How to Develop a Program Logic Model
Learning objectives

By the end of this presentation, you will be able to:

• Describe what a logic model is, and how it can be useful to your daily program operations

• Identify the key components of a logic model

• Develop a logic model for your program

• Use a logic model for evaluation planning
Overview of presentation

- A program’s theory of change and logic model
- Uses of logic models
- Components of a logic model
- How to read a logic model
- How to develop a logic model
- How to apply logic models to evaluation
What is a program’s theory of change?

• The general underlying idea of how you believe your intervention will create change.

• There are three main elements:

![Diagram of theory of change](image)

For an overview of theory of change and evidence, CNCS grantees can refer to the modules, “Designing Effective Action for Change” and “Evidence: What It Is and Where to Find It”, respectively, located on the Knowledge Network.
Example of a program’s theory of change

Theory of change for a nutrition assistance program:

- **Problem/Need**: Families suffer from poor nutrition-related health problems
- **Intervention**: Nutrition education and referral services
- **Intended Outcome**: Healthier families
What is a logic model?

- A detailed visual representation of a program and its theory of change.
- Communicates how a program works by depicting the intended relationships among program components:
  - Inputs or resources
  - Activities
  - Outputs
  - Outcomes
Why develop a logic model?

- Generate a clear and shared understanding of how a program works
- Support program planning and improvement
- Serve as foundation for evaluation
Key components of a logic model

- Inputs or resources
- Activities
- Outputs
- Outcomes (short-, medium- and long-term)
Key components of a logic model

Inputs or resources include the human, financial, organizational, and community resources available for carrying out a program’s activities.

Examples:
- Funding
- Program staff
- AmeriCorps members
- Volunteers
- Research

Key components of a logic model

- **Activities** are the processes, tools, events, and actions that are used to bring about a program’s intended changes or results.

- **Examples:**
  - Workshops on healthy food options
  - Food preparation counseling
  - Referrals to food programs and resources

Key components of a logic model

- **Outputs** are the direct products of a program’s activities and may include types, levels and targets of services to be delivered by the program.

- Examples:
  - # individuals attending workshops
  - # individuals receiving services
  - # individuals receiving referrals

Key components of a logic model

- **Outcomes** are the expected changes in the population served that result from a program’s activities and fall along a continuum, ranging from short to long term results:
  - Short-term: changes in knowledge, skills, and/or attitudes (e.g., ↑ knowledge healthy choices)
  - Medium-term: changes in behavior or action (e.g., ↑ adoption of healthy food practices)
  - Long-term: changes in condition or status in life (e.g., ↑ food security)

## Difference between outputs and outcomes

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Direct products of a program’s activities/services</td>
<td>• Changes resulting from a program’s activities/services</td>
</tr>
<tr>
<td>• Often expressed numerically or quantified in some way</td>
<td>• Quantify changes in knowledge, attitude, behavior, or condition</td>
</tr>
<tr>
<td>• Examples:</td>
<td>• Examples:</td>
</tr>
<tr>
<td># attending workshops</td>
<td>↑ knowledge healthy choices</td>
</tr>
<tr>
<td># receiving services</td>
<td>↑ adoption healthy practices</td>
</tr>
<tr>
<td># receiving referrals</td>
<td>↑ food security</td>
</tr>
</tbody>
</table>

### Differences
- **Outputs** are direct products of a program’s activities/services and are often expressed numerically or quantified in some way.

  - Examples: attending workshops, receiving services, receiving referrals.

- **Outcomes** are changes resulting from a program’s activities/services and are quantified changes in knowledge, attitude, behavior, or condition.

  - Examples: increase in knowledge, adoption of healthy practices, increase in food security.
How to read a logic model

• Read from left to right
• Two “sides” to a logic model - a process side and an outcomes side
How to create a logic model

- Two main approaches are used to create a logic model:
  - Reverse logic (right to left) – asks “but how” questions
  - Forward logic (left to right) – uses “if…then” statements
How to create a logic model using forward logic

Forward logic uses “if-then” statements.

- **Resources/Inputs**: Certain resources are needed to operate your program.
  - If you have access to them, then you can use them to accomplish your planned activities.

- **Activities**: If you accomplish your planned activities, then you will hopefully deliver the amount of product and/or service that you intended.

- **Outputs**: If you accomplish your planned activities to the extent you intended, then participants will benefit in learning, knowledge, attitude, and skills.

- **Short-term Outcomes**: If these benefits are achieved, then changes in behavior and action that result from participants’ new knowledge are expected to occur.

- **Medium-term Outcomes**: If changes in behavior and action are achieved, then changes in social, economic, health, civic and/or environmental conditions or status might be expected to occur.

How to create a logic model using reverse logic

• What is the desired long-term outcome?
  – Increase # of healthy families. But how?

• What is the desired intermediate outcome?
  – Increase # of families using healthy food practices. But how?

• What is the desired short-term outcome?
  – Individuals gain knowledge of healthy food choices. But how?

• What outputs are needed to achieve the outcomes?
  – 200 families complete an educational workshop. But how?

• What activities are needed to achieve the outcomes?
  – Conduct four educational workshops per month. But how?

• What inputs are needed to achieve the outcomes?
  – Funding, program staff, AmeriCorps members, volunteers, research.
Group exercise: Develop a logic model for a wildlife conservation program

Exercise #1

A wildlife conservation program is designed to create healthy, productive, and sustainable ecosystems for the benefit of wildlife in areas of need.

What might this program’s logic model look like?
# Example logic model for wildlife conservation program

<table>
<thead>
<tr>
<th>INPUTS</th>
<th>ACTIVITIES</th>
<th>OUTPUTS</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>What we invest</td>
<td>What we do</td>
<td>Direct products from program activities</td>
<td>Changes in knowledge, skills, attitudes, opinions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Changes in behavior or action that result from participants' new knowledge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Meaningful changes, often in their condition or status in life</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Short-Term</th>
<th>Medium-Term</th>
<th>Long-Term</th>
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</tbody>
</table>
## Example logic model for wildlife conservation program

<table>
<thead>
<tr>
<th>INPUTS</th>
<th>ACTIVITIES</th>
<th>OUTPUTS</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Direct products from program activities</td>
<td>Short-Term</td>
</tr>
<tr>
<td>Funding</td>
<td>Make trails accessible for people with physical disabilities</td>
<td>Installed ramps and hand rails on X miles of trail.</td>
<td>Changes in knowledge, skills, attitudes, opinions</td>
</tr>
<tr>
<td>Staff</td>
<td>Conduct habitat development projects</td>
<td>Planted native trees and other native species on X sites.</td>
<td>Changes in behavior or action that result from participants’ new knowledge</td>
</tr>
<tr>
<td>200 AmeriCorps members</td>
<td>Conduct invasive species removal</td>
<td>Removed invasive plant species on X sites</td>
<td></td>
</tr>
<tr>
<td>200 non-AmeriCorps volunteers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member Training</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Research</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increase in trail access by individuals with physical disabilities</td>
<td>Increase in trail use and enjoyment of public lands by people with physical disabilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increase in food and clean water supply for native wildlife</td>
<td>Increase in native wildlife population sizes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Increase in available shelter for native wildlife</td>
<td>Increase in biodiversity</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Increase in biodiversity</td>
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</tr>
</tbody>
</table>

**Funding**
- Make trails accessible for people with physical disabilities
- Conduct habitat development projects
- Conduct invasive species removal
- Research

**Staff**
- 200 AmeriCorps members
- 200 non-AmeriCorps volunteers

**Outcomes**
- Short-Term
  - Changes in knowledge, skills, attitudes, opinions
- Medium-Term
  - Changes in behavior or action that result from participants’ new knowledge
- Long-Term
  - Meaningful changes, often in their condition or status in life

**Outputs**
- Increase in trail access by individuals with physical disabilities
- Increase in food and clean water supply for native wildlife
- Increase in available shelter for native wildlife
- Increase in biodiversity

**Example**
- Increase in trail use and enjoyment of public lands by people with physical disabilities
Developing a logic model

Exercise #2

- In each column of the logic model template, identify the following key components for your program:
  - Inputs
  - Activities
  - Outputs
  - Outcomes (short-, medium- and long-term)
Questions to consider as you create a logic model

<table>
<thead>
<tr>
<th>Component</th>
<th>Questions to consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs/Resources</td>
<td>What resources do you need to implement your program?</td>
</tr>
<tr>
<td>Activities</td>
<td>What activities will be or are being carried out to achieve your program’s desired outcomes?</td>
</tr>
<tr>
<td>Outputs</td>
<td>What are the direct products of your program’s activities?</td>
</tr>
<tr>
<td>Outcomes</td>
<td></td>
</tr>
<tr>
<td>Short-term</td>
<td>What changes in knowledge, skills, and/or attitudes do you expect from your program?</td>
</tr>
<tr>
<td>Medium-term</td>
<td>What changes in behavior or actions do you expect from your program?</td>
</tr>
<tr>
<td>Long-term</td>
<td>What changes in status or condition do you expect from your program?</td>
</tr>
</tbody>
</table>
Verify your logic model

• Consider asking the following questions:
  – **Level of detail**: Does your model contain an appropriate amount of detail for its intended use? Does it include all key program components?
  – **Plausible**: Does the logic of the model seem correct? Are there any gaps in the logic of the program?
  – **Realistic**: Is it reasonable to assume that the program can achieve the expected outcomes?
  – **Consensus**: Do program staff and external stakeholders agree that the model accurately depicts the program and its intended results?
## Performance Measurement and Program Evaluation

<table>
<thead>
<tr>
<th>Performance Measurement</th>
<th>Program Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ongoing monitoring and reporting of program accomplishments and progress</td>
<td>• In-depth research activity conducted periodically or on an ad-hoc basis</td>
</tr>
<tr>
<td>• Explains what level of performance is achieved by the program</td>
<td>• Answers questions or tests hypotheses about program processes and/or outcomes</td>
</tr>
<tr>
<td></td>
<td>• Used to assess whether or not a program works as expected and why (e.g., did the program cause the observed changes?)</td>
</tr>
</tbody>
</table>
Logic models as a performance measurement tool

• A logic model can serve as a framework for planning performance measurement activities. It can help to:
  – Identify components of your program to include in performance measurement
  – Identify indicators and the measures of progress/performance that align with program components
Logic models as an evaluation tool

A logic model can serve as a framework for your evaluation plan. It can help you focus your evaluation by identifying:

- Questions want/need answered
- Aspects of program to evaluate
- Type of evaluation design
- Information to collect
- Measures and data collection methods
- Evaluation timeframe
Determining what to evaluate

**Process**
- Inputs
- Activities
- Outputs

**Outcome**
- Short-term Outcomes
- Medium-term Outcomes
- Long-term Outcomes

**Evaluation Questions**
- Are resources adequate to implement program?
- Are activities delivered as intended?
- How many, how much was produced?
- Change in knowledge, attitudes, skills?
- Change in behavior, procedures, practice policies?
- Change in social, economic, health, environmental condition?

**Indicators**

What will be measured? / What data are available for evaluation?
## Determining what to evaluate

<table>
<thead>
<tr>
<th>Process</th>
<th>Outcomes</th>
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<tbody>
<tr>
<td><strong>INPUTS</strong></td>
<td><strong>ACTIVITIES</strong></td>
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<tr>
<td>Funding</td>
<td>Conduct educational workshops</td>
</tr>
<tr>
<td>Staff</td>
<td></td>
</tr>
<tr>
<td>200 AmeriCorps members</td>
<td>Provide nutrition and food prep counseling</td>
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<tr>
<td>State and National members</td>
<td>Provide referrals to food programs and resources</td>
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<td>Research</td>
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AmeriCorps | Senior Corps | Social Innovation Fund | Volunteer Generation Fund
## Determining what to evaluate

### Process

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<td>Increased adoption of healthy food practices</td>
<td>Families are healthier</td>
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<tr>
<td>Staff</td>
<td>Provide nutrition and food prep counseling</td>
<td># individuals receiving services</td>
<td>Improved attitudes about healthy eating</td>
<td>Increased access to more food options</td>
<td>Increased household food security</td>
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<td>200 AmeriCorps</td>
<td>Provide referrals to food programs and resources</td>
<td># individuals receiving referrals</td>
<td>Improved skill in preparation of healthy foods</td>
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<tr>
<td>State and National members</td>
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<td>Increased knowledge of food programs and community food resources</td>
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**Determining what to evaluate**

### Process

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### Examples of outcome measures and data sources

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<td>Increased access to more food options</td>
<td>Families are healthier</td>
</tr>
<tr>
<td>Measure</td>
<td>% ↑ individuals demonstrating greater understanding of benefits of good nutrition</td>
<td>% ↑ individuals enrolled in food assistance programs</td>
<td>% ↓ risk factors for nutrition related problems and chronic diseases</td>
</tr>
<tr>
<td>Data Source</td>
<td>Pre/post surveys of beneficiaries and a matched comparison group of non-beneficiaries</td>
<td>Administrative data records</td>
<td>Pre/post health records of beneficiaries and a matched comparison group of non-beneficiaries</td>
</tr>
</tbody>
</table>
Things to remember

• Developing a logic model is not completed in one session or alone.
• There is no one best logic model.
• Logic models represent intention.
• A program logic model can change and be refined as the program changes and develops.
• Programs do not need to evaluate every aspect of a logic model.
• Logic models play a critical role in informing evaluation and building the evidence base for a program.
Resources for logic model development

W.K. Kellogg Foundation Logic Model Development Guide


Innovation Network Logic Model Workbook

http://www.innonet.org/client_docs/File/logic_model_workbook.pdf
Resources for logic model development

University of Wisconsin Extension: Program Development and Evaluation
http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html

CDC Program Evaluation Resources:
http://www.cdc.gov/eval/resources/index.htm

Measuring Program Outcomes: A Practical Approach (United Way)

Developing and Working with Program Logic Models (Bureau of Justice Assistance)
CNCS Resources

Evaluation Resources:
https://www.nationalserviceresources.gov/evaluation-americorps

Performance Measurement Core Curriculum:
https://www.nationalserviceresources.gov/npm/training-resources