Logic Models Beyond the Traditional View: Metrics, Methods, Format and Stakeholders

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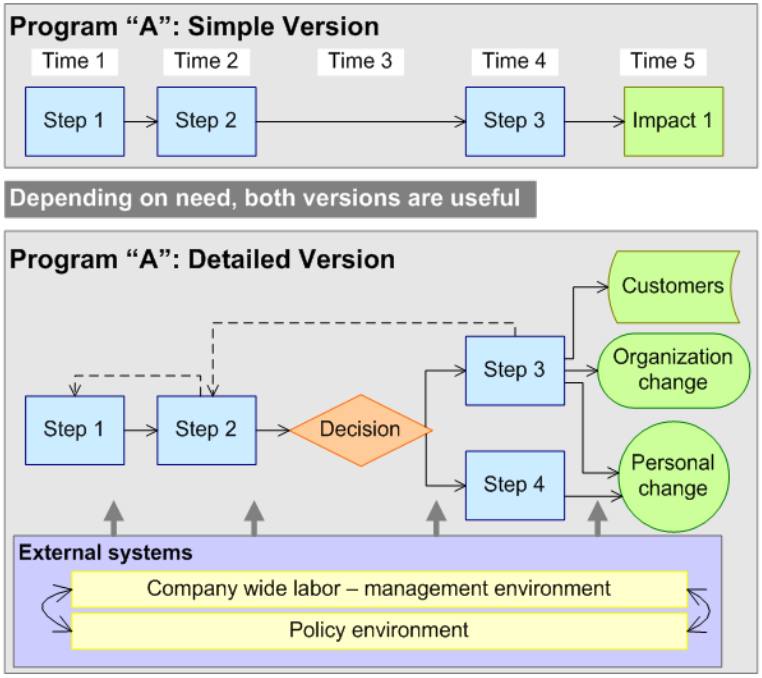


Game plan for workshop

Part 1: Preliminaries

Part 2: Models and evaluation logic models

Part 3: How do logic models relate to metrics and methodology?

Part 4: Can logic models change over time? Should we let them?

Part 5: Matching form and content to what (we think) we know

Part 6: Applying Logic Models Over the Evaluation Life Cycle

Part 7: Jointly optimizing readability and information richness

Part 8: Working with stakeholders

Part 9: Summary discussion

Part 1: Preliminaries

- Mutual introductions
- Scope
- 30 seconds on all you need to know

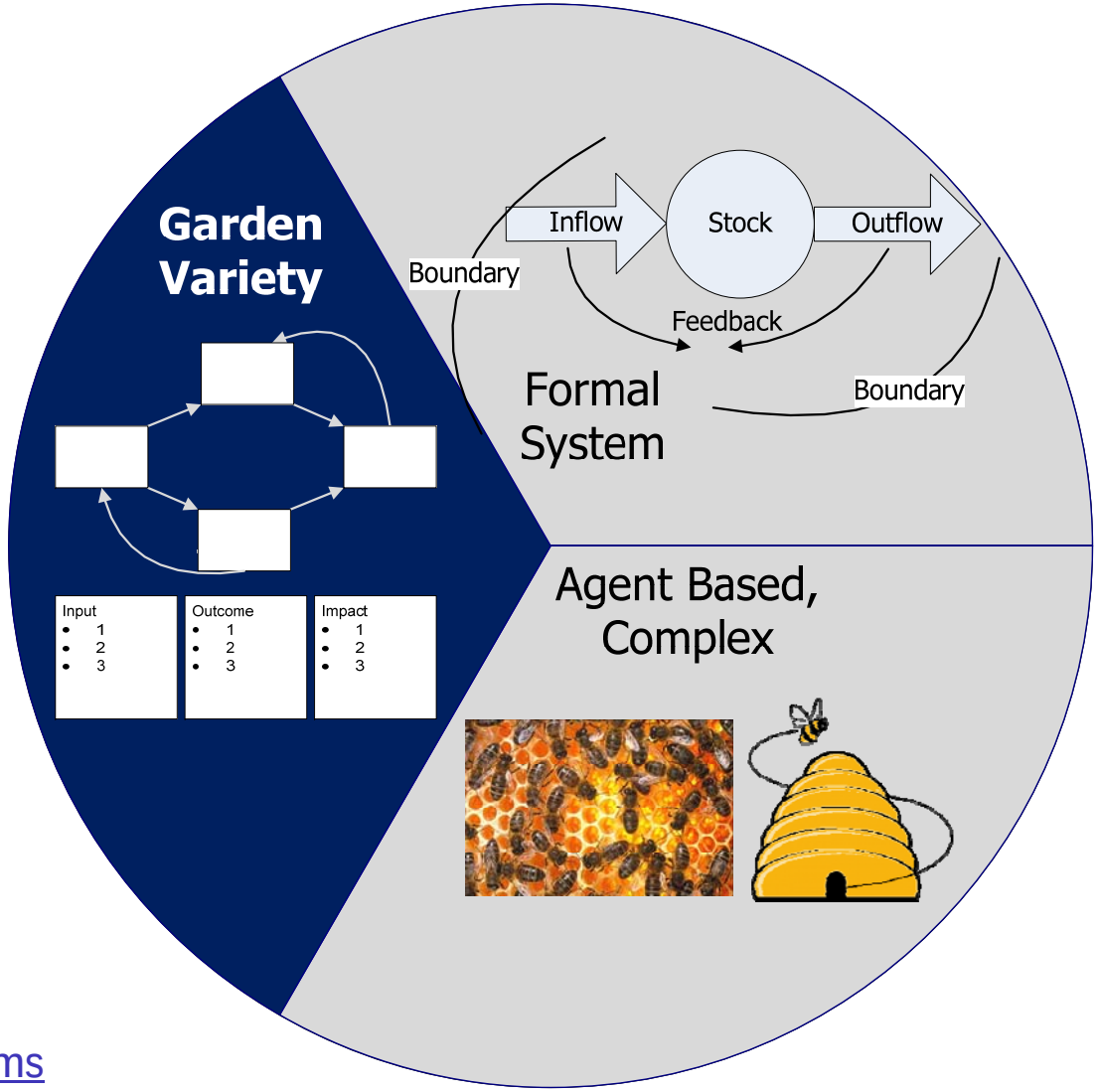
Introductions

- Talk among yourselves for a few minutes
  - What is your professional background?
  - What projects have you been working in the past year or two?
  - If you could evaluate any program, using and methods , what would you choose?
- Someone at the table tell us all about someone else

What is the value of knowing more about logic models than stakeholders want?

- Sometimes evaluators have no choice because "logic models" are reified into a required form
  - Input → throughput → output →outcome → impact
  - If → then statements
    - People are familiar with the form
    - Funders expect or mandate its use
    - It really does work very well in many cases
    - Simplicity and face validity are accessible to people with limited evaluation knowledge
- But there is good reason to go beyond the common form
  - Sometimes we do have choices about the forms of our models
  - Practice what we preach. Conceptual use is valuable even when instrumental use is limited
  - Trap of defining the construct by a particular operational definition precludes opportunity for improvement
  - In depth understanding of logic models teaches us something about evaluation even if we never made a model
- Multiple versions are useful

We will only cover garden variety models



Good book on systems

Article on agent based modeling and evaluation

Quick Overview:

- Draw a pretty good picture or construct columns of words that describe the program
- Use the picture or words to guide evaluation and work
- Artists should never fall in love with their models. Neither should we.
- The rest of the day is commentary

Part 2: What do we get from a logic model?

- What is a model?
- Why are models always incomplete?
- Who is a logic model good for?
- What is a logic model good for?
- What can be in a logic model?
- Logic models as science (no) and technology (yes).
- Why is it useful to use different forms of a model for the same program?
- What won't logic models tell us and when are they not needed?
- Logic models reflect belief and ideology

Models and evaluation logic models

What is a model?

A model is an abstraction designed to identify important elements and relationships within a system

What is an evaluation logic model?

- A model to understand relationships between program activities, its consequences, and its environment
- *Usually* a picture that addresses any or all of three questions
  - If a program works as intended, what will be different? (Summative evaluation)
  - What does it take for a program to work as intended? (Formative evaluation)
  - What is needed to sustain a program after start-up? (Sustainability evaluation)
- Represents views (consensus?) of some (all?) stakeholders
- Work in progress, evolves with program, evaluation findings

Incompleteness and error: The system behavior view

- A deterministic model cannot fully specify an open system, so logic models are always incomplete approximations
- Small perturbation can often cause major change
- Error potential increases with:
  - Length of causal chains
  - Number of feedback loops
  - Network richness (nodes:edges)
  - Accuracy of assumptions
  - Program's departure from previous solutions
    - Small change + proven program + known setting vs. Innovative program + innovative solution + novel setting
    - Rate of change in program or its environment

Incompleteness and error: The domain expertise view

- Reasonable people may think of program theory by drawing on different experience and bodies of research
- Can we really say who is right?
- Is there much likelihood that any of them will get it completely right?
- Do we really think all these people will have the same program theory, thus driving the same methodologies and metrics?

	Some Intellectual Lenses for Evaluation Design and Data Interpretation						
	Economics	Political Science	Anthropology	Liberal	Conservative	Program Advocate	Program Skeptic
Methodology							
Metrics							

If logic models are always wrong, why do we make them? Because they are usually good enough to help guide practical action.

Who is a logic model good for?

Evaluators

- Organize data
- Understand how the program works
- Guide data collection plans (if it's in the logic model, it's a candidate for measurement)

Stakeholders

- By starting with an understanding of program logic, stakeholders are prepared to understand results
- Even knowledgeable stakeholders often gain insight from developing and seeing the model

Evaluator / Stakeholder relationships

- Knowledge transfer
- What will be evaluated
- Topics to be covered in the analysis
- Assistance with evaluation implementation

What is a logic model good for?

- Description
  - Can we help stakeholders characterize their processes, activities and results?
- Explanation
  - Context specific set of relationships that provide a way of understanding an event
  - Example: How to understand a plane crash?
    - Weather
    - Human error – training, knowledge, individual judgment
    - Technology – warning systems, automatic error compensation
    - Some combination of all three?
  - None of these is “correct” or “incorrect”
  - Each provides a different framework for understanding and policy decisions – Which framework provides each stakeholder group with the most choice for effective change?

What is a logic model good for?

- Prediction: Strictly statistical, e.g.
  - If I implement needle exchange will the incidence of HIV decrease?
  - If I provide feedback to drivers on their speed, will they slow down for at least one mile?
  - If I adjust airport landing fees by time of day, will traffic load smooth out?
  - *Models can do a good job of explaining the past while being unable to predict the future*
- Causation
  - Is X the reason Y happens?

What is a logic model good for?

Some examples of how might logic models might differ depending on use

	Evaluation	Planning	Advocacy
Outcome	Include + and - outcomes		only + outcomes
Level of detail	only elements that can be observed and measured	fine detail to guide implementation	simple view of program, most desirable outcomes

Logic model builders need a technological mindset to maximize the value of their work*

"The aim of technology is to be effective rather than true, and this makes it very different from science".

Evaluative / technological perspective

- Theory to guide practical action
- Embrace real world noise
- Priorities determined by need for decisions
- Emphasis on confirmation
- Emphasis on efficiency and effectiveness
- What can make a difference in real world settings

Scientific / research perspective

- Theory to model and discover truth
- Eliminate real world noise
- Priorities determined by ability to expand knowledge
- Emphasis on refutation
- Emphasis on investigating reality, enlarging knowledge
- What can help understand relationships or describe nature

* Evaluation as social technology
www.jamorell.com
www.jamorell.com/documents/chap_5.pdf

What can be in a logic model?

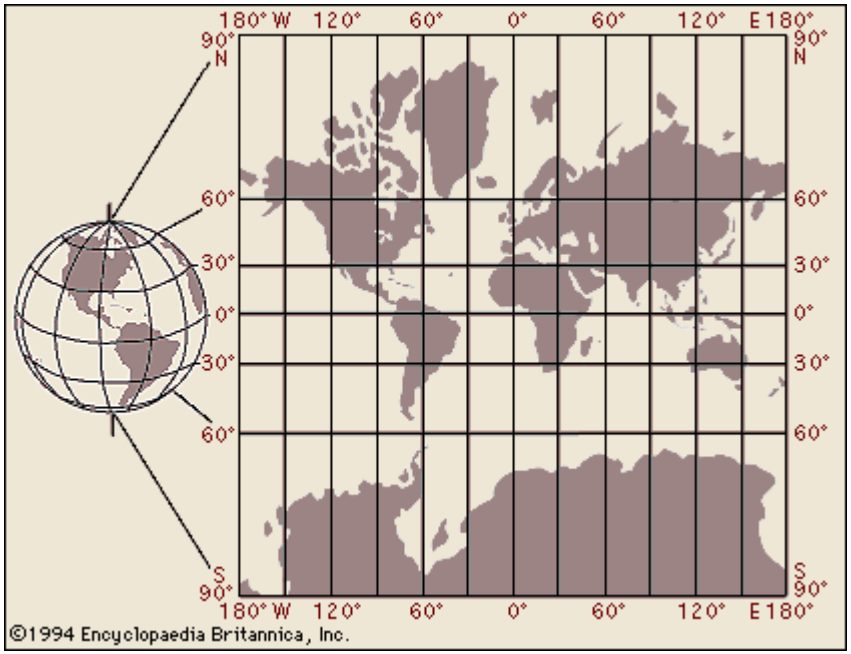
- Feedback loops
- Verbal description
- Outside influences
- System boundaries
- Stakeholder priorities
- Timeline for observation
- Estimates of measurement feasibility
- Relationships among program elements
- Program content , process, and structure
- Guess as to whether parts of the model are correct
- Any other useful information

What kinds of relationships can a logic model show?

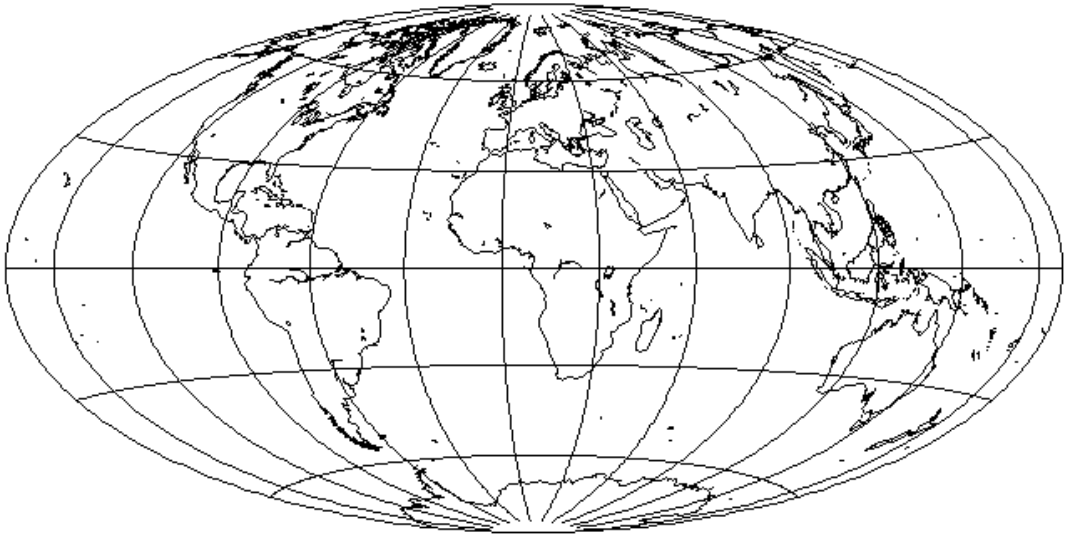
- 1 : 1
- 1 : many
- Many : many
- Precedence
  - A before B
  - A & B simultaneously
  - Agnostic with respect to precedence

Like maps, different versions for different reasons

Areas get larger with distance from equator, but straight lines are rhumb lines, you can use the map to navigate.(Mercator)

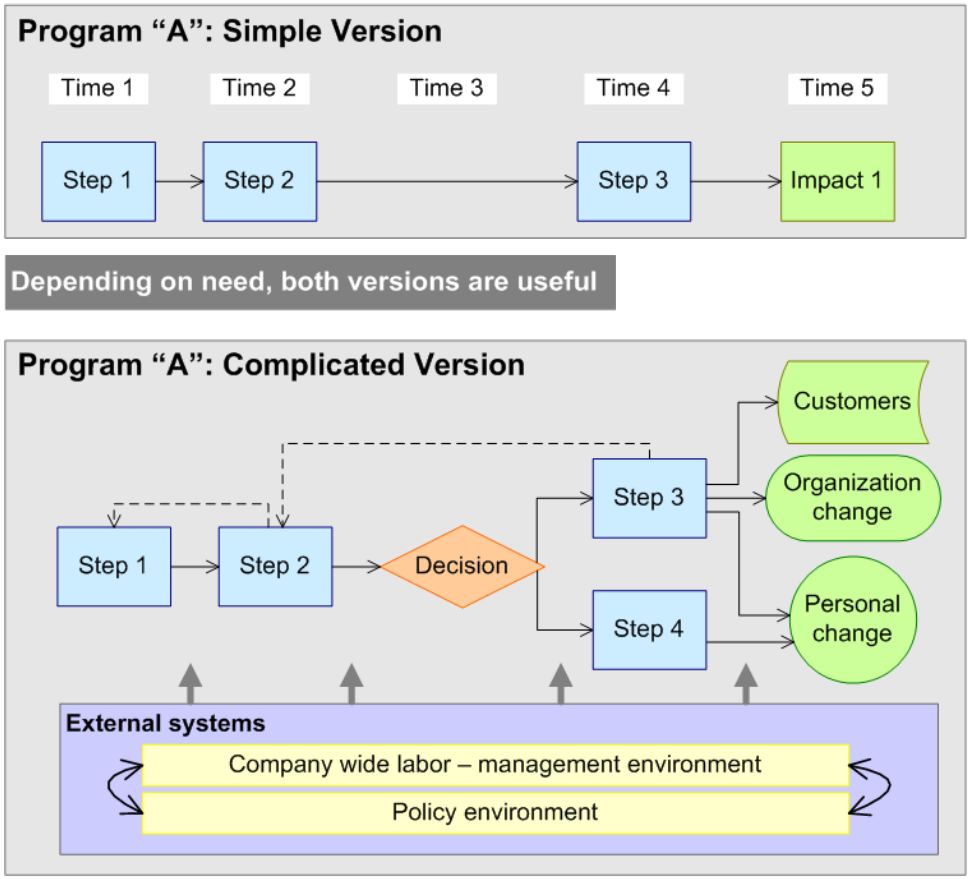


Areas are correct with respect to each other, but charting courses is problematic. (Hammer – Aitoff)



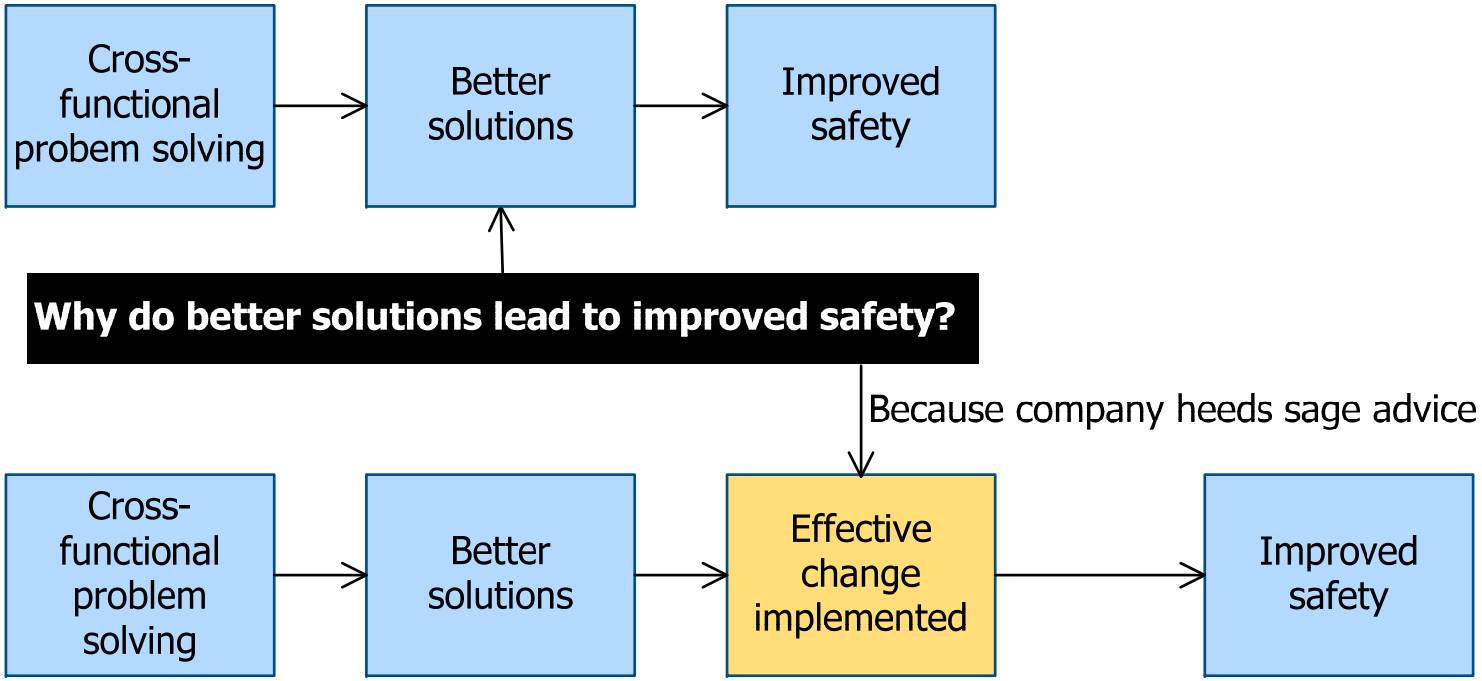
Depending on use, logic models can be simple or complicated

- Scale and complexity of program
- Diversity of information needed to design the evaluation
- Number of
  - Elements represented
  - Systems represented
  - Nested models of different scales
  - Feedback loops
- The same evaluation might need multiple versions, e.g.
  - Technical development vs.
  - Explanation to outsiders



Different ways to model an evaluation can be complementary

- Project plan and logic model
  - Do not match 1:1
  - Should *not* match 1:1 because they serve different purposes
- But mapping the overlap increases ability to
  - Work with stakeholders
  - Manage the evaluation



But logic models do not tell us

- What mix of cases to pick
- What comparison groups to use
- When or how to triangulate from multiple sources of data
- Over how long a period to map pre-implementation trends
- When/how to make cross group and within group comparisons
- Number and length of post-treatment follow-up data collections

Do you need a logic model?

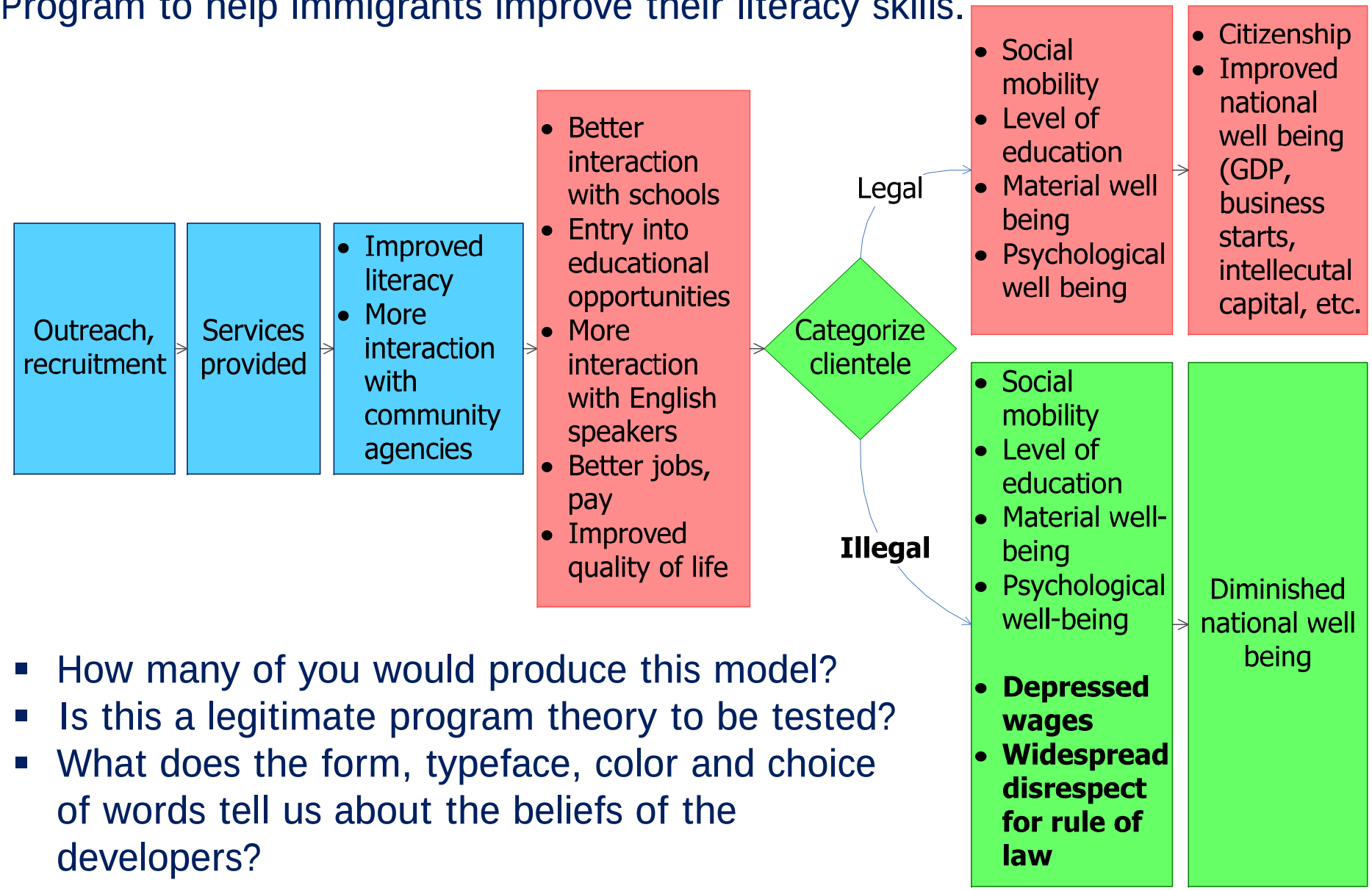
- Would the evaluation get better or worse if we did NOT have a logic model?
- Consequences (positive or negative) for other aspects of the evaluation:
  - Metrics
  - Methodology
  - Knowledge transfer to stakeholders
  - Ability to successfully implement and carry out the evaluation
- Costs and benefits
  - Do we have resources to build a model that would truly improve the evaluation?
  - Time to develop the model given the schedule needed to begin data collection?
  - If we develop the model late, will having it help anyway?
  - What else could be done with the time, money, and labor?

Programs for which logic models are not appropriate

- Very stable programs with simple program theory
- Program is deliberately poorly specified, i.e.
  - Rapid prototyping – continual testing and revision approach to program design and implementation
  - Continuous improvement rapid cycling of evaluation
- Models imply program stability. Programs may be unstable
  - Rapid change in program's environment
  - Formally complex systems -- self organization, phase shifts, etc.
  - Multiple causes, highly networked and cross-linked
    - Different combinations of changes among multiple causes can bring about the same change
    - Best plan is to focus on issues that are richly linked, on the assumption that the system will loosen and somehow change

Logic Models and Ideology

Program to help immigrants improve their literacy skills.



- How many of you would produce this model?
- Is this a legitimate program theory to be tested?
- What does the form, typeface, color and choice of words tell us about the beliefs of the developers?

Part 3: Models metrics, and methodology

- How do logic models relate to other elements of evaluation?
- How can we align models with metrics and methodology?

How do logic models relate to other elements of evaluation?

Metrics – what gets measured?	Identify constructs, but usually not at the level of detail needed for measurement
Methodology – what is the logic that allows us to interpret data?	Partially. Patterns in logic model may be a pattern that can be tested
Knowledge transfer – how do we get people to listen to us?	Partially. The model *is* knowledge. Also, stakeholder involvement sets expectations and provides structure

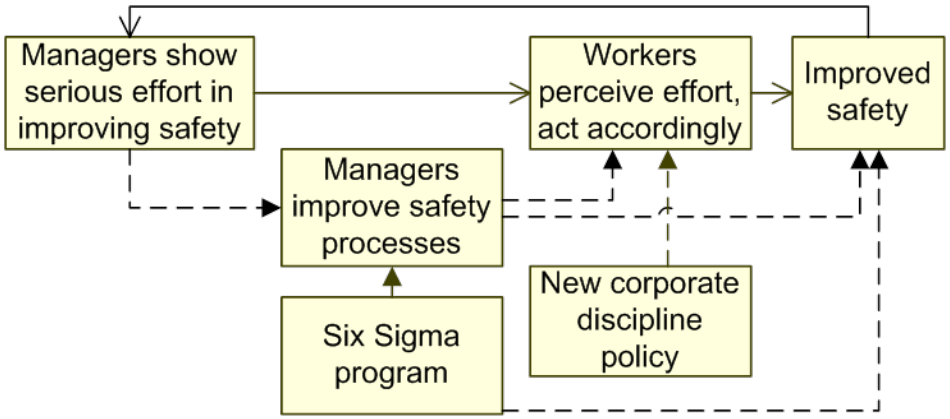
Example 1: Aligning Models, Metrics, and Methodology

Reconfiguring logic models in light of what our

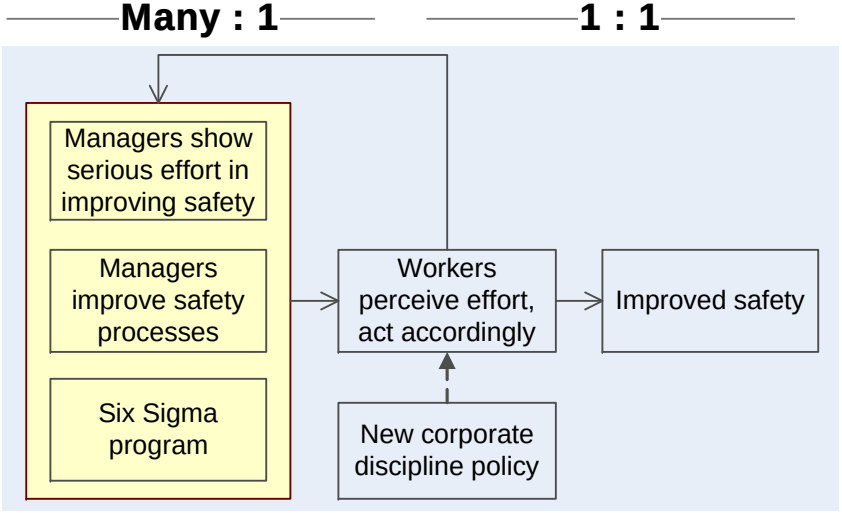
- metrics and
- methodologies

will allow us to do

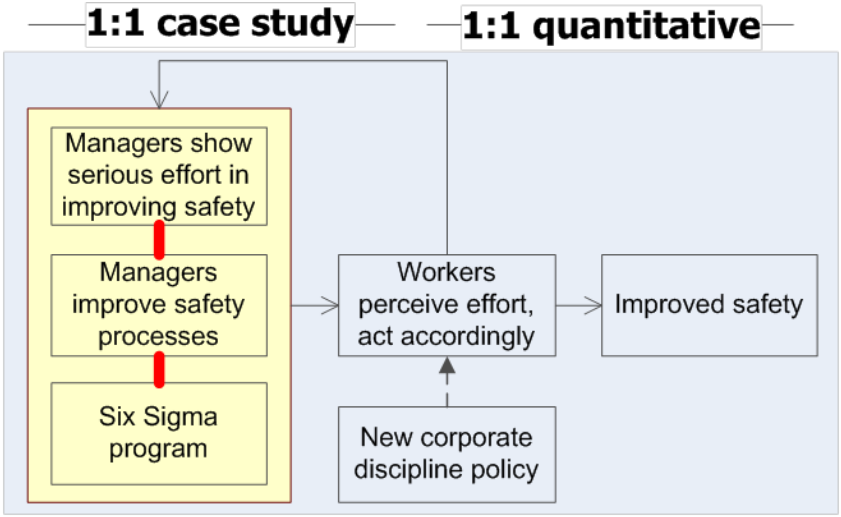
Do we believe we can specify and assess all the 1:1 relationships in this model?



Maybe we should admit defeat and settle for some 1:many relationships.



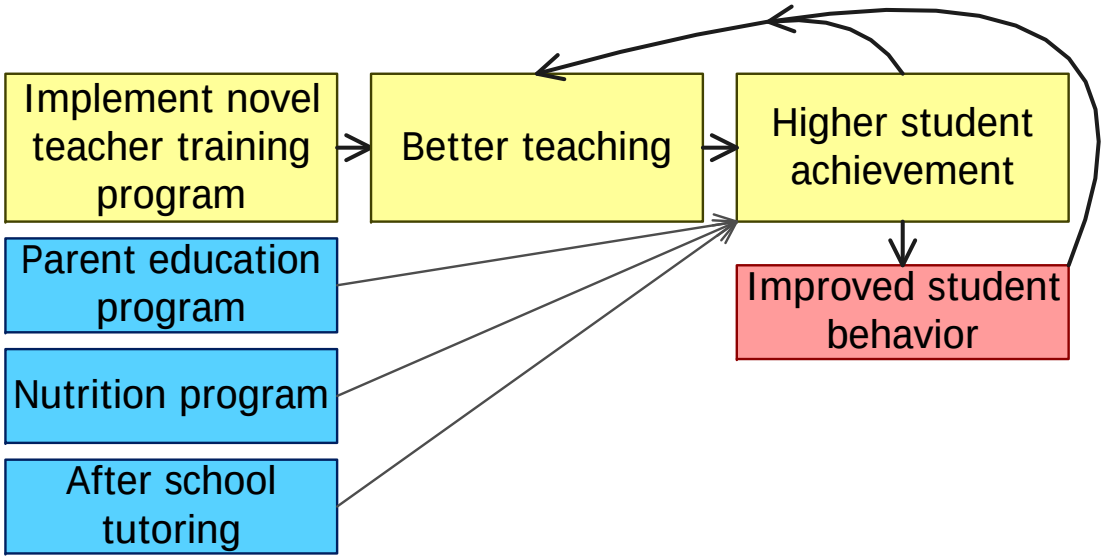
Or, expand our range of methodologies and try for all the 1:1 relationships.



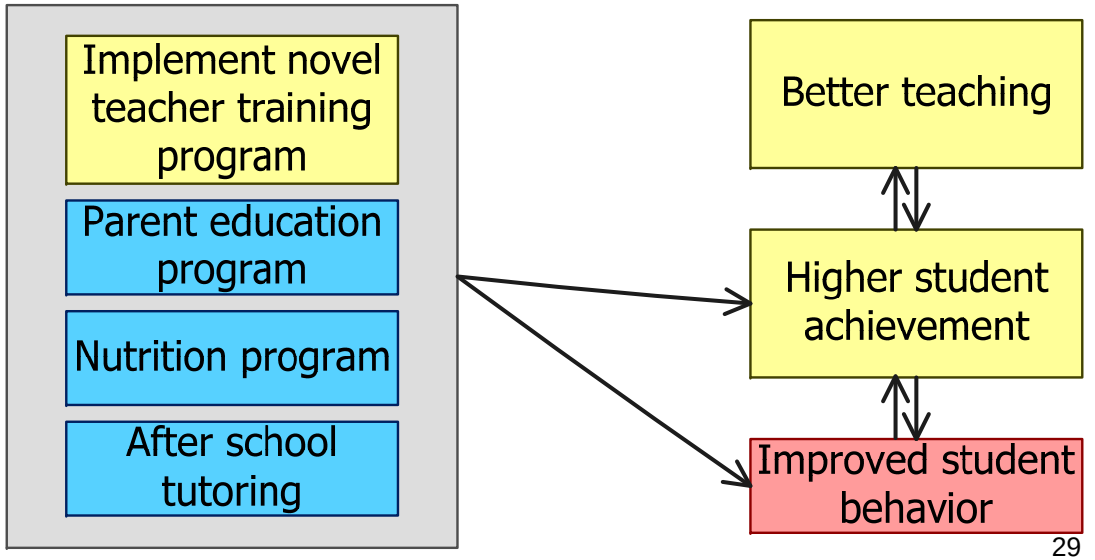
Example 2: Aligning Models, Metrics, and Methodology

Can we evaluate a teacher-training program?

- Historical data
- Comparison group data
- Knowledge if implementation schedules
- Ability to time data collection
- Information on quality of each individual program?



Maybe the best we can do is to test this model instead.



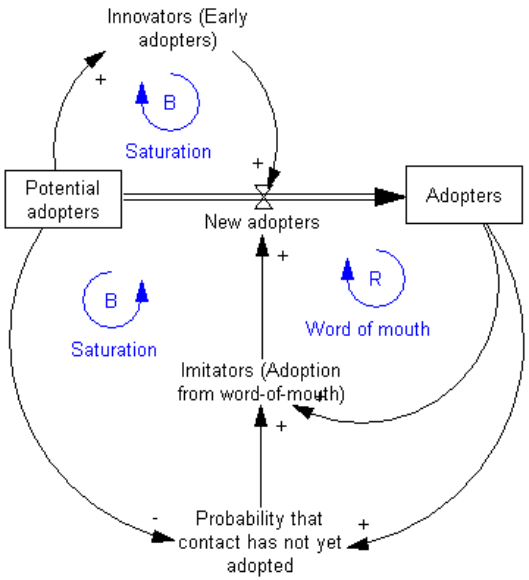
Sometimes logic models can be the design

If a complicated pattern is validated, it's reasonable to assume causation even without comparison groups.

1. Model validated, reasonable to assume program brought about desired results
2. Program theory is wrong
3. Program theory wrong, but something went right
4. Nothing went right

	Program outcomes achieved?	
Logic model validated?	**Yes**	**No**
Yes	1	2
No	3	4

If a simulation is involved, the logic model defines the methodology



Part 4: Can logic models change over time? Should we let them?

- Stakeholder interests and theories can change over time
- Program theory can change over time
- Programs can change over time
- Are we testing a program or a program theory?

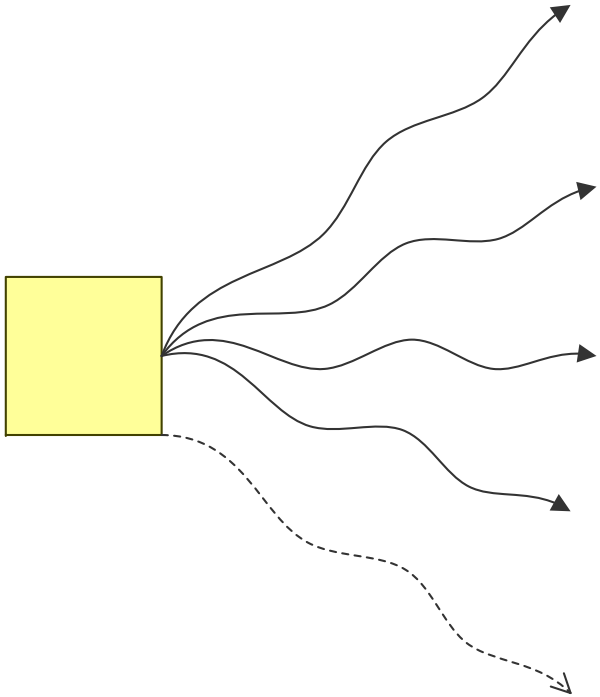
Stakeholders

- New groups with different interests and program theories may appear
- Political, social and other realities may arise
- Circumstances and new knowledge may change beliefs of existing stakeholders

Program theory can evolve in type of logic as well as in specific detail

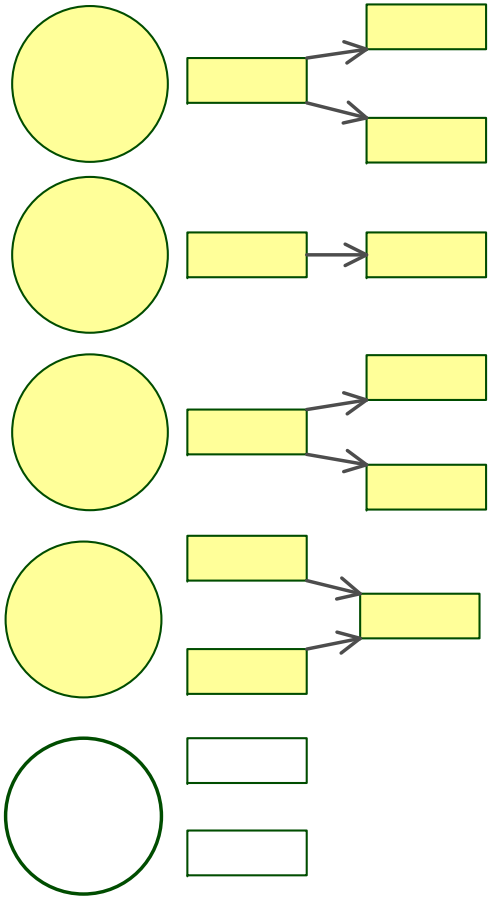
Program theory
- NGO can pick successful grantees
- Maximum discretion to grantees = successful programming

Evaluation question
- Can the NGO pick successful programs?



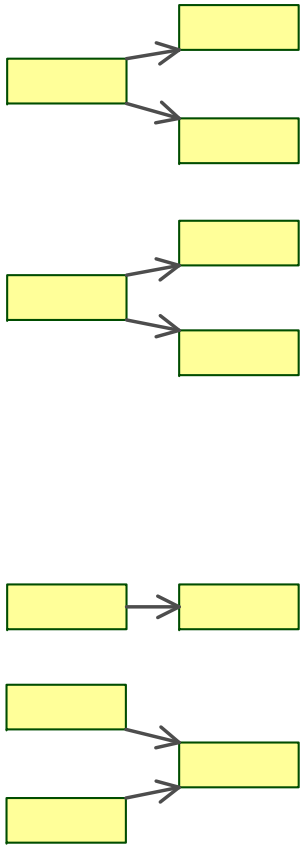
Program theories
- Each grantee has a unique program theory

Evaluation questions
- Which individual programs work?



Program theories
- Similar groups of programs have common operative characteristics

Evaluation questions
- Which groups work?



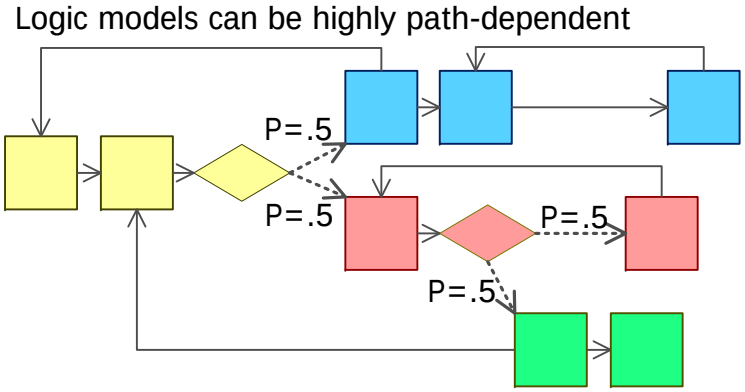
Development paths can change

The **Kalamazoo Promise** is a pledge by a group of anonymous donors to pay up to 100 percent of tuition at any of Michigan's state colleges or universities for graduates of Kalamazoo's public high schools.

What might happen when a program like this is unleashed?

One possibility :

- Rotary Club starts a program to work with the parents of school age children
- Tutors detect mental health issues
- Cooperative arrangement pop up between the mental health system and the schools.



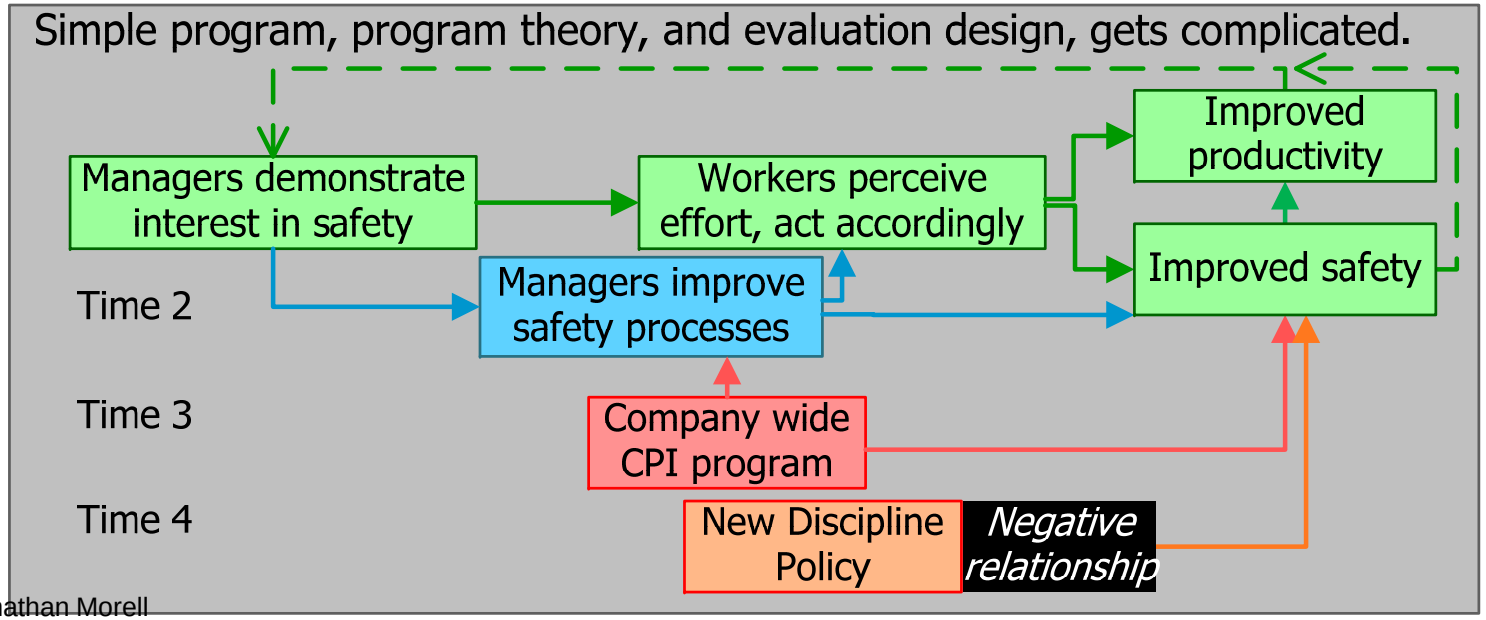
- Many other innovations are bound to arise
- Each may depend on what went before
- Connections among some/many of them will further change the landscape of possibilities
- Possibilities are limitless and unpredictable

Except at the highest and most abstract level, it is *impossible* to develop an a priori logic model

Example of how a program may change over time

The program: Improve safety by training managers

- Some program assumptions
  - Workers can interpret managers' behavior
  - Safety → productivity
  - Safety + productivity → manager behavior
  - *No linkage with other CPI initiatives*
  - *No activity to sabotage program*
- Some evaluation assumptions
  - Need only manager, worker surveys + safety, productivity data
  - No confounds to causal inference

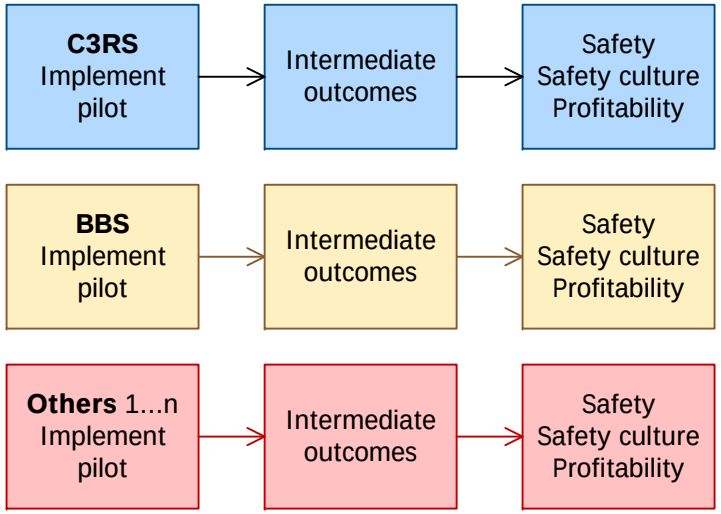


Relationships among programs can develop

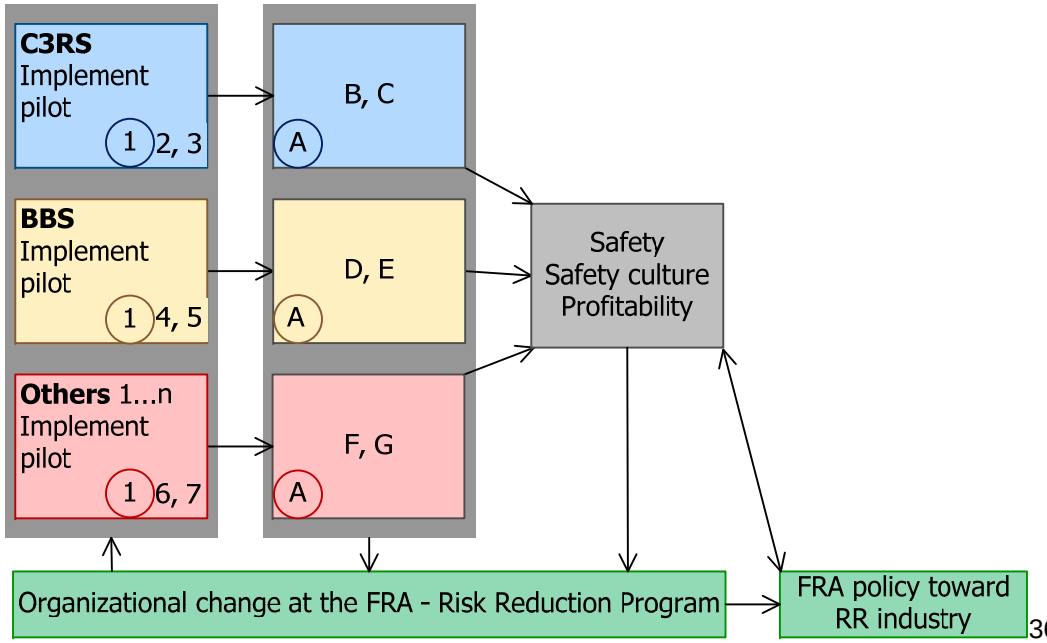
3 separate programs

Some unique intermediate and long-term outcomes

Some common intermediate and long-term outcomes



Combine to have consequences not likely to derive from any one alone.



Should we let the logic model change?

- Are we evaluating a program or a theory?
- What do changes in the model tell us about the initial theory?
- At what point in development of a program should we "freeze the design"?
- Did it make sense in the first place to have a model that did anything but reflect an operational plan and a reasonable guess about program activity and impact?

Part 5: Matching form and content to what we (think) we know

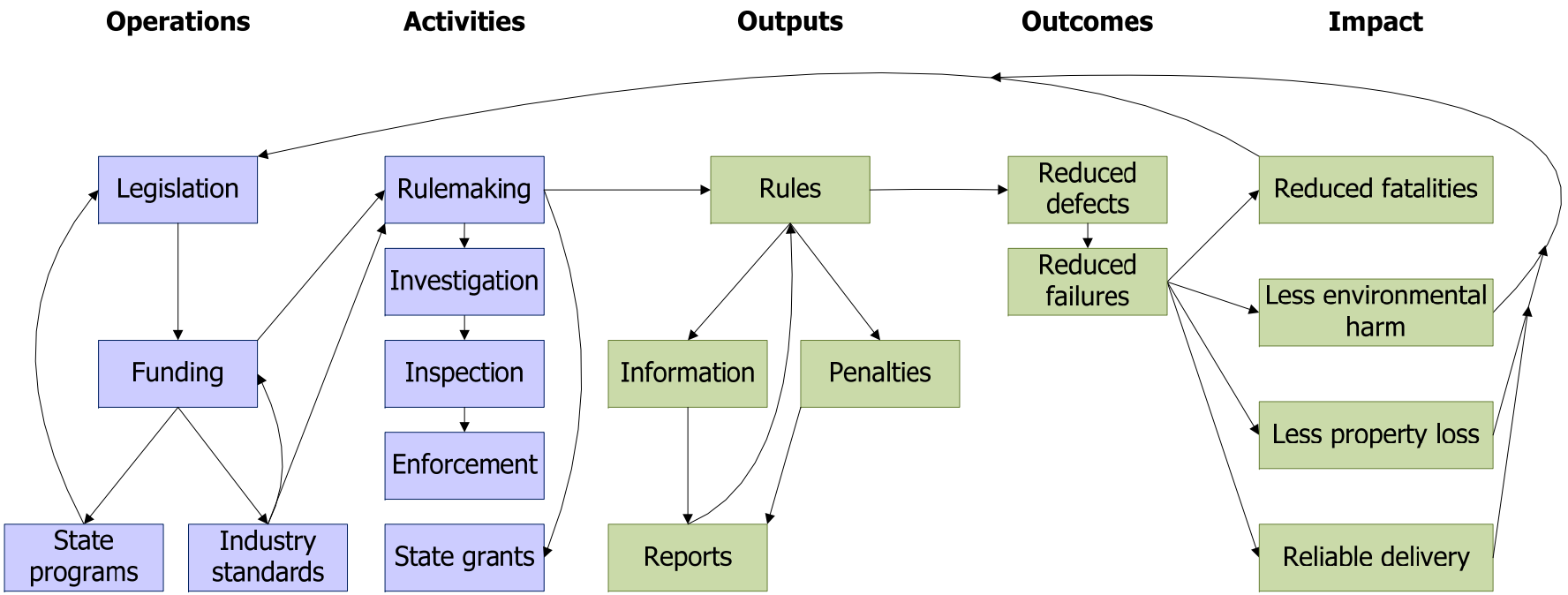
- Visual forms of models imply what we know
- To inform models, stakeholders are necessary but not sufficient

Visual form of logic model should reflect what we know and what we can do

- We need to be honest about what we know and do not know
  - Every element of a model is a hypothesis that can be wrong
  - Error compounds
- Are we able to evaluate at that level of complexity and detail that we have constructed?
  - Do we have methodologies and metrics?
  - Even if we could do the analysis, can the program be explained by the sum of its parts?
  - Are there at least sections of the model that can be explained at that level of detail?

Maybe honesty is the best policy

Do we believe this....



Or...

This....

If stuff happens here

Operations	Activities	Outputs	Outcomes	Impact
Legislation	Rulemaking	Rules	Reduced defects	Reduced fatalities
Funding	Inspection	Reports	Reduced failures	Less environmental harm
Industry	Enforcement	Penalties		Less property loss
Industry standards	Investigation	Information		Reliable delivery
State programs	State grants			

Stuff will happen here

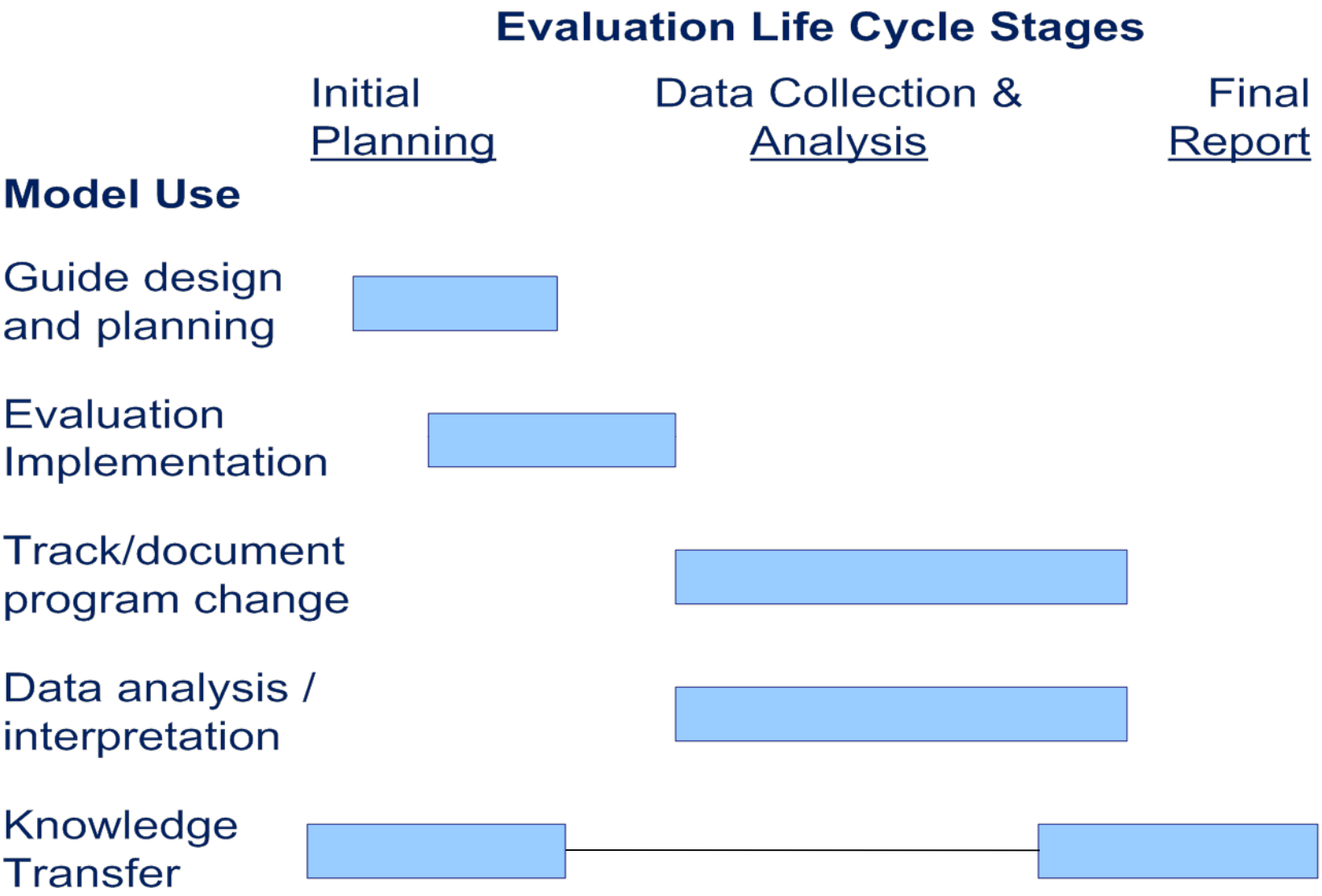
For good program theory, stakeholders are necessary but not sufficient

- Nobody knows their situation better than they do, but their view can be narrow
  - Social science theory
  - Relevant research findings
  - Findings from other evaluations
  - Other domains with similar issues
  - Cherished beliefs are often wrong

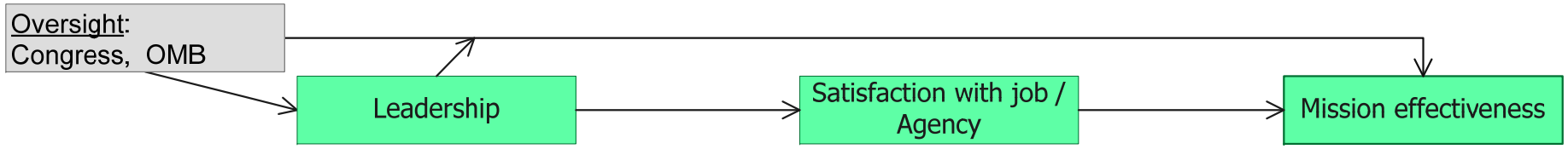
Part 6: Applying logic models over the evaluation life cycle

- Use models to organize multiple sources of information
- Use logic models to interpret data
- Place findings in model to determine recommendations
- Map sections of a report into model to enhance readers' understanding
- Think of a logic model as a portal and a collaboration tool

Uses of logic models over the evaluation life cycle

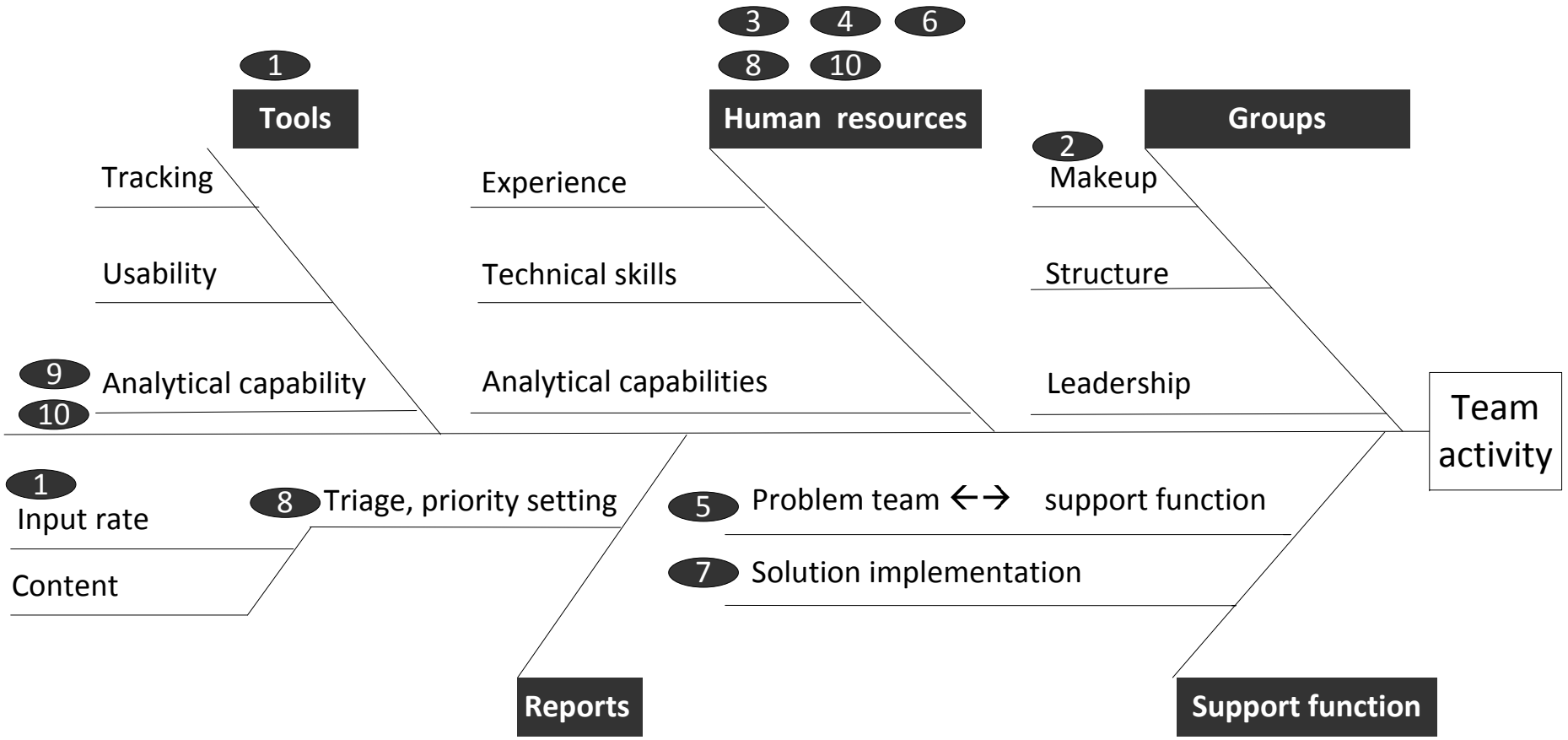


Organize multiple sources of information by within a model

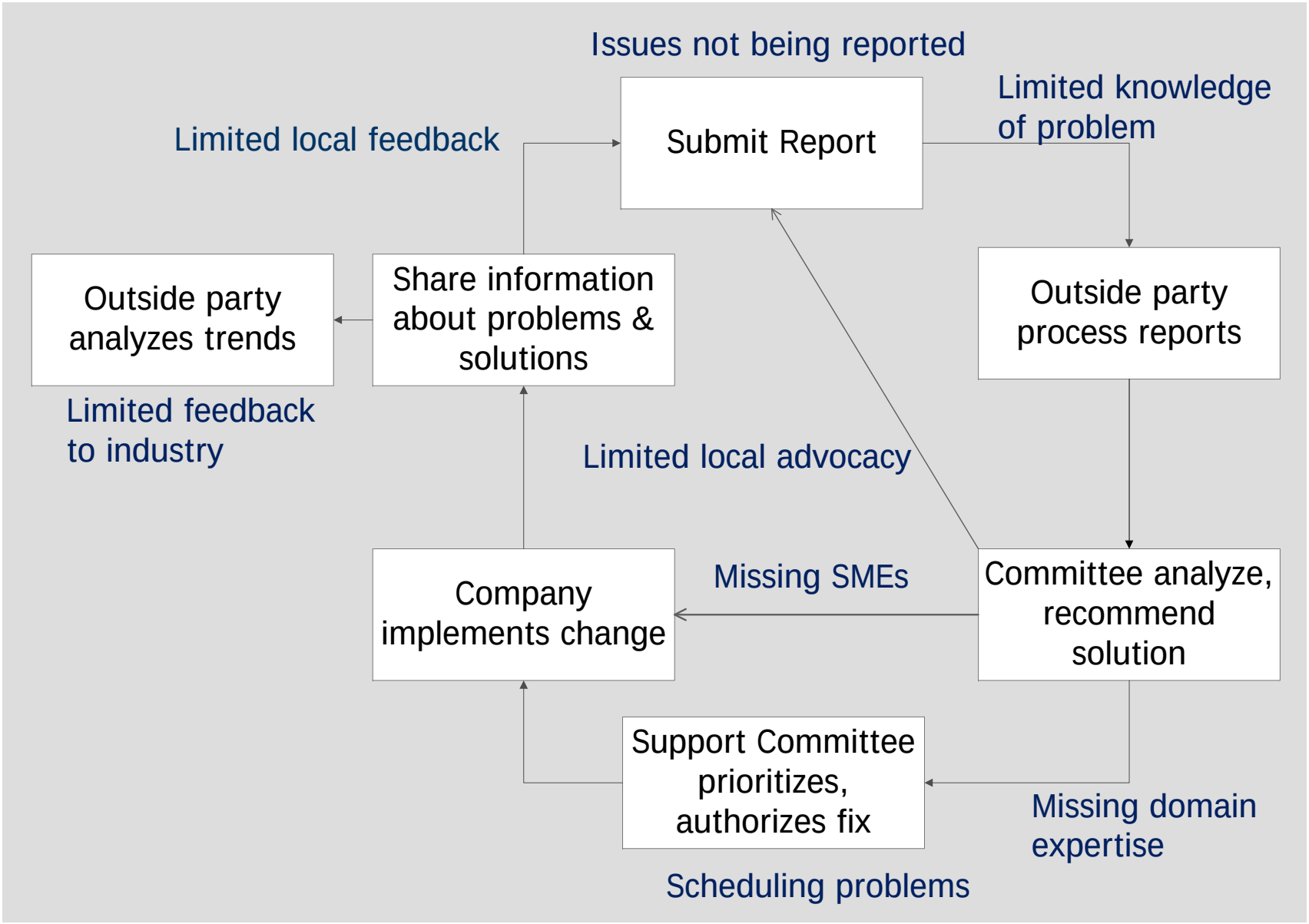


Summary	Senior leadership demonstrate ….	Satisfaction with agency performance varies with "organizational distance"…	Individual employee motivation affects organizational level activity…
FHCS	▪ Leadership, especially senior leadership, key driver of job satisfaction ….	▪ Employees more satisfied with formal appraisal systems than discretionary ….	▪ Employees depict information flow as relying heavily on informal channels…
Employee Engagement Merit Systems Protection Board,2008.	▪ First line supervision a critical factor in determining …	▪ Characteristics of engagement	▪ Agencies with higher engagement…
360 Leadership Survey	▪ Leaders build strong working relationships and demonstrate …		
Organizational Culture Scales	▪ Scale scores demonstrate pattern of bias toward more proximate leadership…		▪ Teamwork and rapport with direct supervision are best rated elements …
Open Ended Responses Following Culture Scales	▪ Strong suspicions of leadership being …	▪ Dissatisfaction with discretionary applications of fairness…	▪ Employees critical of agency's effectiveness amid …

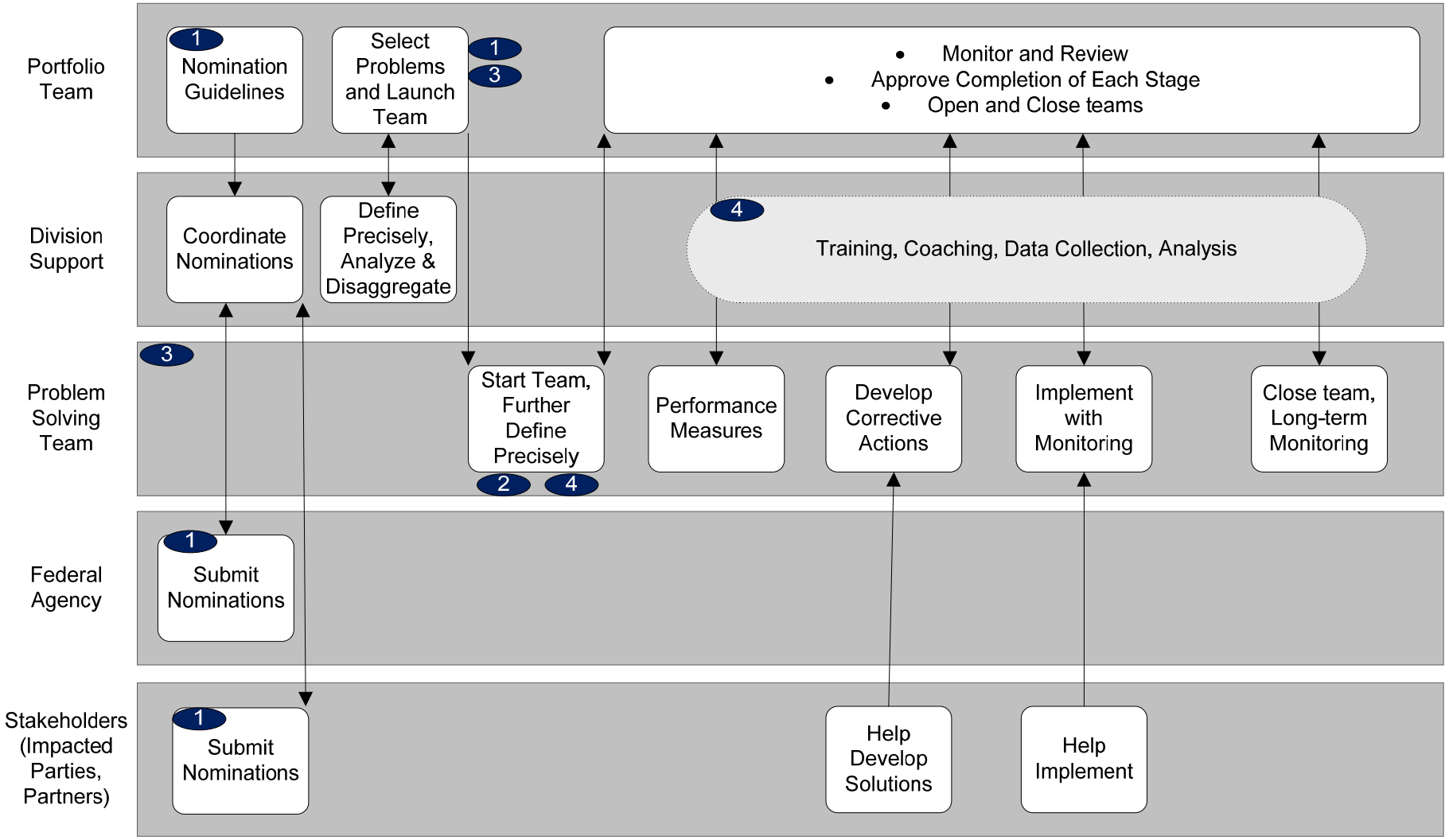
Interpret data by locating findings on root cause model



Determine recommendations by showing where problems lie in model



Enhance readers' understanding by indexing findings to model



Portals and collaboration tools

- Any part of a model can be hyperlinked, e.g. to
  - Files
  - Data bases
  - Other models
  - Reference sources and reports
  - Anything that exists in digital form
- Hyperlinked information can be shared across the Web
- Social networking and collaboration technology can applied when information is networked

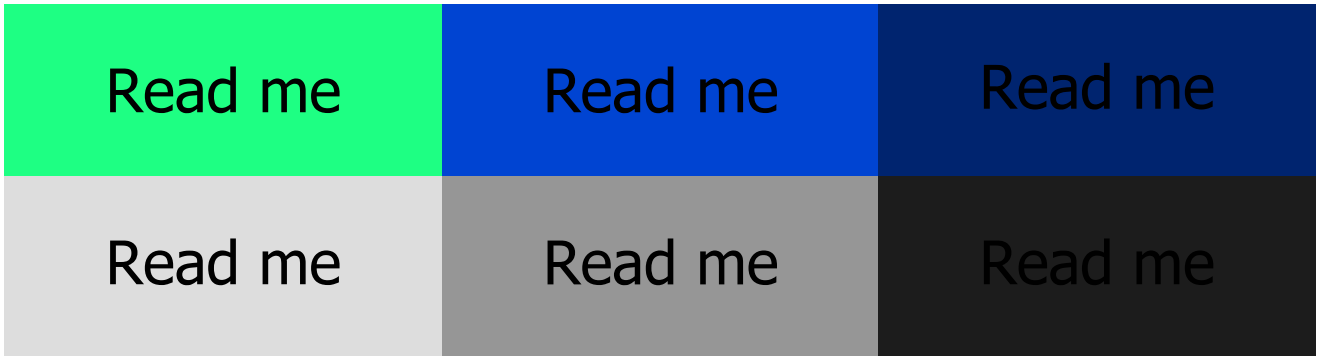
Part 7: Jointly optimizing readability and information richness

- Color affects readability
- File format affects readability
- Type style affects readability
- Layout affects readability

Color characteristics make a difference

Modality makes a big difference in color

Computer screen	Projection monitor
Screen set to • Red 30 • Green 255 • Blue 131	Same color in print reads as • Red 0 • Green 128 • Blue 131

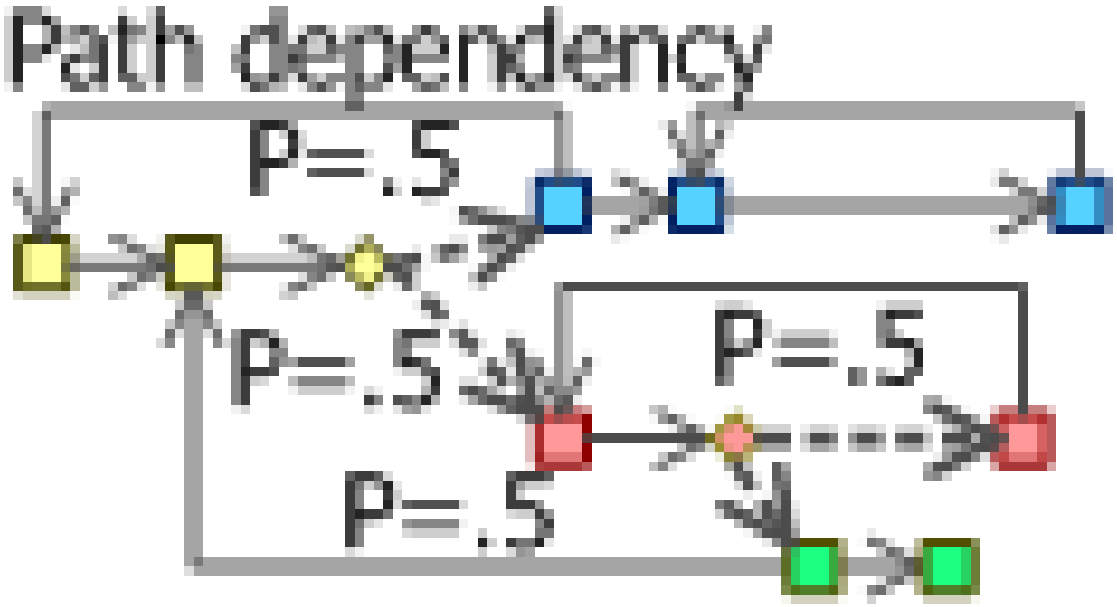


Color saturation can assure that differences show in B&W

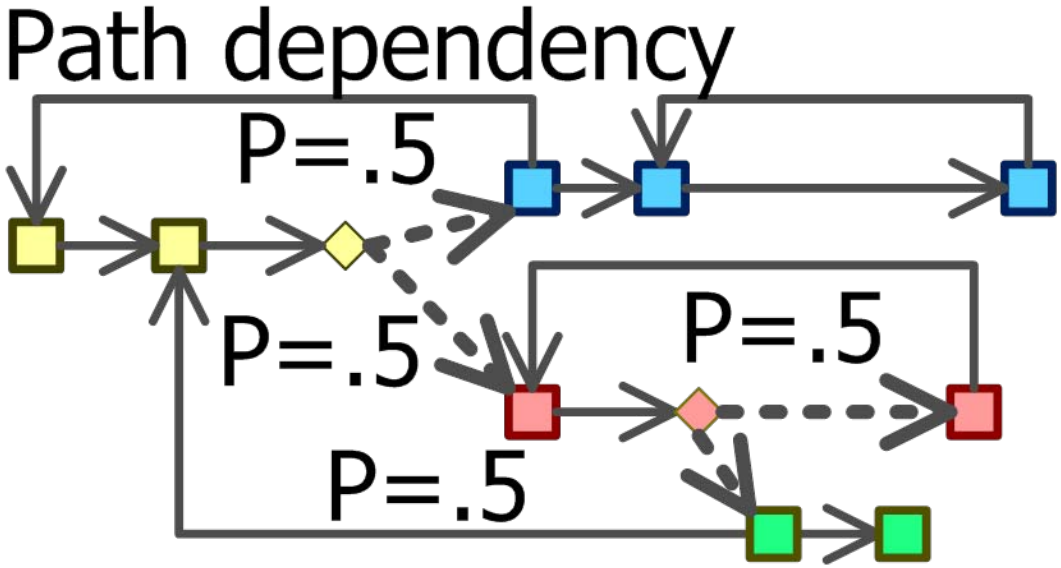
If screen color gets too dark, text is unreadable

File formats matter if you want to print large scale

1 x 2 original as a bitmap



1 x 2 original as a vector graphic



Type characteristics make a difference

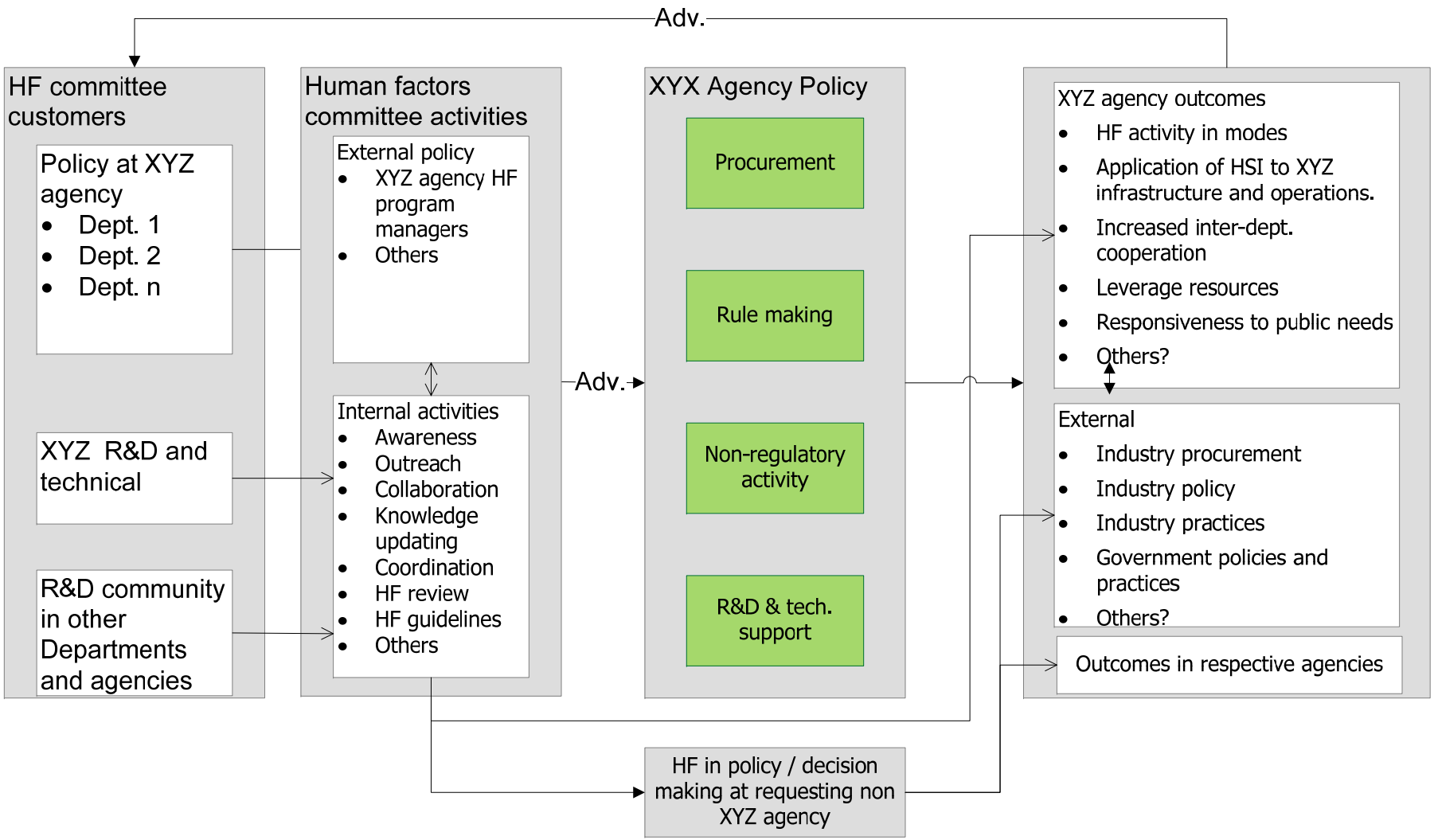
- 11 point
- Serif
- 0 line spacing
- Black lines

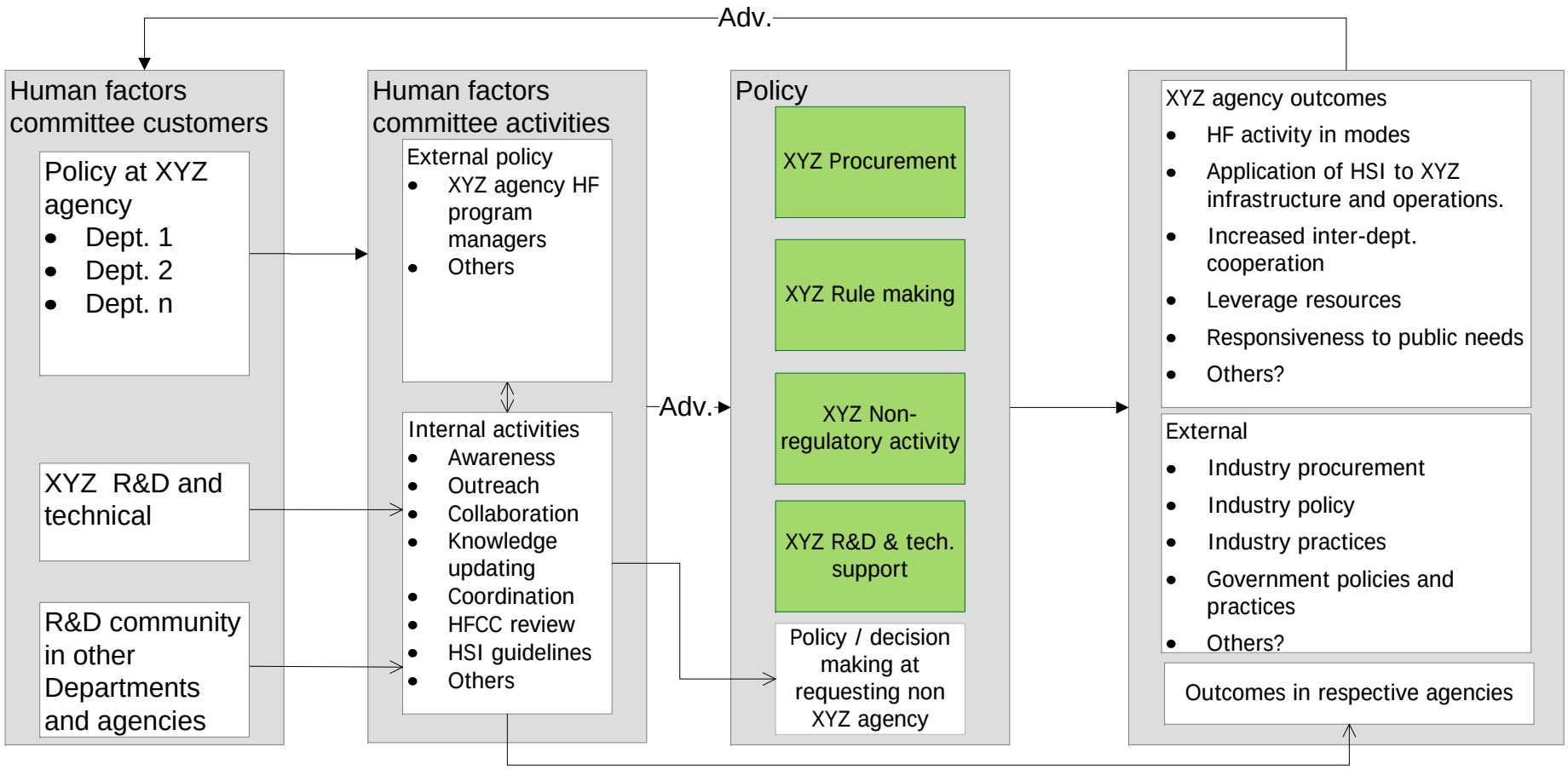
Operations	Activities	Outputs	Outcomes	Impact
Legislation Funding Industry Industry standards State programs	Rulemaking Inspection Enforcement Investigation State grants Evaluation Education	Rules Reports Penalties Information	Reduced defects Reduced failures Limited propagation	Reduced fatalities Reduced industries Less environmental harm Less property loss Reliable delivery

- 11 point
- Sans serif
- 2 point line spacing
- Gray lines

Operations	Activities	Outputs	Outcomes	Impact
Legislation Funding Industry Industry standards State programs	Rulemaking Inspection Enforcement Investigation State grants	Rules Reports Penalties Information	Reduced defects Reduced failures Limited propagation	Reduced fatalities Reduced industries Less environmental harm Less property loss Reliable delivery

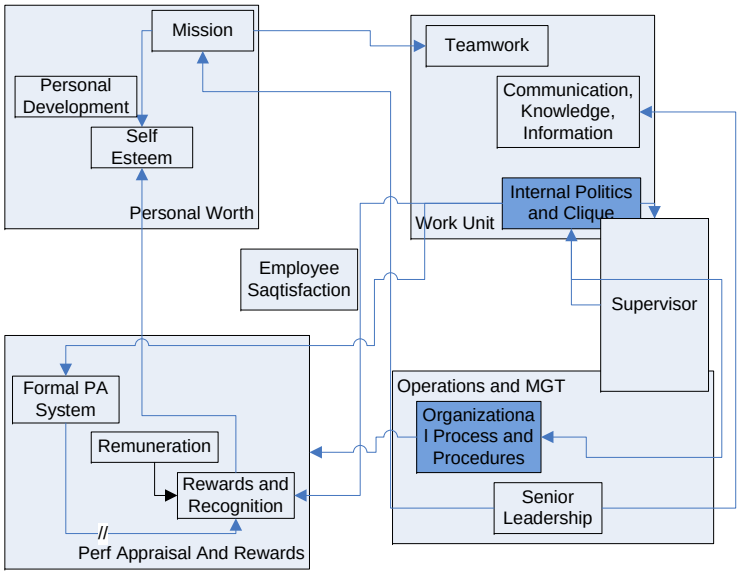
Subtle changes in content can preserve logic and greatly improve visual presentation



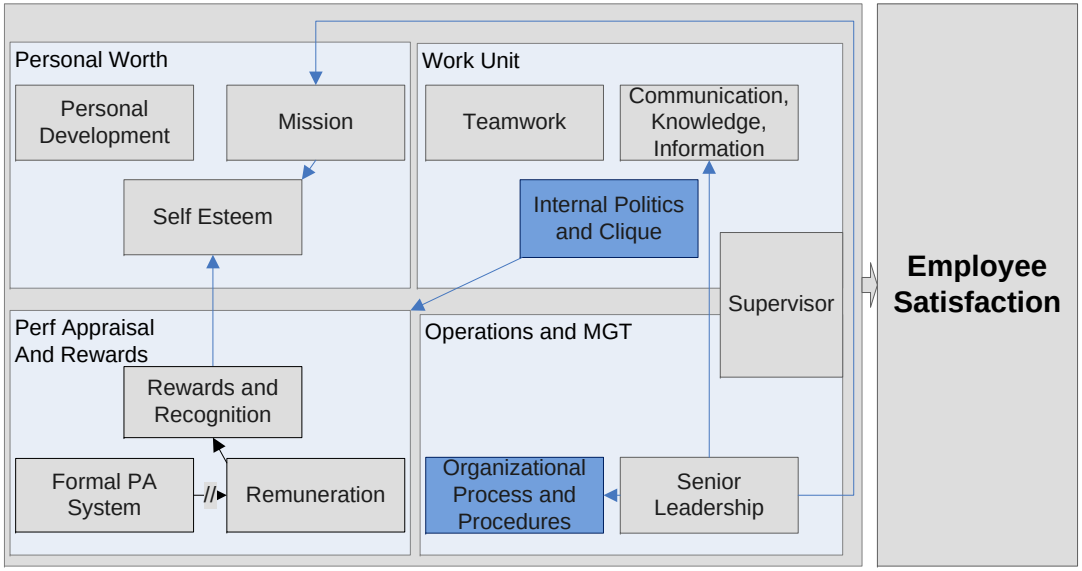


Two versions, two formats, same logic

Draft 1: deliberately done quickly to capture the logic



Draft 2: cleaned up for presentation



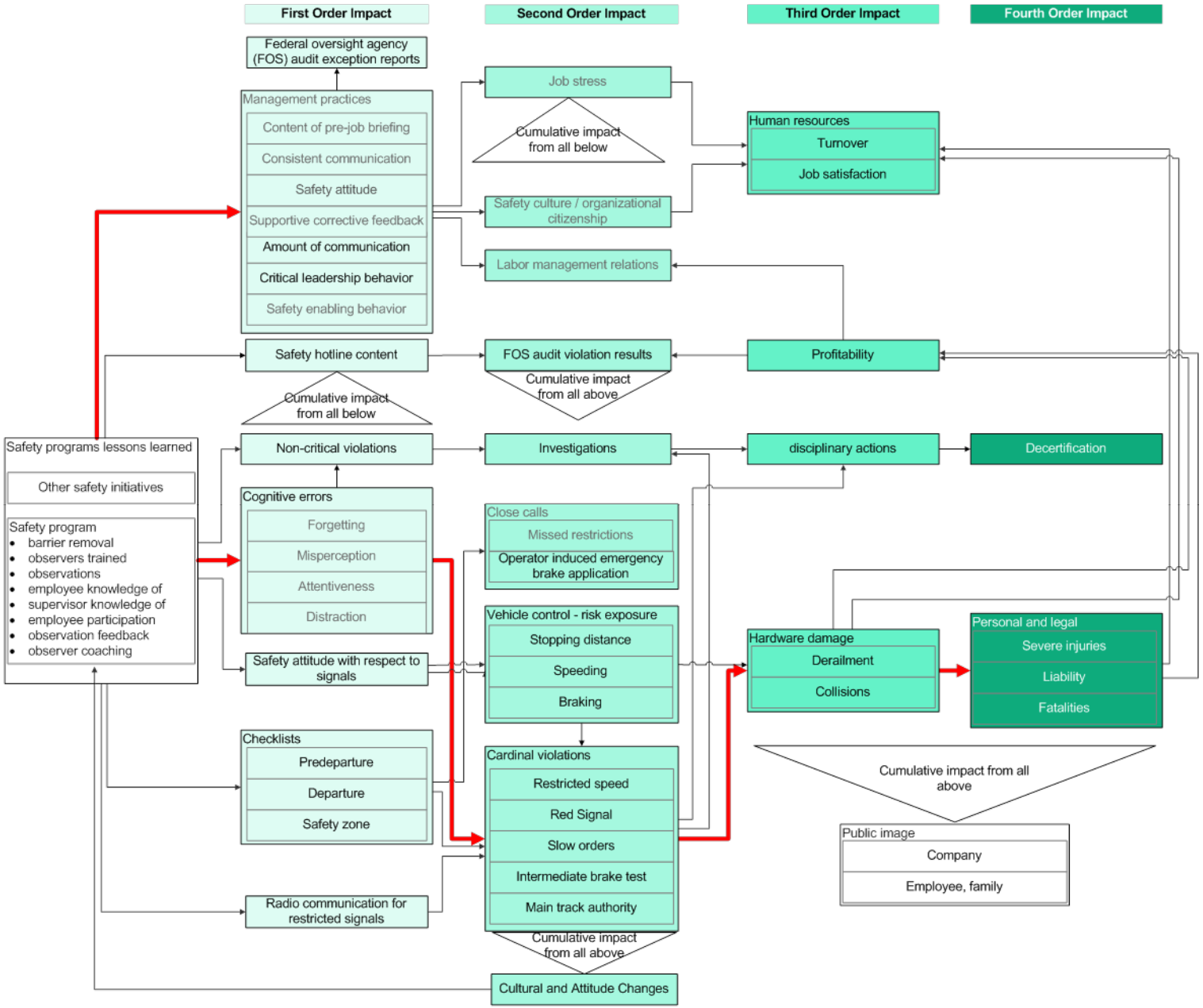
Guideline for choosing appropriate logic models

- Logic models are
  - Technology (not science)
  - Must be “good enough” to guide practical action
- “Good enough” usually means simple
- Art to choosing the right level of complexity
  - Overly complex = distracting, wasteful, prone to error
  - Overly simple blinds to possibilities

Let's critique some models, ranging from the garden variety to some exotic species

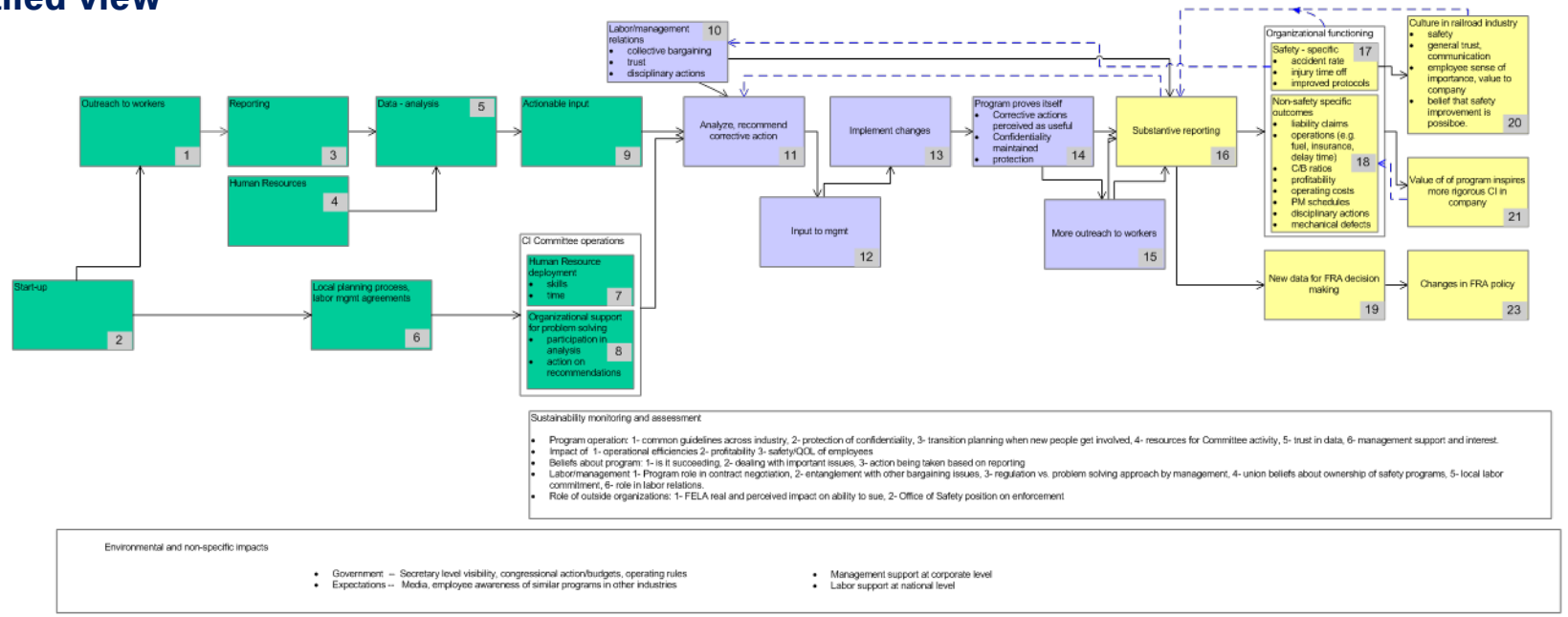
Common problems	Good	Bad	Indifferent
Ink to information? E.g. decoration that does not convey information			
Does the model hold the readers' attention?			
Does the form of the model tell the story that needs to be told?			
Does the model contain the necessary information for its audiences?			
How much explanation is needed for someone to understand the model?			
Are there false distinctions? E.g. different colors or shapes for the same categories			
Spatial relationships of elements – do they reveal or confuse the logic?			
Visual clutter, e.g., intersecting lines that do not have to intersect			
Lack of visual cues for distinctions that matter, e.g., same shape, color, column for short and long term outcomes			
Overall, how does the model "read"?			

Before we critique your models, here is some proof that anyone can make a bad logic model

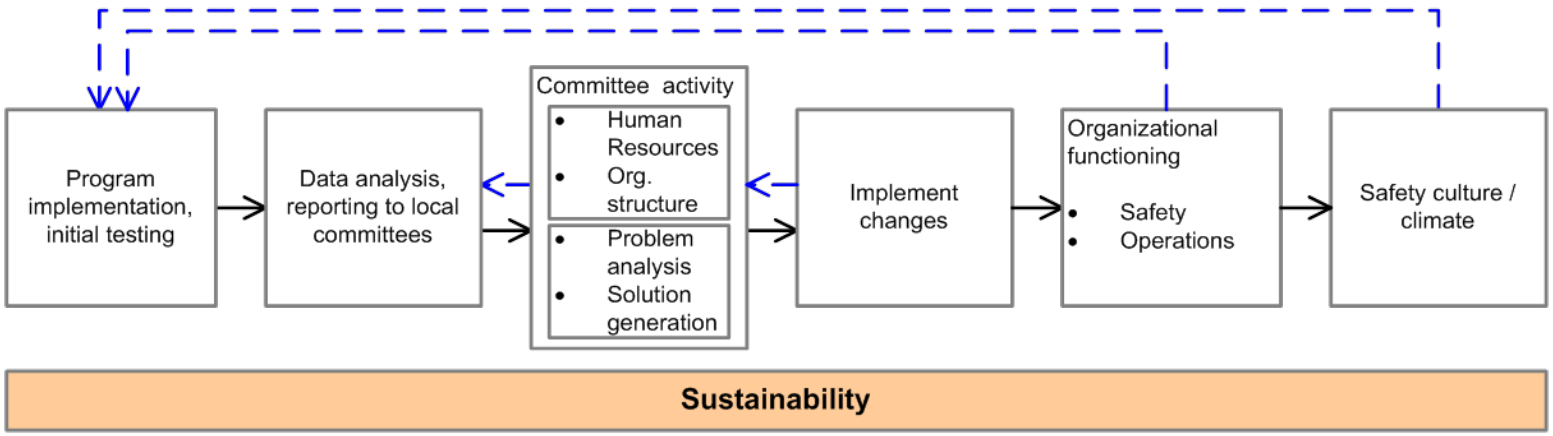


Example #1.1: Root cause problem solving innovation in a transportation industry

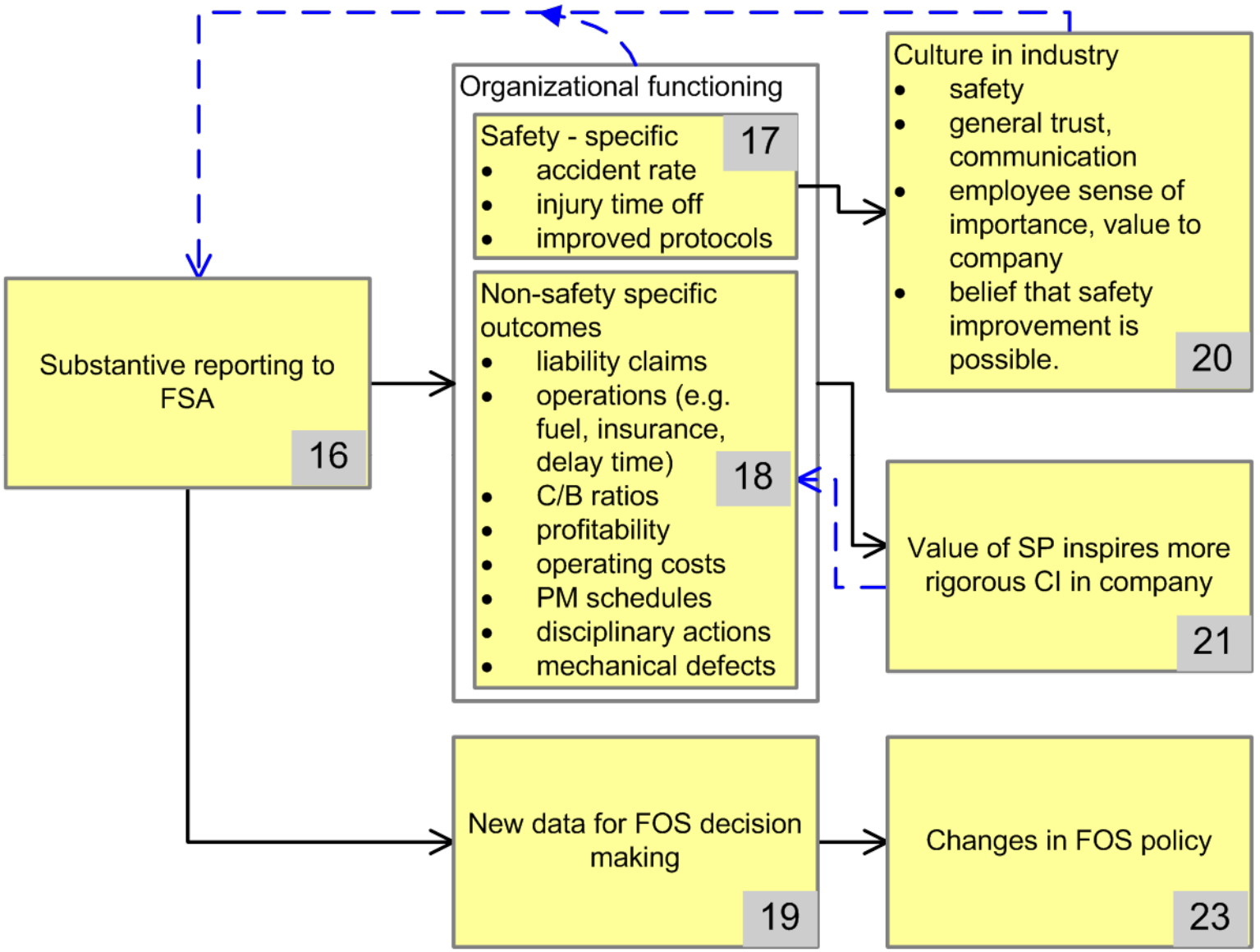
Detailed view



High level view of the same program

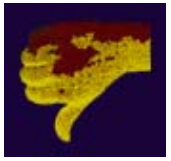


Example #1.2: Root cause problem solving innovation in a transportation industry



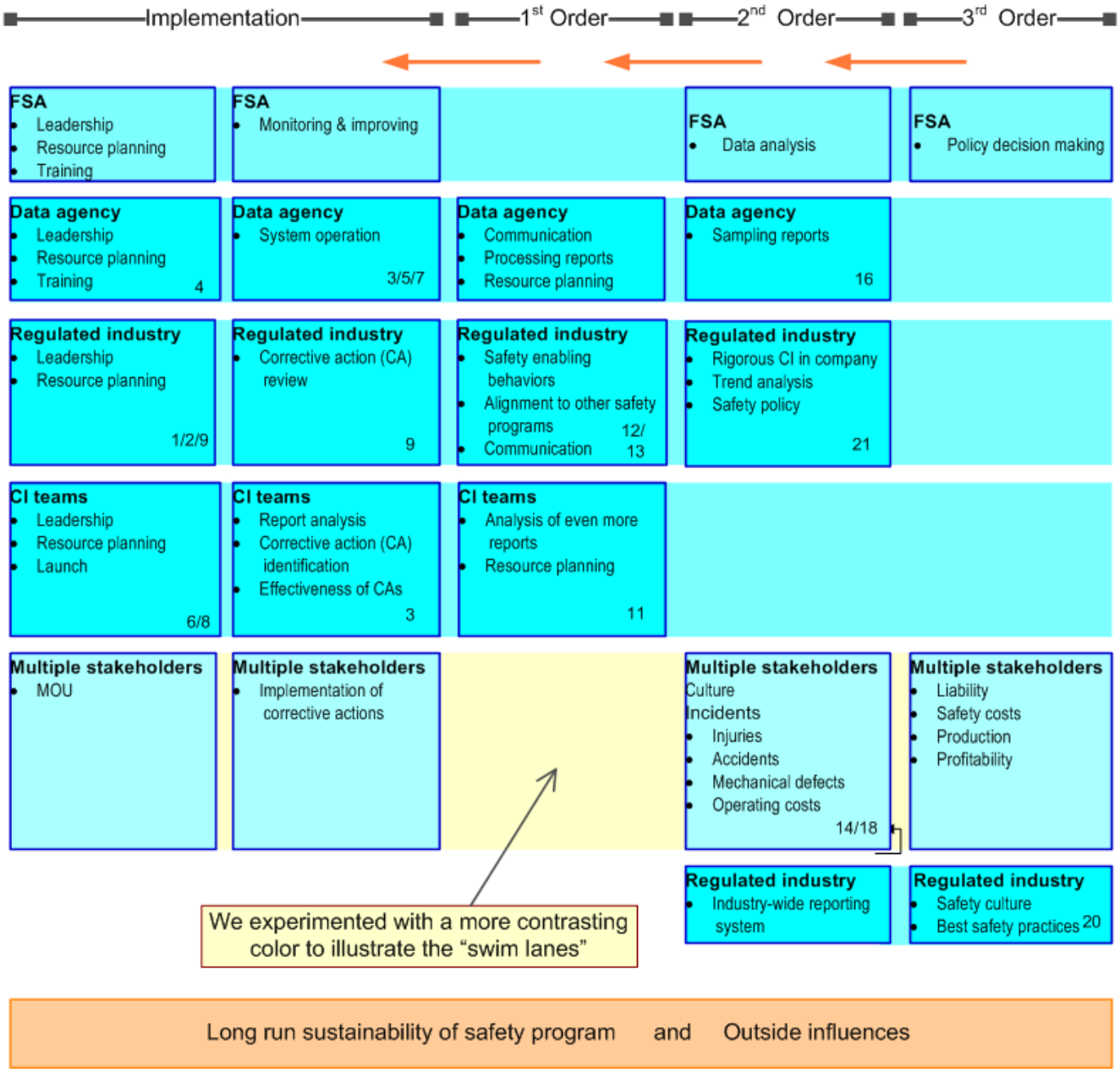
Critique of Example #1 Root cause problem solving innovation in a transportation industry

- Solid vs. dotted arrows clarify feedback loops
- Uses color to distinguish three broad program phases: “process” “employee testing” and “outcome”
- Index numbers to details of measurement procedures
- Color also differentiates gray shading. Visual cues preserved in black and white



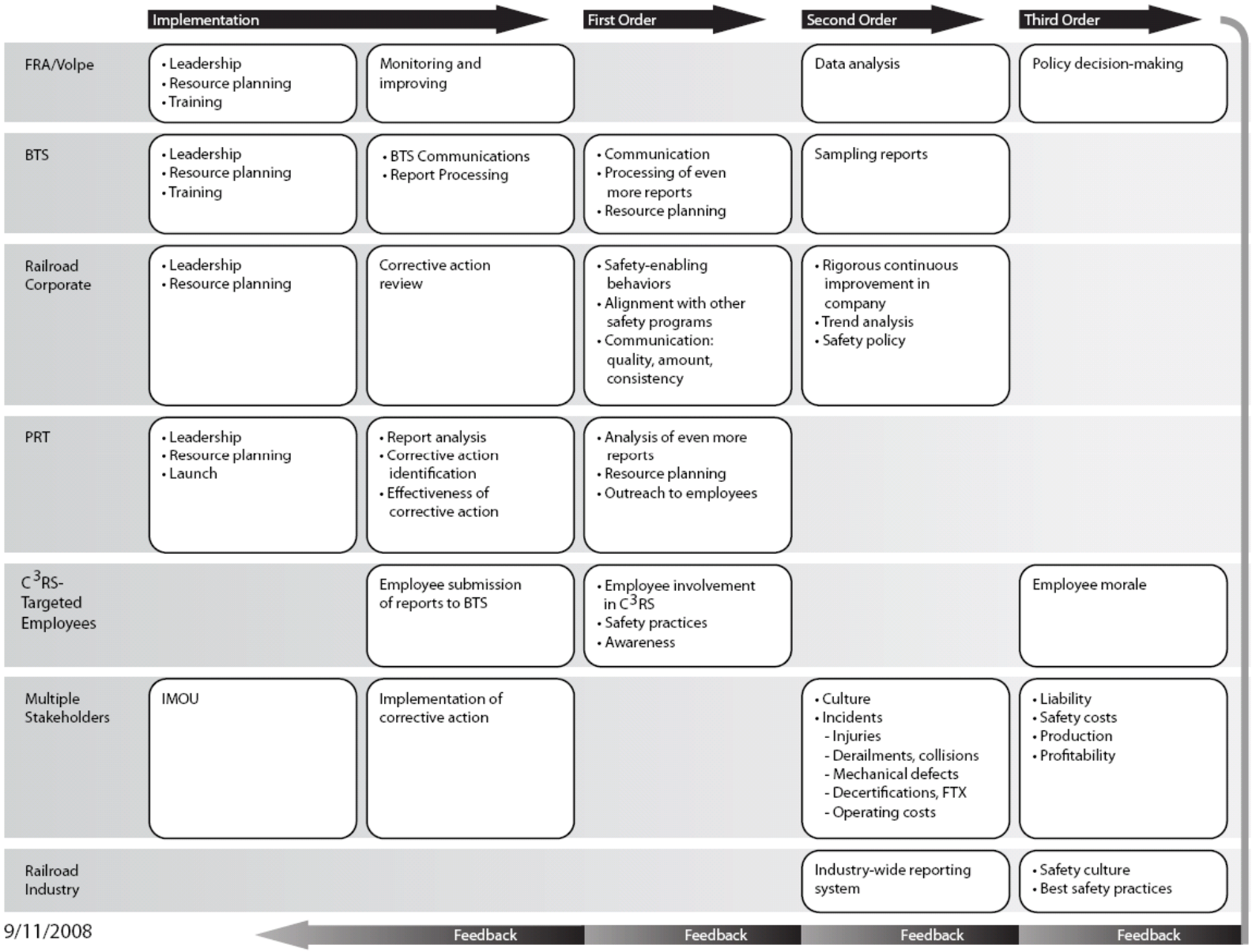
- Inconsistent level of detail
  - “Sustainability” and “environment” are black boxes
  - “Process” less detailed than outcome sections
- No explanation of reason for the color coding
- Small print, only partially offset by blowing up separate parts of model

Example #2.1 Root cause problem solving innovation in a transportation industry



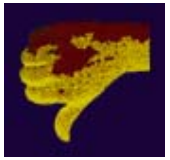
Example #2.2: Root cause problem solving innovation in a transportation industry

Logic Model: How C3RS Works



Critique of Example #2 Root cause problem solving innovation in a transportation industry

- Alternate version of the “flow chart” depiction. Shapes and arrows for evaluators, swim lanes for stakeholders
- Works very well in public because it speaks to people’s interests

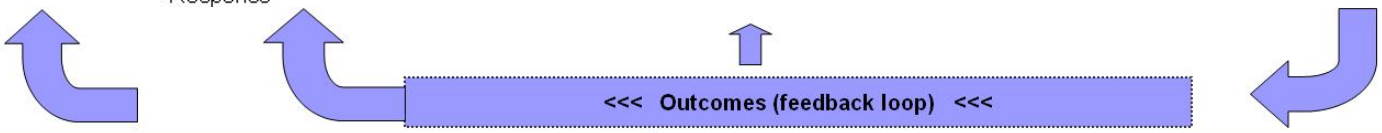


- Color reproduction in works on screen but not readable in print
- Gray tone version improves on color by keeping distinctions with less contrast differentiation. Easier on the eye. (Try light green, it’s even better.)
- Neither version does very well on readability

Example 3: Input → Impact for a federal regulatory agency

A General Logic Model for Federal Safety Agency's Safety Program

External (Resources, constraints)	FSA (Actions)	FSA (Products)	People/Companies (Behavior)	Pipelines & Product (Physical effects)	Public Impacts (Ultimate value)
Inputs	**Activities**	**Outputs**	**Intermed. Outcomes**	**Outcomes**	**Impacts**
Legislation	Rulemaking	Rules	Compliance	Reduced # defects	Reduced public fatalities
Funding	Inspection	Reports	State activities	Reduced # leaks/failures	Reduced public injuries
Industry	Enforcement	Penalty assessments	Functioning one-call systems	Limited propagation	Reduced environ. harm
Industry standards	Investigation	Risk assessments	Good construction	Maximum throughput	Reduced public property loss
State programs	Data Collection/Analysis	Information	Good maintenance/ops		Reduced worker fatalities
	State grant funding	Grants	Good emergency response		Reduced worker injuries
	Program evaluation	Priorities			Reduced priv sector property loss
	Education	Orders			No major accidents
	Coordination	Waivers			Reliable delivery of energy
	Training	Qualified people			
	Research	New technology			
	Response				



Assumptions:

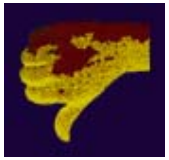
* Penalty assessments, orders, and other controls on industry behavior will be necessary and sufficient to ensure a high degree of compliance.
* Compliance is important in reducing safety risks.
* Data/analysis will provide a sound basis for decision making.

External Factors Affecting Outcomes and Impacts:

** Increasing demand for energy products* ** Constrained capacity*
Interdependencies in the nation's critical infrastructure ** Natural of man-made disasters*
** Population enroachment/proximity* ** Growth or decline in the U.S. economy*
** Changes in the energy/pipeline industry* ** Strong reliance on State partners*
** The need to balance safety and security* ** Public perceptions of risk*
** Large, national- or regional-level events* ** Time lag between cause and effect*
** Advances in technology* ** New sources of energy*

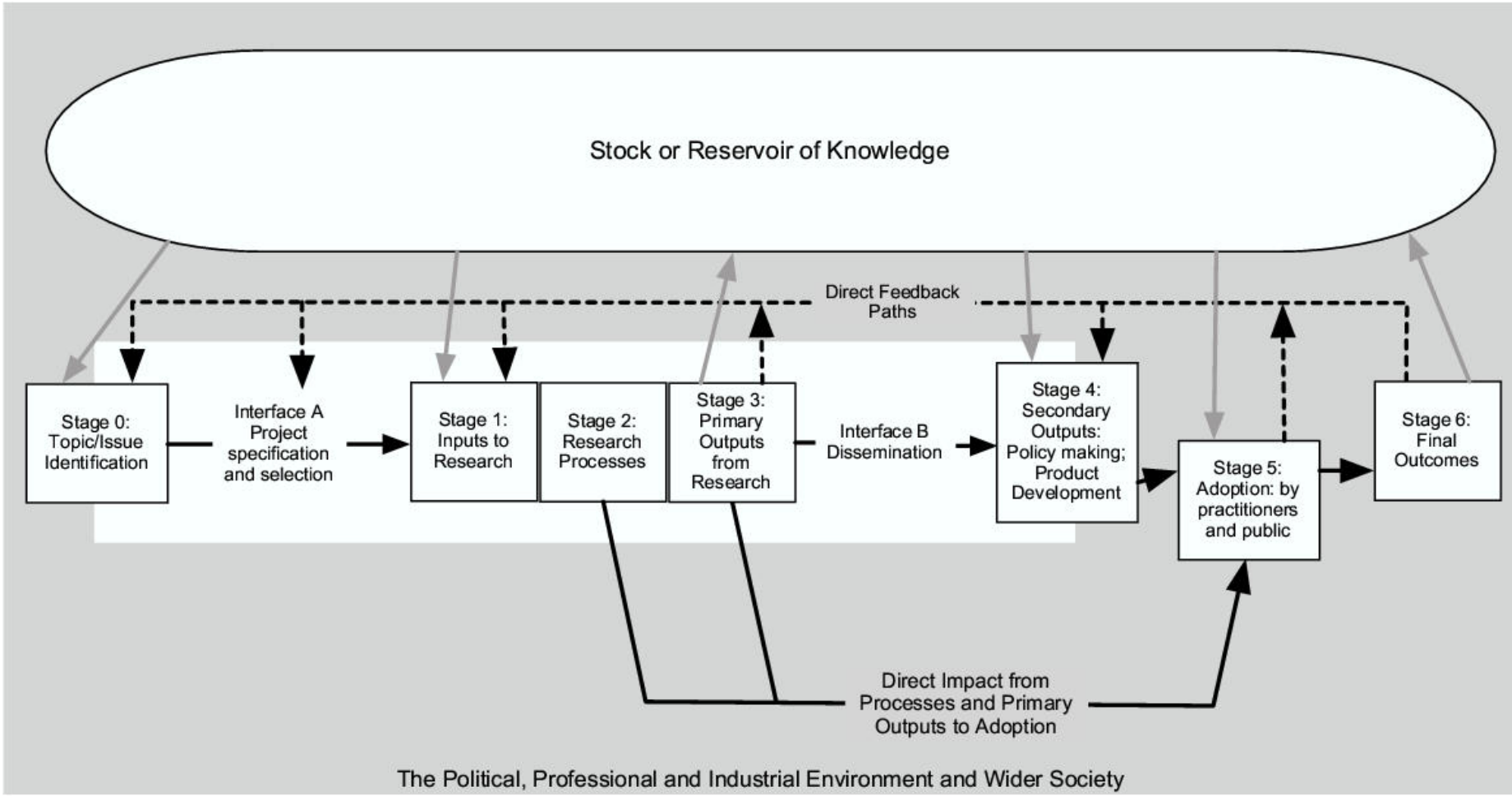
Critique of Example #3: Input → Impact for a federal regulatory agency

- Recognizes that relationships among low-level items cannot be specified
- Traditional input → impact flow
- Presents assumptions needed for model to work.
- Defines each step, e.g. “output = produce (what we produce)”. Useful for people not familiar with this type of model



- Hard to read. Trade-off of information density for readability made in favor information.
- Feedback arrows seem too prominent relative to other relationships depicted.

Example #4: Health outcome research



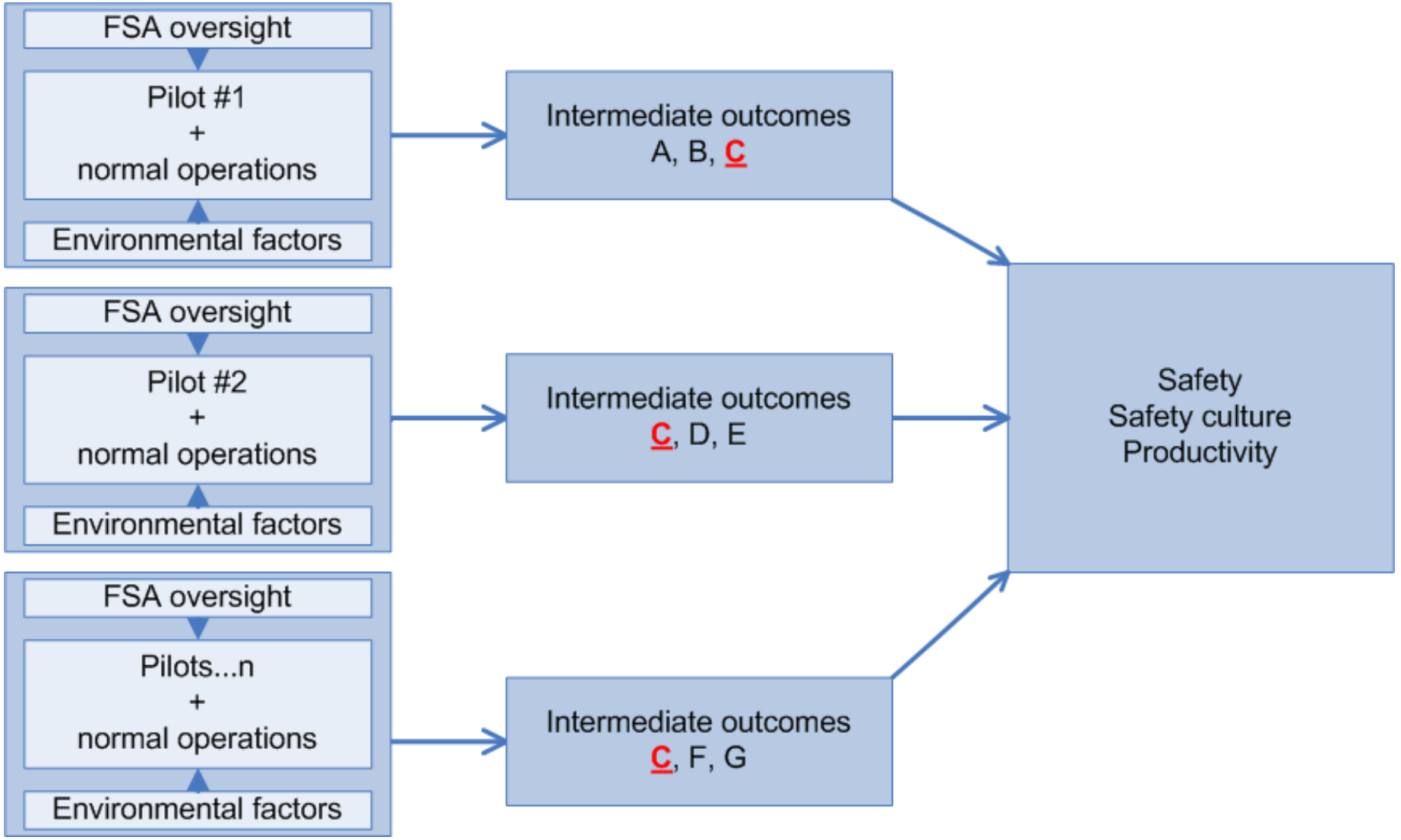
Proposed methods for reviewing the outcomes of health research: the impact of funding by the UK's 'Arthritis Research Campaign Stephen R Hanney, Jonathan Grant, Steven Woodingand Martin J Buxton *Health Research Policy and Systems* 2004, 2:4 http://www.health-policy-systems.com/content/2/1/4

Critique of Example #4: Health outcome research

- Rich feedback loops
- Nested system boundaries, e.g.: whole system, stages 1-3, knowledge
- Identifies stages that span boundaries (0, 4)
- Shows interfaces and stages as distinct aspects of program logic
- Distinguishes pervasive factor (knowledge) from location-specific elements
- Solid vs. dashed highlights feedback loops form forward facing relationships
- Gray vs. black differentiates “specific : specific” vs. “specific : pervasive”

- No boundaries around “interface” is confusing
- “Stage 5” below plane of other stages. Is it really different?
- Arrow use
  - Solid black used for 2 different purposes: “direct impact” and “interface”
  - Thick black lines around shapes are distracting

Example 5: Depiction of multiple site evaluation logic

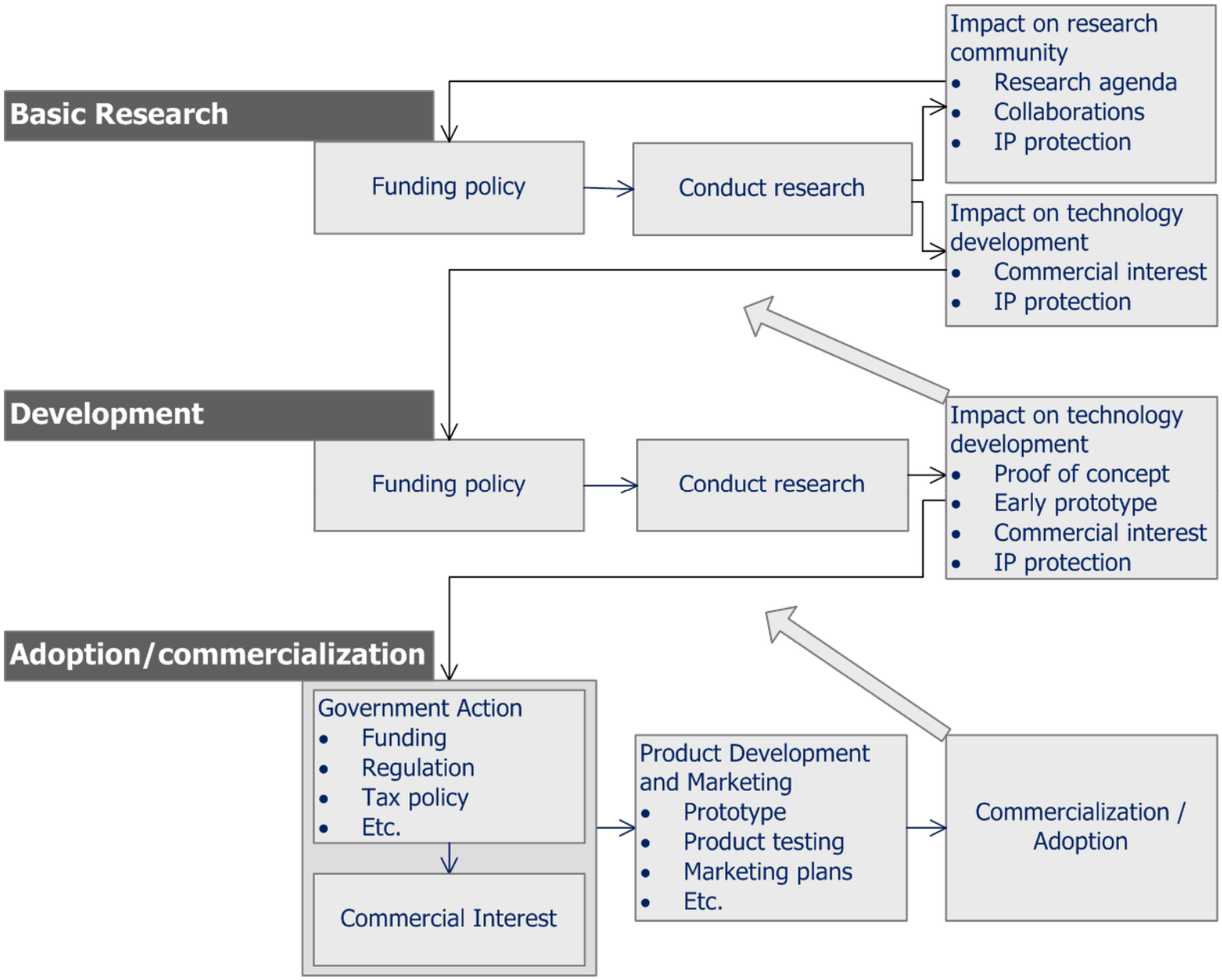


Critique of Example #5: Depiction of multiple-site evaluation logic

- Shows common outcomes for all pilot projects.
- Shows common and unique intermediate outcomes.
- Acknowledges that outcome for each pilot is a function of the pilot, normal operations, and environmental factors.
- Simple is good

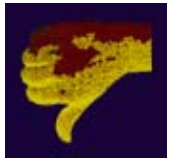
- Left hand column is hard to read
- Distinction between common and unique intermediate outcomes is hard to discern in column 2

Example 6: Evaluation along the R&D continuum



Critique of Example 6: Evaluation along the R&D continuum

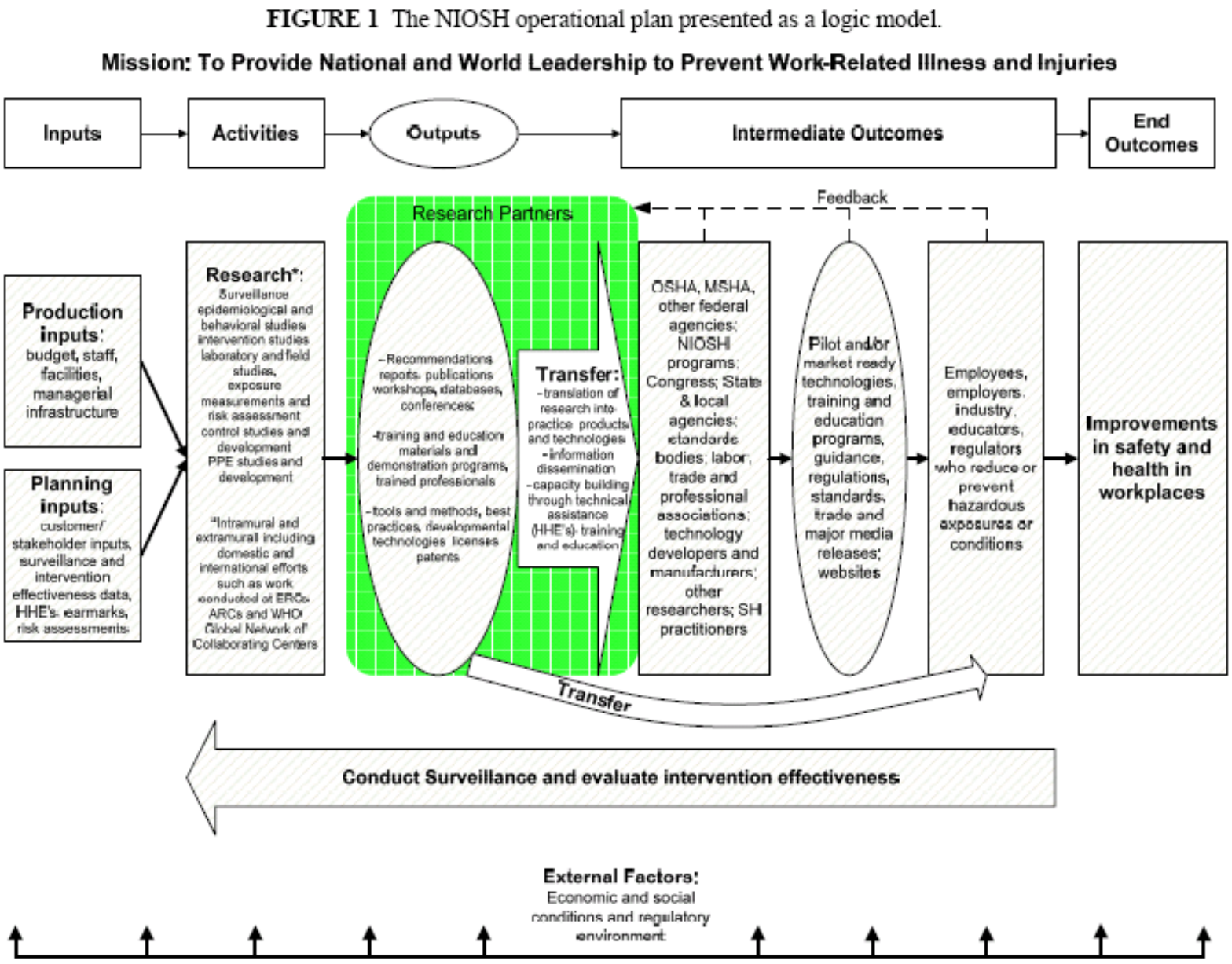
- Stages along the life cycle are clearly laid out through the use of different background color and white space
- Clearly different form of arrows to differentiate 1:1 relationships and 1:many relationships



- Combining left to right with top to bottom flow of logic is confusing. (But maybe better than an outsized paper or very small boxes.)
- Not obvious that the diagonal arrows refer to the *entire* previous stage

Example 7: Evaluation R&D at NIOSH

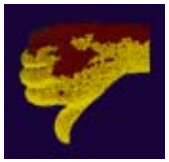
FIGURE 1 The NIOSH operational plan presented as a logic model.



Framework for the Review of Research Programs of the National Institute for Occupational Safety and Health - 8/10/07
http://www.cdc.gov/niosh/nas/

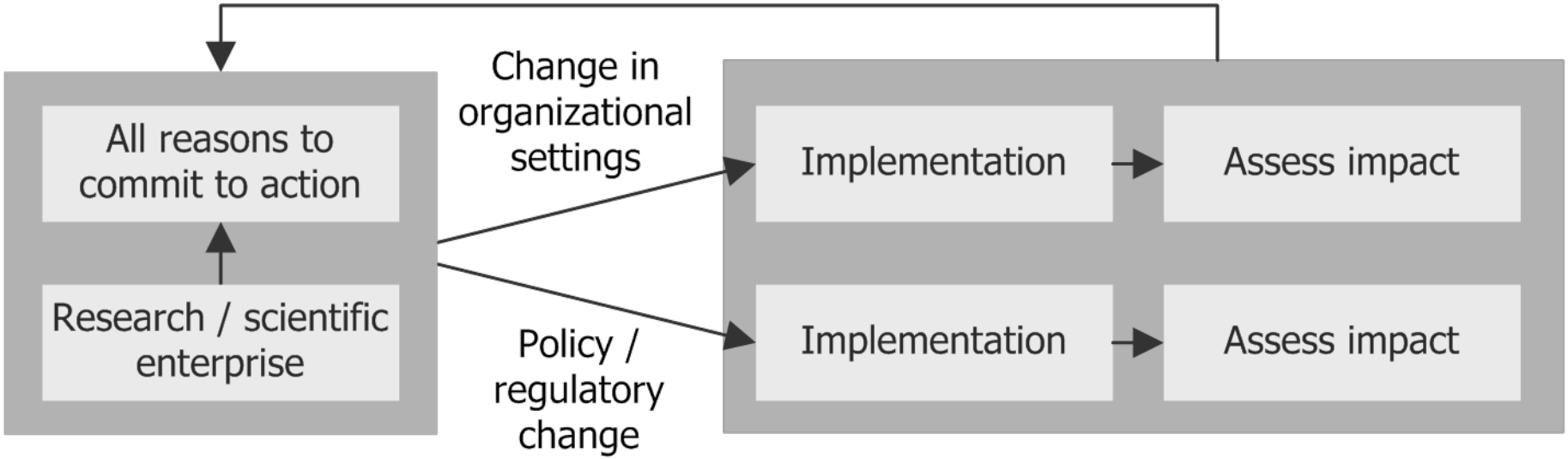
Critique of Example 7: Evaluation along the R&D continuum

- Familiar input → outcome format
- Variety of information presented, e.g. transfer, role of research partners, production and planning inputs
- Enough detail to convey a good sense of the project without a lot of explanation



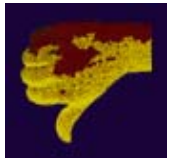
- Use of different shapes don't indicate obviously different concepts, e.g. ovals vs. rectangles
- Small print, hard to read
- Cross hatching to show region of research partners is distracting

Example 8: How can evaluation influence technology / knowledge transfer from laboratory to real world application?



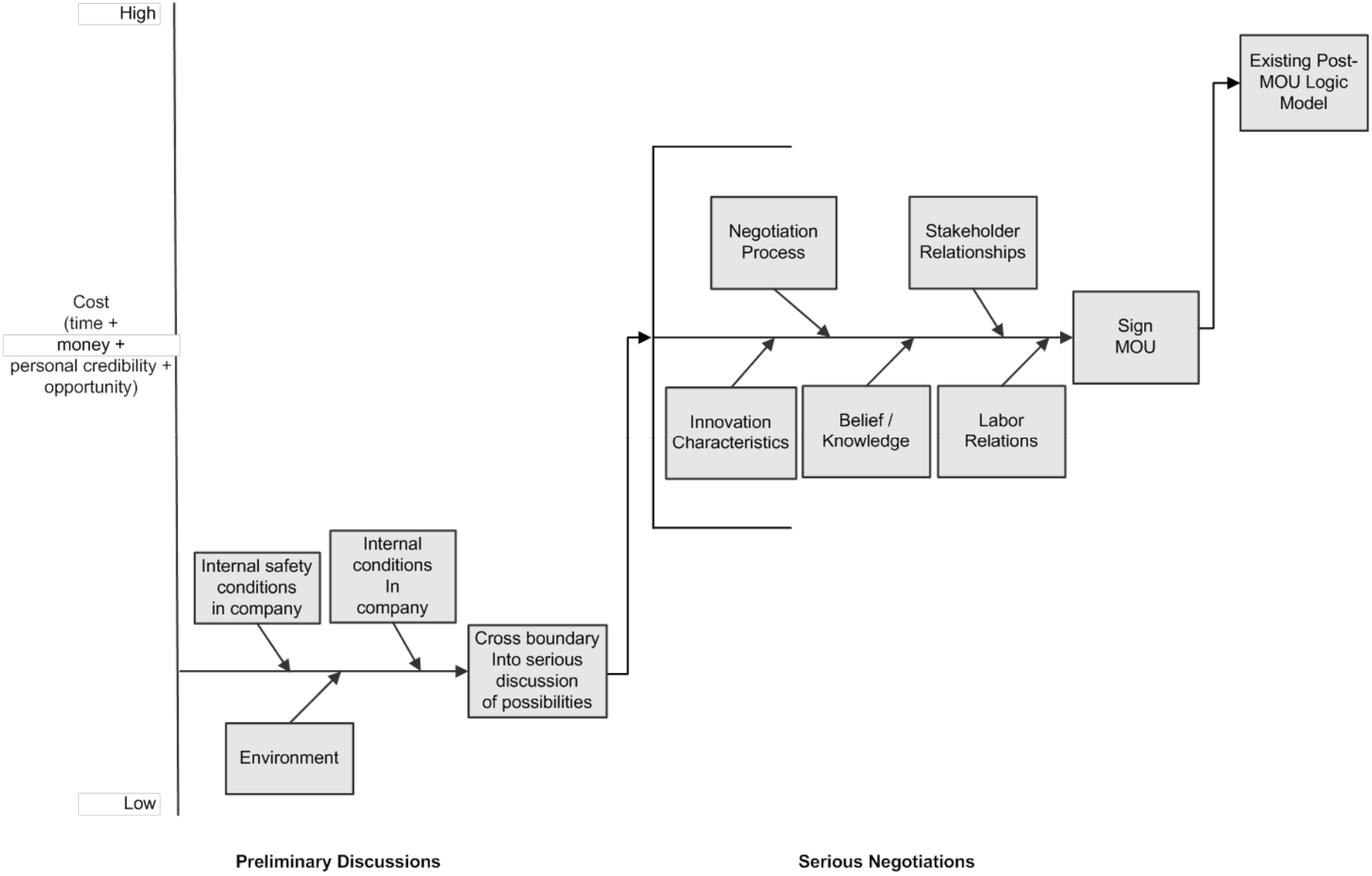
Critique of Example 8: How can evaluation influence technology / knowledge transfer from laboratory to real world application?

- Simple is good
- Lots of white space makes the model easy to read
- Gray tones successfully differentiate elements without jarring contrast effects.

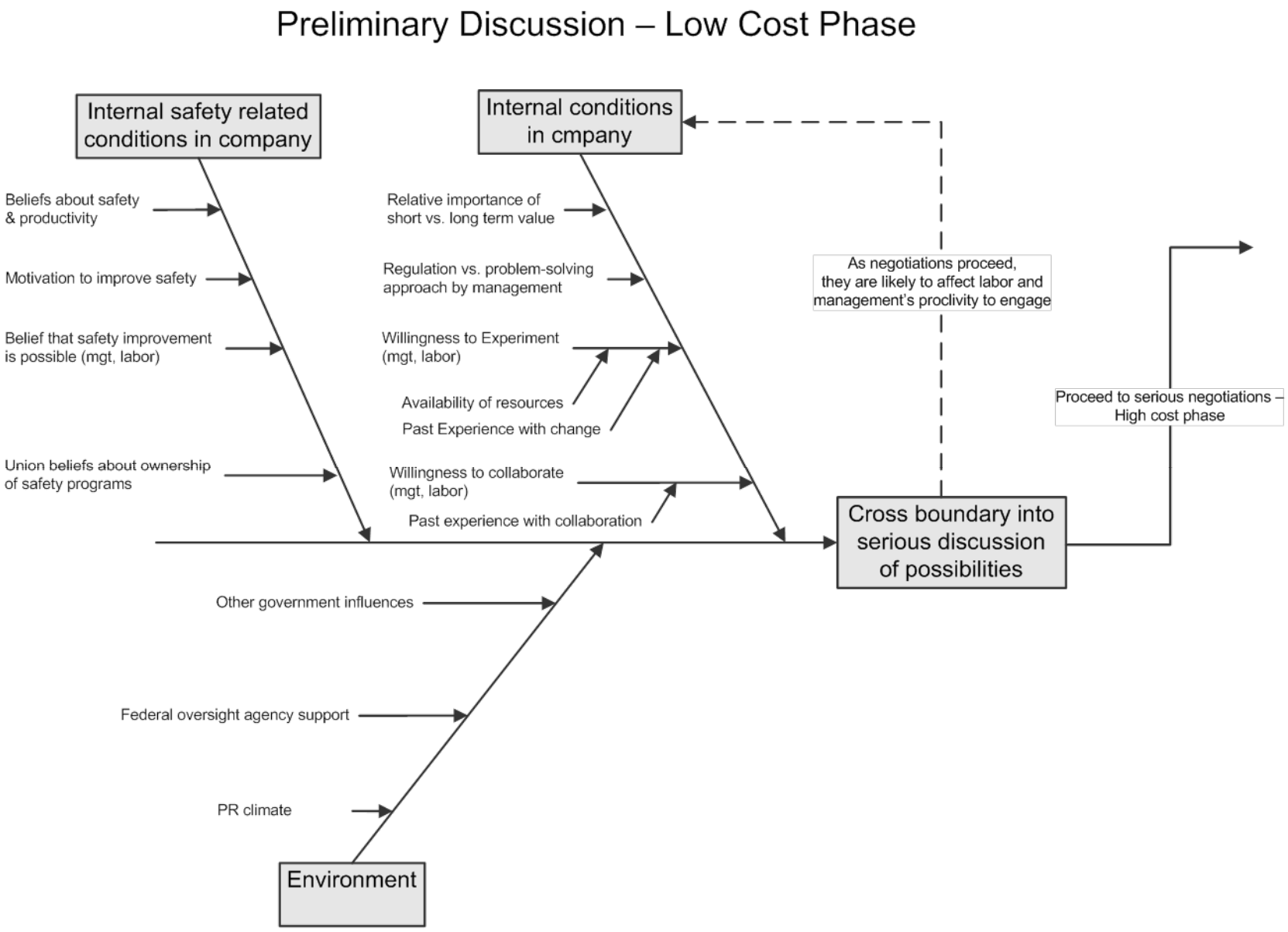


- Feedback loop is a much less specific relationship than the forward relationships but form of arrows is the same. The distinction is obscured
- Gray box on right was used to avoid clutter from multiple feedback loops. But this implies a commonality of policy and program evaluation that I did not intend.

Example #9.1: Recruitment of companies into a safety program

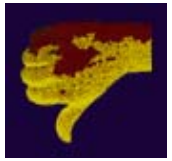


Example #9.2: Recruitment of companies into a safety program



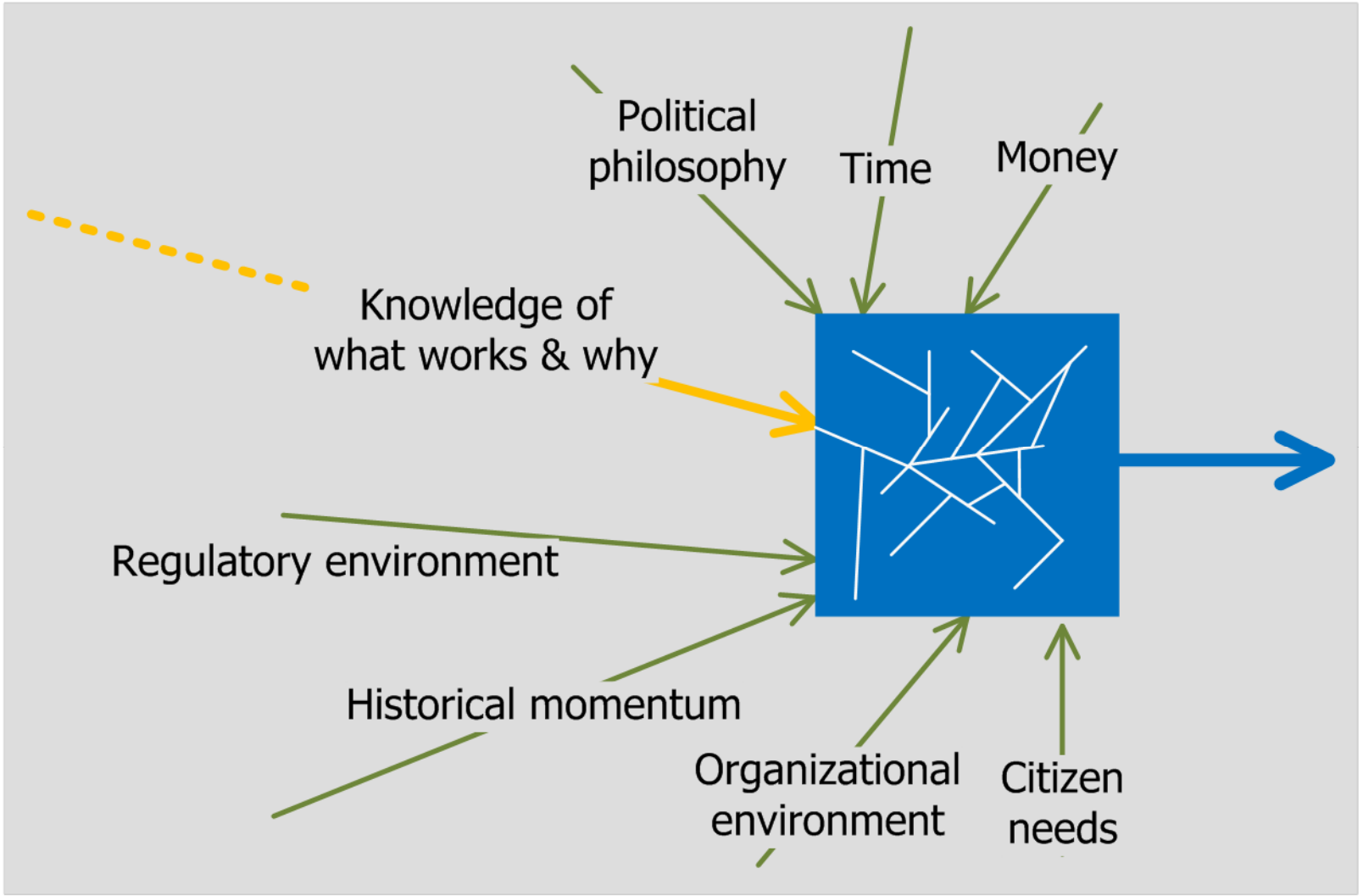
Critique of example #9: Recruitment of companies into a safety program

- Does include overall view + a more detailed view
- Includes graphic representation of “phase cost”
- Very recognizable form to many audiences



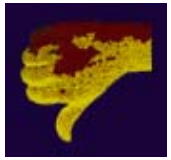
- Small type. Enough white space that type size could be larger
- Visuals imply mostly independent root causes, which is almost certainly not the case

Example 10: Understanding the role of evaluation in decision making



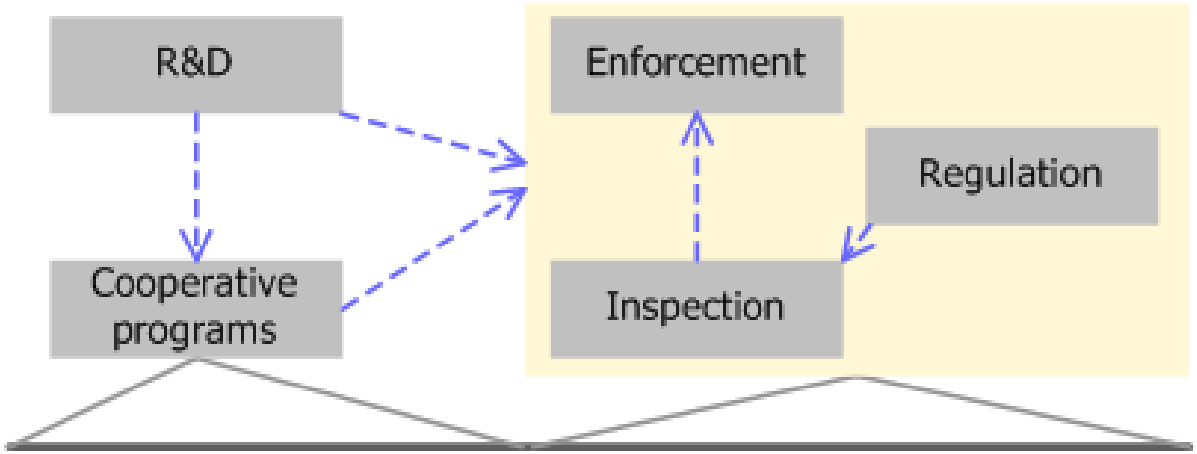
Example 10: Understanding the role of evaluation in decision making

- Used to help people appreciate how analysis fits with decision making
- Message conveyed in two ways
  - Content
  - Form of the graphic
- Puts stakeholders at ease because it legitimizes their reality
- Recognizes that non-technocratic factors have a legitimate claim on decision making



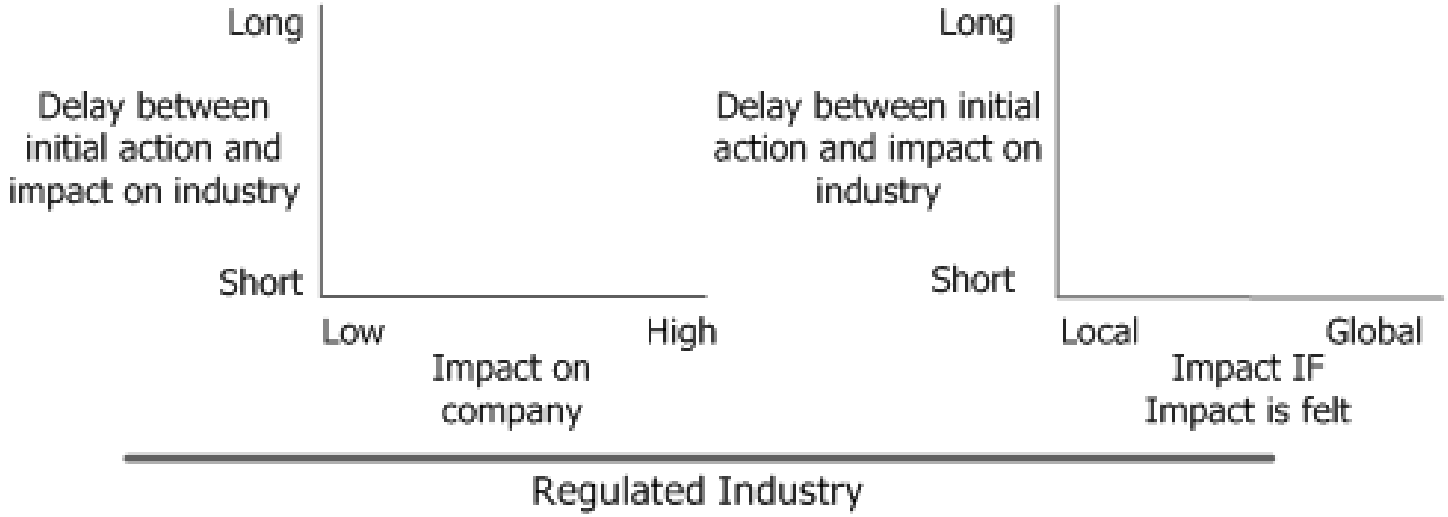
- Shows a program theory that is wrong. The factors involved do not combine in simple vector form. Also relative size of the elements are highly context-dependent.
- Useful for a general framing of the problem, but *not* as a guide for developing methodology

Example 11: Impact of regulatory agency on industry



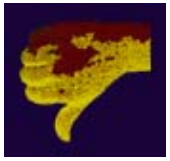
Range of safety that a regulatory agency can affect

	Fines	Wall Street opinion	Impact on productivity	Public perceptions
Actual				
Potential				



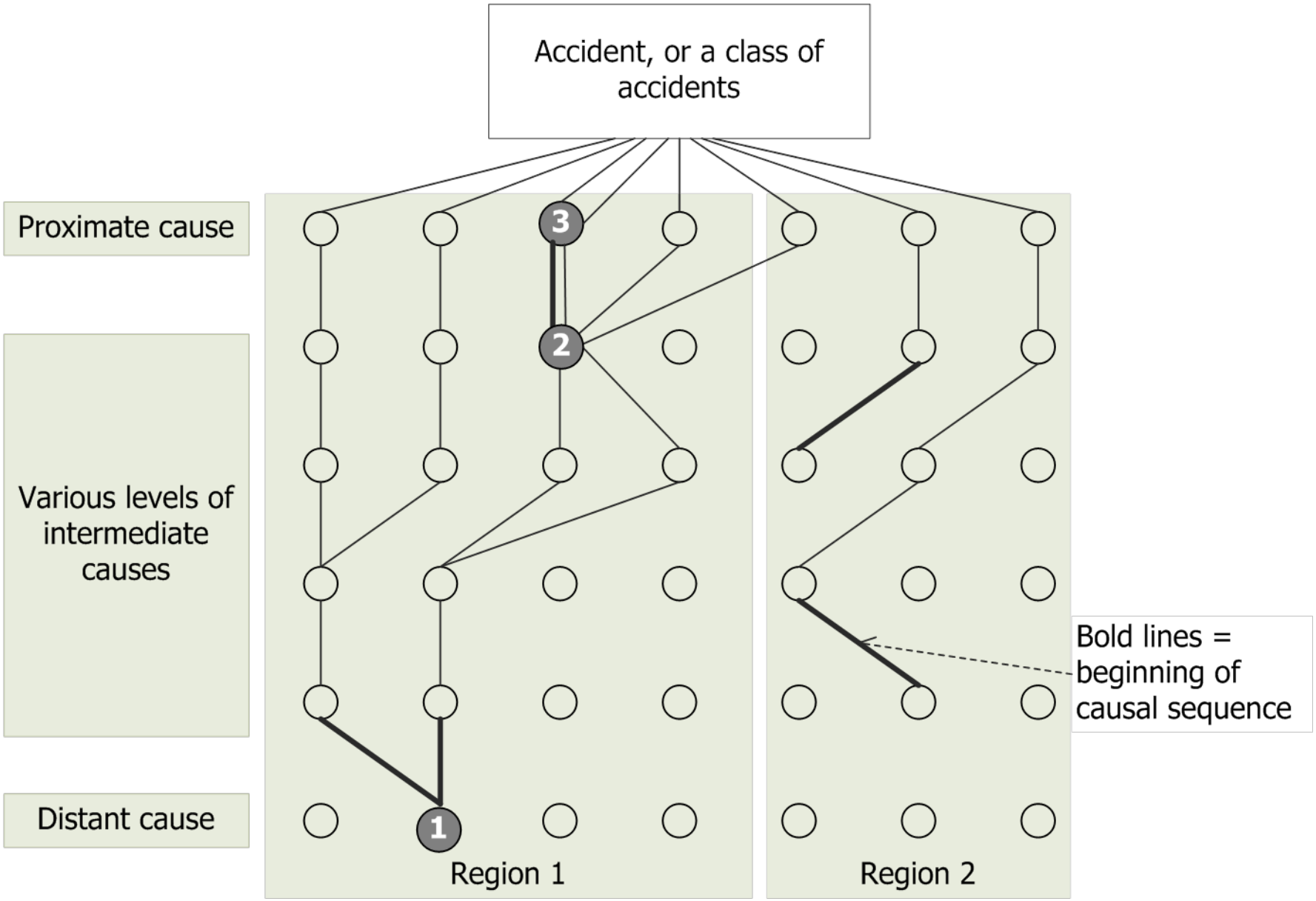
Critique of Example #11: Impact of regulatory agency on industry

- Shows a wide variety of information
  - Agency operations
  - Choice of cooperative and coercive action
  - Types of impact x stakeholder
  - Relationship between timing of action and impact on industry
- Fairly readable given the diversity of information



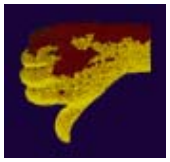
- Confusing format: flow chart → table – graph (I separated them in later versions.)
- Relationships among levels not in the slightest obvious
- No data points on graphs. A few would help show the relationships
- Nothing obvious about it

Example 12: Accident logic to evaluate process improvement to prevent accidents



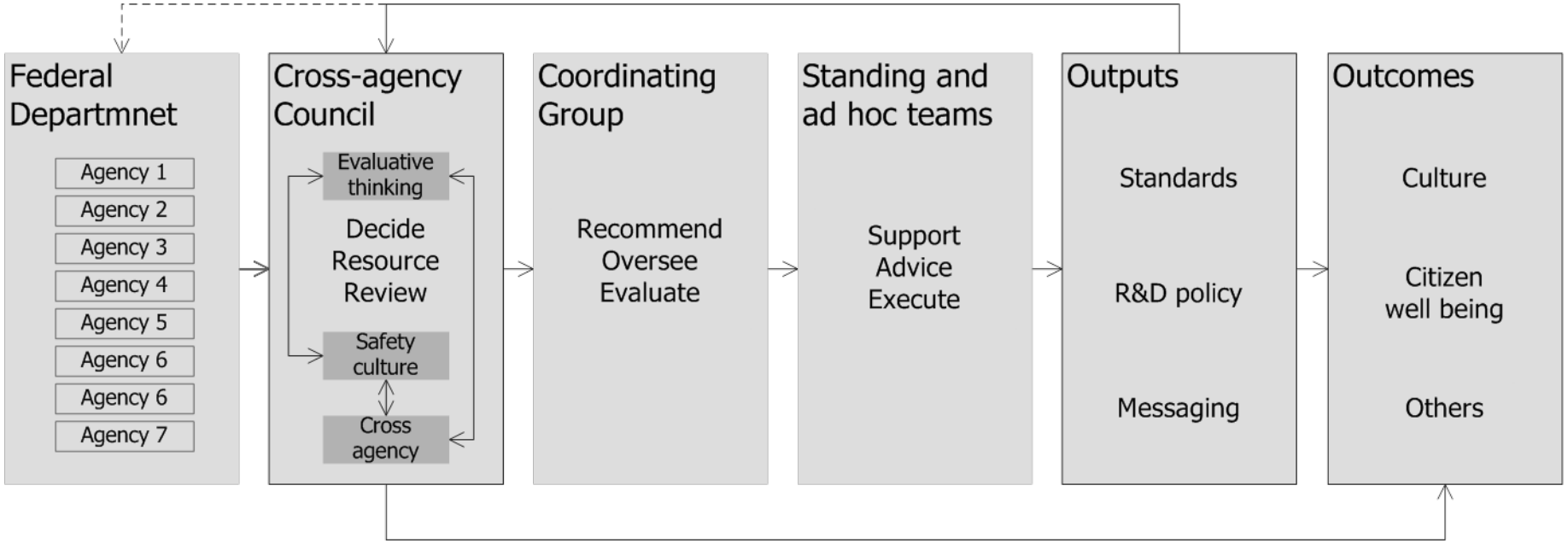
Example 12: Accident logic to evaluate process improvement to prevent accidents

- Valiant try at using a simple picture to show a complex system. (But I'm not sure it worked.)
- All things considered, a pretty good way of looking at multiple root causes for the same event
- Explanation of heavy vs. light lines provided



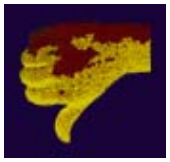
- Difference between bold and thin lines is not obvious, even with the explanation on the diagram
- Not obvious what all the elements are – level of causal factors, regions, convergence and divergence of lines
- Misleading about how such systems work
  - No provision for changes in dynamic relationships, new items appearing, old ones disappearing
  - In general, model conveys a sense of a deterministic relationships when in fact this is a complex system

Example 13: Concept of Operations – Cross-agency Process Improvement Council in a Federal Department



Example 13: Concept of Operations – Cross-agency Process Improvement Council in a Federal Department

- Minimal visual contrast while still maintaining important distinctions
- Main elements are all the same size
- High enough level for short briefings, with enough detail to convey the operational principles



- Diagram in “cross agency council” is a bit to cute and inexplicable
- Not at all obvious how the dotted and solid feedback loops are different

Part 8: Working with stakeholders

- Appreciate people's mixed motives for having logic models
- Besides stakeholders, use other inputs.
- Logic models are useful but not sufficient for knowledge transfer
- Respect what you know and stakeholders don’t
- Prepare for unpleasant realities.
- Tactics for working with stakeholders
- Choose the right people and variety of people to work with.
- Get people to question assumptions
- Manage revisions
- Software choices depend on requirements

Appreciate people's mixed motives for having a logic model

Informed decision making

- Process
- Outcome
- Sustainability

Planning

- Especially true in the early stages of the program life cycle
- Working with evaluators to determine program theory, hidden assumptions, critical activities.
- Might be called "evaluation" but it's really a planning exercise.

Advocacy

- Act of evaluation and/or findings will help keep my program going (even if I have to be selective and distort findings.)
- The fact that something called "evaluation" is being done implies a foundation of rational decision making that shields (hides?) advocacy from scrutiny.
- Often evaluators are not aware of the mix of modes they are operating in
- Not getting into a debate about legitimacy but lack of awareness can lead to trouble

Sources of input to logic model

Source	Strength	Weakness
Stakeholders	▪ Deep appreciation of context ▪ Knowledge of program detail ▪ Vested interest in participation ▪ Sets groundwork for evaluation implementation	▪ Lack of perspective, may have strong **+** or **–** feelings ▪ Vested interest ▪ Not likely to have insight from comparable efforts ▪ Not likely to have insight from research literature
Critics	▪ More complete / balanced model ▪ Alternate program theories	▪ Hard to recruit ▪ Those who are paying you might resist
Evaluation team	▪ Experience with other programs ▪ Sensitivity to implications for methodology	▪ Lack of domain knowledge
Non-stakeholders familiar with similar programs, & research literature	▪ Objective ▪ Knowledge not known to stakeholders	▪ Blind to context and specifics

Knowledge transfer: Logic models are useful but not sufficient

- Active engagement by stakeholders prepares them mentally to receive and process the information
- Indicates
  - What information will come
  - When it will come
  - Why it is important

But

- There is more to promoting use than logic models
  - Not all users of the information will be involved in logic model development
  - Not all relevant knowledge can be contained in the model

Respect what you know and stakeholders don't, or are likely to forget

- Enthusiastic stakeholders can get carried away. The evaluation really does have a
  - Scope
  - Budget
  - Purpose
- Every element and relationship in a model is a hypothesis
  - Hypotheses can be wrong
  - Error piles up
  - Level of detail scope should reflect what we know
- Evaluation is more than just a logic model
  - Metrics
  - Methodology
  - Knowledge use plans and procedures

Appreciate unpleasant realities as you go in

- Because many logic models have a component of “advocacy” tension will lurk.
- There will always be resistance to including negative consequences no matter how integral they may be to achieving desirable outcomes.
- Types of negative outcomes to watch for:
  - Opportunity costs
  - Conflicts with other activities, systems, programs, etc.
  - Perverse effects, e.g. education for girls leads to social displacement
- Consensus may not be possible or needed, but people may not agree on which
- “Illusory agreement” is a constant possibility

Tactics for working with stakeholders

- Begin with a small group who already knows what a logic model is
  - Work out model to just below a very high level
  - Use draft to get feedback from a wider circle of stakeholders and experts
- Draw a rough model and send it off for feedback and approval.
  - Can be useful for mid-term corrections or to deal with unanticipated developments
  - Requires a good working relationship with stakeholders
- Chat about the program
  - Begin to sketch the logic they are verbalizing or implying.
  - Put burden on yourself – “This is what I understand you are telling me about the program. Did I get it right?”
- Depending on people and their experience with logic models it may be a good idea to begin with a large group

Group process choices for logic model development

	1:1 – Evaluator to Respondent	1: Many – Group Meeting
Face to face		
Phone, video, Internet		

Considerations for choice of tactics

- Time pressure
- Need for consensus vs. advice
- Potential for conflict among stakeholders
- Working relationships among group members
- Opportunity for multiple rounds of deliberation
- Power / status differential among stakeholders
- Degree of common understanding among group members

Here is an approach I like

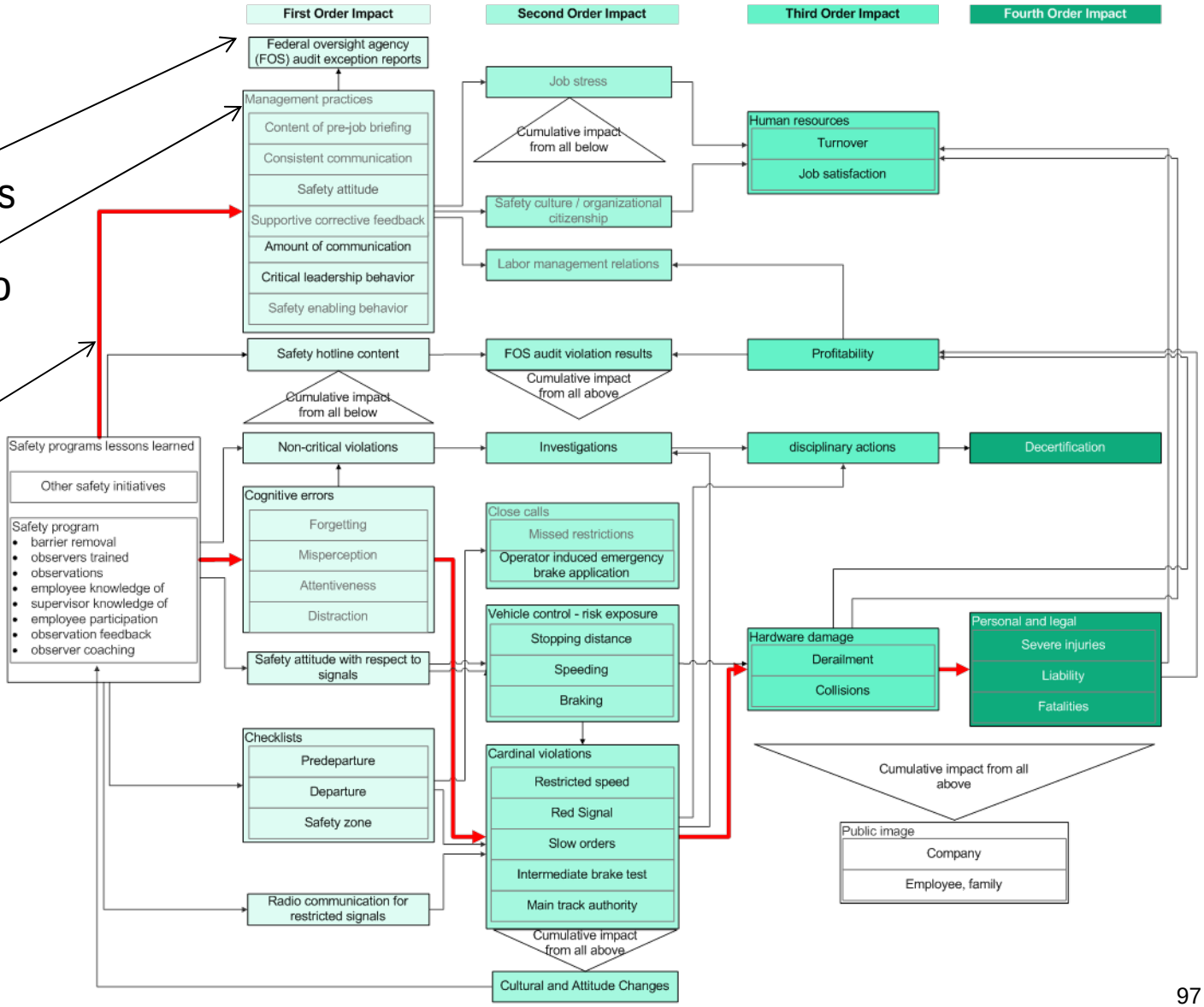
Step 1:
Build complete model

Step 2:
Can we measure all important elements?

Step 3:
How far can we get with what we can measure?

Remember to critique the visual clutter!

Complete but Overly Complicated Model

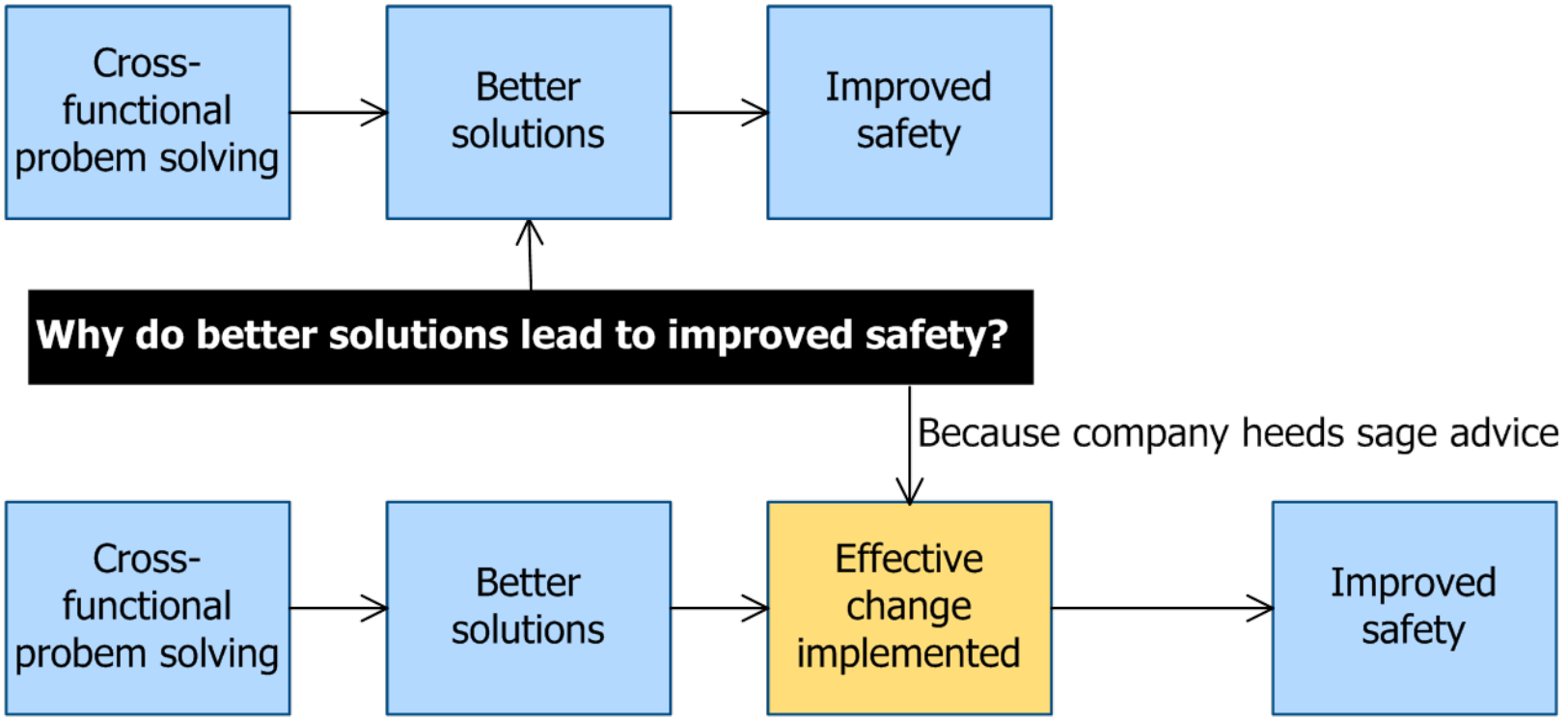


Choosing group members

- Who can influence program operations?
  - Implementation
  - Outcome
  - Sustainability
- Who can influence the evaluation?
  - Access to data
  - Integrity of the design
- Who can make use of the evaluation findings?
  - Same program in same setting
  - Same program in a wider range of settings
  - Other programs with similar objectives
- Values
  - Who has a right to influence what the evaluation measures?
- Operational
  - Given constraints of time and money, who should be involved?
  - Will candidates put in the work?
- Some stakeholders can be sampled, e.g. teachers,
- Some stakeholders are unique, e.g. minister of education

Get people to question assumptions

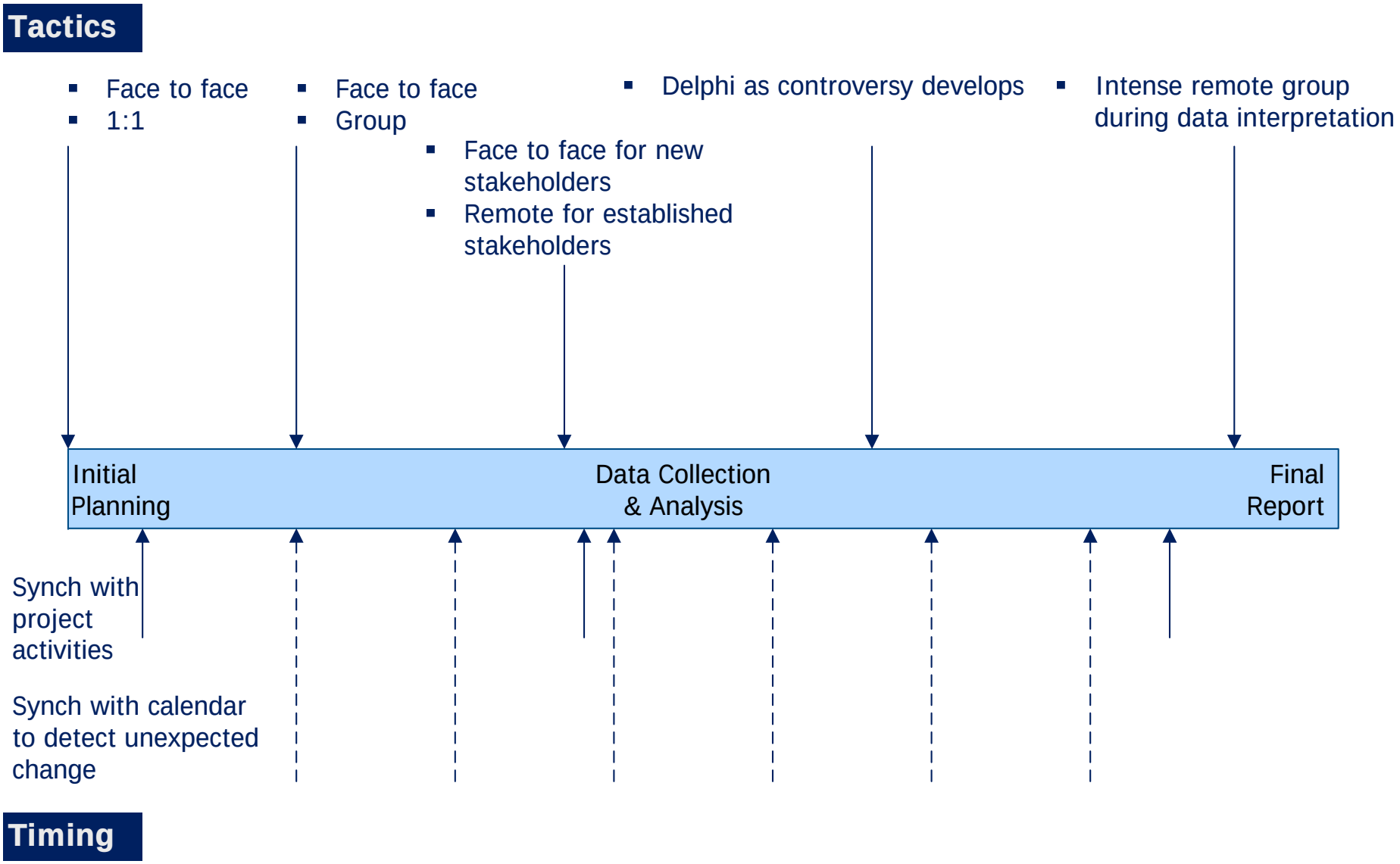
- Improves evaluation
  - Design and measurement
  - Customer expectations
- Depending on where the evaluation comes in program life cycle, may also improve program design



Get people to question assumptions

- 5 whys
- What does the research say?
- What do non-involved experts say?
- Push people to consider the program's environment/neighboring systems
  - What are they?
  - What do they do when the program starts to function or starts to have an impact?
- Does the level of detail and specificity only produce noise?
- What comes from an assumption based planning exercise?
- Half way through model development stop and ask:
  - Before we go any further let's look at what we have constructed and why. Do we really believe it?

Managing revision along two dimensions



Assure relevance through revision

- Begin with a model that is useful and relevant
- Match tempo of revision to purpose of evaluation and program stability
  - Frequent: Heavy formative evaluation to assist in developing a novel program in an unfamiliar setting
  - Infrequent: Stable program with heavy emphasis on long term outcome
- Fixed schedule for revision
  - Timeline
  - Resources
- Include non-stakeholder expertise and knowledge
  - Similar programs
  - Relevant research literature
- Vigilance about change in
  - Program
  - Environment (e.g., policy, funding, public perception)

Assure relevance through revision

- Look for targets of opportunity to adjust in midstream
  - Maintain relationships with stakeholders so you can ask them to work at revisions
  - Sneak in resources to allow unscheduled change, e.g.
    - make it part of “data analysis” and pad the budget
  - Revelations about program behavior revealed during discussions about findings, e.g.
    - “We were wrong, it looks as if culture is changing earlier than we thought”
  - Realizations that important program activities were left out, e.g.
    - “We probably should have modeled the pre-implementation recruitment process.”

Software choices depend on requirements

- Requirements:
  - Cost?
  - Ease of use?
  - Graphic and aesthetic potential?
  - Collaboration / distributed collaboration?
  - Flexibility to cast logic models in many different forms?
  - Number of partners and colleagues who know how to use it?
- Depending on requirements, application categories are:
  - Drawing
  - Dedicated logic model
  - Graphics and presentation
- Search Evaltalk archives for references and discussion of possibilities

Part 9: Discussion

- How might what you have learned affect how you think about evaluation?
- How might what you have learned affect how you do evaluation?