Enhancing Program Performance Using Logic Models

Health Research Alliance Members Meeting
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What is your Theory of Change?
**Theory of Change:**
How and why a funding investment will address a problem

**Problem**
- Early career researchers forced to pursue safe research
- Lack of progress towards cure
- Academic research not leading to usable treatments

**Long term goal(s)**
- Improve lives of people affected by disease
- Drive new directions in research

**Pre-conditions/ intermediate outcomes and outputs**
- Application process and funding fuel creativity and innovation
- Investigators produce high quality research
- Investigators prioritize experimental approaches on the path toward commercialization
- Community building creates opportunities for collaboration

**Key assumptions**
- Private research funding makes possible work that would not happen otherwise
- Government and commercial funding of science leaves gaps and/or is inefficient
- Progress will be slow and nonlinear, not everything funded will work
- Some funding will advance progress toward treatments and prevention

**Strategies**
- What your program funds and criteria to select
- Non-monetary support
Theory of Change:
How and why a funding investment will address a problem

By providing [x, y, and z], our investments in research will [intermediate outcomes, long term goals].
What is your Logic Model?
### Logic Model: Standard Template

#### Inputs

**Resources** (investments, time, efforts) of:
- Your organization
- Grantees
- Research participants
- Reviewers
- Institutions
- Co-funders
- Other partners

#### Activities

**What was done with the resources?**
- Your activities (pre-award, post-award, convenings, trainings)
- Grantee activities (research, data and resource sharing, training, collaboration)
- Other partner activities

#### Outputs

**What were the results of the activities?**
(Immediate products: publications, connections between researchers, data collected, tools/resources developed, identification of further needs, trained individuals)

#### Outcomes

**What changes occurred?**
What are the indicators of progress?
- Short term (more researchers in field, increased level of risk, preliminary advances)
- Medium term (new tools and techniques, intermediate stage advances, new collaborations, interdisciplinary networks, follow-on funding)

#### Impact

**What bigger changes resulted?**
What are the ultimate goals of the program?
(advance science, cure disease, improve lives of people affected, build a field)
Logic Model: Clarify your logic

If we provide [inputs] then we can [activities]

If we accomplish [activities] then we will deliver [outputs]

If we deliver [outputs] then we will achieve [outcomes]

If we achieve [outcomes] then we will [impact]

**Inputs**
- **Resources** (investments, time, efforts) of:
  - Your organization
  - Grantees
  - Research participants
  - Reviewers
  - Institutions
  - Co-funders
  - Other partners

**Activities**
- What was done with the resources?
  - Your activities
  - Grantee activities
  - Other partner activities

**Outputs**
- What were the results of the activities?
  - Immediate products, what do the activities deliver?

**Outcomes**
- What changes occurred?
- What are the indicators of progress?
  - Short term (1-3 years)
  - Medium term (4-7 years)

**Impact**
- What bigger changes resulted?
- What are the ultimate goals of the program?
  - (8-15+ years)
Logic Model: Direction of travel

**Inputs**
- Resources (investments, time, efforts)
  - Your organization
  - Grantees
  - Research participants
  - Reviewers
  - Institutions
  - Co-funders
  - Other partners

**Activities**
- What was done with the resources?
  - Your activities
  - Grantee activities
  - Other partner activities

**Outputs**
- What were the results of the activities?
  - Immediate products, what do the activities deliver?

**Outcomes**
- What changes occurred?
  - What are the indicators of progress?
    - Short term
    - Medium term

**Impact**
- What bigger changes resulted?
  - What are the ultimate goals of the program?

**Evaluation**
- What has this made possible?

**Program Design**
- What would it take to achieve this?
But Wait, There’s More!!!

What to do with your logic model
Program design, learning, and evaluation

- Supports strategic planning
- Improves program development
- Tells us if/how our programs are achieving their desired outcomes
- Helps us build ongoing evaluation processes
Types of Evaluation

**Inputs**
- Resources (investments, time, efforts) of:
  - Your organization
  - Grantees
  - Research participants
  - Reviewers
  - Institutions
  - Co-funders
  - Other partners

**Activities**
- What was done with the resources?
  - Your activities
  - Grantee activities
  - Other partner activities

**Outputs**
- What were the results of the activities?
  - Immediate products, what do the activities deliver?

**Outcomes**
- What changes occurred?
- What are the indicators of progress?
  - Short term
  - Medium term

**Impact**
- What bigger changes resulted?
- What are the ultimate goals of the program?
Learning Agenda

What difference is this program making in the world?

What actions might be taken as a result?

What standard of evidence is required to take action?

What measurable indicators of success align with this?

What evaluation questions are most relevant to this?
Learning Agenda

What difference is this program making in the world?

What evaluation questions are most relevant to this?

What measurable indicators of success align with this?

What standard of evidence is required to take action?

What actions might be taken as a result?

attribution vs. contribution

- Quantitative (when feasible given time and resource constraints).
- Qualitative (when necessary).

- Inform long term strategic decisions (reinvest or wind down program, reorient program toward more promising lines of work).
- Refine program administration on a year-to-year basis (eligibility, selection criteria, amount awarded, duration of grants).
- Share success stories on website or in newsletter.
What are your evaluation questions?

- Inputs: How did the resources make the activities possible?
  - Activities: How did the activities lead to outputs? Why were expected outputs achieved (or not)?
  - Outputs: Why did the outcomes materialize (or why not)? How did outputs lead to outcomes?
  - Outcomes: Why (or why not) did the outcomes lead to the desired impact?
  - Impact
What are your evaluation questions?

**Inputs**
- What resources were used? (How many, how much?)
  - How did the resources make the activities possible?

**Activities**
- What was done with the resources?
  - How did the activities lead to outputs?
  - Why were expected outputs achieved (or not)

**Outputs**
- What was produced by the activities?
  - Why did the outcomes materialize (or why not)?
  - How did outputs lead to outcomes?

**Outcomes**
- Why did the outcomes materialize (or why not)?
  - Why (or why not) did the outcomes lead to the desired impact?
  - What were the outcomes? Who benefitted? How much? By when?

**Impact**
- What was the impact? (Who benefitted? How much? By when?)
  - [Consider attribution vs contribution if necessary.]
Example evaluation questions based on program goals

**Fuel creativity and innovation**
- Has the program increased incentivization for **unfunded** junior faculty to think creatively and develop proposals to pursue novel research directions?
- Has the program increased the level of creativity and innovation in **funded** junior faculty research?
- Has the program resulted in more connection across different strands of research among junior faculty in the program area?

**Drive new research directions**
- Are new lines of biomedical research being established as a result of this program?
- Are scientific advances being made in these new directions of research?
- How much NIH and other funding was subsequently invested in the new research directions initially seeded by this program?

**Generate Breakthroughs**
- Have research breakthroughs been generated as a result of this program?
What evidence will answer your evaluation questions?

You need to identify measurable indicators of success for each item of each component in the part of the logic model you are focusing on.

Ideally, indicators are “SMART”
- Specific
- Measurable
- Attainable
- Relevant
- Trackable and time-bound

They can be quantitative or qualitative.

Next steps: decide how to collect data, and what evaluation methods will be most useful.
Measurable indicators of success (examples)

**Short-term**
- Publications
- Presentations
- Collaborations
- Resource sharing

**Medium-term**
- Follow-on funding
- Patents and intellectual property
- Connections across research in field or geographic area

**Long-term**
- % awardees that stay in research
- % time in research
- Type of research
- Scientific advances
### Process Indicators

- **Grants awarded**: number, size, location/recipient institutions
- **New directions in research explored**: number of projects funded involving new directions for investigator, or new directions for science in general; (qualitative) *degree of novelty*
- **Publications**: number, citations/impact, *relevance to the investigator’s program-funded research*
- **Presentations**: number, size of audience, type of audience
- **Translational outputs**: patents, credible therapeutic target pathways identified
- **Training of research staff**: number of graduate students, postdocs, technicians
- **Convenings**: number, number of attendees, nature of convening, type of interaction
- **Collaborations funded**: how many, what type

### Outcome Indicators

**Short term**
- How many proposals that scored high on innovation but were not funded by the program were later funded by NIH or others?
- How many novel lines of research generated substantive new learning based on progress reports, publications, patents, and follow-on funding?
- How many projects did not turn out as expected, or resulted in an unanticipated pivot? *(If genuinely high-risk research is funded, it should result in some unexpected results.)*
- How many new collaborations were initiated as a result of convenings?

**Medium and long term**
- What scientific advances have occurred as a result of the new directions of research seeded by this funding? *(How many? How impactful? How soon?)*
- What was produced as a result of grantee collaborations? How did they contribute to each other’s research direction? What research occurred that couldn’t have been done by either investigator alone?
- How much NIH and other funding was subsequently invested in the new research directions seeded by the program?

### Impact Indicators

**New directions in biomedical research are established**
- Which program-seeded research directions have become established lines of research?
- Which have resulted in unanticipated learning (such as subverting an established paradigm)?

**Research breakthroughs are generated**
- Which program-seeded research directions have resulted in transformative breakthroughs?
Data collection: How will you collect the evidence you need?

Indicators of success for Program Evaluation

- Alumni Report (post-award year 1, 2, 3, 5, 7, 10, 15, 25)
- Awardee Impact Report (ongoing internal assessment of progress)
- Annual Progress/Final Reports
- Annual reviewer survey, reviewer discussions, scores
Timeline for Evaluation: What will you know when? (example)

- **5 years from start of first cohort**
  - Increased creativity and innovation
  - Some new lines of research becoming established

- **10 years**
  - New lines of research established
  - Some scientific advances

- **15 years**
  - Scientific advances in new lines of research
  - Some research breakthroughs

- **25 years**
  - Research breakthroughs
  - Some impact of breakthroughs

- **50 years**
  - Impact of research breakthroughs
Thank you!

https://www.healthra.org/resources/logic-models/

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