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# Strategies and Motives of Engagement in a DSM Automated Cycling Experiment

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*Joana M. Abreu, Ph.D.*

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# Once upon a time...

*A electricity retailer and a technology company teamed to deliver electricity feedback to a small residential community*



- ◆ The program had two main objectives
  - ◆ Obj. 1 - Deploy the technology to 23% of the residential clients
  - ◆ Obj. 2 - Curtailment of 0.3kWh per client
  
- ◆ The specific characteristics of this case study are:
  - ◆ Co-op: Every year, profits are shared with clients
  - ◆ Small service area: 1,885 clients of which 88% are residential
  - ◆ Very low penetration of Internet (less than 20%)
  - ◆ High unemployment

# Everyday...



- ◆ Clients were invited to start saving electricity immediately by opting in into the program
  - ◆ In-home display
  - ◆ web portal to monitor and learn about their electricity use
  - ◆ Accessible by smart phone, computer, ipad
- ◆ A power outlet would enable direct control or scheduling of selected appliances
- ◆ Do it yourself



- ◆ *Hardly anyone registered (in a year and only 70 registrations)*

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# But then!

*7 months before the end of the program we changed the design of the program*

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- Opt out design
- Target clients became residential clients with registered phone numbers
- Appointments scheduled by local people with same cultural references
  - Random list of clients with registered phone numbers (1250 clients)
  - Standardized procedures: scripts: for making phone calls, for configuring the equipment, to respond to the questions of clients
  - We trained a team of two installers
  - Online reporting tool allowed project management to keep track of events and local team to record progress
  - We offered internet to those clients without internet

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# But then!

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- After the first month we delivered a workshop to clear misperceptions
- Trusted messengers: trusted members of the community
  - Discuss what they do with the technology
  - Cases were presented **in their own words and through their perspectives**
  - **Directly addressed the issues:** privacy, security, control
  - The workshop had a very positive impact on the success of enrollment
- Achieved 38% enrollment rate: 402 families by December

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# Because of that...

## We moved ahead!

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- Investigate the impact of economic incentives on the participation in a utility controlled DR experiment
  - Power outlet was required to be connected to a specific domestic appliance
  - Hub was required to be connected to a modem
- Three randomly distributed groups:
  - Control: 135
  - Economic Incentive (EI) Group: 134
  - With out (EI) Group: 133
- Text sent before DSM event (power off for two hours, everyday, for 7 days).
  - Normative component: join your neighbors
  - Altruistic component: Help your Community and your Co-op
  - A reminder of the lottery for the EIG



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# So, finally...

## We found that

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- There was **no difference in the number** of smart outlets response between (EI)G and w/o EIG
  - *Statistically proved that it was not by chance that, for the period of the experiment, the power outlet of treatment groups was more frequently connected than control*
  - *significant difference between groups: ANOVA Welch's  $F(2, 115.283) = 13.145, p < 0.000$*
  - *Significant difference between Control and Treatments (Anova Games-Howel  $p < 0.000; \alpha = 0.05$ )*
  - *No statistically significant difference between Treatment (ANOVA Games-Howel  $p < 0.846; \alpha = 0.05$ )*
- **Persistence during the week was higher for W/O (EI)G**
- **EIG curtailed more load!** (EIG: in average 0.065 kWh/day curtailment; W/O EIG in average 0.044 kWh/day curtailment)

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# The end

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*We had to adapt the objectives of the program to real conditions and adapt the message and means of communication to the local values and frames.*

Thank you...

Contacts:

Joana Abreu | [jabreu@fraunhofer.org](mailto:jabreu@fraunhofer.org)

Tel.: 857-389-4801