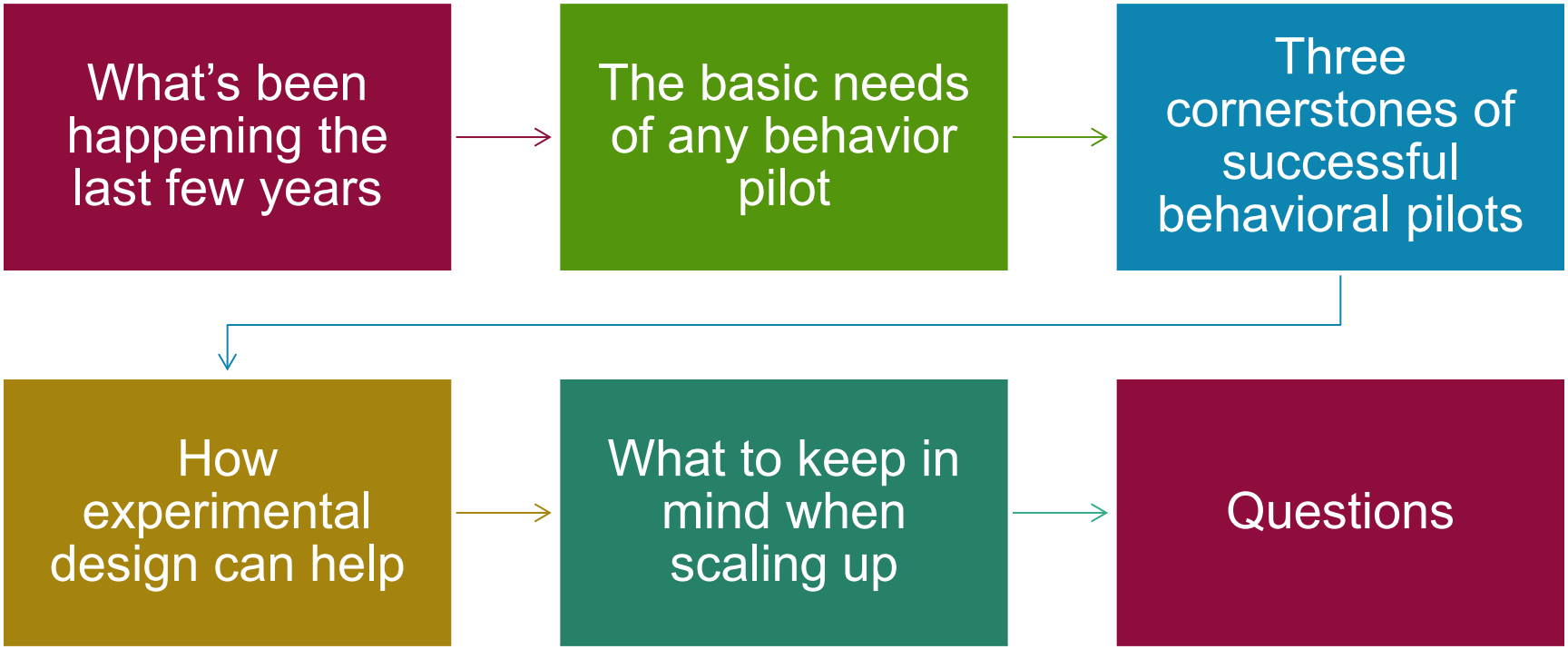
Designing Insightful Pilots:

A review of key principles that help answer your questions.

Alexandra Dunn, Linda Dethman, Meghan Bean, Research Into Action

Thank you to Anne Dougherty, ILLUME Advising and Mimi Goldberg, DNV GL

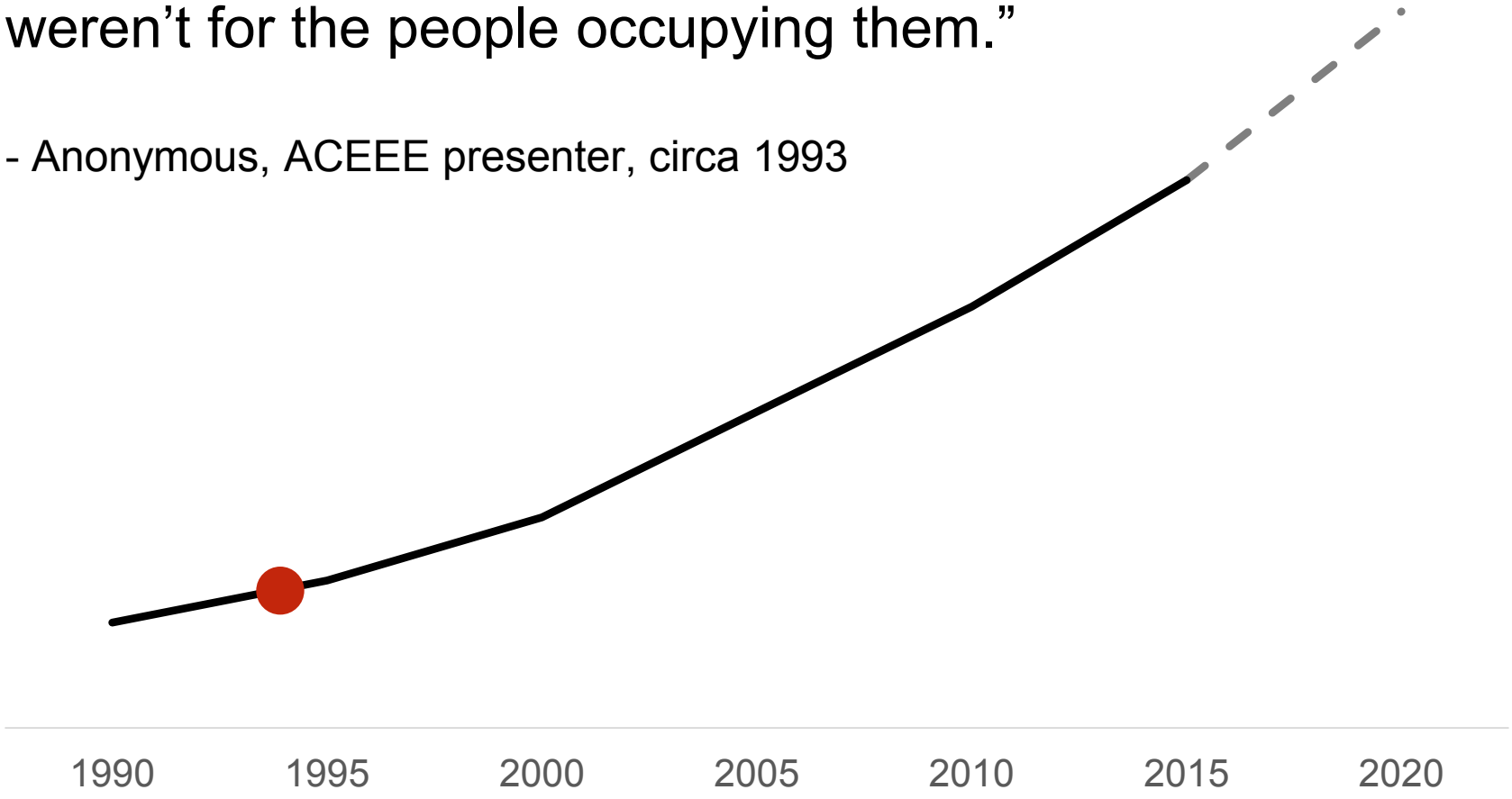
This webinar will review…



Acceptance of Behavior Science Over Time

"Buildings would work perfectly if it weren't for the people occupying them."

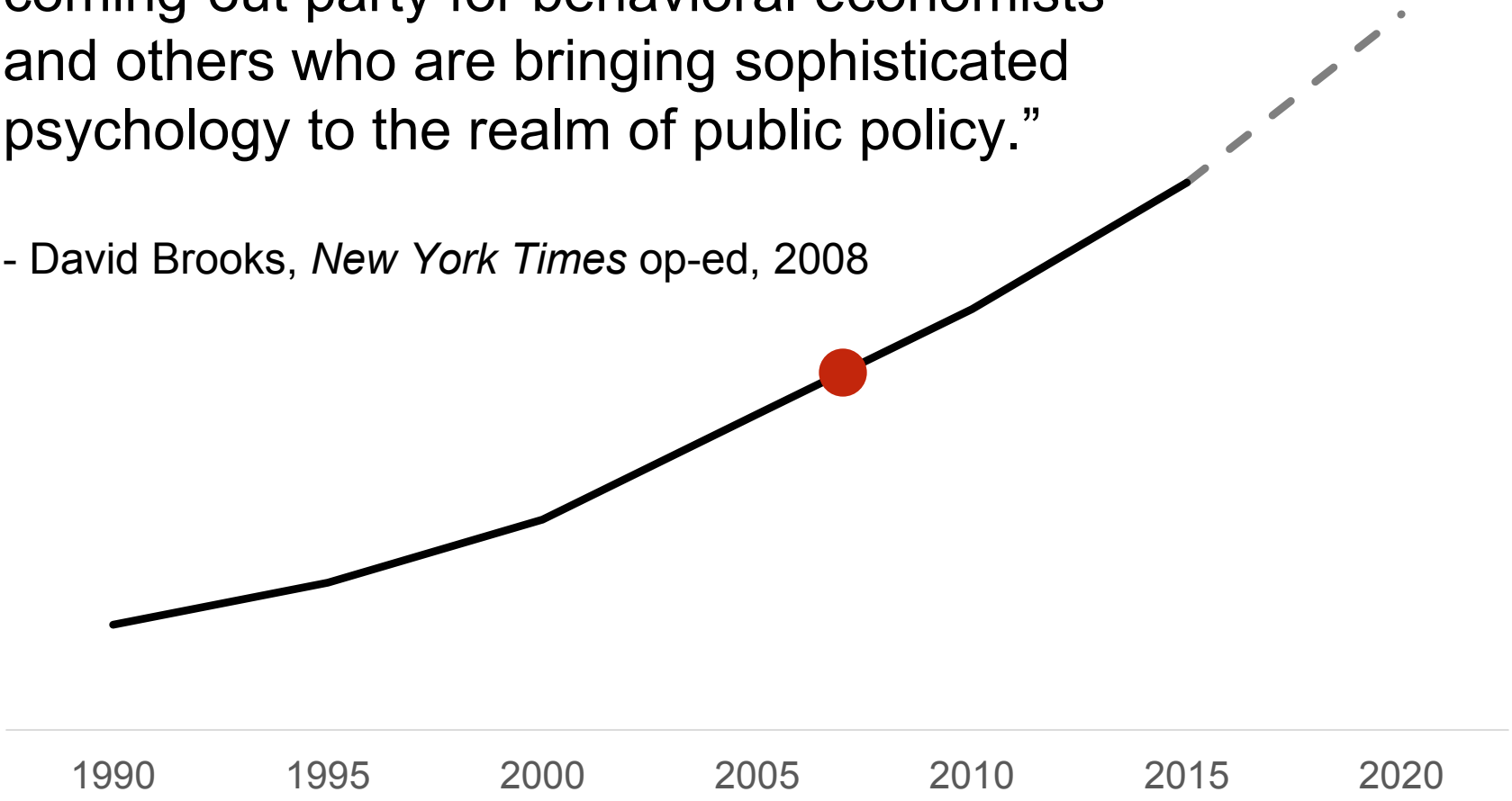
- Anonymous, ACEEE presenter, circa 1993



Acceptance of Behavior Science Over Time

"…this financial crisis is going to amount to a coming-out party for behavioral economists and others who are bringing sophisticated psychology to the realm of public policy."

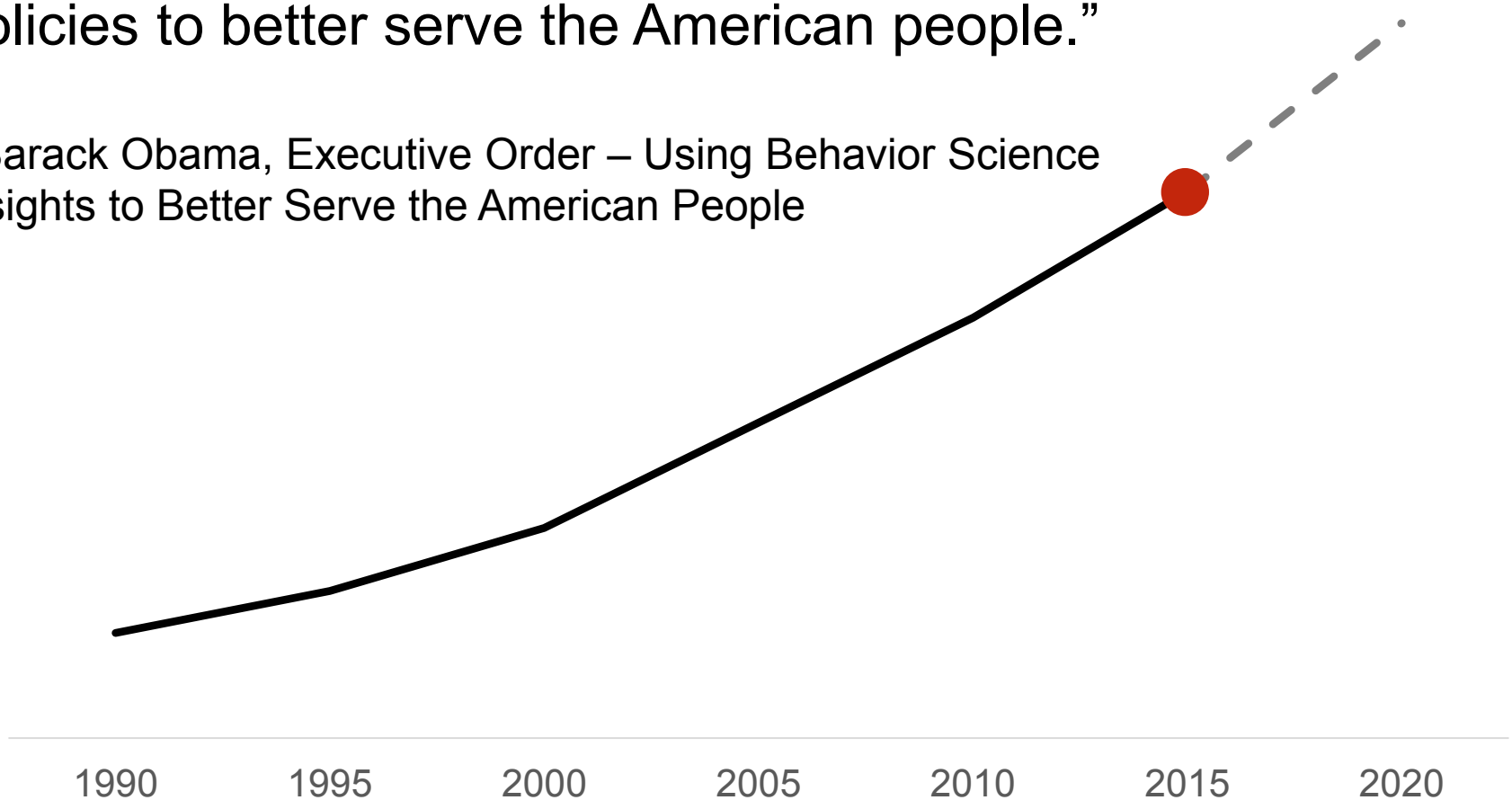
- David Brooks, *New York Times* op-ed, 2008



Acceptance of Behavior Science Over Time

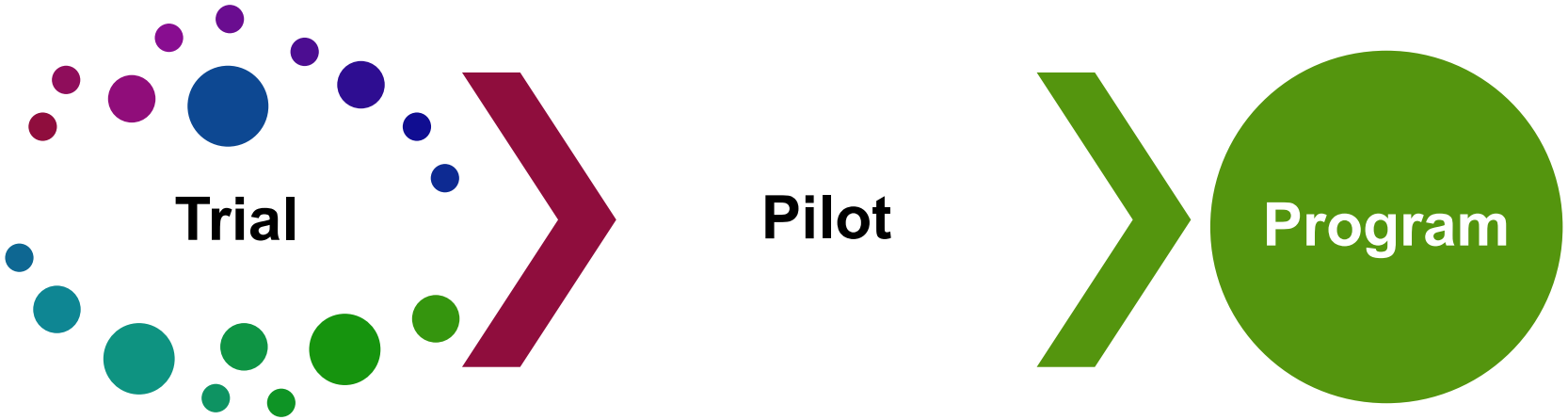
"A growing body of evidence demonstrates that behavioral science insights… can be used to design government policies to better serve the American people."

- Barack Obama, Executive Order – Using Behavior Science Insights to Better Serve the American People



What about in the utility world?

Definitions matter



3 years ago…

Paving the Way for a Richer Mix of Residential Behavior Programs

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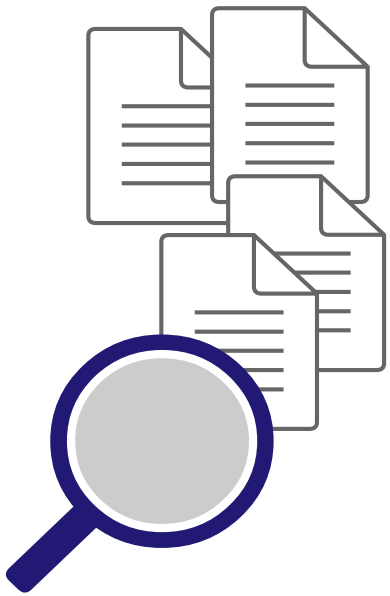
3 years ago…



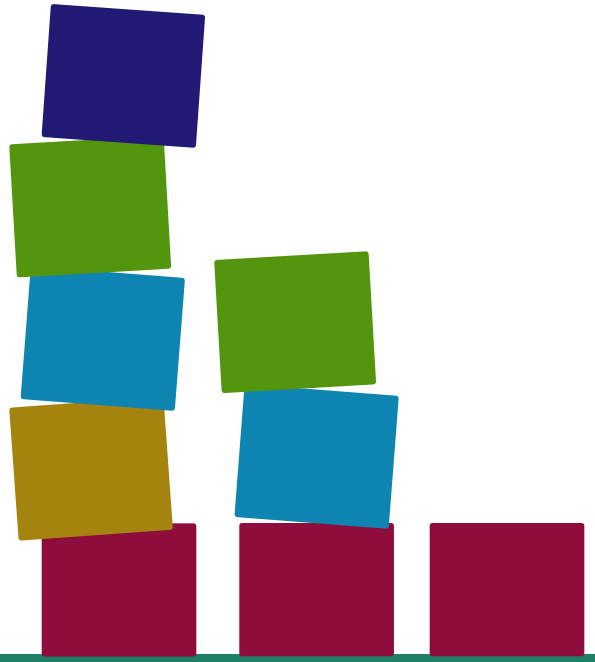
What is effective?

- Commitment
- Feedback
- Follow-Through
- Framing
- In-Person Interaction
- Monetary Incentives
- Rewards or Gifts
- Social Norms
- Sunk Costs
- Multi-Pronged Strategies

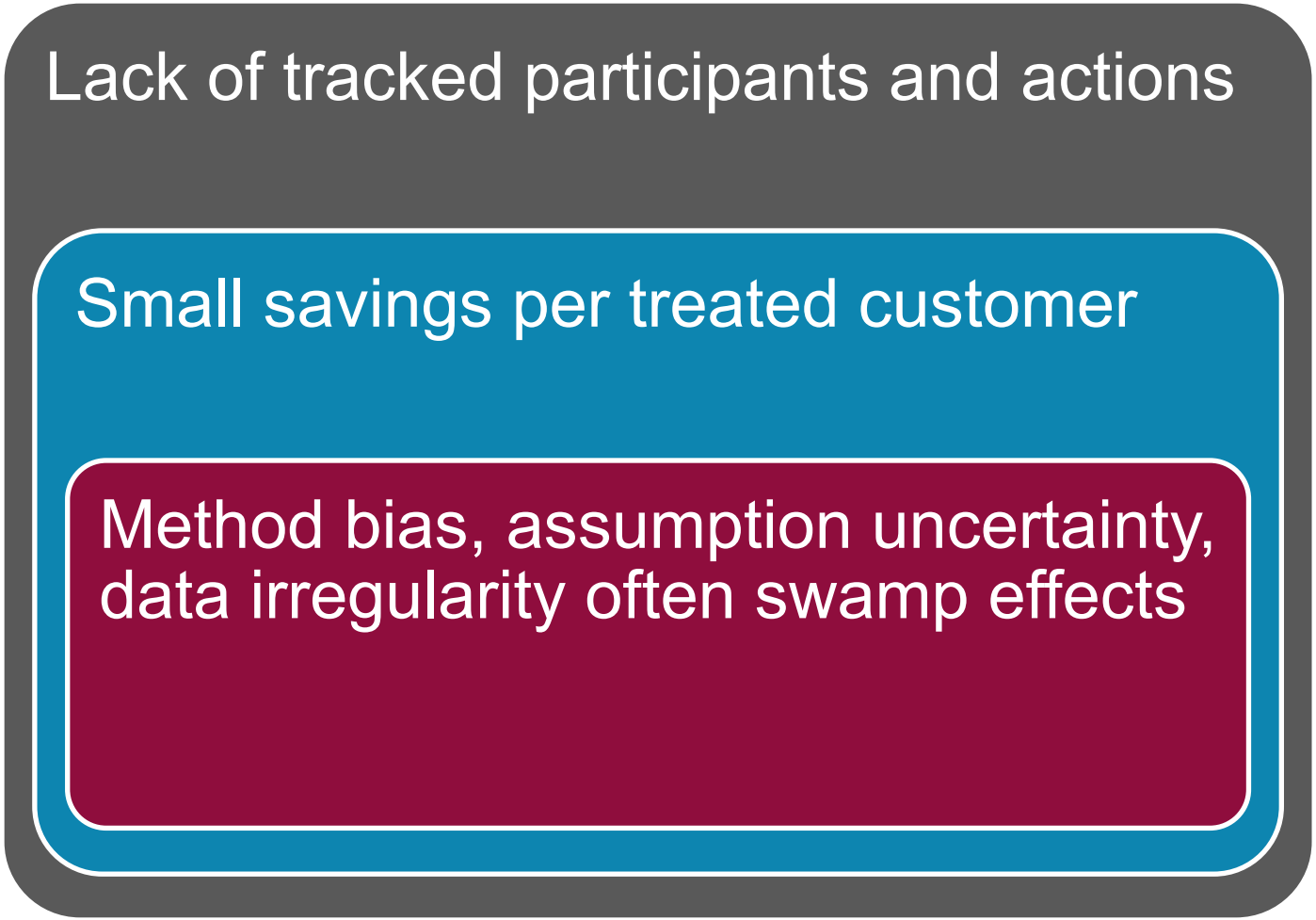
Now we know a few things…

Challenges we still have

- Lack of agreement or understanding about what behavior change is and what causes it
- Behavior change trials need to advance our understanding of what interventions change what behaviors
- Trials designed with behavior principles in mind may veer off course in the face of challenges



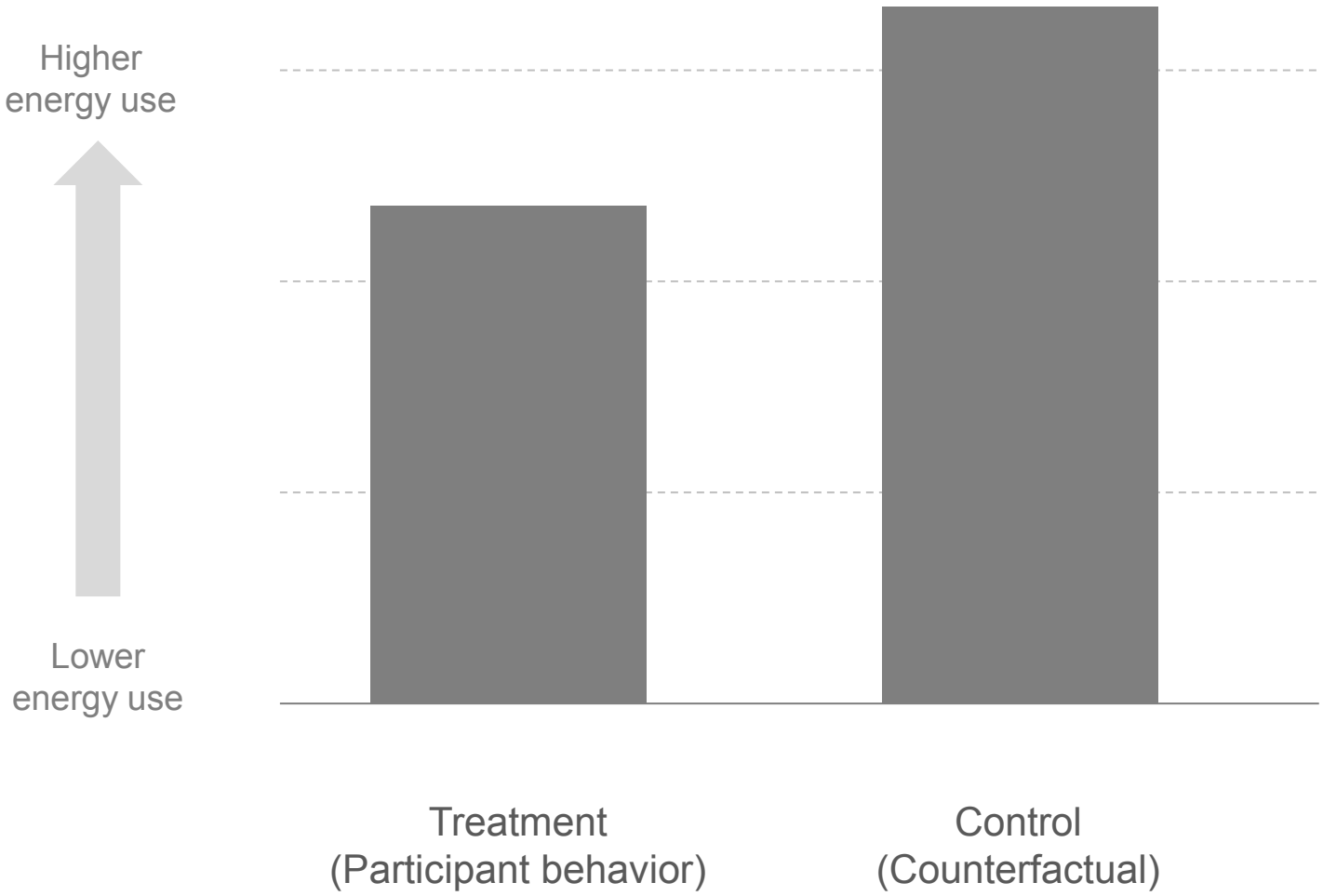
Why is this so hard?



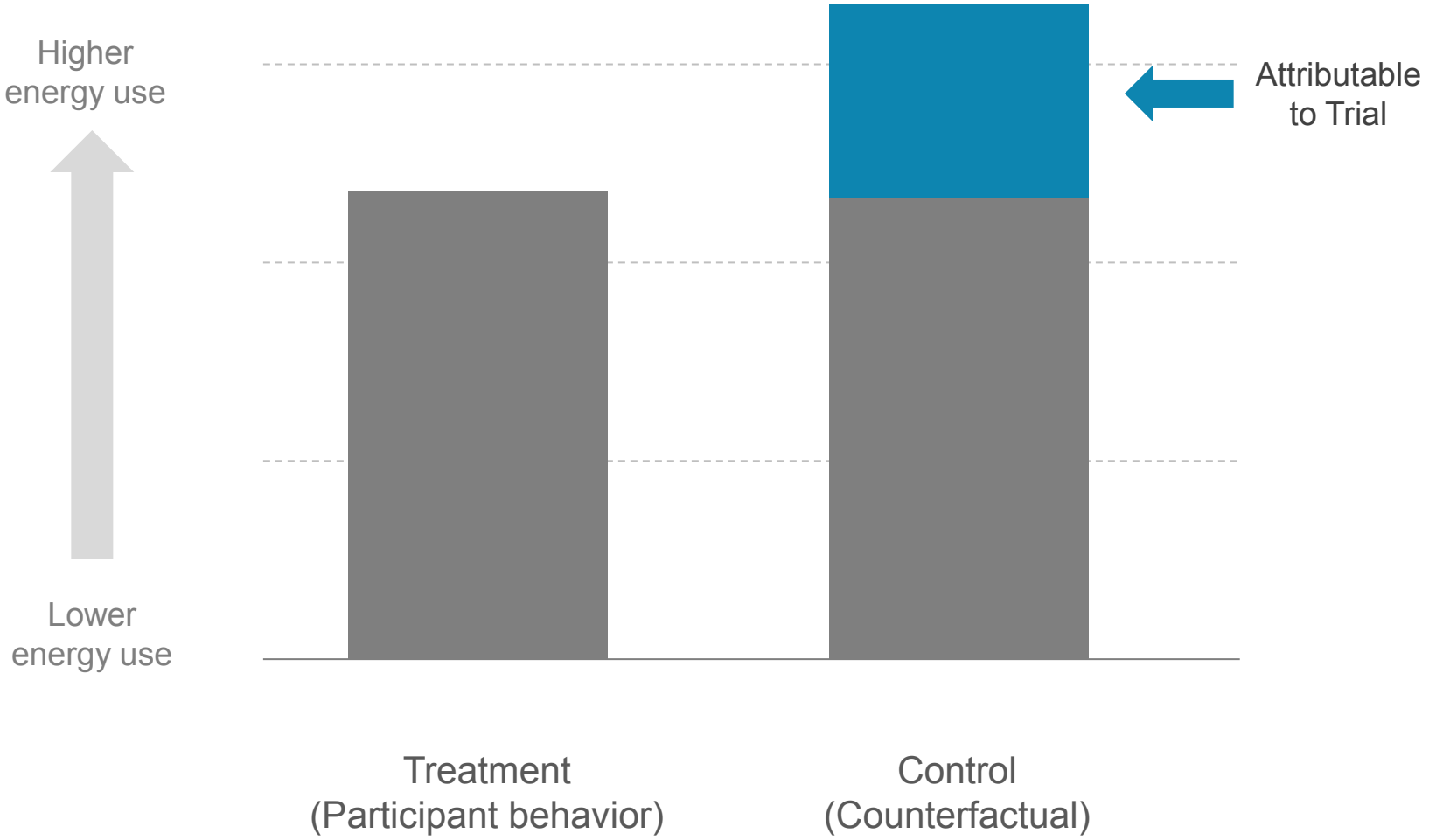
Our end goal...

Causally link intervention to savings

Causality means certainty in energy savings



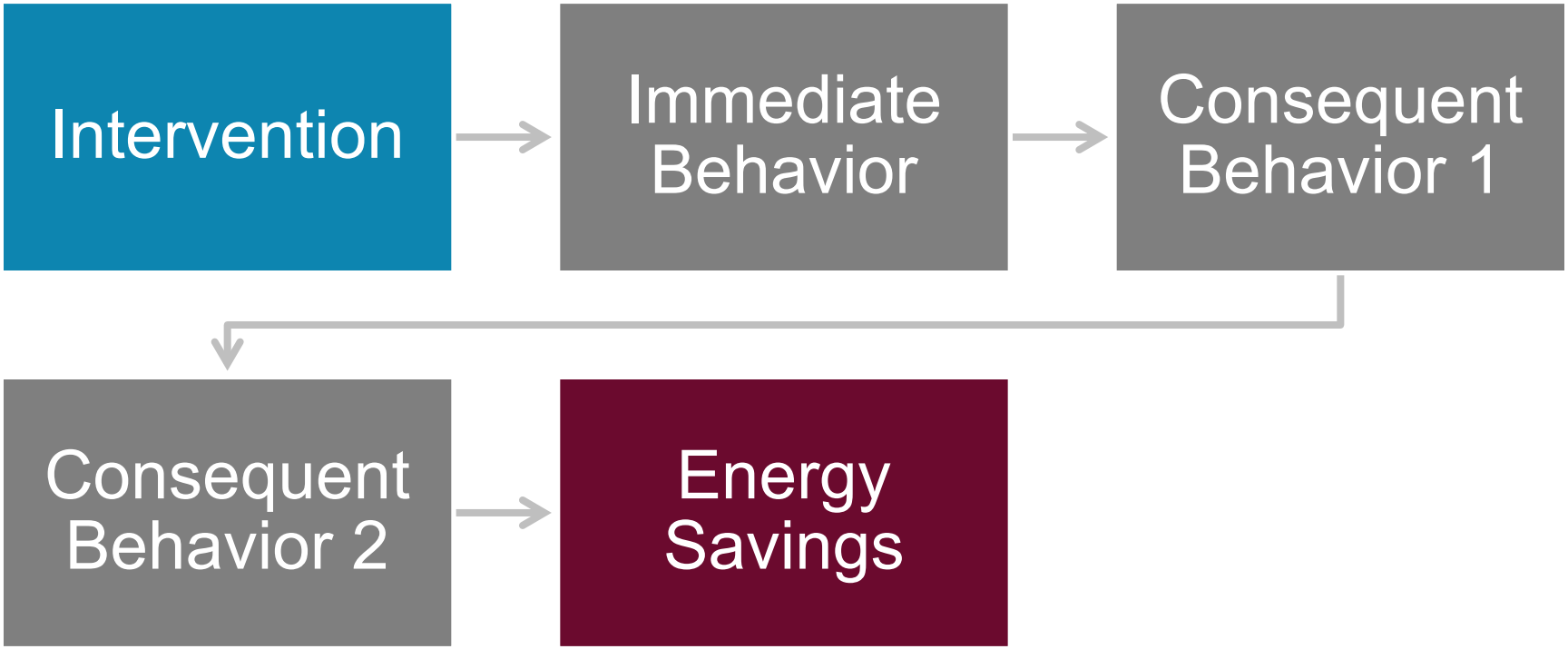
Causality means certainty in energy savings



but...

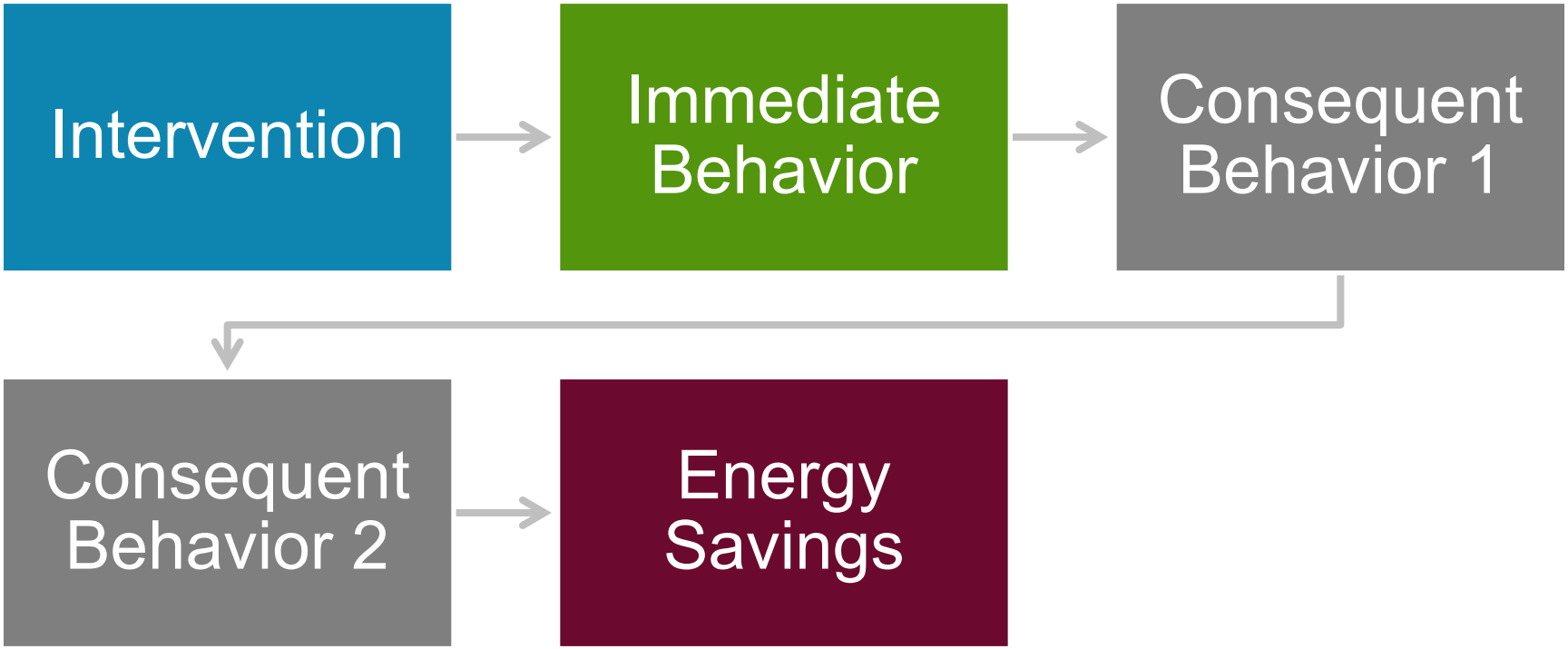
May want to measure immediate behaviors first

Status quo: Measure energy savings



May want to measure immediate behaviors first

Build in Progress Checks: Measure the immediate behavior AND energy savings



A basic framework to integrate evaluation into your trial from the start!

Three cornerstones of any behavior trial

Three cornerstones of any behavior trial

Start anywhere...

but go full circle!

Three cornerstones of any behavior trial

Will my target intervention work well with the population I must use?

Has prior research shown that my target intervention is effective in changing my target behavior?

Are there any characteristics of this population that limit the types of behaviors you can ask to be changed?

Does your target population limit how we can measure energy reduction due to our interventions?

Can I isolate and measure the specific target behavior I want to change?

What interventions are best suited to change my target behavior?

The Basics of Experimental Design

Lab studies

Internal

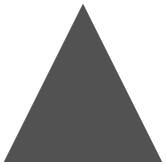
External

Can I infer causality?

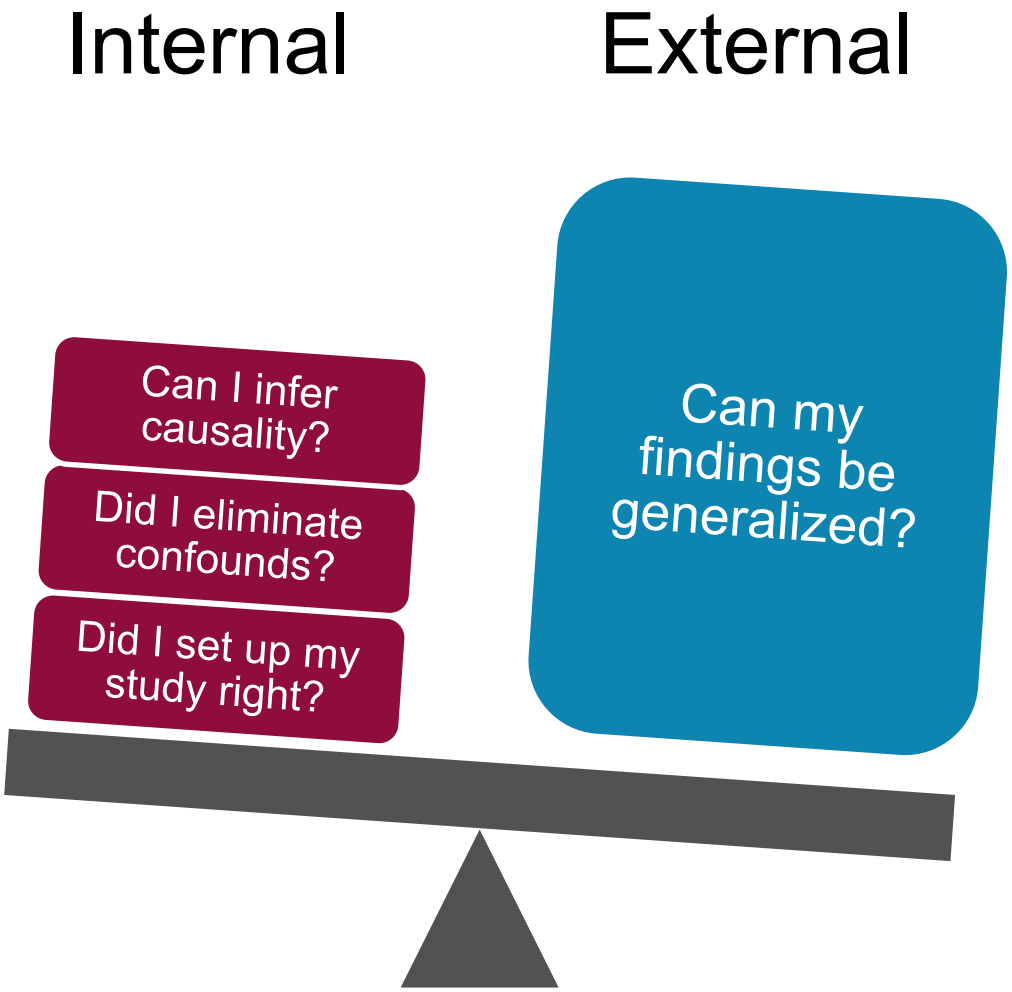
Did I eliminate confounds?

Did I set up my study right?

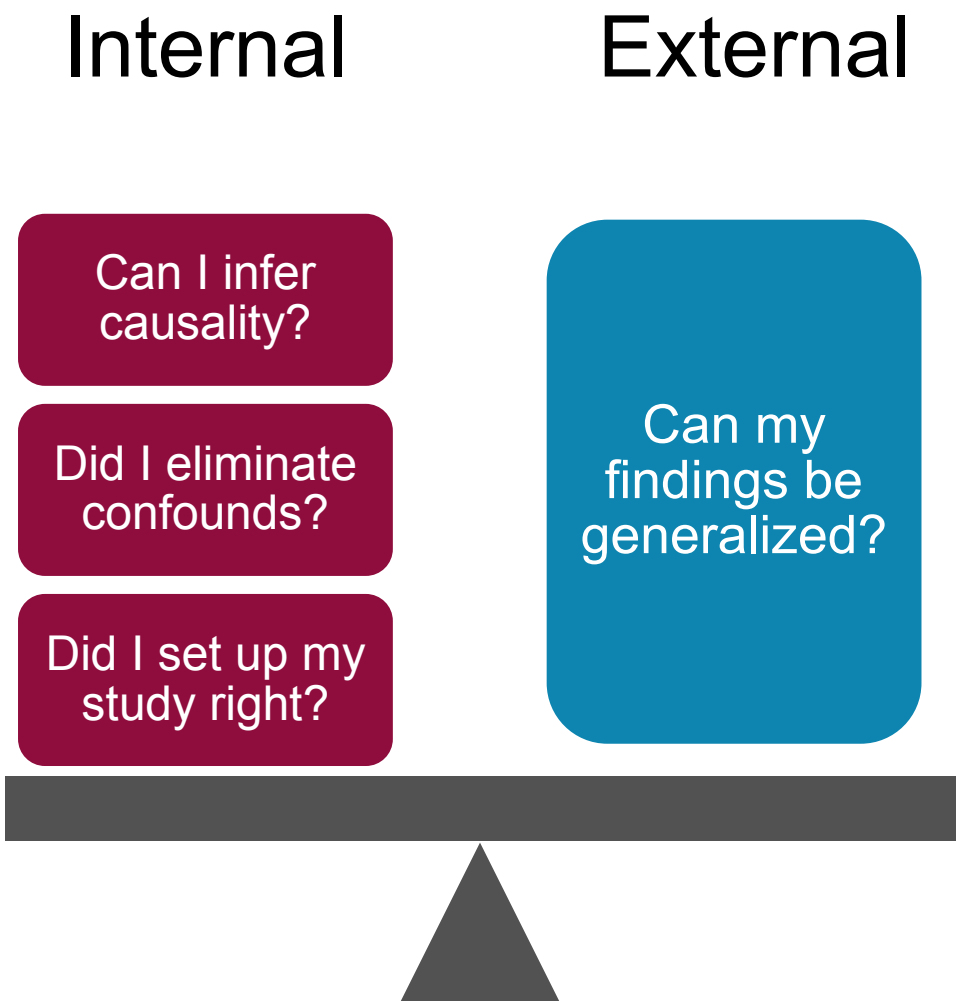
Can my findings be generalized?



Applied studies

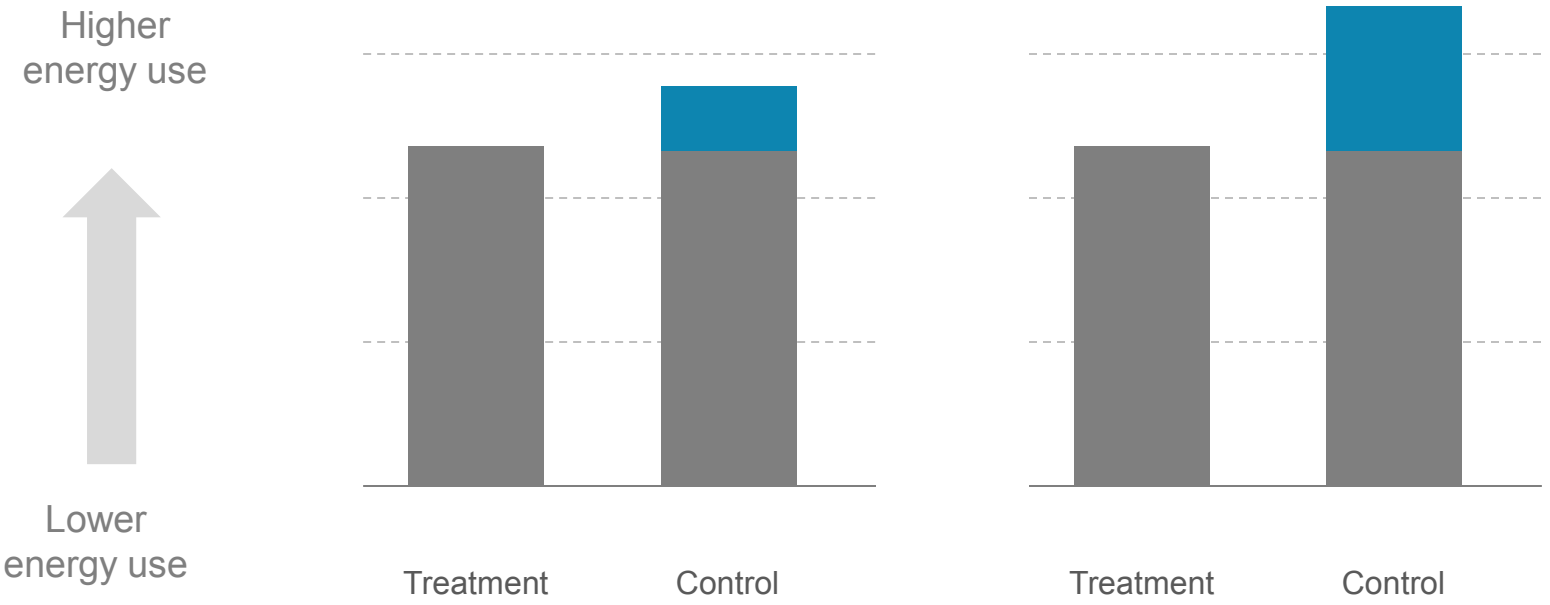


Studies in Energy Efficiency



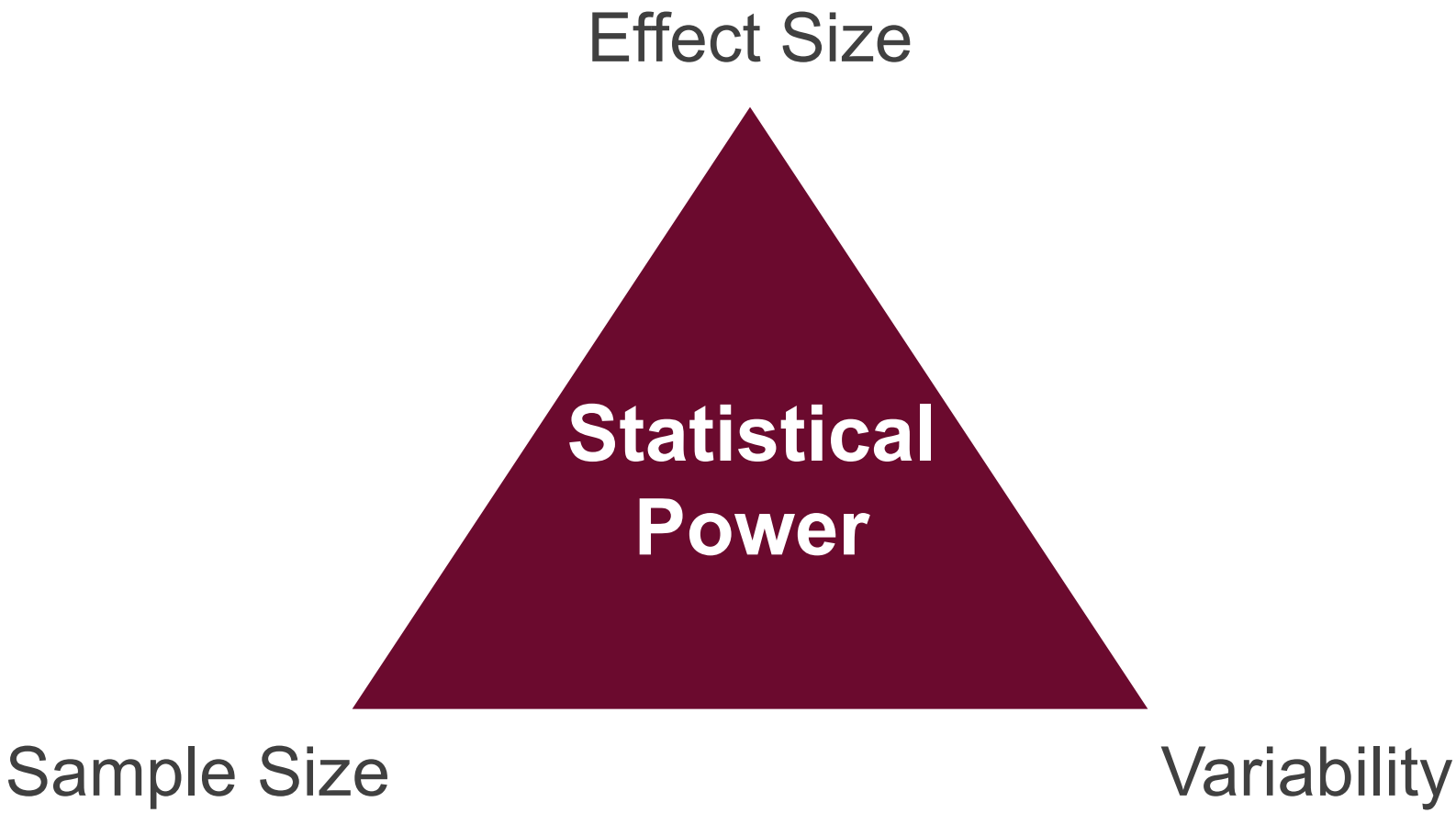
Terms you may like to know

- **Effect size:** The strength of an effect

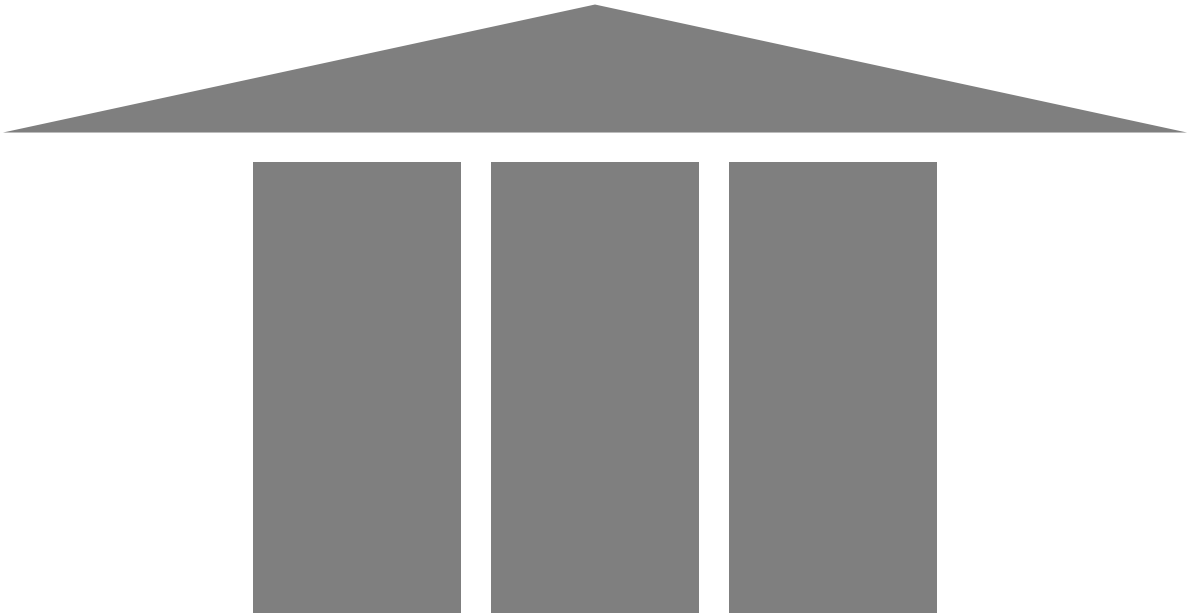


- **Statistical power:** The probability that a statistical test will correctly reject the null hypothesis

Run a power analysis



The foundation for all studies



For trials base your designs on your main research question

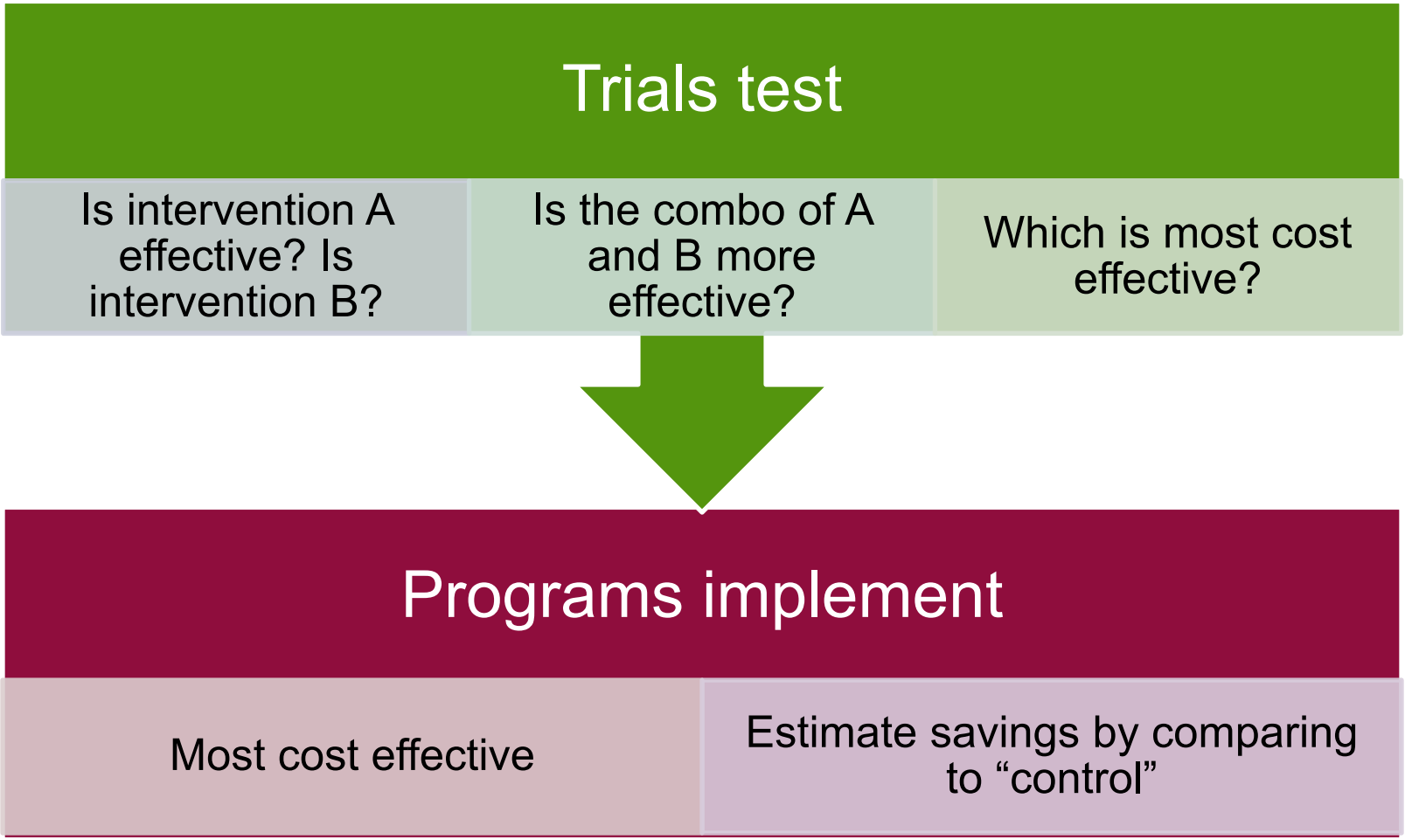
Really… one research question?!

- All good studies – **yes ALL** – are designed to definitively answer 1 research question
- You can answer others, but your final design will be dictated by your burning question
- Think about process and impact questions you can answer

Tips for designing a good research question

Scaling up

Remember…


Trials test
Is intervention A effective? Is intervention B?
Is the combo of A and B more effective?
Which is most cost effective?
Programs implement
Most cost effective
Estimate savings by comparing to “control”

Challenge: Making programs evaluable

Good program data is essential

- Tracked participation
- Tracked actions
- Similar regions with no/less program

Good survey data can fill gaps

- Variables to control for participation differences
- Propensity modeling

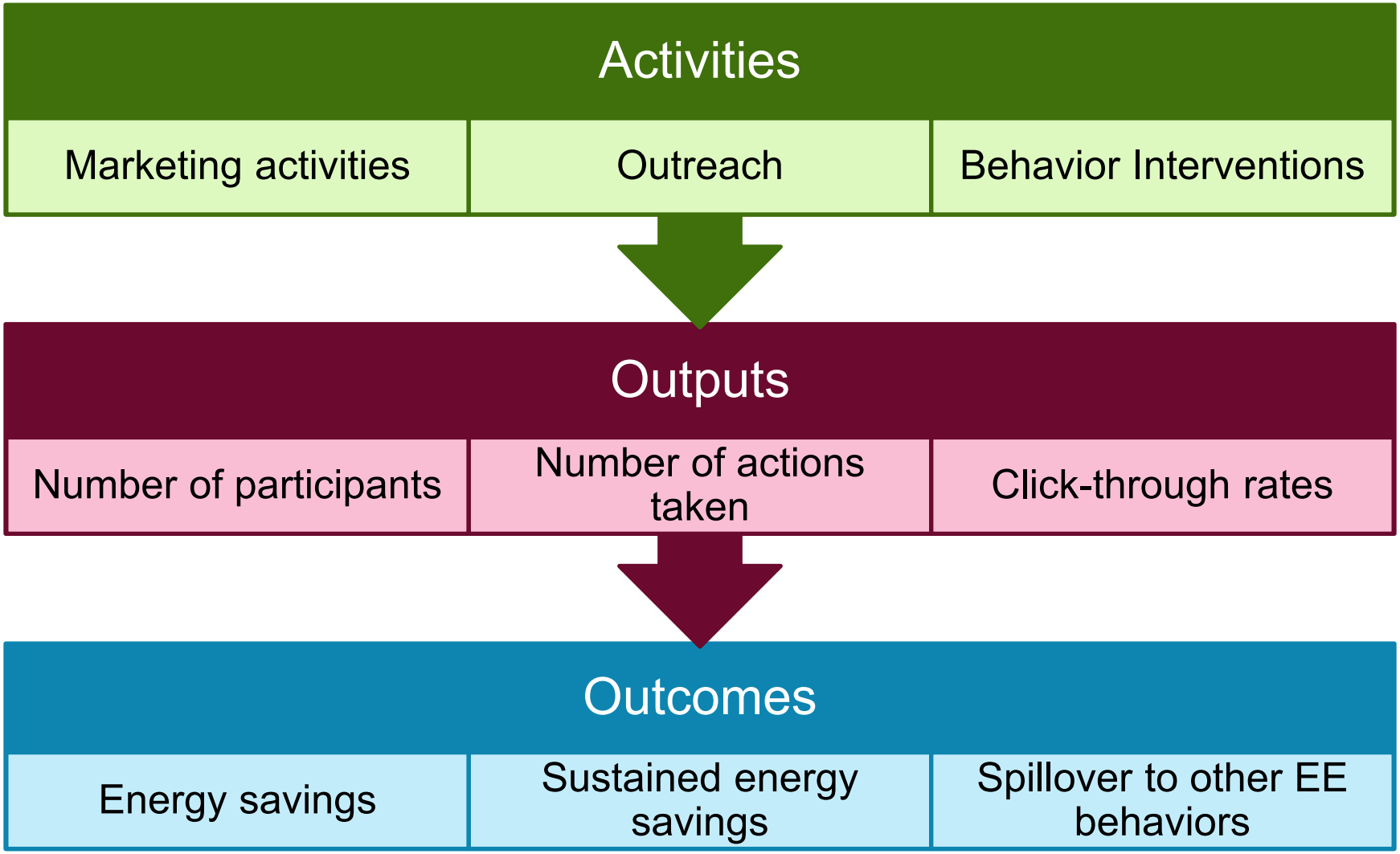
Design program with evaluation in mind

- RCT or RED design require this
- Decide if you have multiple treatment conditions
- Conduct surveys throughout treatment

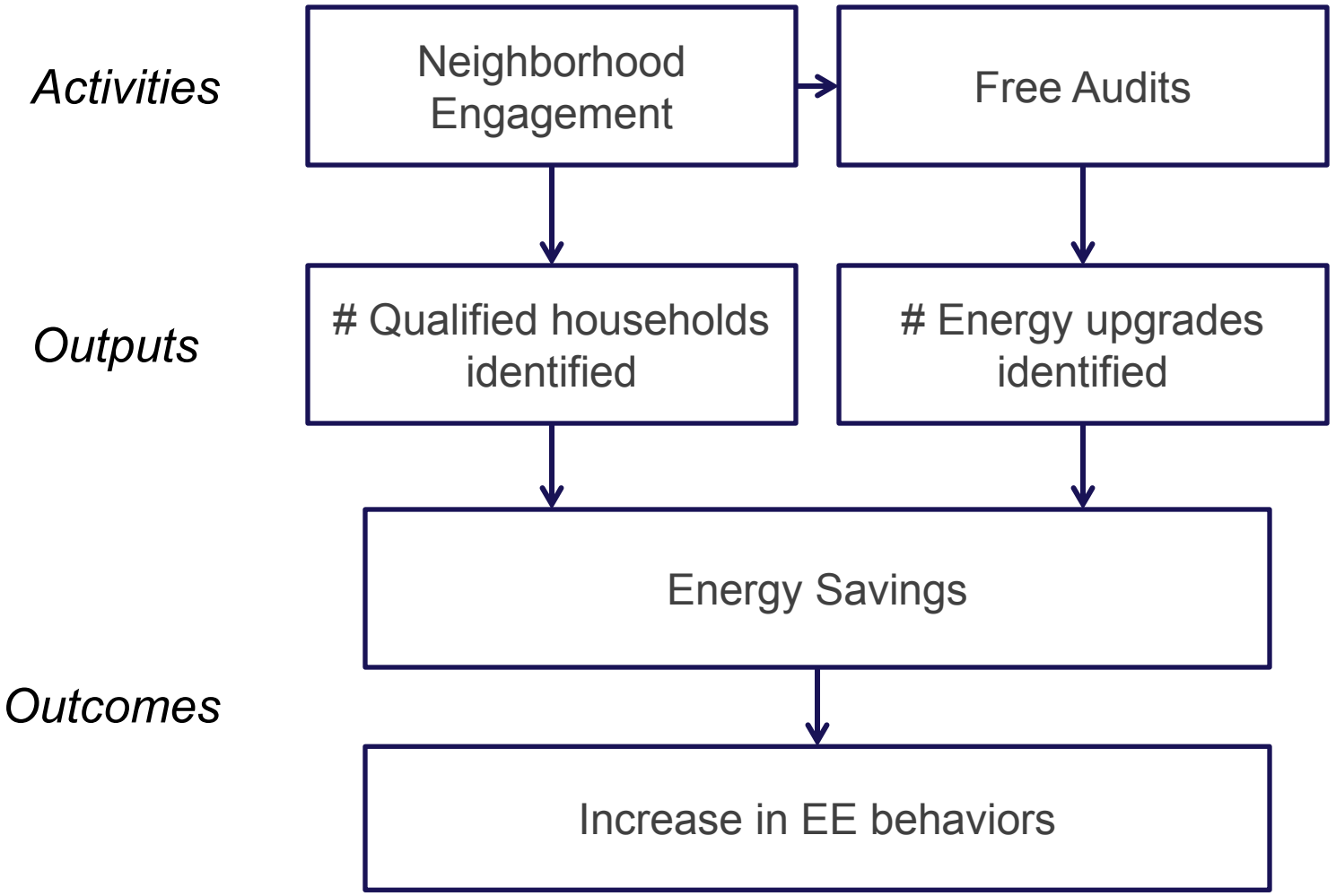
Create a sound program theory

- Use logic models
- Make sure you have a story

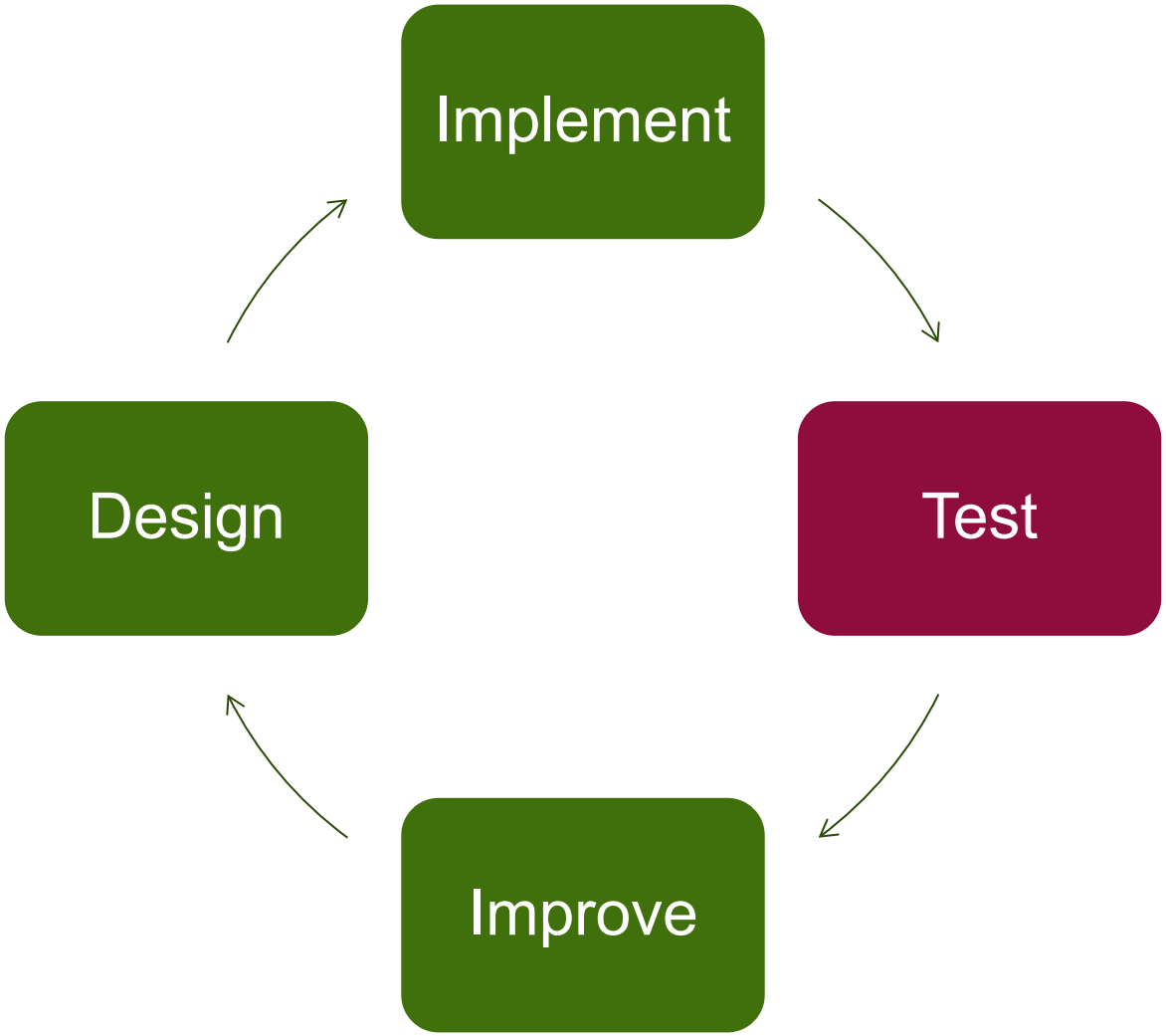
Use logic models



Simple example of a logic model



Research = Re – Search



- Testing phase:
  - Confirms program savings
  - Provides information for improving program

research into action inc

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