

LEARNING FROM NETFLIX

How Bidgely is using Artificial Intelligence to help utilities engage their customers

INTRODUCTION

Today's consumers, largely driven by their experiences with companies like Amazon, Apple, and Google, have come to expect hyper-personalization from all of their service providers. One company that is leading the pack in this consumer-centric era is Netflix, and their not-so-secret weapon has been the use of Artificial Intelligence. At all levels of the company, Netflix applies AI to transform their massive amounts of customer data and create personalized experiences that few companies – in any industry – can match.

"I don't want any of our shows to define our brand, and I don't want our brand to define any shows. Our brand is personalization."

Ted Sarandos, Chief Content Officer, Netflix

At Bidgely, we're following the the lead of our Silicon-Valley neighbor and implementing a similar, AI-based approach to help utilities harness their massive amounts of data and create a scalable, more personalized experience for their customers.

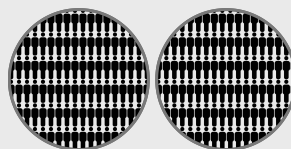
IT STARTS WITH CLUSTERING

The the first step in driving scalable personalization is assigning customers to clusters. Netflix has replaced traditional demographics with approximately 2000 "taste clusters", grouping its 130 million members based on actual viewing habits, and using those clusters to help drive recommendations and make programming decisions. The clustering approach used by Netflix is imminently scalable – as members continue to use the service, Netflix collects more and more information, enabling them to refine the experience on an ongoing basis.

GOLDILOCKS, DATA SCIENTIST?

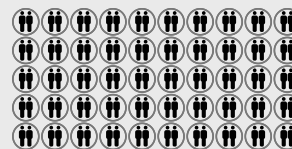
Clustering is most effective when it balances personalization with scalability. Enter data scientists, who optimize clusters for size and coverage, just like goldilocks.

TOO FEW CLUSTERS



- ✗ Too many people in a cluster
- ✗ Lack of personalization

TOO MANY CLUSTERS



- ✗ Too few people in a cluster
- ✗ Not enough scale to drive meaningful business outcomes

JUST RIGHT



- ✓ High level of personalization
- ✓ Enough scale to drive meaningful business outcomes



In a similar manner, Bidgely's clustering approach leverages its unique advantage as the industry leader in disaggregation. With disaggregation providing a clear picture of the actual appliance usage patterns in each home, and a number of other characteristics such as home size, location, occupancy, and weather taken into account, Bidgely is able to refine its clusters to create a truly personalized user experience.

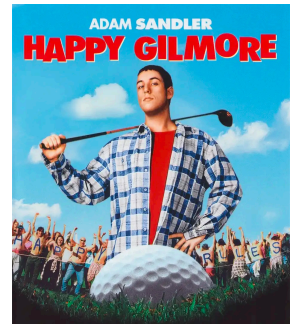
PERSONALIZING CUSTOMER SUPPORT

Effective clustering can be used to help utilities handle high bill calls more efficiently. By incorporating income and/or payment history (e.g. customer is typically late in paying their bill) into the clustering analysis, Bidgely can help pre-determine if a customer is more likely to need help setting up payment terms – something that may be automated over the phone or even handled via web. Conversely, by disaggregating appliance consumption data, Bidgely can predict and prepare call center reps for seasonal and/or “bill shock” calls, in which a human is best suited to answer questions.

USER FEEDBACK IS NOISY

What people say often differs from what they do (e.g. US consumers say they want better gas mileage yet buy SUVs and trucks at a record clip). This well-documented phenomenon, known as [declared vs. revealed preferences](#), makes it critically important to capture a number of different signals to ensure the clearest possible picture of user preferences.

In 2017, Netflix eliminated its long-standing 5-star rating system in order to more accurately capture user feedback. What they had found was that a user might watch a single highly-acclaimed documentary and rate it 5 stars, but watch ten universally-panned Adam Sandler movies and rate them 3 stars. So while user feedback indicated that they rate documentaries higher (perhaps they felt an obligation due to critical acclaim), their actual behavior (that they love watching Adam Sandler movies) differed significantly. By moving to a thumbs up/down rating system, not only was Netflix able to continue capturing actual user behavior (what movies they watch), Netflix also saw an over 200% increase in total feedback, and the feedback has proven more accurate (the user above is more likely to give both the documentary and the Adam Sandler movies thumbs up).



Historically, utilities have used surveys a key vehicle to understand residential customer preferences, actions, consumption habits and more. Not only do these surveys have limited scope due to cost and reach constraints, they are also subject to feedback noise, as they require customers to remember their behaviors (e.g. what appliances they'd used) over a past period of time. And if the

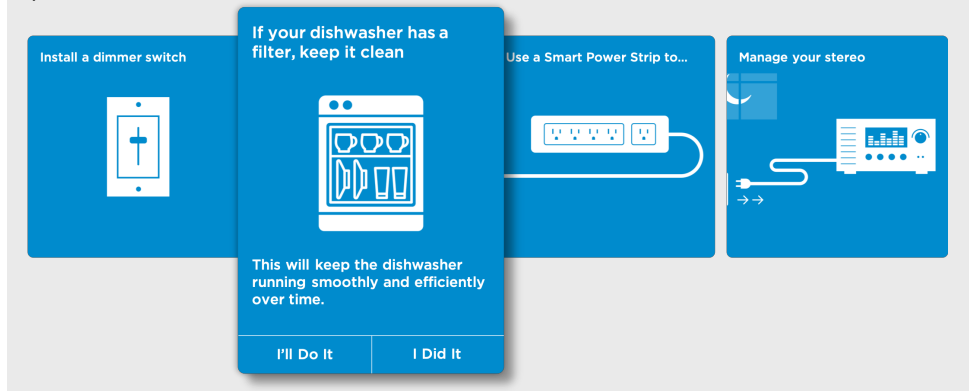


customer can't remember their behavior, how can a utility verify that the customer's declared behavior matches their revealed behavior? Bidgely's disaggregation technology does just that: by providing actual appliance usage details, it eliminates the need to ask energy usage questions, instead enabling the utility to focus their surveys on other elements of the customer experience.

To gather subjective feedback (e.g. customer sentiment towards notifications, emails, and other digital assets), Bidgely uses a thumbs up/down mechanism much like Netflix. Since each customer may have a different idea of what they want from their energy provider, a simple thumbs up/down is the easiest way to inform Bidgely and the energy provider that customer sentiment/satisfaction is moving in the right direction. Beyond customer feedback, Bidgely leverages its fully-digital platform to track all customer behaviors and actions in real-time, so that each utility can clearly understand the customer metrics that are most relevant to them.

OPTIMIZING WITH FEEDBACK

Bidgely's appliance-level recommendations have an "I did it / I'll do it" feature that serves two purposes for customers: clicking "I'll do it" populates a customer to-do list, while clicking "I did it" removes the recommendation for that customer. At the same time, each click provides the utility with valuable feedback on what recommendations are capturing the most interest, enabling further program optimization.



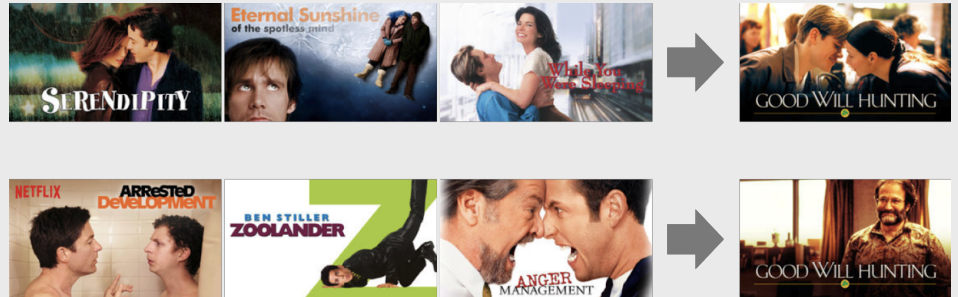
LOOKS MATTER

While data may drive *what* personalized information service providers share with their customers, it can also influence *how* that information is presented. Netflix research shows that users spend an average of 1.8 seconds considering each title, and 82% of that time is spent looking at artwork and visuals on the screen. As a result, Netflix has developed a collection of tools and algorithms (called Aesthetic Visual Analysis) that surfaces numerous high quality images from every video on Netflix. Based on a user's viewing history, Netflix can then personalize the artwork for any given title to drive interest and maximize viewership.



PERSONALIZING ARTWORK

Someone who has watched romantic movies might be shown artwork containing Matt Damon and Minnie Driver, while someone who has watched comedies might be shown artwork containing Robin Williams.

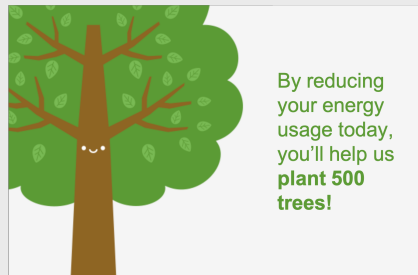


Bidgely also leverages data to personalize content delivery to each customer. Whether it's cluster-specific visuals supporting program messaging, or alternate savings tips copy for different home profiles, Bidgely's focus on personalization serves to maximize program participation and customer engagement.

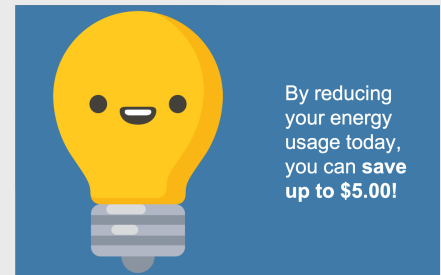
PERSONALIZED EE MESSAGING

Clustering helps Bidgely determine how to best personalize its communications with each customer.

ENVIRONMENTAL CLUSTER



MONETARY CLUSTER



TESTING 1, 2, 3

In an era of rapid innovation and changing consumer preferences, what worked today may not work tomorrow. To avoid complacency, Netflix has developed an “experimentation platform” that allows continuous A/B testing across key elements of the user experience – UI, Recommendations, Playback, Search, Registration – facilitating an ongoing, data-driven validation process that ensures a consistently great user experience.

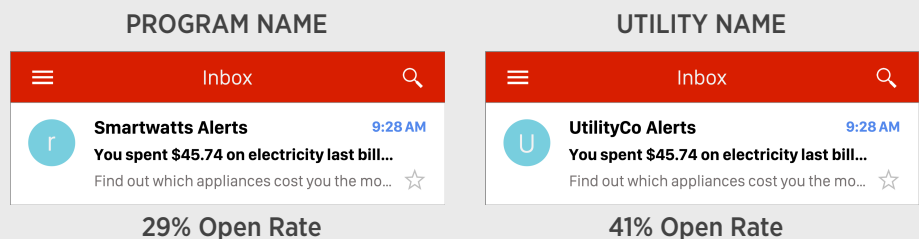
Bidgely's platform enables utilities and energy providers to build industry-standard A/B testing into the rollout of their energy



efficiency and customer engagement programs. For example, Bidgely tests multiple email subject lines and body messages – tracking corresponding Open Rates and Click Through Rates – in order to identify what resonates with specific audiences. In this manner, Bidgely can iterate through various channels (web, email, sms, paper, voice) and test specific elements to most effectively engage each customer. The end result is a change in the way the utility business works – making it more responsive to customer needs and preferences and ultimately improving trust.

OPTIMIZING OPEN RATES

In the example below, a utility was running an EE program and was interested in using the program name as the branding for all communications. However, when Bidgely tested the program name and the utility's name in the email subject line, the utility name showed significantly higher open rates, prompting a course correction towards the utility name.



SUMMARY

AI is transforming the way companies overcome business challenges. At Netflix, the Content Engineering group has nearly 100 data scientists optimizing the algorithms that personalize the content and visuals for each Netflix customer. Their well-documented success has led other departments at Netflix to seek out their help in using AI to better understand their respective businesses.

Similarly, with its AI expertise and groundbreaking work in energy disaggregation, Bidgely is well-positioned to be the utility community's go-to AI platform, helping utilities and energy providers around the world leverage their data to solve pressing business problems.