Assessing Players, Products, and Perceptions of HEMS

**Consumer**
- Online Survey
  - 1k customers
- Retail Partnerships
  - Target & Sears
- Content Analysis of Product Reviews

**Technology**
- **Product Assessment**
  - Database with product attributes
- **System Assessment**
  - Protocol analysis & user scenarios

**Industry**
- Delphi Study
  - 44 key stakeholders
- Semi-Structured Interviews
  - 32 Invited experts
- Online Survey
  - 15 Working Group members

Roadmap

Research Methods

- Industry Orgs
- Tech Companies
- Retailers
- Government
- Researchers
- Utilities

**Industry**

- Delphi Study
  - 44 key stakeholders
- Semi-Structured Interviews
  - 32 Invited experts
- Online Survey
  - 15 Working Group members

What We Found

Opportunities
- What opportunities do you see?
- What are your goals in this space?

Options
- What are your current initiatives?
- What are your plans for the future?

Obstacles
- What are your main obstacles in the market?
- How can they be overcome?
### Opportunities

Please rank the importance of the following metrics for your department's Connected Home initiatives.

<table>
<thead>
<tr>
<th>Metric</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased product adoption</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Decreased product costs</td>
<td>1</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Increased energy-saving behaviors</td>
<td>6</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Decrease in overall energy usage</td>
<td>5</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Decrease in peak usage</td>
<td>8</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Increased engagement in programs</td>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Greater customer satisfaction</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
Opportunities

- Customer Engagement
- Demonstrate Leadership
- Demand Response
- Build Trust

How does the utility fit into these initiatives? What role should the utility play in addressing these obstacles?
Opportunities

"If we want to be a one-stop energy advisor for customers, we have to offer HEMS.” (utility)
Opportunities

“Having the opportunity to present granular data…is a huge opportunity to build trust” (industry org)
Opportunities

“The end goal is DR, even more than EE, so that’s going to be the final milestone” (industry org)
Opportunities

“Step up to the plate and drive the market … with millions/hundreds of millions of customers they are very well positioned to help lead the transformation”

(technology company)
Options

- Pay-for-Performance
- Segmenting and Targeting
- Commercial Adoption
- Weatherization
Options

“The best programs … only pay you if you save energy. It keeps everyone on their toes.”

(industry org)
“consumers of solar are more conscious of their energy consumption”
(industry org)

“interestingly, the 45 and older crowd felt they are losing control by installing HEMS, while the younger homeowners feel the exact opposite”
(utility)
Options

“There are missed opportunities for **weather optimization**; residential energy use is directly impacted by weather, something that many consumers care a lot about...after search and email, weather is the 3rd most used smartphone app”

(technology company)
“When people get used to seeing those techs in commercial spaces like hotels or offices, they’re more comfortable taking that home with them”

(government)
Obstacles

Please rate the significance of the following barriers to connected home adoption

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Very significant</th>
<th>Significant</th>
<th>Somewhat significant</th>
<th>Not significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interoperability</td>
<td>72%</td>
<td>14%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Ease of use</td>
<td>65%</td>
<td>21%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>57%</td>
<td>29%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>Value proposition</td>
<td>43%</td>
<td>36%</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Customer awareness</td>
<td>21%</td>
<td>50%</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Security risks</td>
<td>7%</td>
<td>43%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Data sharing</td>
<td></td>
<td>57%</td>
<td>36%</td>
<td></td>
</tr>
</tbody>
</table>
Obstacles

- Customer Engagement
- Data Sharing
- Interoperability
- Unreliability
Obstacles

“The connected home is not just an energy conversation; it’s security, entertainment, comfort”

(technology company)
Obstacles

“I wish these home automation companies would get on a standard. It's too confusing for consumers.”

(Customer Review)
Obstacles

“These kinds of products need to work 100% of the time without fail and that’s not the case right now.”

(Retailer)

“There have been some recent setbacks in the smart home market with companies like Nest closing down Revolv.”

(Technology company)
Obstacles

“Actual consumption data (is) held very tightly to the chest of the utility”
(academia)

“I’d like to see manufacturers be more open with data… more open to results of studies and participating in 3rd party validation studies”
(industry consultant)
Now What?
“We’re at a point in time where we need to collectively work together and develop the market instead of the market dictating the direction we're going”

(industry consultant)
The Road Ahead: Next Steps

- Test products beyond smart thermostats
- Expand research into SMB market
- Identify and promote product bundles
- Leverage gateway products and middle actors
- Train auditors and other customer service staff
- Partner with retailers to educate and enable adoption
Thank you!

Beth Karlin | Rebecca Ford | Angela Sanguinetti

bkarlin@seechangeinstitute.com