Evaluation of Market Transformation Programs

Karen Horkitz

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Agenda

- Learning Objectives
- Evaluation Concepts
- Planning & Conducting a Market Progress Evaluation
- MT Indicators Exercise
- Wrap-up
Learning Objectives

Understand the role and importance of evaluation in market transformation

Understand foundational evaluation concepts and distinguishing features of MT evaluation

Learn how to plan for evaluation, develop market progress indicators

Become familiar with typical MT evaluation methods
Evaluation Concepts
Market Transformation Process

1. Determine MT Objective
2. Identify Market Barriers
3. Identify Opportunities and Leverage Points
4. Develop & Execute Strategic Market Interventions
5. 3rd Party Evaluation
6. Exit
Evaluation:

The **systematic** acquisition and assessment of information to provide useful **feedback** about something.

William Trochim, Ph.D. Cornell University
The Purpose: Provide unbiased, independent, empirically-based information to decision-makers

(to help them make better decisions!)
Program Evaluation Uses

- Document the stated program activities, accomplishments, and outcomes
- Determine if program is being implemented as planned
- Track program/market progress
- Understand changing market conditions
- Assess program impacts, market effects, cost-effectiveness
- Identify opportunities for program enhancement or improvement
- Meet a statutory or regulatory requirements
FORMATIVE SUMMATIVE

WHEN THE CHEF TASTES THE SOUP
WHEN THE GUESTS TASTE THE SOUP

FROM STEVE WHEELER’S BLOG “THE AFL TRUTH ABOUT ASSESSMENT”
Types of Evaluations
Types of Evaluation

- Market Research
- Baseline
- Process
- Market Progress
- Impact/Energy Savings
Market Research/Characterization

**Purpose**
Inform program design to maximize success

**Typical Methods**
- Secondary research
- Interviews
- Surveys
- Social Network Analysis
- Segmentation Analysis
- Conjoint Analysis

**Timing**
Before launch, ongoing

**Key Outcomes**
- Market size estimates
- Market structure (e.g., supply chain/channels, influencers, actors)
- Identify market barriers, opportunities, points of leverage
- Understand target audiences, segments
- Understand customer awareness, preferences, motivations
Baseline Assessment

**Purpose**

Identify pre-intervention conditions: existing and forecast market adoption, to enable impact evaluation

**Typical Methods**

- Secondary data/Industry forecasts
- Interviews
- Delphi panel
- Quantitative modeling

**Timing**

Before program intervention*

**Key Outcomes**

- Estimate of naturally occurring market adoption-pre-program, and over time-absent program intervention ("counterfactual")
- Pre-program market conditions, behaviors, practices
Market Progress Evaluation

**Purpose**
Assess progress toward market transformation

**Typical Methods**
- Interviews
- Surveys
- Direct observation (e.g., behavior, marketing practices, shelf/floor surveys, site assessments/saturation studies)
- Market data analysis

**Timing**
Ongoing

**Key Outcomes**
- Similar to process evaluation
- Assessment of market progress vs. hypothesized
- Assessment of market barriers, opportunities
- Recommendations to improve program
Process Evaluation

Purpose
Identify opportunities to improve program design, implementation, operation, and delivery

Typical Methods
• Interviews
• Surveys
• Materials Review
• Tracking system/Data Review

Timing
During the program

Key Outcomes
• Documentation of program logic and operations
• Assessment of effectiveness against expected or planned performance (e.g., program activities, administration, satisfaction)
• Recommendations to improve program
Impact/Energy Savings Evaluation

**Purpose**

Quantify energy and demand savings, other benefits, and cost-effectiveness

**Typical Methods**

- Data collection - program files, surveys, billing information, M&V, deemed savings
- Engineering algorithms
- Statistical/econometric analysis
- Economic analysis

**Timing**

During pilot; periodic

**Key Outcomes**

- Net energy and demand savings attributable to program
- Non-energy benefits
- Cost-effectiveness
MT Evaluation in Context

Planning & Conducting a Market Progress Evaluation
Market Progress Evaluation

Develop Program Theory/Logic Model
Develop Market Progress Indicators
Identify Data Sources
Collect & Analyze Data

Plan
Evaluate
Logic Models

“A logic model is a systematic and visual way to present and share your understanding of the relationships among the resources you have to operate your program, the activities you plan, and the changes or results you hope to achieve.”

W.K. Kellogg Foundation Logic Model Development Guide
Role of Logic Models

- Where are you going?
- How will you get there?
- How will you know that you’ve arrived?

A logic model is your program *road map*
Program Theory: If/Then

Assumptions

Resources

If you have access to them, then you can use them to implement activities you believe have the greatest market leverage

Activities

If you implement these activities, then you will produce these outputs

Outputs

If you implement these activities and produce the intended outputs, then you expect to realize these market outcomes

Outcomes

If these outcomes are achieved, then these ultimate impacts are expected

Impact

Short, intermediate, long term

Planned work

Intended Results
Logic Model - DHPs

Activities
In order to address our problem or need, we will conduct these activities:

Training

Product Installation Support

Marketing

Engage Utilities

Recruit and engage market actors

Develop Specification/Standard

Outputs
We expect that once completed or ongoing these activities will produce the following evidence:

Supply channel understands and can sell/install DHPs for electric homes utilizing displacement theory

Best practice installations techniques are communicated and quality installations are evident in the region

Marketing activities (campaign, PR, etc.)

Incentives

Market actors incorporate DHPs into product offerings

Specification/Testing Standard

Internal Difference (SDM)

What do we do? (Not a result)

Short-Term
We expect that if completed or ongoing these activities will lead to the following changes in 1-2 years

Supply chain adopts 1:1 retrofit installation and displacement approach

Increased consumer adoption of DHPs

Accessible financing mechanism

DHPs available in retail channels

State adopts Standard

Medium-Term
We expect that if completed or ongoing these activities will lead to the following changes in 3-5 years

Vast majority of supply chain adopts 1:1 approach

Mass Market Consumer Awareness

DHPs preferred technology for electric heat in existing homes

Federal Standard

Long-Term
We expect that if completed or ongoing these activities will lead to the following changes in 5-10 years

IMPACT

ENERGY SAVINGS
Where do we start?
Why Logic Models Matter

**Documented Plan**
- What problem are we trying to solve?
- What precisely will be done?
- What are the desired/expected outcomes?

**Communication**
- A common road map for all stakeholders and evaluators
- Everyone on the same page

**Evaluation**
- Clarifies what and when to measure
- Enables prioritization of evaluation efforts
Why it Matters for Evaluation

“I think you should be more explicit here in Step Two.”
Logic Model Example

**ACTIVITIES**

1. **INTERNAL PROCESSES**
   - Map the products:
     - Who triggers it?
     - How tracked?
     - Agreement among everyone?
     - How to map across different departments?

2. **IT SYSTEMS**
   - Conduct IT Alternatives Assessment for DR management and dispatch

3. **DEFINE & TEST**
   - a. Price Points
   - b. Purchasing Models
   - c. Products
   - d. Marketing Strategies

4. **EVALUATE**
   - a. Ongoing needs & costs assessment
   - b. Develop a dynamic evaluation strategy

5. **OUTREACH**
   - Outreach and engagement

**RESULTS (OF THE ACTIVITIES)**

**NEAR-TERM TARGETS (1 YEAR)**

- We know the specifics of the purchasing contracts (who signs, what's in the Ts&Cs, etc.)

**MID-TERM TARGETS (2-3 YEARS)**

- DR is accepted as a reliable and usable tool internally at BPA and among utilities.

**LONG-TERM TARGET (4-5 YEARS)**

- The DR portfolio is one tool that can meet our customer, transmission and power needs.

**SOPs, Protocols & agreement between Transmission & Power for how an event will be triggered**
Activity: 1

**Systems Plan**
Activity: 2

**DR Library (lessons learned, PM toolkit)**
Activities: 1, 3a, 3b, 3c, 3d, 4b

**Budget and Rate Case implications**
Activities: 3a, 3b, 3c, 3d, 4a, 4b

**Contracting:**
- a. Approach
- b. Process
- c. Templates
Activity: 3b

**# of potential "customers" (opportunity pipeline)**
Activities: 3a, 3b, 3c, 3d, 5

**# of demonstration projects ("initial portfolio")**
Activities: 3a, 3b, 3c, 3d, 5

**# of internal & external success stories (tool & approach)**
Activities: 3d, 5

**DR business plan for larger DR program**
Activity: 4a

**Evaluation and M&V framework and tools**
Activity: 4b

**DR is readily available in the marketplace.**
We know the value streams of DR to customers.
Market Progress Evaluation

- Develop Program Theory/Logic Model
- Develop Market Progress Indicators
- Identify Data Sources
- Collect & Analyze Data
Market Progress Indicators

How will we know we are making progress in transforming the market?
# Market Progress Indicators: DHP Examples

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Progress Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply chain promotes DHPs</td>
<td>Coop marketing dollars provided by manufacturers &amp; distributors</td>
</tr>
<tr>
<td>Installers see DHPs as viable solution for customers</td>
<td>Installer attitudes: product viability, price</td>
</tr>
<tr>
<td>Installers utilize installation best practices</td>
<td>% of sales volume from Master Installers; Master Installer QA pass rate</td>
</tr>
<tr>
<td>Utilities promote DHPs</td>
<td># participating utilities</td>
</tr>
<tr>
<td>Consumers aware of DHP technology and benefits</td>
<td>Consumer awareness</td>
</tr>
<tr>
<td>Equipment accessible to end-users</td>
<td>Retail store availability (volume-weighted); % stores</td>
</tr>
</tbody>
</table>
## Example Market Progress Indicators

<table>
<thead>
<tr>
<th>Changes in…</th>
<th>Supply Side</th>
<th>Demand Side</th>
<th>Codes/Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Availability of products/services</td>
<td>Awareness</td>
<td>Progress toward codes or standards (e.g., distinct action)</td>
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<tr>
<td></td>
<td>Stocking and distribution patterns/practices</td>
<td>Attitudes</td>
<td>Availability of a test standard</td>
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<tr>
<td></td>
<td>Expansion/change/retooling of manufacturing facilities</td>
<td>Increased recognition and acceptance</td>
<td>Adoption of national specification</td>
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<td></td>
<td>Production levels/schedules</td>
<td>Changes in decision-making/business practices</td>
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<td></td>
<td>Number/types of products offered</td>
<td>Changes to customer procurement practices</td>
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<tr>
<td></td>
<td>Changes in products/product attributes, quality</td>
<td>Who is purchasing (e.g., only early adopters?)</td>
<td></td>
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<tr>
<td></td>
<td>Trade ally (market actor) knowledge/knowhow</td>
<td>Consumer/purchaser satisfaction</td>
<td></td>
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<tr>
<td></td>
<td>Increased trade ally advertising/promotion</td>
<td>Market share/sales</td>
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<td></td>
<td>New market entrants</td>
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<tr>
<td></td>
<td>Reduction in incremental costs of energy efficient products/services</td>
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<td></td>
<td>Changes in business strategy</td>
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<tr>
<td></td>
<td>Product/service pricing</td>
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<td></td>
<td>Creation/widening in scope of market support structures (e.g., associates or training programs)</td>
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</tbody>
</table>
Market Progress Evaluation

1. Develop Program Theory/ Logic Model
2. Develop Market Progress Indicators
3. Identify Data Sources
4. Collect & Analyze Data
# Secondary Data Sources

## Program-specific
- Documents/records
- Collateral
- Databases
- Web

## Related programs
- Evaluations
- Conference papers
- Best practice studies
- Internet information

## Market data
- Trade press
- Sales data
- Industry forecasts
Primary Data Sources

- Supply chain market actors
- Customers
- Program stakeholders
Market Progress Evaluation

- Develop Program Theory/Logic Model
- Develop Market Progress Indicators
- Identify Data Sources
- Collect & Analyze Data
Primary Data Collection Methods

Discussions
- Individual interviews
- Group interviews

Surveys
- Mail
- Telephone
- Electronic

On-site
- Site visits
- Store visits
- Field observations
- Ride-alongs
Cost and Quality Dimensions

- Unlimited Questions
  - Small Sample
  - Focus Group
  - Mail Survey
  - Telephone Survey
  - Electronic Survey

- Limited Questions
  - Large Sample
  - In-depth Interviews
Sampling

the selection of a subset of individuals from within a statistical population to estimate characteristics of the whole population

Image courtesy of: https://www.bcps.org/offices/lis/researchcourse/images/sampling_illus.gif
# Mapping Data Collection to MPiS

<table>
<thead>
<tr>
<th>Progress Indicators</th>
<th>Database tracking</th>
<th>Phone Interviews w/ planning &amp; program staff</th>
<th>Consumer Survey</th>
<th>Market Actor &amp; utility interviews</th>
<th>Shelf surveys &amp; mystery shopping</th>
<th>Sales Data</th>
<th>Field &amp; Lab Metering Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Awareness &amp; Adoption</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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<tr>
<td>Supply Chain Adoption</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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<tr>
<td>Retail Channel Availability</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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<tr>
<td>Access &amp; Use of Financing Mechanisms</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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<tr>
<td>Energy Savings</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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Adaptive Management

- No mechanism to capture market effects data
  - Partner with manufacturers & distributors to obtain sales data; sign NDA
  - Evaluation plan to review sales data & calculation methodology
- Continued need for incentive dollars to overcome first cost barrier
  - Continue utility program partnership/coordination
  - Explore upstream incentives to decrease utility program costs
- High cost throughout supply chain.
  - Implement retail strategy with big box retailers
- Need increased visibility & understanding of DHPs in rural areas
  - Continue to build rural utilities participation
  - Increase training & marketing materials to installers
Market Progress Indicators

Exercise
# Progress Indicator Exercise

<table>
<thead>
<tr>
<th>Expected Outcome</th>
<th>Progress Indicator</th>
<th>Evidence/Data Needed to Confirm</th>
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</table>
Wrap-Up
MT Evaluation Challenges

• Establishing causality

• Estimating “naturally-occurring baseline”
  – Multiple entities intervening in the market
  – Program design often involves national market actors

• Data acquisition & planning
Distinguishing Features of MT Evaluation

• Program theory driven evaluation
• Barriers/opportunities assessment
• Baseline studies (early) and periodic data collection to understand the nature and size of the pre-program market and changes in the market over time
• Market studies – annually, ongoing
• Data and program activities – detailed chronology
• Multiple lines of evidence to increase credibility, validity and reliability of evaluation findings
References

WEBSITES

www.cee1.org
www.iepec.org
www.neea.org
www.calma.org
References


Karen Horkitz
Vice President, Program and Market Analysis

Office: 503-467-7169
Mobile: 503-307-0729
Key Takeaways

- Define what the transformed market looks like and how you plan to get there
- Design/plan for evaluation (make sure you know what you need to measure)
- Plan for adaptive management
- MT programs are designed to ultimately make the program unnecessary (because it results in sustained market adoption and changes)
- Market transformation takes time
More About Energy Savings and "Market Effects"
# Resource Acquisition vs. Market Transformation Programs

(*caveat: a slight oversimplification)

<table>
<thead>
<tr>
<th>Resource Acquisition</th>
<th>Market Transformation</th>
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<tbody>
<tr>
<td><strong>Approach</strong></td>
<td></td>
</tr>
<tr>
<td>Save energy via customer participation/uptake</td>
<td>Save energy by mobilizing widespread market adoption via interventions designed to deliver lasting market change</td>
</tr>
<tr>
<td><strong>End-User Characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Participants/enrollees are known &amp; recruited directly*</td>
<td>Adopters are not known (aside from early partners/demonstrations)</td>
</tr>
<tr>
<td><strong>Savings Estimation</strong></td>
<td></td>
</tr>
<tr>
<td>Unit energy savings estimated based on sample and extrapolated to participating customers; NTG applied</td>
<td>Unit energy savings estimated based on sample and extrapolated to market; market baseline estimate subtracted from market savings</td>
</tr>
<tr>
<td><strong>Implications</strong></td>
<td></td>
</tr>
<tr>
<td>• Savings based on program participation</td>
<td>• Savings based on modeled market projections using accepted &amp; replicable techniques</td>
</tr>
<tr>
<td>• Success of program judged on short-term results, and easily determined.</td>
<td>• Success of initiative based on long-term outcomes.</td>
</tr>
<tr>
<td>• No logic model needed</td>
<td>• Theory of change with specific market progress indicators required to validate progress and impact</td>
</tr>
</tbody>
</table>
Savings Estimates

- Program Launch
- Time
- Measurement
- Energy Savings

Savings we can attribute to Program

Baseline (no Program)

Natural Savings

with Program
Savings Estimates

- Direct/Indirect Program Spillover (Participant and Non-participant)
- Savings Directly Attributed to Program
- Baseline (no Program)
- Participant Freeriders
- Non-participants

Program Launch

Impact Evaluation

Measurement

Energy Savings

Time
**Logic Model**

### Target Audiences

<table>
<thead>
<tr>
<th>Mass Market</th>
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<tbody>
<tr>
<td>Minority Families (African Am., Latino) and Children</td>
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</table>

<table>
<thead>
<tr>
<th>Direct Targeting</th>
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</thead>
<tbody>
<tr>
<td>Landlords</td>
</tr>
<tr>
<td>Homeowners</td>
</tr>
<tr>
<td>Medicaid Providers</td>
</tr>
<tr>
<td>Rehab and Housing Contractors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secret Shopper</th>
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<tbody>
<tr>
<td>Paint Retailers</td>
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</tbody>
</table>

### Activities

- **Ad Campaign for Lead Awareness**
- **Speakers at Church/Community Events, Festivals**
- **Newsletters and Speakers at Trade/Civic Org. conferences**
- **Outreach Team Training**
- **Home Visitations/Canvassing to apartments and houses**
- **MCOs and ICHCs give BLL tests to all Medicaid Children under 3 years of age**
- **Visits to rehab works; education and training**
- **Train Secret Shopper Volunteers**
- **Visit paint retailers – survey about lead safety for home renovation**
- **Share survey results with management; education and training**

### Outputs

- **350,000 to 640,000 minorities reached**
- **58,000 landlords and homeowners reached**
- **300 Medicaid Providers Reached**
- **70 Construction owners and workers reached**
- **75 Store visits under Secret Shopper**

### Outcomes

#### Short-Term

- Increased awareness of lead exposure, dangers of lead poisoning, and prevention in minority communities
- Increase property owner understanding of responsibilities to make housing lead safe
- Increase landlord understanding of responsibilities for making pre-1978 housing lead safe
- Increase Medicaid provider understanding of lead paint dangers and their role in prevention
- Increase number of licensed risk assessors and lead abatement contractors in minority communities
- Increase awareness in rehab businesses of lead hazards and need for lead-safe work practices
- Improve accuracy and reliability of paint retailer advice to customers on lead-safe work practices

#### Long-Term

- Reduce the amount of lead exposure to children in minority communities
- Reduce the amount of lead hazards in housing for minority communities
- All Medicaid children of 3 years old or younger get BLL tests
- Lead awareness integrated into practices of Medicaid providers, contractors, rehab businesses, paint retailers
Measurement Approach

**Program Categories**
- Mass Market
- Direct Targeting
- Secret Shopper

**Outcomes**
- Increased awareness in Minority Communities
- Increase awareness of property owners
- Increase Landlord Awareness of Lead Hazards
- Increase awareness in rehab businesses
- Increase Licensed Risk Assessors and Lead Abatement Contractors
- Increase Medicaid provider understanding of their role in prevention
- Improve accuracy of paint retailer advice on Lead safety

**Date Collection Methods**
- Baseline Phone Survey
- Pre/Post Questionnaire
- Indiana Dept. of Environmental Management Data
- ICLPPP and Medicaid Data
- Pre/Post Survey

**Analysis Results**
- Did Awareness improve for these Target Audiences?
- Did a change in Behavior result?
Bringing it all Together

- Total Regional Savings
- Naturally Occurring Baseline
- NME
- Local Prgs.