



# COMPLEXITY-AWARE MONITORING APPROACHES: AN OVERVIEW

Complexity-aware monitoring complements traditional monitoring methods by taking into account the uncertain and changing nature of complex situations. Methods that are "complexity-aware" enable us to address the inherent complexity of development programs when there are many competing variables, environments are uncertain, the causal pathways to outcomes are unclear, and stakeholders bring diverse perspectives. Within the MOMENTUM suite of awards, many interventions will be complex.

The [Guide to Complexity-aware Monitoring Approaches for MOMENTUM Projects](#) builds on the [MOMENTUM Monitoring, Evaluation, and Learning \(MEL\) Framework](#). The guide helps MOMENTUM implementing partners, their counterparts at USAID, and other users compare and select from nine complexity-aware monitoring approaches to answer key questions on outcomes related to the project causal framework and factors that contribute to outcomes. It will help programs test critical assumptions and adjust program implementation promptly when needed.

## WHEN TO USE COMPLEXITY-AWARE MONITORING

Complexity-aware monitoring approaches help answer several key questions that are often missing from traditional monitoring approaches or, because of the complexity of the situation, cannot be answered with traditional approaches. These include:

- **What outcomes, especially unintended outcomes, might be missing from the project causal framework?** Moreover, innovations in projects or unstable environments could make project outcomes hard to predict. Methods to capture these unintended outcomes are useful, especially in complex projects.
- **What outcomes might yet emerge?** When the time between project outputs and outcomes is long, complexity-aware monitoring can help identify interim milestones that mark progress towards outcomes that are yet to emerge fully. For example, if the intended outcome is to implement an intervention at scale in a country, progress markers might include the percentage of districts implementing the intervention.
- **How do stakeholders, including marginalized and underrepresented groups, perceive the project or intervention?** Project implementers can use the perception of stakeholders (e.g., regional leadership, doctors and nurses, other staff, patients, and community members) regarding a quality improvement intervention in health facilities and its outcomes to validate findings from a quantitative review of routine service statistics.
- **What factors contributed to the observed outcomes?** Project implementers can identify outcomes and then trace them back to the specific interventions that likely contributed to those outcomes.

Building this association is especially relevant when external stakeholders make significant contributions.

- **What is happening in the broader context?** Considering how stakeholders interact with each other, how information flows among them, and who influences them is relevant. This approach can help the project more efficiently target its efforts and monitor progress towards change.

Complexity-aware monitoring builds upon traditional performance monitoring and evaluation (M&E) systems to address these questions. Using these methods can:

- Build on a project's causal framework by better conveying the project's underlying assumptions, stakeholders' role, and the more comprehensive system and broader context within which the project functions.
- Better understand non-linear causal pathways to outcomes.
- Strengthen project design by identifying flaws in assumptions or hypothesized causal chains.
- Build rigor into a project's approach by referring back to well-defined and evidence-based causal frameworks.
- Deliver critical data rapidly using creative tactics to strengthen rigor, such as triangulation of data sources.

The methods can be used with both qualitative and quantitative indicators. Also, primarily qualitative approaches can be applied to quantitative concepts, such as numerical targets or qualitative summaries of data.

### Examples of the use of some complexity-aware monitoring approaches

- **Social network analysis** is conducted as part of baseline and endline evaluations to map and measure relationships and flows that show change in stakeholder roles, information flows, levels of influence, and other social connections.
- **Causal link monitoring** expands on a causal framework to identify the processes needed to achieve desired results, while **contribution analysis** relies on an evidence-based causal framework to establish rigor.
- **Outcome harvesting** collects data to report on an indicator such as the number and description of policy changes informed by MOMENTUM advocacy.
- **Sentinel indicators**, which often do not follow the monitoring schedule of other indicators, can alert staff that a problem is emerging or that an intervention has made significant progress.
- The **most significant change** approach asks stakeholders from across the system to provide their perspective on the intervention and helps identify if and how the boundaries of the system have shifted during implementation.

Complexity-aware monitoring findings should be used to support adaptive learning and management, with data and results reviewed and interpreted and recommendations developed and implemented in a timely and efficient manner. Project implementers can use data from complexity-aware monitoring for decision-making and adaptive learning at different project implementation stages. These timepoints could include the initial work-planning stage; at regular reviews and check-ins; and while planning, implementing, and responding to mid-term and final evaluations. The methods can be implemented in advance or between phases of an experimental evaluation in order to learn how a project is performing and perceived by its stakeholders.

Some complexity-aware monitoring approaches include adaptive learning steps within their defined process. For example, in *causal link monitoring*, the final steps are to interpret and use the collected data to make adjustments to the intervention and repeat the entire process. Regardless of whether the approach explicitly calls for developing and implementing recommendations, this should be done through adaptive learning.

## RECOMMENDED APPROACHES

After a thorough review, the nine recommended complexity-aware monitoring approaches meet a variety of monitoring needs and range from the more rigorous to the more approachable and easier to use. They are among the most well-known and often used approaches within the USAID community. Finally, they are appropriate for the type of interventions implemented under MOMENTUM.

The **matrix** below provides a snapshot comparison between the nine selected approaches. Staff can use the matrix to select one or more approaches and consider how to use them together. Various approaches can be implemented at different times in the project cycle and address different questions. References to uses of different approaches and additional guidance on how specific approaches work well or potentially overlap with each other can be found in the full [Guide to Complexity-Aware Monitoring Approaches for MOMENTUM Projects](#).

## MATRIX FOR COMPARING COMPLEXITY-AWARE MONITORING APPROACHES

| Complexity-aware monitoring approach    | Timing in project cycle                   |                                     |   | Questions addressed by approach |                                       |   |  |   | Data type   |              | Ease of use                  |                               | Type of engagement † |
|---|---|-------------------------------------|---|---------------------------------|---------------------------------------|---|--|---|-------------|--------------|------------------------------|-------------------------------|----------------------|
|   | Design & Planning / Formative Assessments | Implementation / Ongoing Monitoring | Evaluation / Interim or Final Evaluations | What outcomes might be missing? | What outcomes might be yet to emerge? | How do stakeholders perceive the project or intervention? | What factors contributed to the observed outcomes? | What is happening in the wider context? | Qualitative | Quantitative | Skills & resources required* | Intensity / Level of effort** |                      |
| <a href="#">Social Network Analysis</a> | X   |                                     | X   |                                 |                                       | X   | X  | X                                       | X           | X            | 1-3                          | 1,2                           | 1                    |
| <a href="#">Causal Link Monitoring</a>  | X   | X                                   | X   |                                 | X                                     |   | X  | X                                       | X           | X            | 2,3                          | 1                             | 1,2                  |
| <a href="#">Outcome Mapping</a>         | X   | X                                   | X   |                                 | X                                     | X   | X  |   | X           | X            | 2,3                          | 2                             | 1,2                  |
| <a href="#">Sentinel Indicators</a>     | X   | X                                   | X   |                                 | X                                     |   | X  | X                                       | X           | X            | 2                            | 1                             | 3                    |
| <a href="#">Pause &amp; Reflect</a>     |   | X                                   | X   | X                               |                                       | X   |  | X                                       | X           |              | 1                            | 1                             | 2                    |
| <a href="#">Outcome Harvesting</a>      |   | X                                   | X   | X                               |                                       |   | X  |   | X           |              | 2                            | 2,3                           | 3                    |
| <a href="#">Most Significant Change</a> |   | X                                   | X   | X                               |                                       | X   | X  |   | X           |              | 1,2                          | 2,3                           | 1,2                  |
| <a href="#">Ripple Effects Mapping</a>  |   | X                                   | X   | X                               | X                                     | X   | X  |   | X           |              | 2,3                          | 2                             | 1                    |
| <a href="#">Contribution Analysis</a>   |   |                                     | X   |                                 |                                       |   | X  |   | X           | X            | 2                            | 2,3                           | 2,3                  |

\*1 = Can be implemented by community-level entity; 2= Can be implemented by MOMENTUM project staff; 3= Outside assistance likely needed.

\*\*1 = Able to integrate within existing staff workload and/or short-term engagement of external assistance; 2 = Moderate dedicated staff time needed and/or medium-term engagement and/or; 3 = Dedicated staff needed and/or longer-term external engagement

†1 = Best as in-person engagement with a group or in a community setting; 2 = Easily adapted for virtual engagement with videoconferencing and related technologies; 3 = Able to complete remotely via desk reviews, email, phone calls, online surveys, etc.

## APPLICATION TO MOMENTUM

Complexity-aware monitoring approaches enhance M&E and adaptive learning. Projects should allocate sufficient time and resources to use these methods to answer relevant questions at different stages of project implementation. Planning for these methods is critical at the early stages of project implementation and in alignment with adaptive learning processes.

All MOMENTUM awards are encouraged to maximize the use of these innovative approaches. For example, *the most significant change* approach can be used as part of ongoing monitoring or as a component within a mid-term or final evaluation of social change and other community-based interventions. It is particularly useful when stakeholders' opinions about an intervention and its importance are inconsistent, such as with large-scale system-wide interventions or innovations. It can be used as part of ongoing monitoring or as a component within a mid-term or final evaluation. *Outcome mapping* is useful for interventions that are hard to measure, such as capacity building, research, advocacy and policy change, social change, innovation, and scale-up. It is also useful to better understand interventions in changing environments.

Once findings emerge from the complexity-aware monitoring, staff should share the results with leadership, funders, staff, stakeholders, and those who participated in implementing the approach. Such engagement supports the use of the findings; many approaches build this participation in their process.

MOMENTUM offers a unique opportunity for the awards to build the evidence base for how these new and promising techniques can be used to improve program implementation and health outcomes. Case studies developed and shared by MOMENTUM awards can offer insight on what worked, what did not, and why, and how the project learned from and adapted its activities based on the findings.

### Suggested Citation

MOMENTUM Knowledge Accelerator. Complexity-aware Monitoring Approaches: An Overview. 2021. Washington, DC: USAID MOMENTUM.

MOMENTUM Knowledge Accelerator is funded by the U.S. Agency for International Development (USAID) and implemented by Population Reference Bureau (PRB) with partners JSI Research and Training Institute, Inc. and Ariadne Labs under the cooperative agreement #7200AA20CA00003. The contents of this fact sheet are the sole responsibility of PRB and do not necessarily reflect the views of USAID or the United States Government.