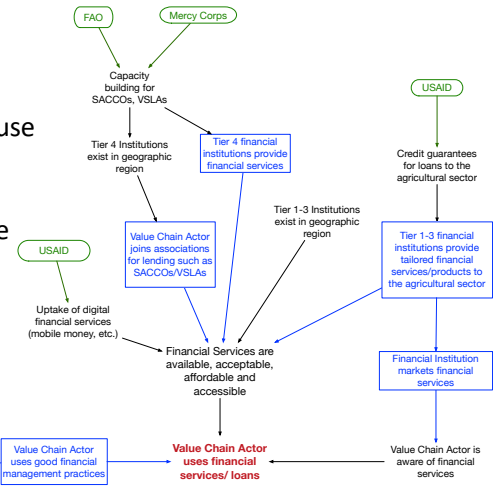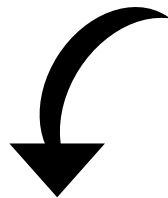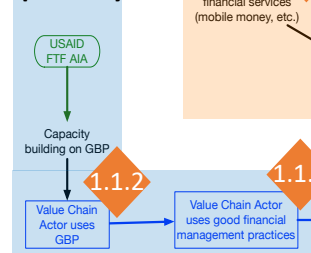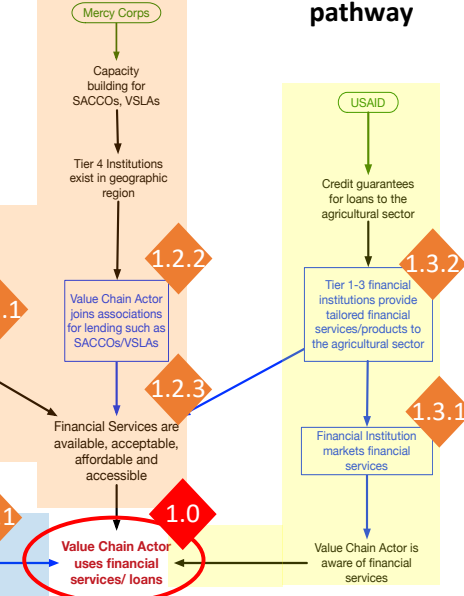
Figure 1

Step 3

Three pathways were then identified and isolated on the map. They might have multiple branches or outside links, but are related by a common topic, for which they are named.

"practices" pathway
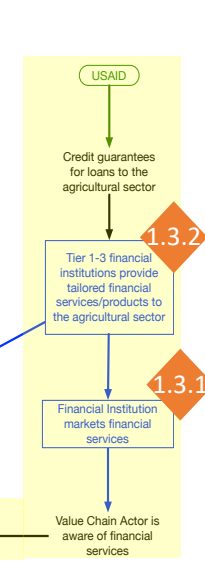
"access" pathway

"specialization" pathway

Figure 2

Step 4

After the pathways were defined, specific elements on the map were selected to act as indicators. The outcome indicator was pulled from the key outcome, and diagnostic indicators were taken from other measureable map elements deemed informative and useful.

Step 5

The map elements were then defined as measureable indicators with prospective sources of data and samples, and an actual measurement to collect data on. This can be seen in Table 1, below.

Step 6, 7, & 8

For this example, steps 6, 7 and 8 were not completed due to constraints of data collection. However, the results should be validated and then the map and indicators should be updated after every data collection.

Key	Map Element	Data Source	Measurement	Sample
1.0.1	Value Chain Actors access loans	Farmer and business Survey/ Financial Institution Interview	a. percent of respondents who have identified that they accessed a loan in the past year	100 farmers and 50 agribusinesses /20 Financial Institutions in 4 districts
1.1.1	VCAs use good financial practices	Farmer and business Survey	percent of respondents who have identified that they use good financial practices	100 farmers and 50 agribusinesses in 4 districts
1.2.1	VCAs use mobile money	Farmer and business Survey	percent of respondents who have identified that they have and regularly use at least one mobile money account	100 farmers and 50 agribusinesses in 4 districts
1.2.2	Financial Institutions are accessible to actors	Survey/ Financial Inclusion Map Data	a. percent of respondents part of a SACCO or VSLA b. percent of population within 10km of a Tier 1-3 Financial Inst	100 farmers and 50 agribusinesses in 4 districts
1.3.1	VCAs are aware of financial services	Farmer and business Survey	percent of respondents who have can identify a financial service provider	100 farmers and 50 agribusinesses in 4 districts

Table 1