# Adswerve Helps Publication Industry Leader Gannett Build Advanced Analytics Models To Boost Revenue

## Making Data Actionable

Gannett, one of the largest publishers of locally-based print and digital media in the United States, partnered with Adswerve to better understand audience behavior and identify opportunities to drive memberships and decrease churn. Because membership numbers remain a critical revenue component for media companies, Gannett had three primary goals:

- **Increase digital memberships using propensity scoring**
- **Identify users at risk of unsubscribing and target with interventions to retain them**
- **Build a recommendation engine to determine the best content to drive action**

Gannett came to Adswerve with the idea of building scoring models to inform what they needed to meet their goals. Armed with this information, Gannett would be able to intercept users with relevant content or actions to increase memberships and retention.

Gannett wanted to employ BigQuery as their marketing data warehouse to power machine learning insights and interventions. They also needed to go beyond summary aggregates and use machine learning processing for more detailed analysis.

## Taking a Systematic Approach

Adswerve collaborated with the strategic development team headed by VP of Digital Operations and Product Development Chris Biondi, to bring this project to fruition. The project team, led by Director of Corporate Consumer Data Strategy Rich Forsgren, relied on Adswerve team members to help shape and refine the strategy. Adswerve approached the initiative with five workstreams.

**1 Data Preparation and Exploratory Data Analysis**

To set the stage for downstream machine learning (ML), the teams first needed to identify and validate conversion data. They leveraged Gannett's top 16 most viewed and profitable news sites, validated external data sources (including digital memberships), mapped business objectives to data to ensure domain knowledge transference and presented membership and behavioral data using Data Studio dashboards.

## GANNETT

Gannett Co., Inc. (NYSE: GCI) is an innovative, digitally focused media and marketing solutions company committed to strengthening communities across our network. With an unmatched reach at the national and local level, Gannett touches the lives of nearly 140 million people monthly with our Pulitzer-Prize winning content, consumer experiences and benefits, and advertiser products and services. Gannett brands include the USA TODAY and more than 260 daily local newspaper brands, digital marketing services companies ReachLocal, WordStream, and ThriveHive and U.K. media company Newsquest.
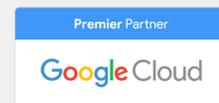
www.gannett.com

## ADSWERVE

As a leading Google Marketing and Cloud partner, Adswerve is a team of media and analytics veterans who believe smart marketing is built on data discovery. Formerly two separate entities, Adswerve acquired Analytics Pros in August of 2018 and is now able to provide unparalleled expertise across the entire Google Marketing and Cloud Platforms.

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After validating and preparing the data, they built a data pipeline for the modeling that was to come. Using the Google Cloud Platform, they connected the Google Analytics 360 (GA) data to BigQuery and used App Engine and Cloud Storage to synchronize digital membership data. Then, they used exploratory data analysis (EDA) — based on SQL queries — to stage, clean and consolidate data into BigQuery tables. Finally, they ensured the modeling was ready for AI Platform and TensorFlow processing to handle production workloads.

## 2  Propensity Modeling

The Adswerve team developed an ML workflow that outputs a "propensity to subscribe" score to all non-members. The model leveraged primary input signals like average time logged in, distinct day visits, average daily frequency, geography and more.
They worked to understand the resulting outputs and then took steps to improve the model, including using millions of training inputs, retraining the model every month, prioritizing recall over precision to allow for intervention campaigns targeted to a larger pool of potential members and identifying content signals associated with geography or publication.

The team found that behaviors (or signals) indicating a high propensity to subscribe are similar across the publisher portfolio, but determining user content preferences and identifying the levers to drive the desired behavior required parsing at the publication level. This includes an understanding of topic affinity, content format (video, infographic, pictures, etc.), seasonality trends and other attributes.

Because most Gannett publications have a paywall (after reading a certain number of articles, users need to register or subscribe to access additional content) the team analyzed the trends in relation to memberships. This gives additional insight into behaviors that drive revenue.

Ultimately, the propensity model helps the marketing team nurture potential members through the buyer's journey.

## 3  Churn Modeling

Conversely, to understand the behaviors that indicate the propensity to churn (unsubscribe), Adswerve worked with Gannett to create several inputs, such as days since billing, price, days between last session, and billing, payment failure and more. This ML modeling workflow outputs a "risk to churn" score for all digital members.

## 4  Content Recommendations

In order to make dynamic content recommendations that optimize user experiences and improve acquisition ROI, the Adswerve team applied natural language processing APIs to obtain content categories. They then cross-referenced them against behavior and models to develop interest paths.

**5** Intervention Identification

Finally, Adswerve and Gannett needed to create ways to develop and deploy marketing interventions to prevent churn and increase the propensity to subscribe, including making tactics like paywalls, content and ads dynamic. By leveraging GA Data Import, they were able to load these newly defined audiences back into GA in order to take action on the new insights.

## Acting on the Data

Now that the modeling and workflows are set up, the team has a solid foundation for other activities, including building and leveraging audiences across the Google Marketing Platform, surfacing new reporting dimensions, and building real-time scoring to dynamically alter user experiences and develop new content personalization offerings. The project continues to evolve as the team reviews results.

> "I've wanted to build these models for more than a decade. Thanks to Google technology and Adswerve's assistance, my dream has become a reality. Collaborating with the Adswerve team was exhilarating. We exchanged ideas and discussed hunches, and then we were able to validate or reject them based on the truth and patterns our data exposed. We pinged each other whenever we had ideas and the Adswerve team connected the dots to make them happen. Overall, innovating with Adswerve is one of the best experiences I've had."
>
> — **Rich Forsgren**, Director of Corporate Consumer Data Strategy