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 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.

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.

“access” pathway

“specialization” pathway

“practices” pathway

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 measurable map elements deemed informative and useful.

Step 5
The map elements were then defined as measurable 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.

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

Table 1