

# **Behavioral Levers, Selection Guidelines, and Multi-Modal Approaches**

Kat A. Donnelly, PhD  
December 7, 2014

# **Behavioral Levers:**

## **A Behavioral Science Primer**

# Why are we here?

Learning to Motivate, Enable, and Engage People on the Tough (Sustainability) Behaviors

“We collectively haven’t cracked the code on conveying the benefits of smarter energy to the individual, to families, and to communities.

...One that gives them compellingly easy ways to control their energy usage, and that engages their hearts and minds to take a more active role in doing so.”

- Sam Palmisano,  
Former CEO of IBM

# Behavioral Levers

## Individual

Behavioral  
Economics  
Psychology

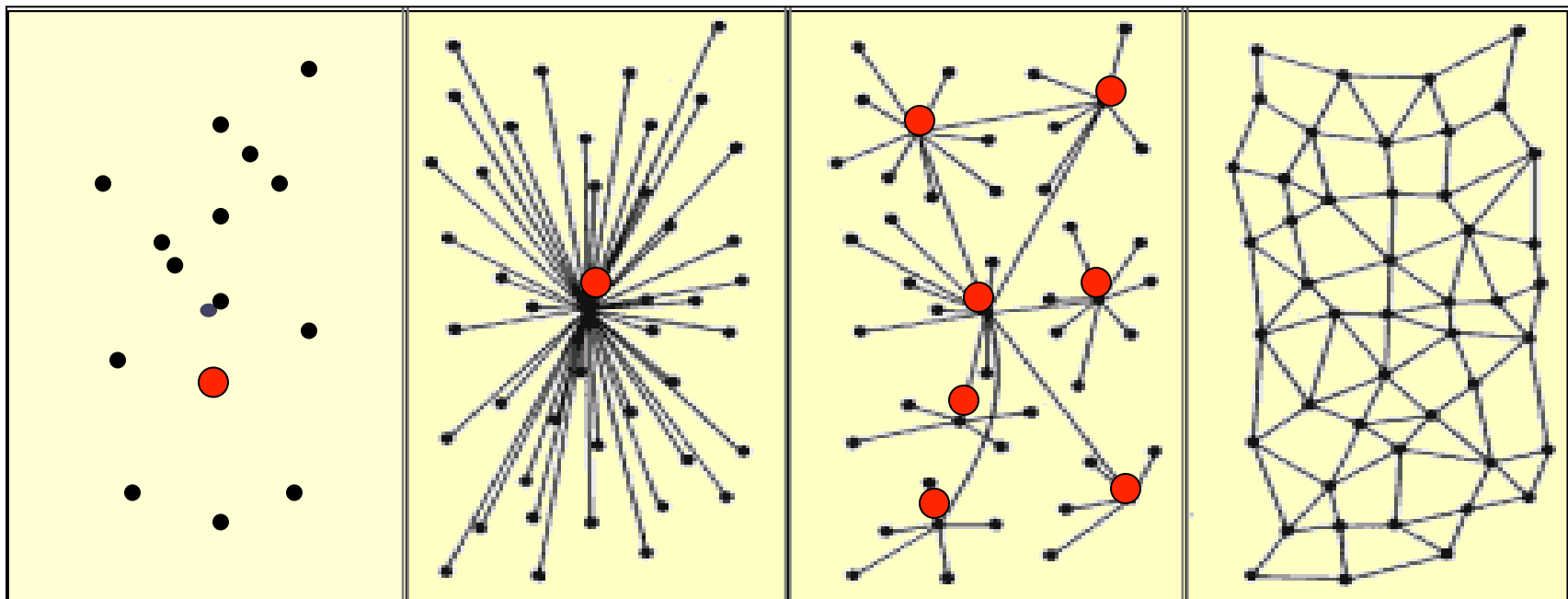


## Social

Social Psychology  
Community-Based  
Social Marketing



# Building up to Culture Change



**Individuals,  
Families**

**Neighborhoods,  
Communities**

**Regions**

**Society**

***Tipping Point...that moment when an epidemic reaches critical mass.*** (Malcolm Gladwell)

# **Assumptions from Economics:**

## **Rational People**

- Agents are rational, controlled, informed, selfish, and calculating
- Preferences are known, stable, and ordered
- Maximize welfare returns (efficient and self-regarding)
- Optimal market conditions



# **Behavioral Economics:**

## **Predictably Irrational People**

- Individuals & organizations do not maximize welfare
  - Reciprocating, trusting, and vindictive
- Follow suboptimal decision strategies
  - Solve local decisions
  - Misunderstand implications
- Succumb to different decision traps
  - Incoherent preferences/variable tastes (poorly predicted)
  - Impulsive, myopic



# Two Systems for Thinking



## Intuitive & Automatic

Uncontrolled

Effortless

Associative

Fast

Unconscious

Rules of thumb

Gut Feelings

## Reflective & Rational

Controlled

Effortful

Deductive

Slow

Self-aware

Rule-following

Conscious Thought



Most programs focus their efforts here



Source: Thinking Fast and Slow, Daniel Kahnemann, 2013



# Ingrained Biases

Psychology, sociology, and behavioral economics provide a deeper understanding of the factors that shape choices and practices.

Bias	Definition
Anchoring	How starting points determine decisions
Availability	How assessments of the likelihood of risk are influenced by how readily examples come to mind.
Optimism	The belief that we are above average.
Loss Aversion	Losing something makes us twice as miserable as gaining the same thing makes us happy.
Status Quo	People tend to stick with their current situation.
Framing	Presenting the same information in different ways affects outcomes.

Source: Thinking Fast and Slow, Daniel Kahnemann, 2013

# Behavioral Economics:

## Facts of OVER-Consumption

- Energy **payments** are separate from **consumption**
- Short-term gain for long-term price



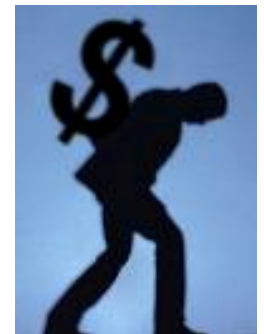
- Let's not forget the externalities...



# Behavioral Economics:

## Payments are separate from consumption

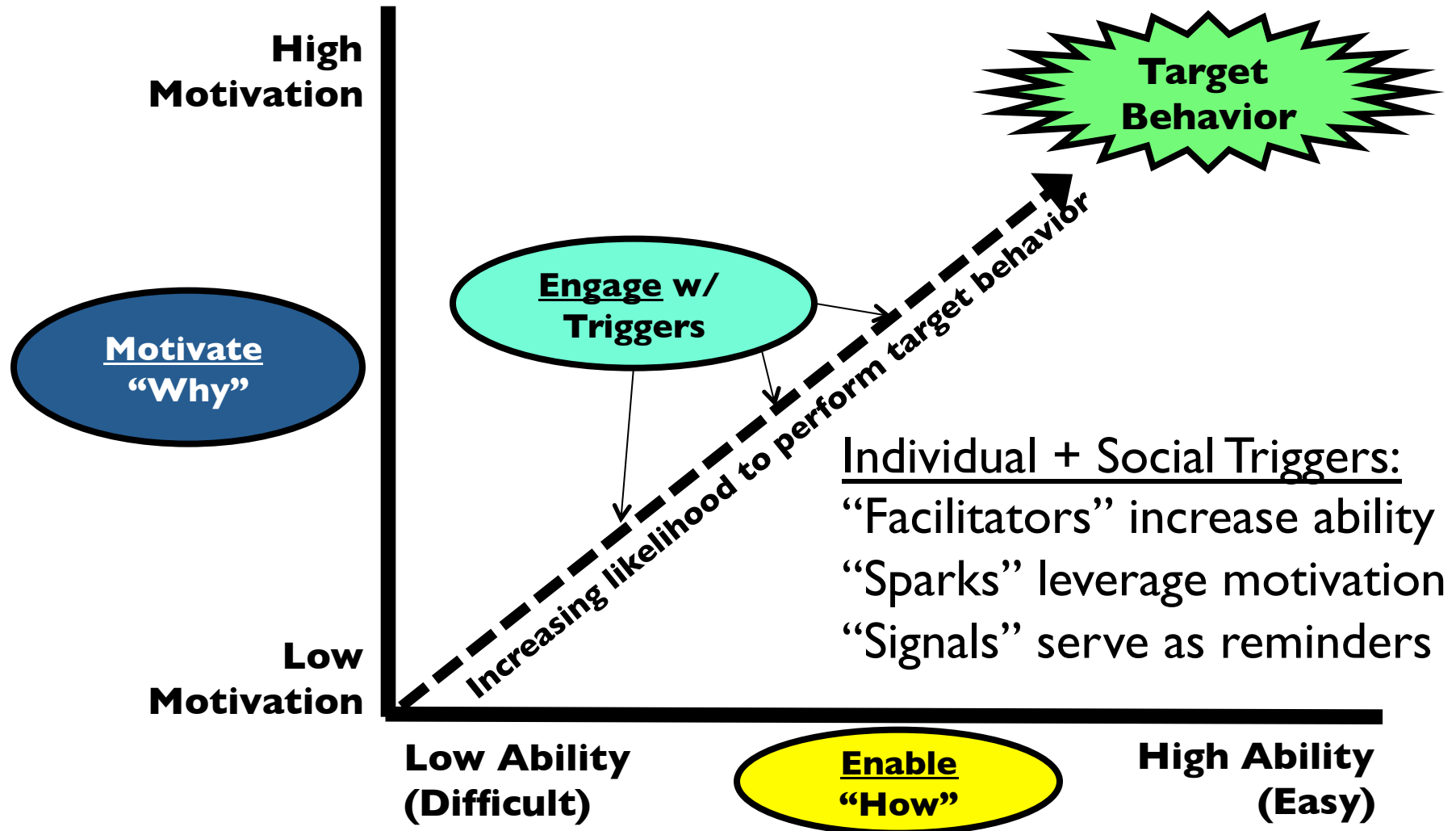
- Need to Invoke the Pain of Paying!
- Psychology of \$\$\$
  - Loss aversion: We hate losses and “wasting”
  - Relativity: We think (wrongly) in percentages
- Pain of Paying
  - Pre-pay (e.g., the magic number of zero)
  - Pay as you go (e.g. feedback, fees on bottles)
- Lotteries
  - Returned bottle or refilled bottle = lottery entry



Slide Inspired by Dan Ariely  
Energy Usage:

A View From Behavioral Economics (BECC 2009).

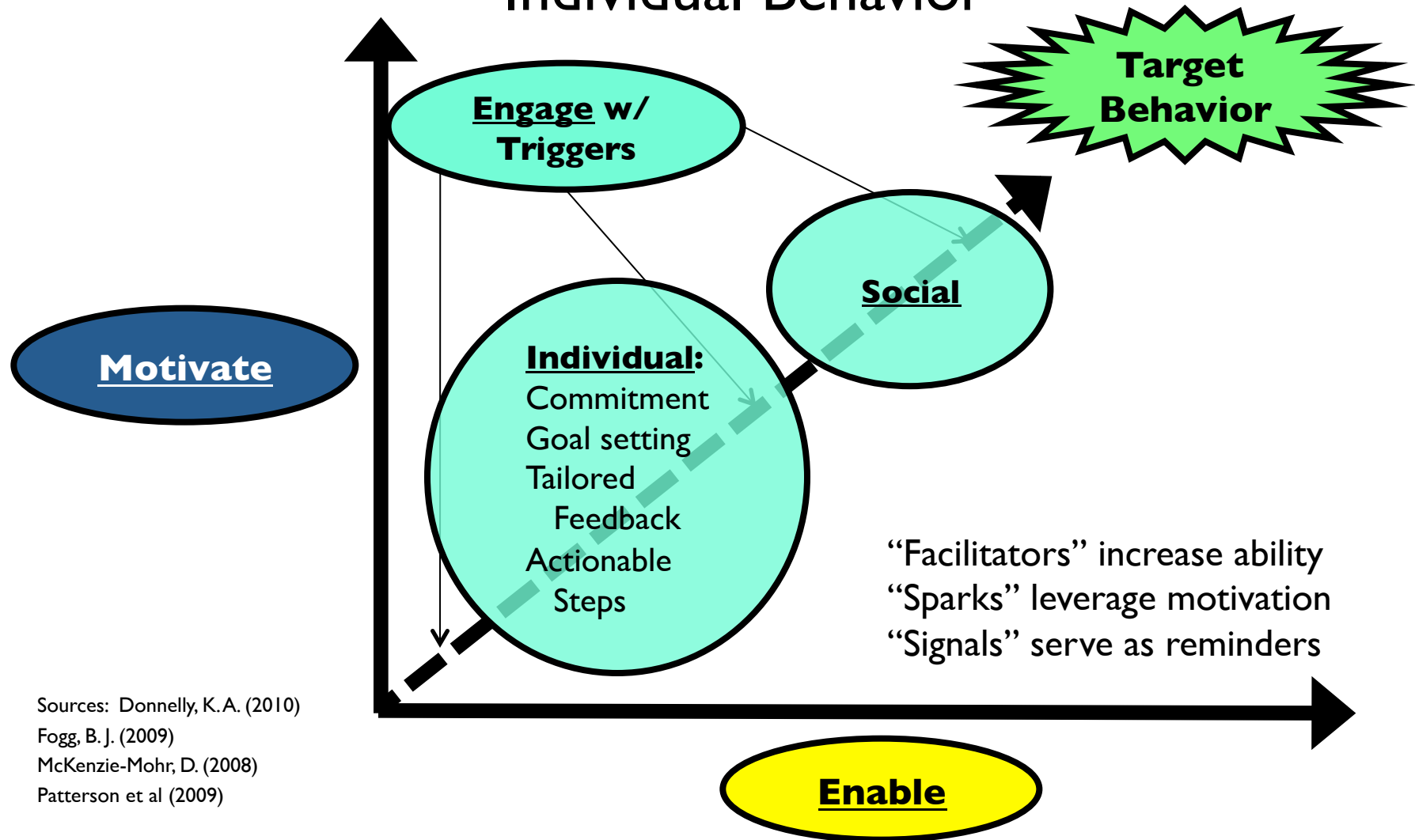
# Persistent Behavior Change Framework



Graphical framework derived from: Fogg, B. J. (2009). A Behavior Model for Persuasive Design. Persuasive Conference 2009, Claremont, CA.

# Targeted Behavioral Tools:

## Individual Behavior



Sources: Donnelly, K.A. (2010)  
Fogg, B. J. (2009)  
McKenzie-Mohr, D. (2008)  
Patterson et al (2009)

# Individual Psychology: Goal Setting and Commitment

## Goal Setting

- Loss Aversion

- Framing/Anchoring

Look forward, not back

Challenging, yet doable

Zhang et al 2007, Soman 2004, Schnoll and Zimemrman, 2001, Ester, 1985, Katzev, 1987

# Individual Psychology: Goal Setting and Commitment

## Goal Setting

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Zhang et al 2007, Soman 2004, Schnoll and Zimemrman, 2001, Ester, 1985, Katzev, 1987

## Commitments

- Moral obligation
- "Foot in the Door"

Abrahamse et al 2007, Ariely & Wertenbrock 2002, McCalley & Midden 2002



### A. Increases:

1. Motivation,
2. Ability to getting started,
3. Commitment,
4. Direction, and
5. Adoption of behaviors

# Individual Psychology: Tailored Feedback

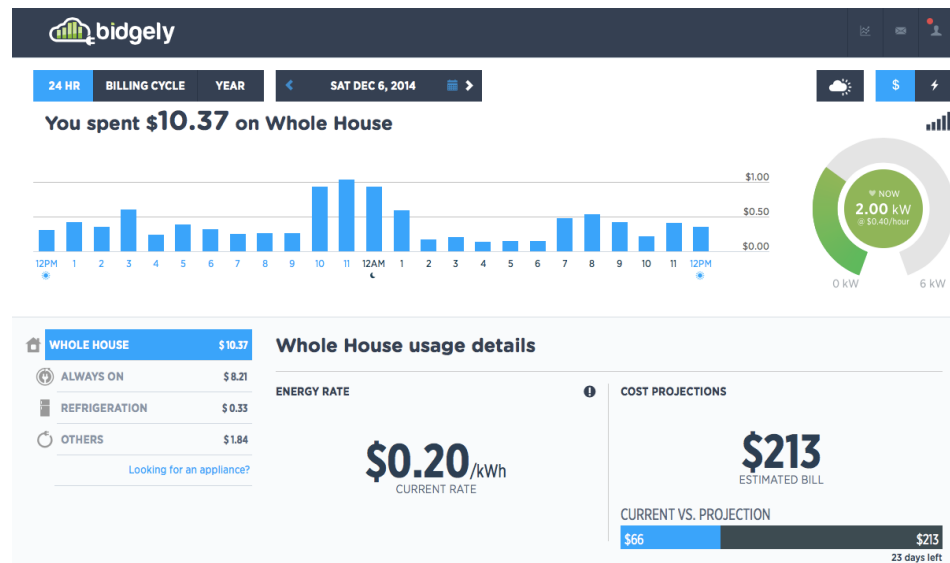
## Tailored Feedback

- Personalized:
  - Benchmarks,
  - Progress, and
  - Expected performance
- Past, Present, Projected
- Direct and Indirect

Ehrhardt-Martinez et al 2010, EPRI 2009, Abrahamse et al 2007, Darby 2006



POWERCOST MONITOR™





# Individual Behavior: Calls to Action

## Small, Actionable Steps

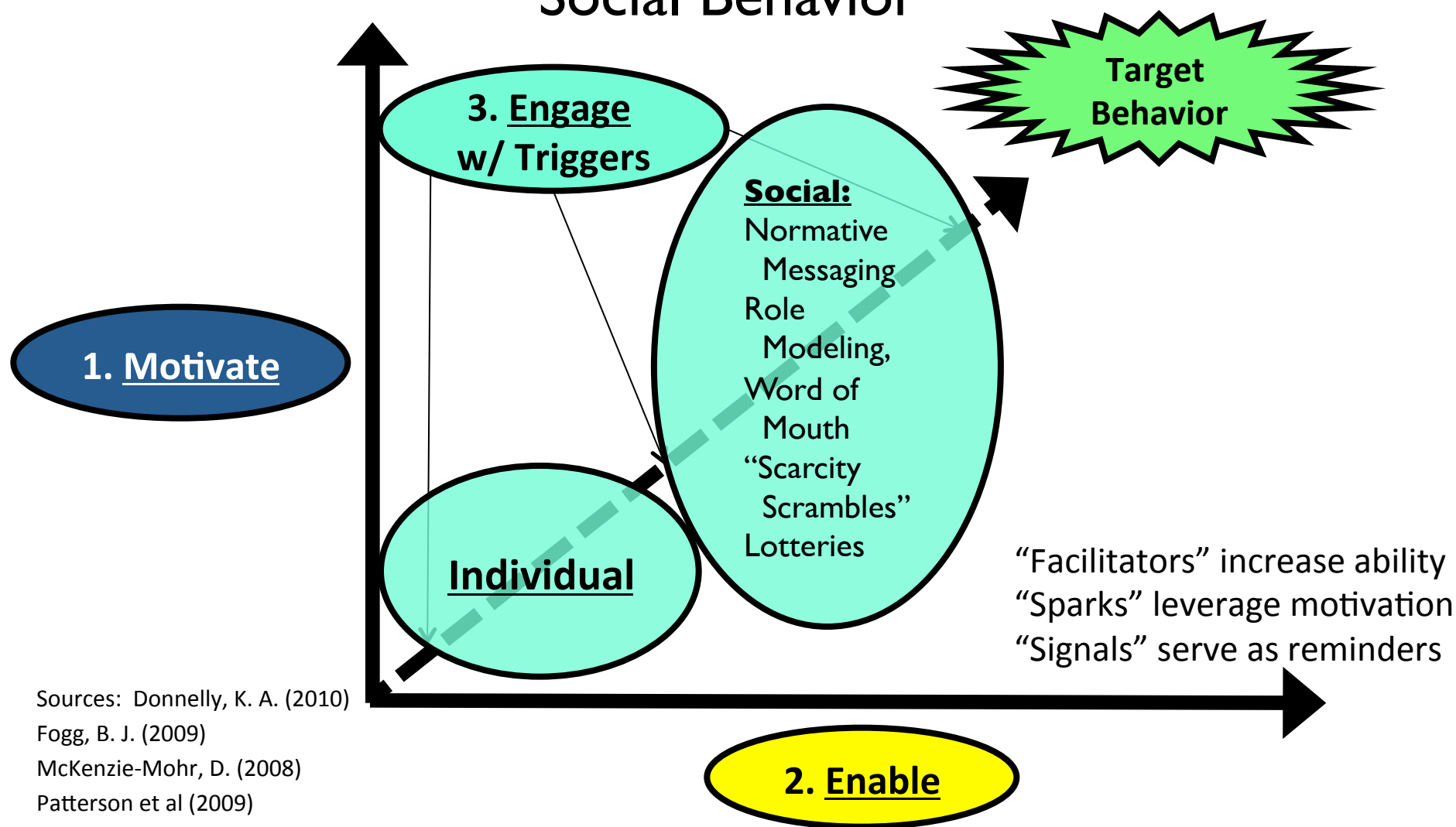
Honebein et al 2009,  
Abrahamse et al 2007

People reduce more energy waste and  
have more knowledge about waste.



# Targeted Behavioral Tools:

## Social Behavior



Sources: Donnelly, K. A. (2010)

Fogg, B. J. (2009)

McKenzie-Mohr, D. (2008)

Patterson et al (2009)

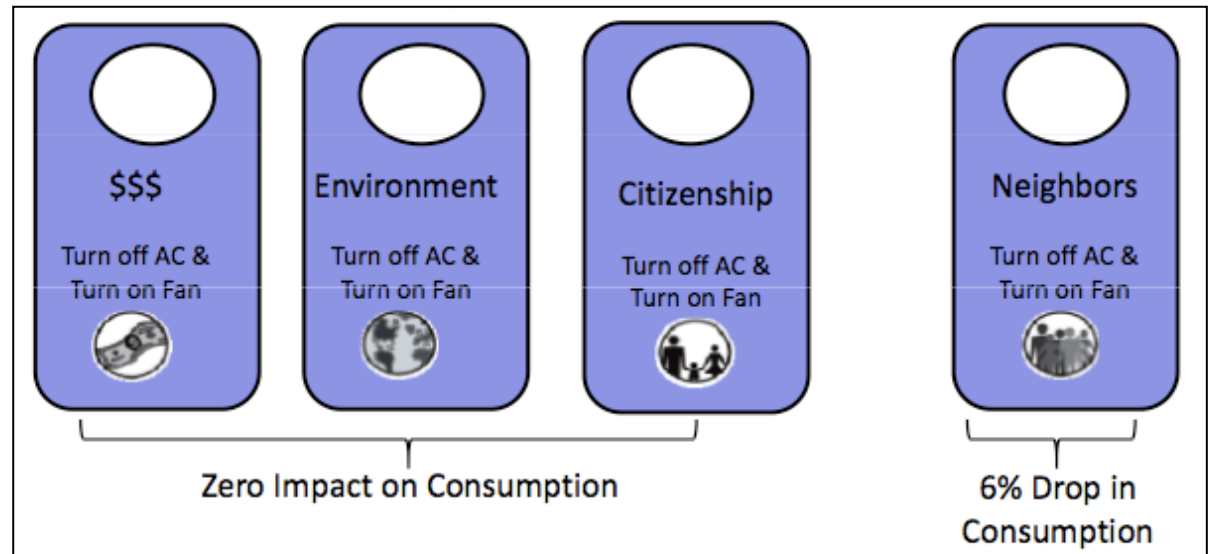
Slide by Kat A. Donnelly

# Social Psychology: Normative Messaging

## Descriptive and Injunctive Norms

Cialdini et al 2009, 2008, 2007, Cehn et al 2009, Nolan 2008, OPOWER

1. Provide social comparisons
2. Can be a powerful “lever of persuasion”, and
3. Are more effective when attached to immediate surroundings and personal context

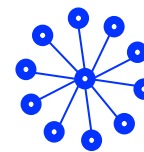


# Social Psychology: Social Ties

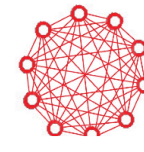
## Networks/Groups

Staats et al 2004, Carpenter 2009,  
Patterson et al 2008, McKenzie-Mohr 2008,  
Christakis & Fowler 2007, Granovetter 1973

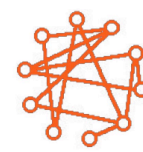
1. Individuals are embedded into social groups that influence their behaviors
2. Networks consist of strong and weak ties that dictate how norms, behaviors, ideas, technologies, move through the network



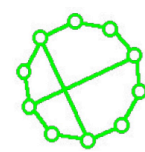
Hub and  
Spoke



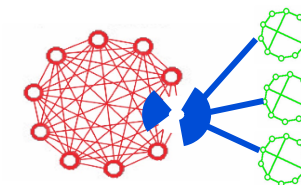
Fully  
Connected



Random



Small  
World





## Social Triggers in Action Testimonials

### Testimonials



*"I went to a Neighbor to Neighbor workshop and was inspired to take a look at my attic insulation [...] I can absolutely feel the difference before and after having the insulation redone."*

- Andy Adil, Wethersfield



*"I came to a Neighborhood Energy Workshop and was inspired to become an ambassador for the Challenge."*

**Bob Giddings, Cheshire**

- Send social signals to others about the “right” behavior
- Leverage norms, social networks, peer pressure, social acceptance

# Social Triggers in Action

## Community Rewards Program



Get My CBO to Sign Agreement	Eligible
Organize Workshop	1,000 points
CBO Member Attendance	100 points
Completed Assessment	200 points
Home Energy Upgrades	<u>500 points</u>
<b>Community Org Winner</b>	<b>? Points</b>

1<sup>st</sup> Place  
**\$1,000**

2<sup>nd</sup> Place  
**\$250**

Grand Prize  
**\$5,000**

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## Individual and Social Psychology: Scarcity Scrambles

### “Scarcity Scrambles”

Case 2010

Creating limited time offers requiring pre-qualification on a certain future date

- a. Create word of mouth “feeding frenzy”
- b. Start individuals on the sustainability pathway



# **Social Psychology:**

## **Social Influence Behavioral Levers**

Six useful “friendly persuasion” tools for culture change:

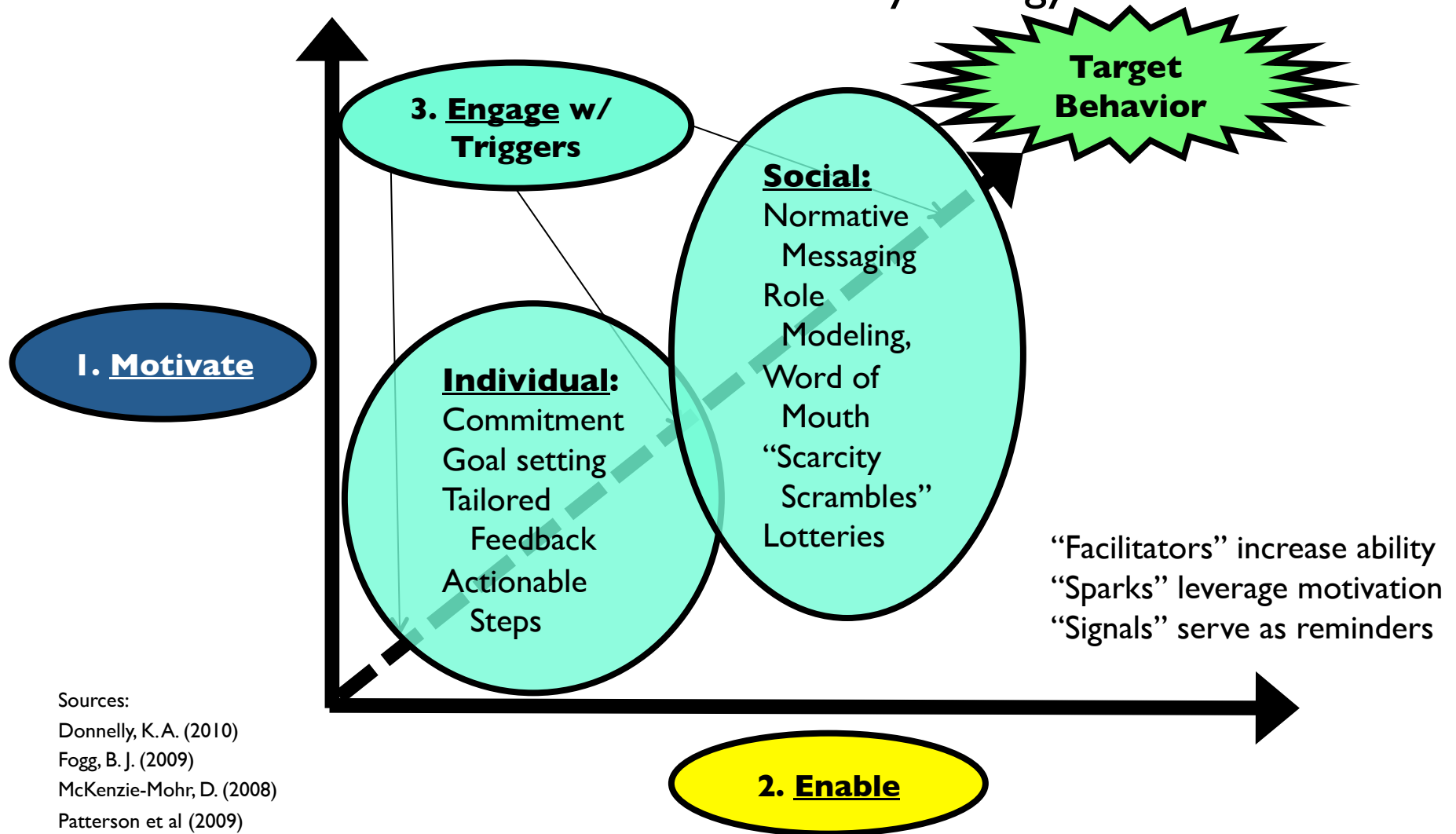
- 1. Commitment and Consistency:** people will stick to commitments made publicly.
- 2. Social Proof:** people will do what other people do.
- 3. Scarcity:** people desire what is perceived as scarce.
- 4. Reciprocity:** people will repay favors.
- 5. Authority:** people obey authority figures.
- 6. Liking:** people are more influenced by those they like.

Source: Robert Cialdini, *Influence: The Psychology of Persuasion* (2007)



# Comprehensive Behavioral Levers:

Individual and Social Psychology



Sources:

Donnelly, K. A. (2010)

Fogg, B. J. (2009)

McKenzie-Mohr, D. (2008)

Patterson et al (2009)

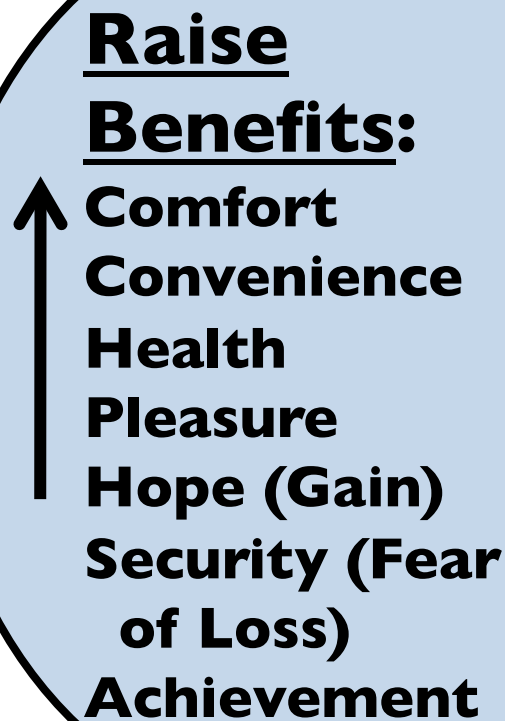
# Motivating Engagement ...Getting to the



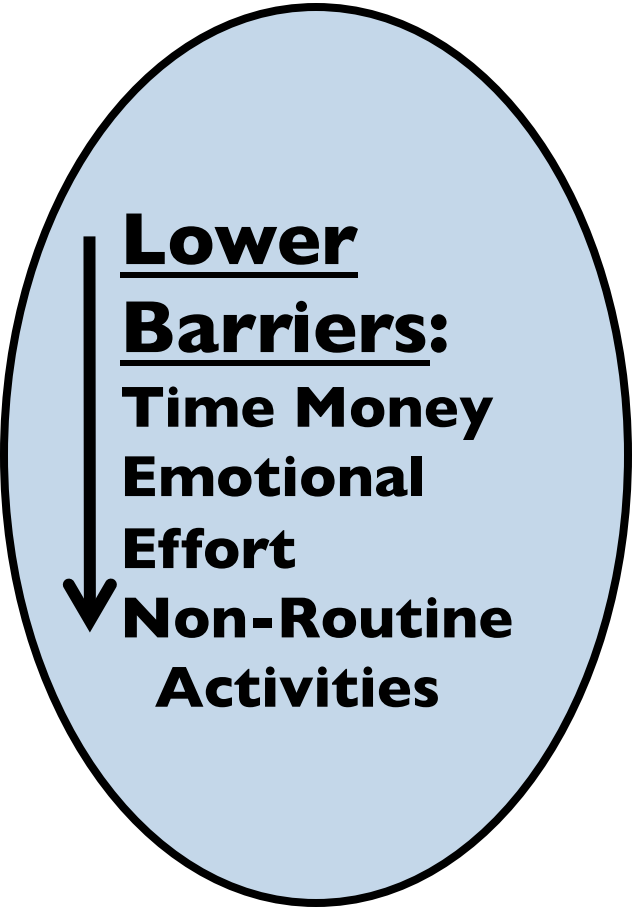
**Target  
Action**



**Motivate  
The  
“Why”  
(Benefits)**



**Raise  
Benefits:  
↑  
Comfort  
Convenience  
Health  
Pleasure  
Hope (Gain)  
Security (Fear  
of Loss)  
Achievement**



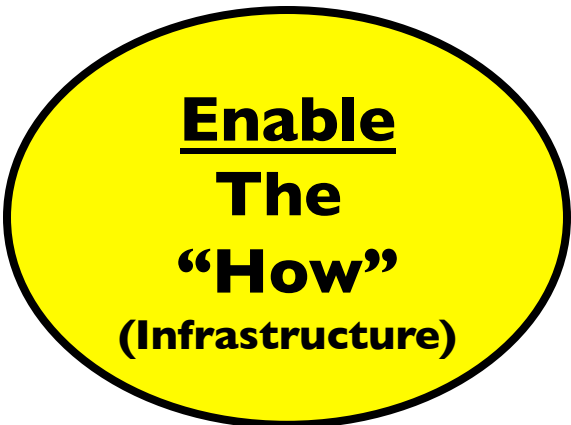
**Lower  
Barriers:  
↓  
Time Money  
Emotional  
Effort  
Non-Routine  
Activities**

Sources: Donnelly, K.A. (2010)  
Fogg, B. J. (2009)  
McKenzie-Mohr, D. (2008)  
Patterson et al (2009)

# Enabling Engagement ...Getting to the



**Target  
Action**



**Enable  
The  
“How”  
(Infrastructure)**



**Individual:  
Measurement  
Automation  
Feedback  
Devices and  
Approaches**



**Social:  
Trusted  
Messengers  
Social  
Connections  
Social  
Networking  
Social Media**

Sources: Donnelly, K.A. (2010)  
Fogg, B. J. (2009)  
McKenzie-Mohr, D. (2008)  
Patterson et al (2009)



empower efficiency<sup>LLC</sup>

# Community-Based Social Marketing (CBSM)

- **Putting individual and group triggers into action**
  - Motivates, Enables, and Engages (continuously)

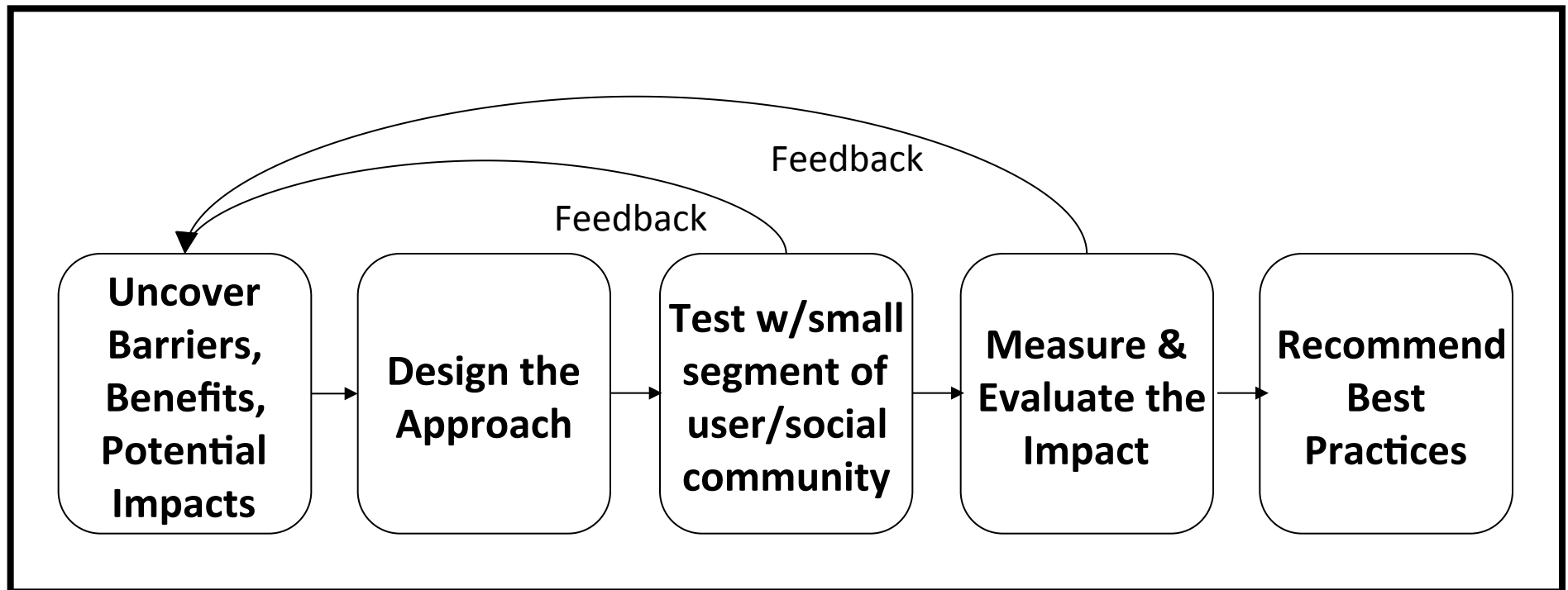


# Community-Based Social Marketing (CBSM)

- **Putting individual and group triggers into action**
  - Motivates, Enables, and Engages (continuously)
- **Targeted** at people who
  - Have a reason to care  
and
  - Are ready for change
- Change works on the installment plan by
  - **Goal setting** and **commitment**
  - Comparisons to **social groups**
  - Engaging people in **small, actionable steps**

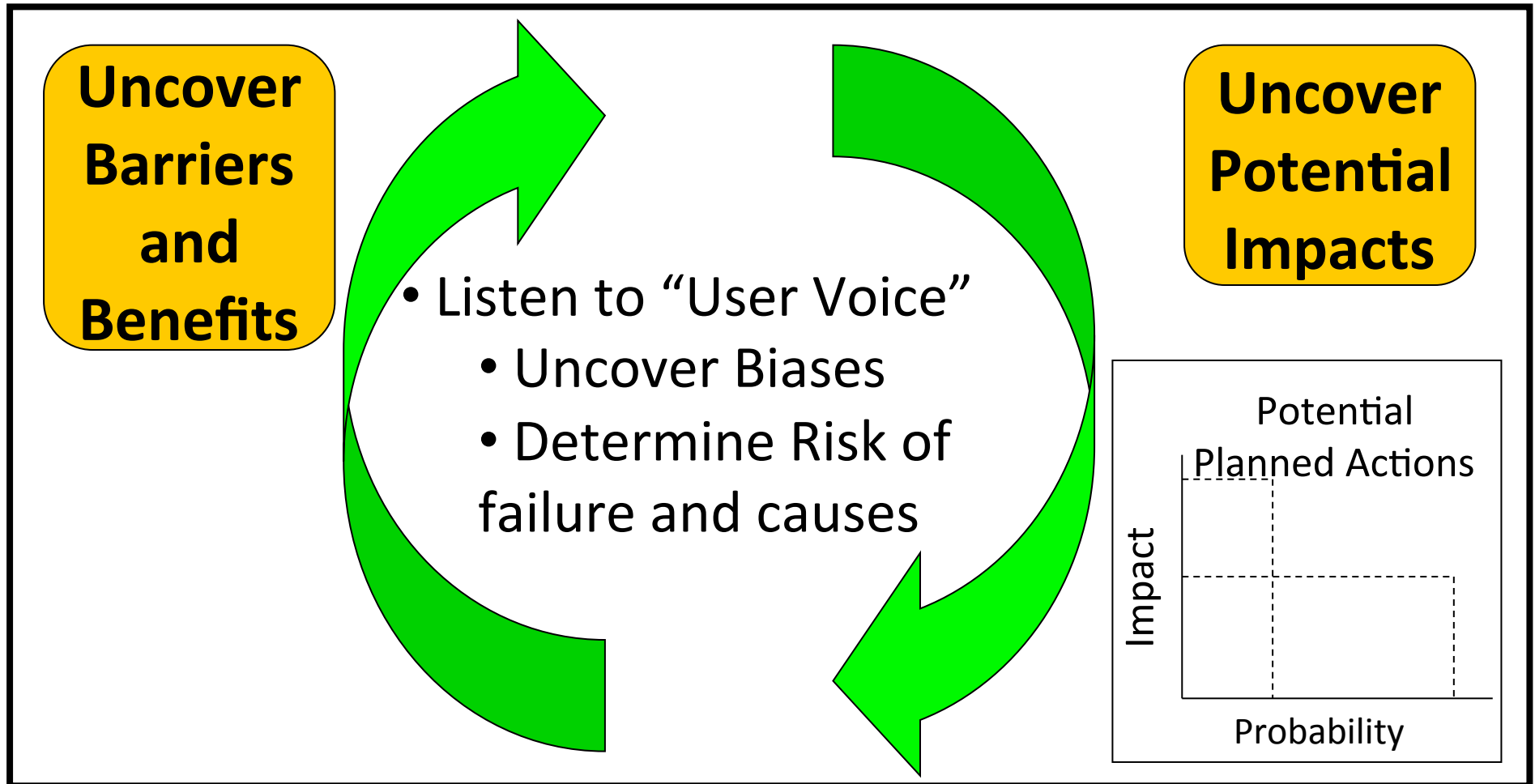


## **CBSM:** Designing the Program



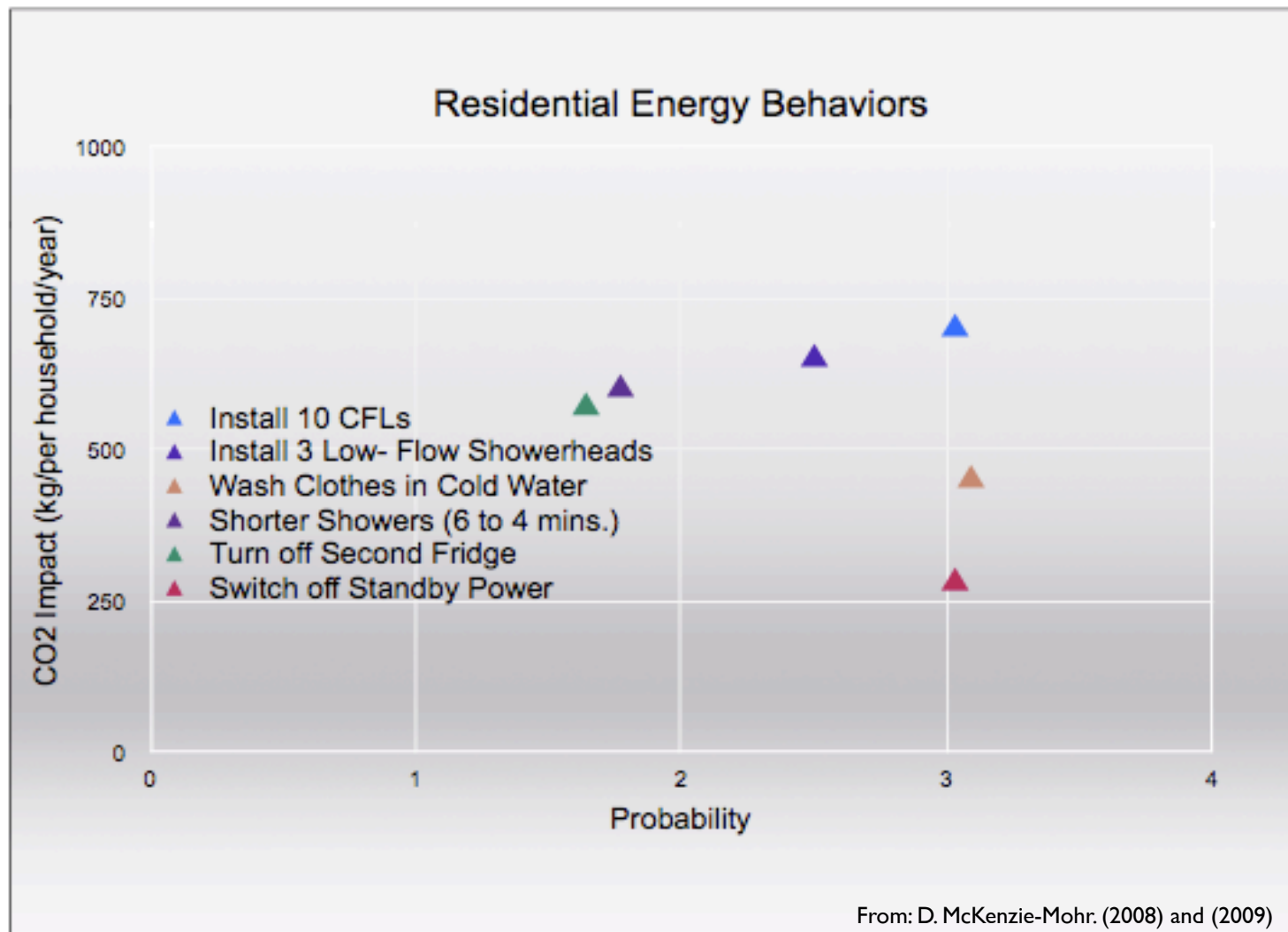
For the next several CBSM Slides, Sources:  
Fostering Sustainable Energy Approach derived from: D. McKenzie-Mohr. (2008). Fostering Sustainable Behavior: On-line guide, and  
D. McKenzie-Mohr (2009). Fostering Sustainable Behavior Presentation at the Behavior, Energy, Climate Change (BECC) Conference (Slides 7 to 9).

## **CBSM:** Determine which Behaviors to Target FIRST



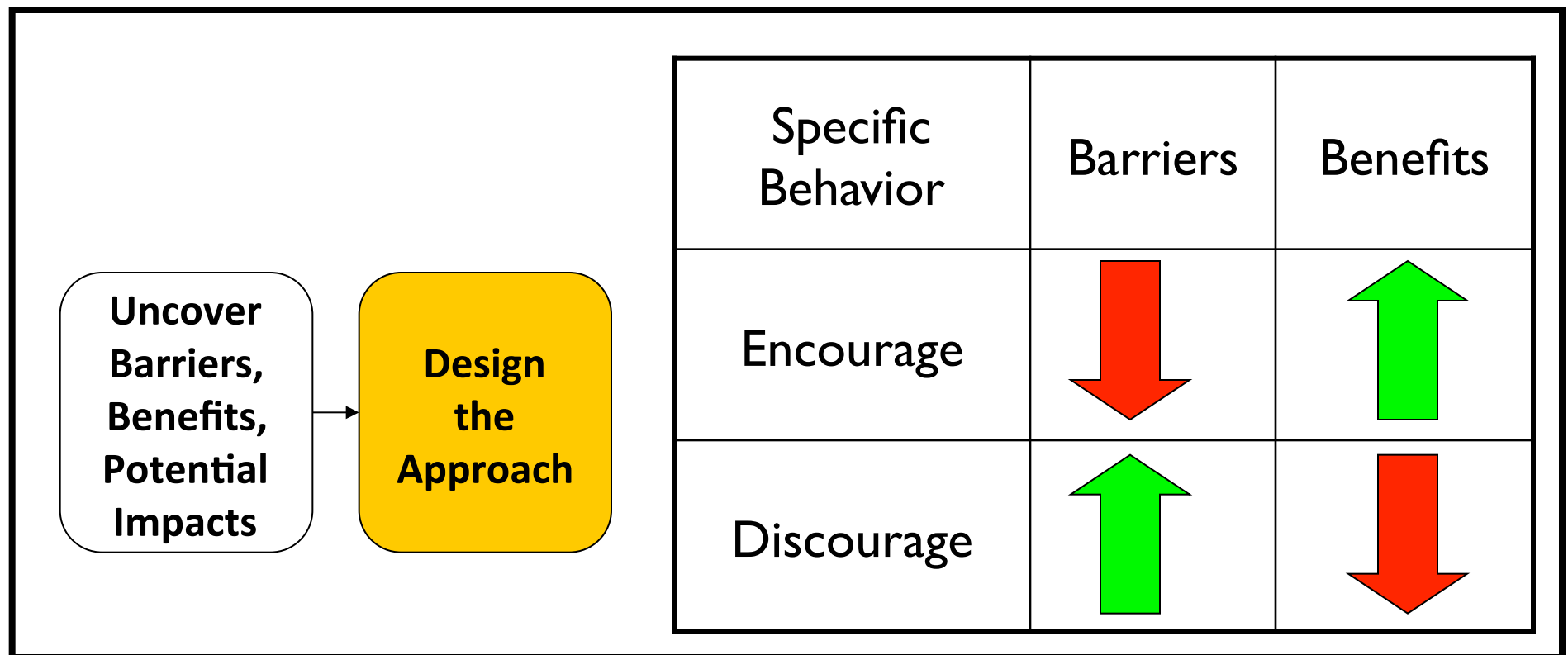
Derived from: D. McKenzie-Mohr. (2008) and (2009).

## **CBSM:** Determine which Behaviors to Target FIRST



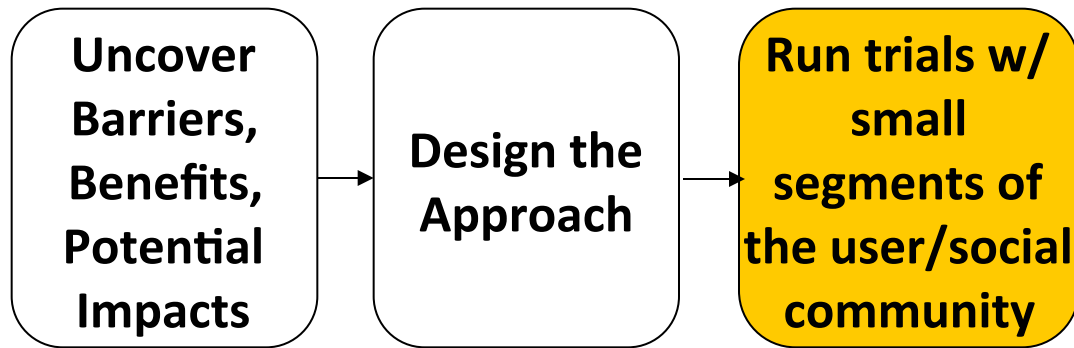


## **CBSM:** Develop Strategies for Selected Behaviors

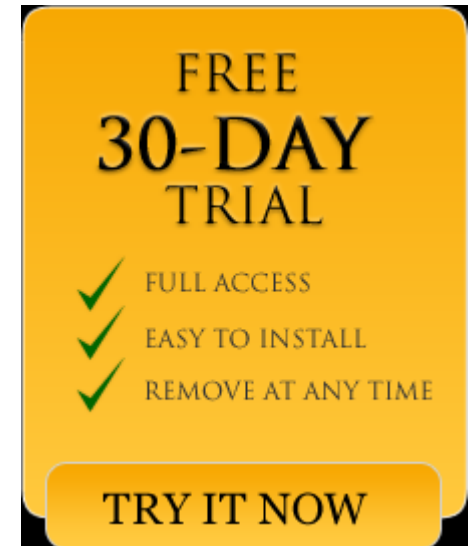


Derived from: D. McKenzie-Mohr. (2008) and (2009)

## **CBSM:** Trials with small segments of the social community



- User groups
- Stakeholder analysis and Target thought leaders
- Include likely supporters and likely opposition
- Give people access to information before they are forced to make any changes

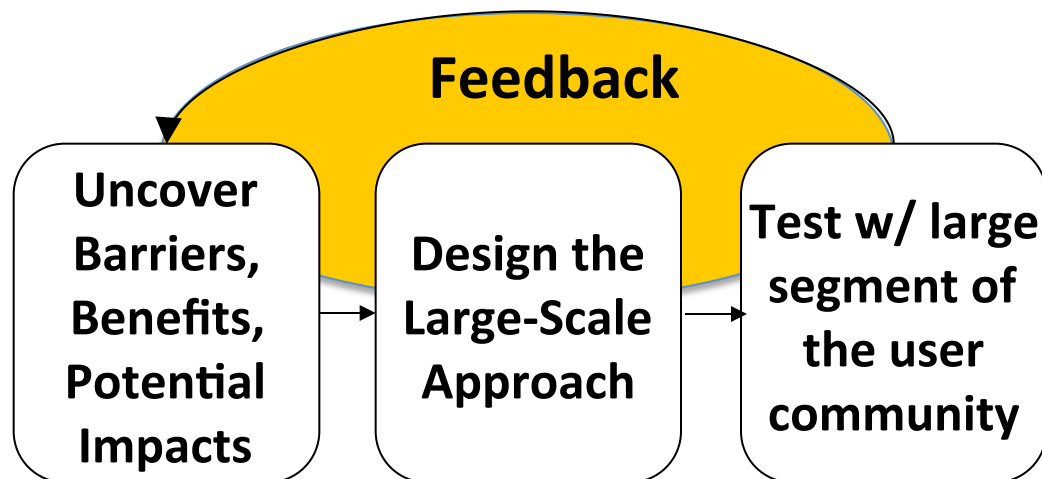


Target  
social  
networks  
first.



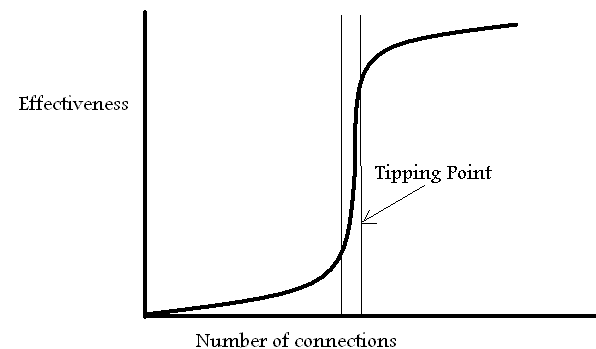
Derived from: D. McKenzie-Mohr. (2008) and (2009)

## **CBSM:** Bring in Learning (Test, Learn, Adapt)



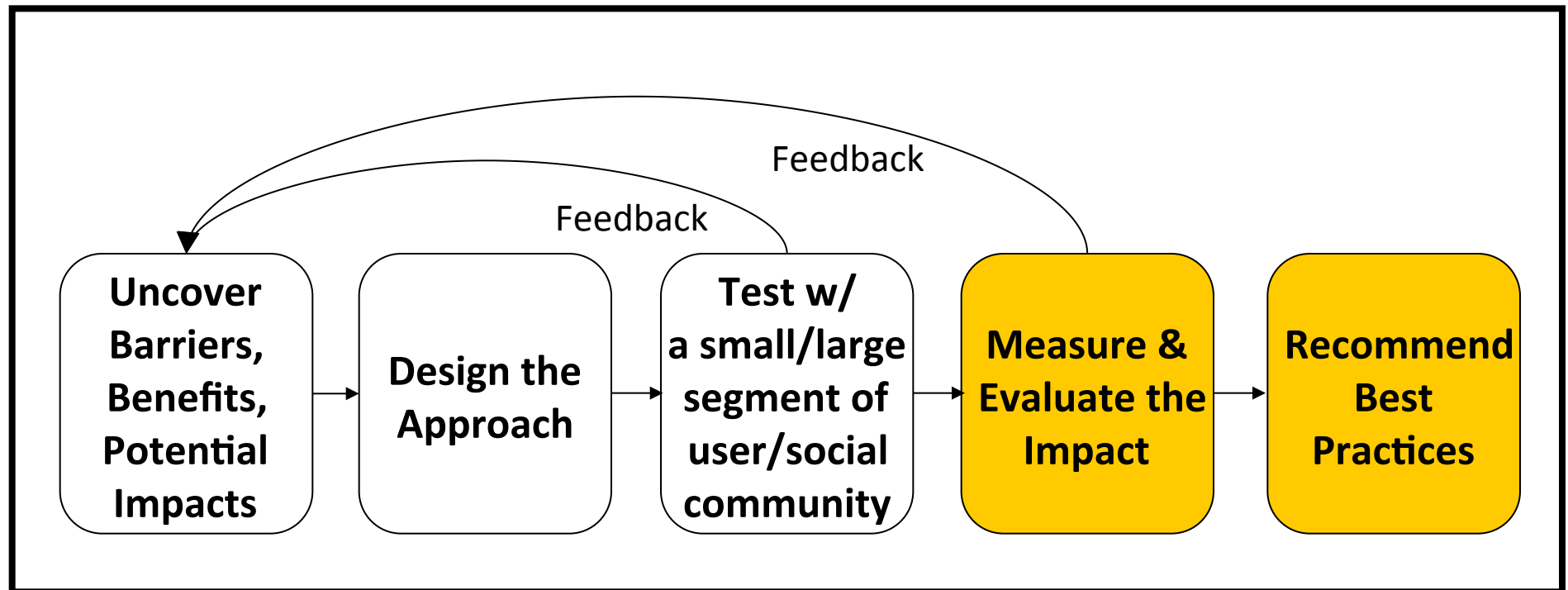
- Test with a larger segment of society
- Try to get a “tipping point” of activity with your trusted messengers:
  - Connectors, Mavens, Salesmen

*Tipping Point...Reach that critical mass moment*



Derived from: D. McKenzie-Mohr. (2008) and (2009)

## **CBSM:** Follow Up for Each Behavior or Project Component



Derived from: D. McKenzie-Mohr. (2008) and (2009)

# **Design Successful Approaches:**

## **Selection Tools and Multi-Modal Applications**

# Multi-Modal Programs

- **Multi-Modal**: Combines several types of approaches in a single program
- **Why Multi-Modal?**
  - No tools work for every behavior and person
  - Research offers little guidance about
    - *When* a tool is most effective
    - *Who* will respond most positively
    - *Types* of behaviors most likely to change

Sources: ACEEE 2013, Schultz 2013

## Multi-Modal Recommendations

- **ACEEE**: Stack the tactical approaches from the three families of ACEEE taxonomy (Cognition, Calculus, Social Interaction)
  - Recommend holistic, stacked programs engaging multiple facets of decision-making and behavior
  - Engage emotions, reason, and social interaction
  - Activate multiple complementary drivers of human behavior
  - Hypothesis: Yield deeper, more consistent results

Source: ACEEE 2013



# **Multi-Modal Programs:**

## **ACEEE Taxonomy**

- Cognition: Focus primarily on delivering information to consumers

Source: ACEEE 2013



# Multi-Modal Programs: Cognition

- General communication efforts: Traditional mass market channels, such as TV, Print, Billboard
- Targeted communication efforts: Enhanced billing, direct mail, bill inserts, bill redesigns for usability/ comprehension
- Social Media: Facebook, Twitter, Tumblr, blogs, etc. (generally one-way communication)
- Classroom-based education: Teaching and learning in K-12 and higher education
- Training: Commercial, industrial, and other institutional education efforts

Source: ACEEE 2013

# **Multi-Modal Programs:**

## **ACEEE Taxonomy**

- Cognition: Focus primarily on delivering information to consumers
- Calculus: Rely on consumers making economically rational decisions (i.e., practical weighing of risks, benefits, and payoffs to come to an overt decision regarding action)

Source: ACEEE 2013

## Multi-Modal Programs: Calculus

- Feedback: Real-time and asynchronous (delayed or indirect)
- Games: Competitions, challenges, lotteries
- Incentives: Cash, rebates, subsidies
- Home energy audits: Free and market rate
- Home energy audits plus: DIY and direct install products

Source: ACEEE 2013

# **Multi-Modal Programs:**

## **ACEEE Taxonomy**

- Cognition: Focus primarily on delivering information to consumers
- Calculus: Rely on consumers making economically rational decisions (i.e., practical weighing of risks, benefits, and payoffs to come to an overt decision regarding action)
- Social Interaction: Tap into deeper human impetus towards sociability and belonging

Source: ACEEE 2013

## **Multi-Modal Programs: Social Interaction**

- Human Scale: CBSM, person-to-person efforts, eco-teams, peer champions
- Online forums: Focused on community-based or peer-to-peer horizontal forums (i.e., user generated content and participation)
- Gifts: Reciprocity: incentives that are up-front and non-monetary

Source: ACEEE 2013

## Multi-Modal Recommendations

- **Schultz**: Match the tools of change to the targeted behavior and audience (aka use CBSM)

High Barriers	Incentives Contests/ Competitions	Make it Easy Commitments
Low Barriers	Social Modeling Social Norms	Education Feedback Prompts Cognitive Dissonance
	Low Benefits	High Benefits

Source: Schultz 2013

# Multi-Modal Recommendations

- **Schultz**: Match the tools of change to the targeted behavior and audience (aka use CBSM)
- Provides an initial framework/starting point for selecting effective strategies
- Practical considerations affecting the final choice:
  - Finance resources (personal touches cost \$\$)
  - Degree of control (changing infrastructure is hard)
  - Time course of program (extrinsic motivators work for short-term behaviors)

Source: Schultz 2013

## Example Behavioral Levers

Barrier Category	Example Behavioral Levers
Getting Started	<ul style="list-style-type: none"><li>• Goal-setting and Commitments (get started)</li><li>• Default, Frame, Anchor, Prime (develop persistence)</li></ul>
Information	<ul style="list-style-type: none"><li>• Clear and Actionable Steps (create actions and habits)</li><li>• Transparent Feedback: real-time, past, projected (create actions and habits)</li></ul>
Irrational Spending	<ul style="list-style-type: none"><li>• Incentives, Scarcity, and Reminders (get started)</li></ul>



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# Multi-Modal Recommendations

<b>High Barriers</b>	<p><b><u>Most Challenging / Low Initial Participation / Benefits after Behavior / Extrinsic Motivation (not lasting habits):</u></b></p> <p>Incentives: Desirable consequence following behavior, or undesirable following undesirable behavior</p> <p>Contests: Competitions, Games, Lotteries</p>	<p><b><u>Already Motivated Audience:</u></b></p> <p>Make it Easy: More convenient, make it the default, reduce uncertainty. Reduce structural barriers.</p> <p>Commitment: Written or verbal indication of willingness to engage in a behavior. Best if public, lasting, specific</p>
	<p><b><u>Increase Motivation:</u></b></p> <p>Social Modeling: “Initiators” personally engage in the behavior</p> <p>Social Norms: Others engage in the behavior</p> <ul style="list-style-type: none"> <li>-Stronger with a close reference group</li> <li>-Better to align descriptive and injunctive norm</li> <li>-Better for those not already engaged in behavior</li> </ul>	<p><b><u>Support an existing behavior with already motivated audience:</u></b></p> <p>Education: Instructions for how or when, justifications of importance, attempts to raise awareness. Do not motivate in isolation.</p> <p>Feedback: Act as a trigger for already motivated participants</p> <p>Prompts: Simple reminders to overcome forgetfulness, place in close proximity, word politely, emphasize correct behavior; best suited to repetitive behaviors</p> <p>Cognitive Dissonance: Highlights inconsistency between attitudes and behaviors, Foot-in-the-Door to induce small behaviors first, create attitude, and conclude with large behavior ask. Mindfulness coupled with commitment</p>

**Low Benefits**

**High Benefits**

Derived from: Schultz 2013

# Multi-Modal Programs:

## ACEEE Taxonomy

Category	Behavioral Interventions
<u>Cognition</u> : Focus primarily on delivering information to consumers	<ul style="list-style-type: none"> <li>•<u>General communication efforts</u>: Traditional mass market channels, such as TV, Print, Billboard</li> <li>•<u>Targeted communication efforts</u>: Enhanced billing, direct mail, bill inserts, bill redesigns for usability/ comprehension</li> <li>•<u>Social Media</u>: Facebook, Twitter, Tumblr, blogs, etc. (generally one-way communication)</li> <li>•<u>Classroom-based education</u>: Teaching and learning in K-12 and higher education</li> <li>•<u>Training</u>: Commercial, industrial, and other institutional education efforts</li> </ul>
<u>Calculus</u> : Rely on consumers making economically rational decisions (i.e., practical weighing of risks, benefits, and payoffs to come to an overt decision regarding action)	<ul style="list-style-type: none"> <li>•<u>Feedback</u>: Real-time and asynchronous (delayed or indirect)</li> <li>•<u>Games</u>: Competitions, challenges, lotteries</li> <li>•<u>Incentives</u>: Cash, rebates, subsidies</li> <li>•<u>Home energy audits</u>: Free and market rate</li> <li>•<u>Home energy audits plus</u>: DIY and direct install products</li> </ul>
<u>Social Interaction</u> : Tap into deeper human impetus towards sociability and belonging	<ul style="list-style-type: none"> <li>•<u>Human Scale</u>: CBSM, person-to-person efforts, eco-teams, peer champions</li> <li>•<u>Online forums</u>: Focused on community-based or peer-to-peer horizontal forums (i.e., user generated content and participation)</li> <li>•<u>Gifts</u>: Reciprocity: incentives that are up-front and non-monetary</li> </ul>

Derived from: ACEEE 2013



# **Behavior Change Science:**

## **A Toolset for Social Behavior Change**

<b>Co-Benefits</b>	<b>Motivations</b> (Mostly Behavioral)	<b>Abilities and Needs</b> (Mainly Technology)
<b>Personal</b>	Make the Undesirable Desirable	Much of Willpower is Skill
<b>Social</b>	Harness Peer Pressure	Find Strength in Numbers
<b>Structural</b>	Design Rewards and Accountability	Change the Environment

**Table from: Patterson et al (2009)**

**Behavior Change is complex.**

# A Toolset for Social Behavior Change

<b>Influence Dimension</b>	<b>Motivators</b>	<b>Behavioral Levers: Enablers and Engagers (i.e. Infrastructure and Triggers)</b>
<b>Individual</b> (Personal Context)	<b>Co-Benefits:</b> Fun Simplicity Comfort Convenience Core/Intrinsic Values Healthy/Safety Sense of Ownership Gain/Fear of Loss	<b>Make it Easy/Desirable:</b> 1. Default, Frame, Anchor, Prime (Develop persistence) 2. Goal-setting, Commitments (Get Started) 3. Incentives, Scarcity, Triggers, and Reminders (Get Started) 4. Clear and Actionable Steps (Create action, habits) 5. Transparent Feedback: present, past, projected (Create learning, actions, habits)
<b>Group</b> (Social Context)	<b>Co-Benefits:</b> Social Approval Peer Pressure	<b>Harness Peer Pressure and Support:</b> 1. Social Norms (Descriptive = the “what” to do, Injunctive = the “right what” to do) 2. Tailored Messaging (Tell the stories) a. Behavioral Modeling and Earned Media b. Trusted Messengers and Word of Mouth c. Comparisons 3. Leverage social structures/Optimize existing social networks

# A Toolset for Social Behavior Change

Influence Dimension	Motivators	Behavioral Levers: Enablers and Engagers (i.e. Infrastructure and Triggers)
<b>Structural</b>	<b>Co-Benefits:</b> Ownership Enablement Automation (Unconscious/Habitual)	<b>Change the Environment</b> <ol style="list-style-type: none"> <li>1. Deliver choice architecture <ol style="list-style-type: none"> <li>a. Design smart defaults</li> <li>b. Design intelligent technology solutions (i.e., automation)</li> </ol> </li> <li>2. Stand up energy contractor networks</li> <li>3. Provide stakeholder incentive structures <ol style="list-style-type: none"> <li>a. Customer</li> <li>b. Program administrator</li> <li>c. Contractor</li> </ol> </li> <li>4. Locate feedback effectively</li> <li>5. Design recognition and rewards programs</li> </ol>

## Behavioral Economics: Summary

- People behave in a way that is inconsistent with standard economics
  - Preferences are fuzzy/liking is based on reality and our brain
  - People construct their preferences
  - Context matters
  - Beware of complex choices
  - Habit formation is the key
  - Prices have lots of implications/understanding benefit does not mean WTP (willingness to pay)
- Sometimes we can model these behaviors and incorporate them into economics
- The reviewed theories capture some of the differences in simple form, but with many implications

## **Applicability to Conservation Behaviors**

- Rational decision making shaped by two factors
  - Abundance of raw data
  - Dearth of meaningful information
- Need to bridge the gap between economical, technological, and psychological approaches to understanding behavior
- Behavior and technology are closely interwoven throughout life
- Role of technology receives surprisingly modest attention in psychology and in policy making

# **Applicability to Conservation Behaviors, Continued**

- Interactive approaches that integrate the behavioral and technological factors have an added value by supporting the design and redesign of technical products, systems, and environments that optimize conservation behaviors and environmental effects.
- To improve our understanding of these interactions four roles of technology were identified:
  - Technology as an intermediary between behavior and conservation outcomes,
  - Technology as an amplifier of human performance and—as side effect—of environmental resource consumption,
  - Technology as a determinant of behavior—shaping and channeling behavior, and
  - Technology as a promoter of conservation motivation and/or behavior.

# Behavioral Principles Recap

## *A Few Real-World Examples*

Real-World Example	Behavioral Principle
•Placebo Effect	•Illusion of control
•Avoid helmet/seat belt	•Neglect of Probability
•Campaign advertising	•Exposure effect
•Costs monthly, benefits yearly	•Contrast Effect and Anchoring
•Publishers Sweepstakes - “You have won \$1 million dollars”	•Loss Aversion
•Oral B – “Brush like a dentist”	•Authority
•Nonprofits - get more donations if include custom return address labels	•Reciprocity



# Behavioral Economics

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