TOOLBOX

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ACTION-TO-OUTCOME MAPPING: TESTING STRATEGY WITH SYSTEMS THINKING

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In the "classic" systems thinking approach, a group uses mapping and modeling to help explain an important behavior over time. While we occasionally encounter groups that resonate with this classic approach, more often we find teams that are fixated on immediately improving their current strategies. Typically these more "action-oriented" teams, whether they are from corporations, foundations, nonprofits, or community groups, are focused on one or a combination of two strategies:

1) Working on a range of actions to achieve some long-term outcome, for example, "in order to reduce urban poverty, we are going to start a micro-lending program, provide mentors to young people, and advertise to external investors,"

or

2) Implementing a policy that they believe will have broad, positive effects, for example, "by improving the efficiency of energy use, we can reduce air pollution, save money for businesses, and reduce greenhouse gas emissions."

They look to systems thinking for some specific help in addressing questions such as, How can our team test our thinking about the best way to achieve our goals? How can we strengthen our strategy and achieve more success with less energy? And how can we avoid unintended consequences or "push-back" from the system?

To help a group respond to those queries, we lead them through a structured process that we are calling "action-to-outcome" mapping. We have found this approach particularly useful in situations where a team has already chosen a set of actions intended to achieve specific outcomes within an uncertain environment. This process can stand alone or lead to a more expansive effort to map, understand, and formally model the system in which the group is operating.

While we have used several variations, the core of our action-to-outcome mapping process involves five steps: (1) Exploring the existing causal theory, (2) Adding feedback, (3) Uncovering critical mindsets, (4) Accounting for external forces, and (5) Looking for opportunities for learning and action.

1. Exploring the Existing Causal Theory. The existing causal theory is the set of assumptions—explicit or implicit—that group members have about how their actions will lead to desired outcomes. The first step in the mapping process is to articulate those actions and outcomes and create a map connecting the two. By creating this kind of diagram, the group maps out the chain of cause-and-effect that would need to happen to achieve the desired outcome.

For example, "Water Conservation Efforts" shows a simplified causal map of a water conservation strategy in a particular region. In this case, the group was considering various actions to improve water management. Team members figured that writing and sharing case studies of urban water utilities with successful water conservation programs would encourage local utilities to follow suit. They hoped these companies would use conservation technologies to reduce water use and create a host of long-term benefits such as higher water levels in rivers.

We have also found it important to identify intermediate indicators that the group can use to measure progress. These are short-term changes in the system that show if the effort is on track. In the example described above, because water levels in rivers are difficult to connect to conservation efforts, the group's intermediate indicator was

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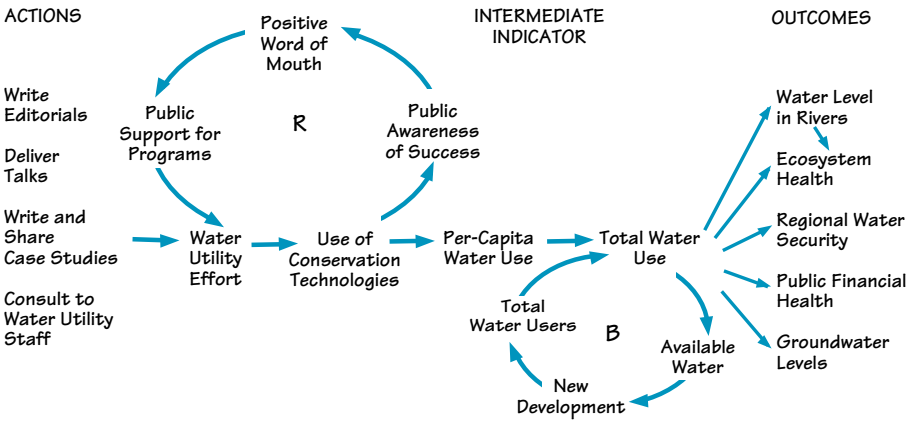
WATER CONSERVATION EFFORTS



This simplified causal map shows a proposed water conservation strategy in a particular region, including actions, intermediate indicators of success, and longer-term outcomes. Intermediate indicators are critical in situations where progress toward the ultimate goal happens very slowly and is influenced by many factors.

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"Per-Capita Water Use." Such indicators are critical in situations where progress toward the ultimate goal happens very slowly and is influenced by many factors.

Reflection questions: Looking at the set of assumptions that link actions to outcomes, what causal connections do you have confidence in? Which are the most uncertain or unknown? Considering these questions helps target the rest of the discussion and identifies research that might be useful to improve the group's confidence in the overall strategy.

2. Adding Feedback. By starting with the simple, one-way causal chain created in the first step, we can begin to identify important reinforcing or balancing feedback loops that the group's actions may trigger. We start by looking for ways that the actions or results may get amplified through reinforcing loops. For example, as shown in the reinforcing loop in "Water Conservation Efforts," success in a water conservation program could lead to public awareness of that success and positive word of mouth in the community, building public support and boosting the water utility effort even more. We then look for ways to strengthen that loop, for example, by writing editorials to the local newspaper to build the public's awareness of the effectiveness of the water conservation program.

It is equally important to understand how the system can resist change or push back on the group's effort through balancing loops. The balancing loop in "Water Conservation Efforts" shows how endeavors to introduce water conservation technologies in the Southwest of the United States were undermined by their own success. The implementation of conservation technologies for landscaping, indoor plumbing, and industry actually reduced water use. But because water availability was the primary limit to residential construction, reduced withdrawals meant that there was more water available to supply new development. New homes boosted the number of total water users, consuming most of the saved water and increasing total water use. This "compensating feedback" undid the positive effects of the overall effort and frustrated many advocates for water conservation.

Thus, the mapping revealed not only a possible problem that the team needs to address in the strategy, but also an important disconnect between the intermediate indicators—the amount of water saved through conservation efforts—and the long-term goal of improved stream flow and ecosystem health. In the Southwest, leaders have started to advocate for dedicating some fraction of saved water to increasing water levels in rivers.

Reflection questions: Are there any reinforcing loops that would amplify the effects of your actions? Can they be strengthened? Are there any balancing loops that cause the system to resist your efforts? Can they be weakened? Are there any feedback processes that are already trying to shift the system in the same direction that you are? Can you build on these?

3. Uncovering Critical Mindsets. People make decisions by evaluating information and incentives through the lens of their own assumptions and goals. Therefore, good strategies for changing systems must address both structures and mindsets in ways that reinforce each other. We have found it helpful to uncover relevant mental models in action-to-outcome mapping sessions by asking two questions:

- What are some assumptions that impede your actions from achieving the desired outcomes? (For example, "Water conservation means wimpy showers and half-flushed toilets!")
- What are the mindsets that support your actions? (For example, "Wasting water is bad.")

In the case of water use, many people hold the powerful mindset that "conservation is depravation." The water policy movement thus worked to distance itself from "conservation" and instead spoke of improved "efficiency" in their marketing efforts.

Reflection questions: Are there ways to strengthen the supporting mindsets? Weaken the impeding ones?

4. Accounting for External Forces. Next we ask the group to think of other forces that may have an impact on outcomes. By doing so, we ensure that they work on the most important factor that may help or hurt their initiative. For example, in the water case, if overall environmental health is the goal of the water conservation effort, then the analysis in step 2 suggests that addressing regional population growth might be a high-leverage area to target. Other forces include agricultural water use, the policies of other regions, and global climate change. This listing of external forces, while sobering, helps the group see how its actions fit into a larger picture and prompts members to consider how they might influence any of the external factors. This step offers the chance to evaluate strategy with the widest possible lens.

Reflection questions: Should you be trying to influence any of the external forces that might affect your outcomes? If an external force seems to overwhelm your actions, is there a different set of actions you could take that could be more effective?

5. Looking for Opportunities for Learning and Action. Throughout the session, we keep running lists of questions and insights. The final step is to review the two lists and other notes to see what questions have cropped up and what potential supporting actions, new areas of focus, and further exploration are needed.

Our experience with the action-to-outcome process is that it helps an intact team explicitly map its thinking about how various actions will lead to desired outcomes, while taking into account the important feedback effects that can accelerate or slow progress. One client said that this methodology "sort of backs into system dynamics" by beginning with a team's current strategies rather than with the behavior of the system. While action-to-outcome mapping does little to initially address the dynamic complexity in the system or uncover root-cause drivers of problems, it is effective in:

- Surfacing a team's assumptions;
- Maintaining a focus on strategy;
- Explicitly including feedback and multiple effects in strategic thinking;
- Building causal maps when you don't have extensive experience in diagramming.

Having seen groups use action-to-outcome mapping to improve their strategies on challenges ranging from urban sprawl to sustainable agriculture to air quality to inner-city poverty gives us hope that systems thinking can fulfill its promise of helping overcome the complex challenges of creating a more sustainable world.

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