Building a business case for data science

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POWERING WHAT'S **NEXT**

Agenda

- Why you should embrace the shift to data-driven decision-making

- Case study: Data-driven customer cohorts in a demand-response program

- How to apply data science in a marketing campaign

- Q&A

Industry in transition

- Decarbonization
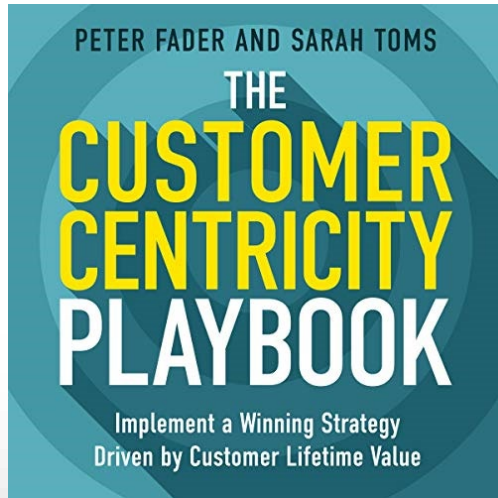- Safety, reliability, resilience
- Downward cost pressure
- Customer equity
- Smart collaboration

Speed to value

E

Rethinking customer offers and engagement

PETER FADER AND SARAH TOMS

THE
CUSTOMER
CENTRICITY
PLAYBOOK

Implement a Winning Strategy
Driven by Customer Lifetime Value

1. Digital customer replica

- Advanced metering infrastructure (AMI) energy profile
- Behavioral profile

2. Best customers identified

- Individual customer assessments
- Artificial intelligence–derived microcohorts of best fit

3. Best customer personas

- Key attributes identified
- Ethnography/voice of the customer

4. Precision simulations

- Customer specific
- Grid specific

5. Engage best customers

- Personalized engagement
- Engagement feedback

Audience of One

See your customers as individuals to maximize customer lifetime value

Stop wasting resources by chasing down average consumers.

Maximize customers' long-term financial value to the utility by focusing on those aligned with your priorities.

Utility customer journey

Ratepayers	Customers	Customer segments	Audience of one

Customer-focused   Customer-centric

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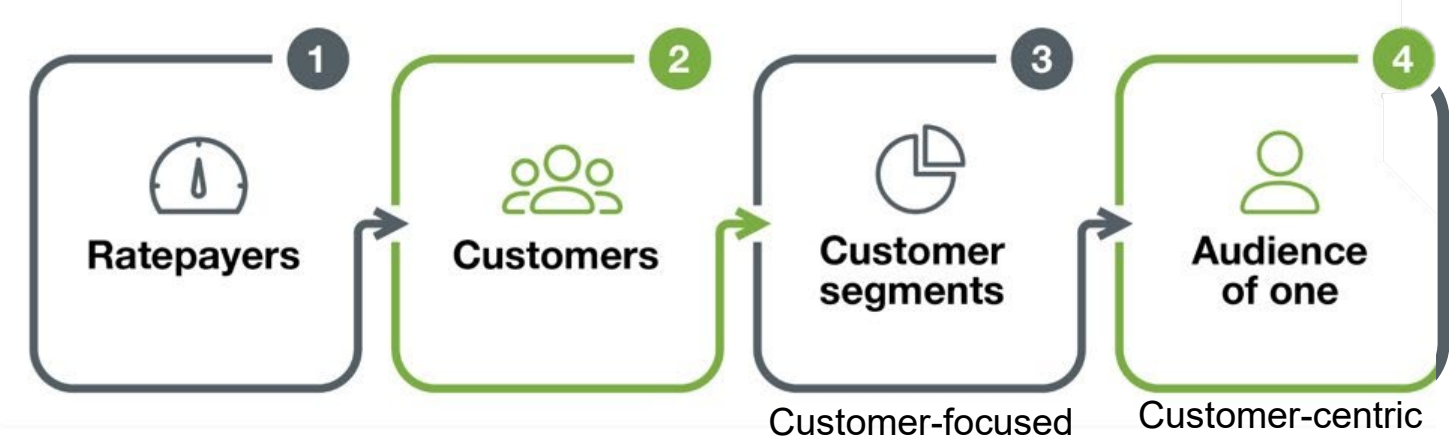
Case study: Data-driven customer cohorts

Utility's static persona segments

Percentage of residential customers

Savings per customer

- Innovative Investors
- Totally Tech
- Sensible Savers
- Continually Connected
- Simply Service

Static personas created different groupings but without any impact or differentiation between segments.

E Source cohorts: Peak-time rebate

Percentage of residential customers

Savings per customer

- Low Engagers
- Borderliners
- Middle Movers
- Fast Growers
- Big Impactors
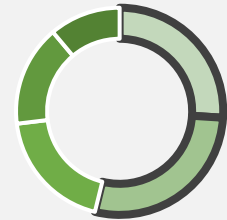
Machine-driven cohorts identified best customers who represented a disproportionately high load shift based on individual energy and behavioral profiles.

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Data-drive customer cohorts

Legend:
- Innovative Investors
- Totally Tech
- Sensible Savers
- Continually Connected
- Simply Service

Factor	Big Impactors (BI)	Fast Growers (FG)	Middle Movers (MM)	Borderliners (B)	Low Engagers (LE)
Billing	Almost 4 times more in billing metrics of LE, ~2 times more than FG	Mirrors patterns of MM	Mean value for "AvgBillAmt12Mo" ~$140, this is 2.5 times as much as LE ~$68	Marginally less than MM in metrics, but 2 times more than LE	"KWH_NORMAL" ~ 655, "BILL_AMT_12MO" ~ $808
Direct media over digital	Proportionally in the middle rank of engagement	Least likely to engage in direct media marketing	Ranked slightly less than FG engagement	Ranked slightly less likely than LE	Most likely to respond to mail, newspaper ads
Financials	Largest magnitude across all variables, indicating largest revolving credit and investment opportunity	Metrics reflect those of BI very closely	Metrics are ~25% higher than B and LE	Performs ~20% above LE	Weakest financial metrics
Home metrics	These are bigger/better measures, of which BI has the largest values	Uniformly larger values than MM, but ~15% less than BI	Middle of the road values against other personas	Square foot values not very different from FG, but ~10% less on market value	Proportionally, LE metrics are the lowest among each variable
Keeping busy	Among this factor, BI are most on the move and responsive to subscription services	Tracks very closely to BI, except in "Satellite. Radio Subscriptions"	~15% more likely than FG, but ~15% less likely than BI and FG	~15% more likely when compared to LE	Least likely to be travelling and engaging in subscriptions
Purchase style	Representing the middle persona, however, is second to MM in "Web And Brick Mortar"	Uniformly most likely to engage in online activities	About ~10% less engagement online from FG, and ~30% more active than LE	About ~12.5% more engaged online over LE	Lowest online activities

Data-driven customer cohorts
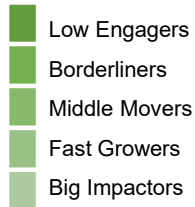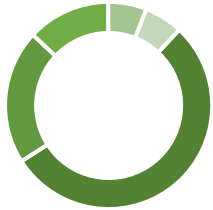
Low Engagers
Borderliners
Middle Movers
Fast Growers
Big Impactors

- **Big Impactors:** Larger single-family dwellings, with high income ranges and subsequent billing metrics; busy and likely have digital subscription activity

- **Fast Growers:** Tend to track tightly with Big Impactors, except are the most engaged with technology behaviors

- **Middle Movers:** Will track with Fast Growers; proportionally lower values on housing sizes, income, notably close with respect to technology

- **Borderliners:** Individuals in this group are split; some may tend by value to lean into Low Engagers, while some are lined more with Middle Movers; a key may be viewing this group as potential Middle Movers; tend to rent

- **Low Engagers:** Most likely to interact with newspapers, flyers, and traditional media; least technologically, tendencies to live, and smaller square foot housing; lower household income and comparatively older demographic

Questions and considerations

- What utility customer data is needed?

- Do I need AMI data?

- What do I do with my existing customer personas?

Key takeaways

- As the industry is transitioning, utilities need to get more customer-centric in order to hit big goals

- A data-driven approach to understanding your customers can improve program performance while supporting key strategic initiatives:

  - Decarbonization
  - Equity
  - Reduced costs

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How to build marketing campaigns with data science

Smart thermostat campaign example

- Friendly Power wants to increase participation in their smart thermostat program

- The program has a limited budget, so they can't mass market to all residential customers

- Friendly Power's marketing team uses data science to find the best customers to target
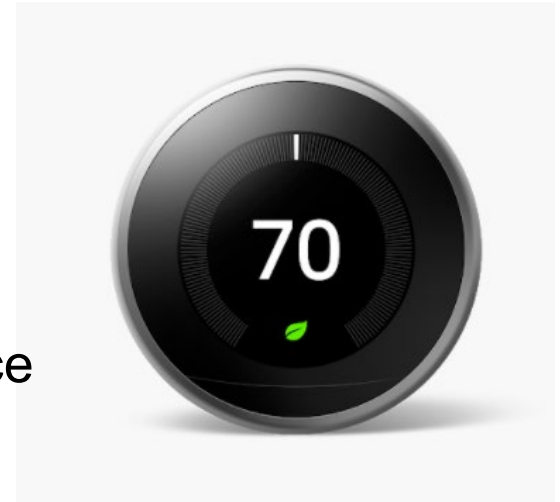
Source: Nest Thermostat

Data process: Information utilities share

Utility information

Customer name and address information

Who is currently participating in the smart thermostat programs

Which customers have been marketed to and declined the program

Program results (smart meter data, Nest or Ecobee data, what kind of savings customers are getting, etc.)

Data science team
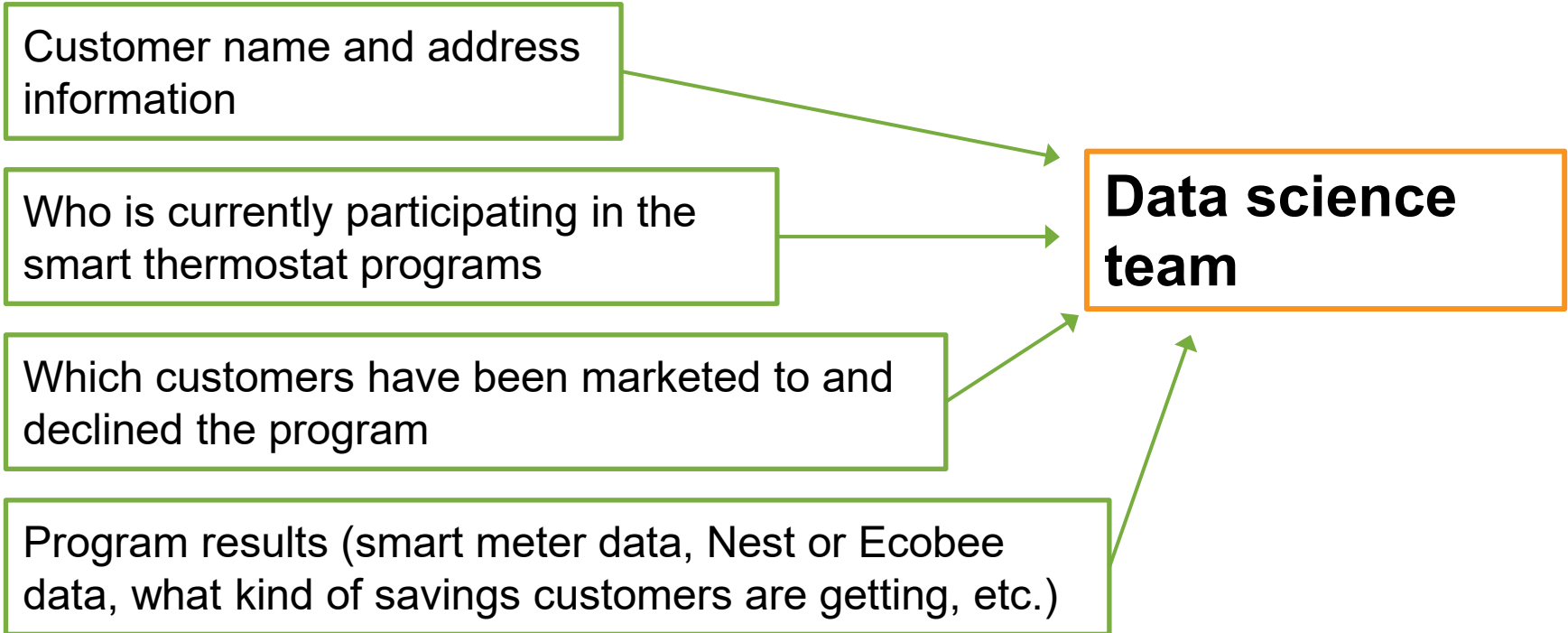
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Data process: Custom data science analysis

- E Source Data Science appends hundreds of data points to understand which customers are most likely to participate

  - Look at past participants to see who has been a successful smart thermostat program participant

  - Cross reference the groups most likely to participate with the attributes of those that are successful program participants to find the next program superstars

  - The team then scores these customers and ranks them in priority of who marketing teams should target

Final deliverable

Final deliverable

Customer_ID	Propensity	Impact	MicroPersona	Low/moderate income	Non-English	Age	Income	Renter	Shops at Big Box Stores	Uses Streaming Services
2471218110	0.832308888	High-Impact	Big Impactors			39	154916		1	0
3233639208	0.671438038	High-Impact	Big Impactors			34	187004		0	1
2693701447	0.811655223	High-Impact	Big Impactors			39	163143		0	0
491542467.2	0.618408084	High-Impact	Big Impactors			64	194403		0	0
2630446291	0.787608743	High-Impact	Big Impactors			51	164163		1	0
699885491.5	0.895385623	High-Impact	Big Impactors			60	129736		1	1
1632399431	0.784507334	High-Impact	Big Impactors			47	98639		1	0
2566726166	0.191210017	Standard-Impact	Borderliners	x	x	29	120574	x	0	1
3836609072	0.202277437	Standard-Impact	Borderliners			77	185774	x	0	0
2789664704	0.193388402	Standard-Impact	Borderliners			62	161581		1	1
1281868252	0.229684561	Standard-Impact	Borderliners			55	109020		0	0
3784472931	0.223461062	Standard-Impact	Borderliners	x		76	101547		0	0
493298384.1	0.235349983	Standard-Impact	Borderliners			31	195891		0	1
524356943.9	0.173629805	Standard-Impact	Borderliners			79	82895		0	0
1131396472	0.164884463	Standard-Impact	Borderliners			46	134334		1	0
3082900988	0.187915996	Standard-Impact	Borderliners	x		73	121872	x	1	1
39882519.66	0.19283928	Standard-Impact	Borderliners			60	196879		1	0
3602984837	0.143560782	Standard-Impact	Borderliners			25	185615		0	0
253108955.2	0.228958473	Standard-Impact	Borderliners			37	105056	x	1	1
4094998652	0.154224321	Standard-Impact	Borderliners			34	158341		0	0
1249270862	0.176425099	Standard-Impact	Borderliners			64	193371	x	0	1
95433349.88	0.14987199	Standard-Impact	Borderliners	x	x	30	197144		0	0
535068751.4	0.204398349	Standard-Impact	Borderliners			23	100868		1	0
800945673.4	0.145714432	Standard-Impact	Borderliners			70	135577	x	1	0
1137195963	0.179117814	Standard-Impact	Borderliners			20	171658		0	1
36097933.54	0.166887686	Standard-Impact	Borderliners			48	128856		0	0
1136104622	0.217746988	Standard-Impact	Borderliners	x		58	91792		0	1

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Sample marketing process using this data

1. First target my two best customer groups (highest likelihood to participate in the smart thermostat program and have highest savings):

   - Fast Grower
   - Big Impactor

2. I want to make sure we have good representation of low-income customers in my smart thermostat program

   - Find low-income customers in the Fast Grower or Big Impactor groups and create special messages for them

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Creating the smart thermostat campaign

Big Impactors: Larger single-family dwellings, with high income ranges, and subsequent billing metrics; busy and likely have digital subscription activity.

- Average age: 47
- Don't rent their homes
- Often shop at big-box stores
- Rarely use streaming services

Fast Growers: Tend to track tightly with Big Impactors, except they are the most engaged with technology behaviors.

- Average age: 34
- Primarily renters
- Roughly 50% shop at big-box stores
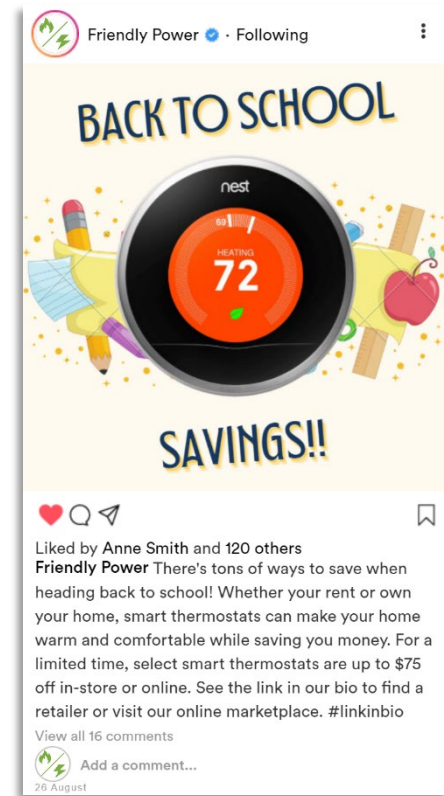- Most using streaming services

With data science, you can add tons of other data attributes!
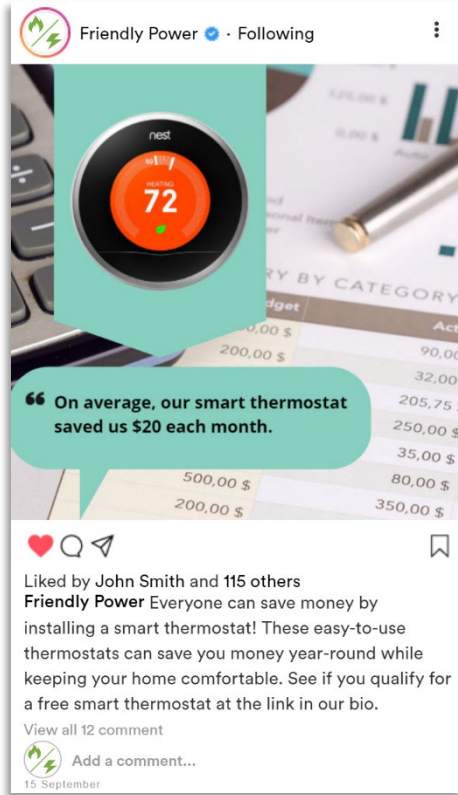
Creating the campaign (stage 1)

Big Impactors

Friendly Power ✓ · Following

Liked by John Smith and **115 others**
Friendly Power As you prep your home for cooler nights ahead, make managing your energy use easy by installing a smart thermostat! Smart thermostats help you easily regulate your energy use and save money year-round. For a limited time, select smart thermostats are up to $75 off in-store or online. See the link in our bio to find a retailer or visit our online marketplace. #linkinbio

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Fast Growers

Friendly Power ✓ · Following

BACK TO SCHOOL

SAVINGS!!

Liked by **Anne Smith** and **120 others**
Friendly Power There's tons of ways to save when heading back to school! Whether your rent or own your home, smart thermostats can make your home warm and comfortable while saving you money. For a limited time, select smart thermostats are up to $75 off in-store or online. See the link in our bio to find a retailer or visit our online marketplace. #linkinbio

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Creating the campaign (stage 2)

Big Impactors
Low income

Fast Growers
Low income

Post-campaign benefits

- Once you have completed your campaign, you can feed the results back into the model to improve future outreach lists

- Depending on the frequency of the campaign, you can either receive an interactive data dashboard or a new spreadsheet when you're ready for your next campaign

Q&A

Contact us

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