Results Logic for Complex Systems

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The Question

Is it a problem to represent reality as a simple causal model of boxes and arrows, or should the logic models we use address the complexity of life – and if so how?

P. Rogers *Evaluation* 2006
The [International] 'Classic' Results Logic  – Rogers 2006

Certain resources are needed to operate your program

If you have access to them, then you can use them to accomplish your planned activities

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

If you accomplish your planned activities to the extent you intended, then your participants will benefit in certain ways

If these benefits to participants are achieved, then certain changes in organizations, communities, or systems might be expected to occur
Simple-Complicated-Complex

**Simple**
Following a Recipe

- The recipe is essential
- Recipes are tested to assure replicability of later efforts
- No particular expertise; knowing how to cook increases success
- Recipes produce standard products
- Certainty of same results every time

**Complicated**
A Rocket to the Moon

- Formulae are critical and necessary
- Sending one rocket increases assurance that next will be ok
- High level of expertise in many specialized fields + coordination
- Rockets similar in critical ways

**Complex**
Raising a Child

- Formulae have only a limited application
- Raising one child gives no assurance of success with the next
- Expertise can help but is not sufficient; relationships are key
- Every child is unique

(Zimmerman 2003)
Linear Cause-Effect Thinking: Moving to Cause-Effect Within Borders

- Traditional results logic shows a linear depiction of cause-effect results. Most evaluation logic models still work in this mode, often without a strong reference to context, degrees of influence or control. Can we build in
  - Systems thinking?
  - Means to deal with complexity?
Need to Recognize That Results Occur In Different ‘Communities’

- End Outcomes
- Immediate & Intermediate Outcomes
- Resources – Activities - Outputs

Broad Community of interest

Target Community of influence

Community of Control
Certain ‘Communities’ Within Your Reach Can Be Considered ‘Standards’

- Guardians vs. Traders – Jane Jacobs
- Partners / Intermediaries vs. Clients
- Support ‘Climate’ vs. Target Communities
- Users vs. Beneficiaries
Performance needs to be considered in terms of its differing spheres of influence. Actions in the operational sphere should directly lead to changes in targeted groups which should in turn affect the desired ‘state’.

Sources: Van Der Heijden (1996), Montague (2000)
Towards an integration of systems thinking into results logic for complex initiatives

WHY we exist

SOCIETAL BENEFITS
Social, economic, safety, security, health, environmental

Sustained System change

HOW we operate

WHO we reach & WHAT we want

Research & high intensity knowledge generation activities

Policy / Rule Makers/ Governors:
Supportive decisions
Capacity
Engagement

Partners/ Intermediaries
Supportive actions
Capacity
Involvement

‘Supplier’ target communities
Actions/adoptions
Capacity
Involvement

‘User’ target communities
Actions/adoptions
Capacity
Involvement

‘Supplier’ target communities
Actions/adoptions
Capacity
Involvement

‘User’ target communities
Actions/adoptions
Capacity
Involvement

Communications/ information and awareness building

Educational and advisory services

Science & technical specialist support

CAPABILITY + TIME + $

Steve Montague
November 7, 2003

Recognizing the relationship chain (or network) as well as the results chain can help gain perspective on the systems in ‘play’ for any given program, policy or initiative.
Policy Actions and Cause-Effect in Different “Communities”

Community of Influence
- Policy / Rule Makers / Governors
  - Set support ‘climate’ for instruments
- Partners / Intermediaries
  - Supportive actions
- Target Communities
  - Adopt ‘sustainable’ behaviours

Community of interest

Community of Control
- Resources
- Policy Actions

Information and Resource support

Advocacy and Information

Information and direct services / interventions / incentives / sanctions

Environmental effectiveness*

Administration costs, economic efficiency, compliance costs, ‘soft’ effects, dynamic effects, revenues*

Costs-benefit and wider economic effects*

Source: Montague and Allerdings OECD 2005

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A Basic Reach-Results Logic and Risk Map for a Service [or Policy] Change Initiative Involving Multiple Intermediaries

Key Risk Areas

- Internal Capacity
- Partner / Client Capacity
- Collaborations
- External Community Risks

Initiative Proponent
- Program Management
- Negotiation / Collaboration
- Services Delivery
- Advisory Functions
- Monitoring and reporting

Suppliers (Industry), NGOs, Others
- Positive engagement / relationship
- Collaborative partnerships
- Leverage of Human Capital
- Transformed service relationships
- Appropriate processes re: supply, planning, management and maintenance of service area

Clients / Target Communities
- Informed and supportive audiences re: initiative, commitments and 'transformation'
- Collaborative involvement
- Positive reaction, service satisfaction
- Improved capacity for [change area] decision-making and management
- Compliance to rules for [change area]
- Commitment to [change area] by target groups
- Achievement of commitments
- 'Management' and practice changes 'transformation'

Main Outcomes:
- Transformed 'system'
- Net societal benefits

Canadians
- Informed and supportive audiences
- Well served by Government / public policy
- Adoption / acceptance of changes

Treasury Board and OGD Partners
- Constructive dialogue and joint planning
- Support
- Collaborative involvement / partnerships
- Transformed relationships / services

Direct Influence

Contributing Influence

Control

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# But What About Complex Programs?

<table>
<thead>
<tr>
<th>Complex programmes</th>
<th>Strategies for developing and using programme theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Recursive causality</td>
<td><strong>Non-linear programme theory</strong> showing and documenting iterative development over time</td>
</tr>
<tr>
<td>b) Emergent outcomes</td>
<td><strong>Overarching programme theory</strong> that can be adapted over time to accommodate specific emergent outcomes</td>
</tr>
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</table>

Source: Rogers, 2006
Example of Emergent Outcomes

[Area-Based Initiatives] By opening up processes of decision making to a wider range of people and at the same time seeking to accord equal measure of respect to the contributions this variegated population make, we inevitably move away from the comparatively simple and manageable conceptions of success and failure associated with more closed systems.

Options for Using Logic Models for Complex Programmes and Components Involving Multiple Projects

(or complex aspects of programmes with multiple projects)

1. Wait until the program can be tightly specified before using programme theory (evaluability assessment approach)
2. Work with each project separately to develop programme theory to guide planning and implementation as well as evaluation
3. Develop a broad programme theory that is then developed further and specifically for each project
Examples of Emergent Outcomes

- First Nations
- Public Health
- Community Development
- Science and Innovation

Question: Where are there not emergent outcomes these days?
Recursive Causality

- Tipping points
- Virtuous or vicious circles
- Reinforcing loops
- Some classics:
  - Success to the successful
  - Tragedy of the commons
  - Fixes that fail
Example of Common Programme Theory – Rogers 2006

7. Stronger Families and Communities

6. An environment where communities participate in and drive their own solutions to strengthen their families and communities

5. Family and community trust/resilience/adaptability

4. Demonstration/application of greater understanding, skills and capacity

3. Greater choice, understanding, skills, capacity for initiative

2. Greater awareness, development of partnerships

1. Participation, enhanced trust

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Recursive Programme Theory – Rogers 2006

Level 7: Stronger Families and Communities

Level 5 & 6: Resilience, sustained participation and self-determination

Level 4: Application of capacity to address challenges and seize opportunities

Level 3: Greater capacity

- Human capital
- Economic capital
- Social capital
- Organizational capital

Opportunities to apply capacity

Level 2: Greater awareness

Level 1: Participation

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Diagram by FACSIA’s Communications Branch
The Dilemma

We need to break out of linear, overly simplified thinking.

BUT...

People like simple, linear charts...

WHAT TO DO?
An ‘Emerging’ Solution?

- Build systems thinking, emergent goals and recursive loops ‘into’ conventional tools like plans

- Keep language simple, structure consistent and allow for changes over time

- Monitoring and Evaluation built in to management processes
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</thead>
<tbody>
<tr>
<td>Practice and Behaviour Change</td>
<td>Current level of practices related to need/problem area.</td>
<td>Current level of knowledge, ability, skills and aspirations related to issue area and services etc.</td>
<td>Observed behaviour changes, adaptation, action.</td>
<td>Observed behaviour changes, adaptation, action.</td>
</tr>
<tr>
<td>Knowledge, Ability, Skill and/or Aspiration Changes</td>
<td>Current awareness of information and services.</td>
<td>Current level of usage and engagement.</td>
<td>Observed or assessed learning and commitment.</td>
<td>Observed or assessed learning and commitment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHAT</th>
<th>T0 [Current Needs]</th>
<th>T1 [Desired]</th>
<th>T2 [Desired]</th>
<th>T3 [Desired]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactions</td>
<td>Reactions (satisfaction level)</td>
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</tr>
<tr>
<td>Engagement/Involvement</td>
<td>Current level of usage and engagement.</td>
<td>Level of usage and engagement.</td>
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</tr>
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</table>

|------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Activities/Outputs | Current activities and outputs (type and level). | # Outputs
Milestones Achieved | # Outputs
Milestones Achieved | # Outputs
Milestones Achieved |

|------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Inputs/Resources | Current and historical $ and HR spent
Needs re: CCS capacity | $ and HR spent
Improvements to CCS capacity | $ and HR spent
Improvements to CCS capacity | $ and HR spent
Improvements to CCS capacity |

End Result
Describe the overall trends with regard to the CCS mission and Board Ends.

Recent cancer trends (incidence, mortality, morbidity, Q of L) including S.T.E.E.P. factors

Results Chain

Time Periods – Usually Fiscal Years

- Observed health effects and broad system changes (incidence, mortality, morbidity, Q of L)

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### AREA OF CCS MISSION / OBJECTIVES: Reduce incidence and mortality from cancers associated with U.V. exposure

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<th>Results Chain</th>
<th>Needs-Results Plan Worksheet</th>
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<tr>
<td><strong>WHY?</strong></td>
<td><strong>T0 [Current Needs]</strong></td>
</tr>
<tr>
<td>'End' Result</td>
<td>Increasing incidence of sun related cancer</td>
</tr>
<tr>
<td>Describe the overall trends with regard to the CCS mission and Board Ends.</td>
<td></td>
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| **WHAT**                                                                     |                                                                                             |
| Practice and Behaviour Change                                                | Problematic level of unsafe sun and tanning behaviors                                         |
| Describe the practices and behaviour of individuals, groups, and partners over time. |                                                                                             |
| Knowledge, Ability, Skill and/or Aspiration Changes                          | Key Segments do not know appropriate sunsafe precautions for various UV levels                |
| Describe the level of knowledge, abilities, skills and aspirations/commitment of individuals, groups, and/or communities. |                                                                                             |

| **BY**                                                                       |                                                                                             |
| Reactions                                                                    | Lack of awareness / reactions to UV warnings                                                  |
| Describe feedback from individuals, groups, and partners: satisfaction, interest, reported strengths and weaknesses. | Lack of apparent awareness of need for shade in public spaces                                 |
|                                                                                                                           | Lack of public / institutional / other related agency involvement in sunsafe promotion       |
|                                                                                                                           | Lack of opportunity for concerned group involvement                                        |

| **WHOM?**                                                                    |                                                                                             |
| Engagement / Involvement                                                     | Improved awareness of UV levels and their implications                                       |
| Describe the characteristics of individuals, groups, and co-deliverers: numbers, nature of involvement               | Pick-up of need for shade messaging by media and various public institutions                 |
|                                                                                                                           | Media pick-up of sunsafe messaging                                                         |
|                                                                                                                           | Involvement of physicians groups in sunsafe cause                                          |

| **HOW?**                                                                    |                                                                                             |
| Activities / Outputs                                                        | Promotional / educational activities and information / communication to key target groups    |
| Describe the activity: How will it be implemented? What does it offer?       |                                                                                             |
|                                                                                                                           | Promotional / educational activities and information / communication to key target groups    |
| Inputs / Resources                                                          | Promotional / educational activities and information / communication to key target groups    |
| Resources used: dollars spent, number and types of staff involved, dedicated time. |                                                                                             |
|                                                                                                                           | Promotional / educational activities and information / communication to key target groups    |
|                                                                                                                           | Promotional / educational activities and information / communication to key target groups    |
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|                                                                                                                           | Promotional / educational activities and information / communication to key target groups    |

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Conclusion

- Tell a Performance Story
  - How, Who, What, Why

- Change our mental models and logic models to recognize
  - systems
  - complexity
  - ‘communities’ (people with some common task, function or identity in the system)
  - program logic as an heuristic – not an implementation blueprint
  - go beyond logic models to build heuristic in to management tools

2. Canadian Cancer Society


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