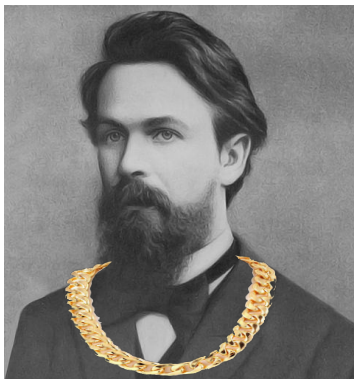# Markov Chains: how a Stochastic Attribution Model boosted growth

Markov wearing his famous chain

Markov Chains: how a Stochastic Attribution Model boosted growth

When evaluating a complex product B2B users might make several different searches. The decision making process can be long and oftentimes involves different stakeholders. It is generally held that traditional attribution models (e.g. Last-Click, Time Decay, Position-Based, etc.) have limitations in properly estimating the true impact of each marketing channel and keyword in the conversion path. In other words, from an advertiser's perspective, attribution is the mother of all problems. It is generally difficult to attribute success of an advertising campaign beyond the last click.

This is especially relevant when dealing with large B2B operations with $XM quarterly budgets, where thousands of keywords come into play. The resources needed to succeed with attribution are often underestimated as attribution is frequently perceived as a one-time effort and not an iterative process.

Despite such obstacles, proper attribution, in this specific case, was a pivotal point in unlocking additional growth for the client. An inadequate evaluation of upper funnel efforts represented a crucial roadblock to accelerating incremental advertising investments.

The challenge

We had abandoned the usage of traditional heuristic attribution models (e.g. Last-Click, Time Decay, Position-Based, etc.) due to their limitations in showing an impact on upper funnel activities. A valid alternative could have been the Google Analytics data-driven attribution model, but unfortunately this was not available as the eligibility requirements were too strict for our Client. Moreover, Google Analytics 360 was not an immediate option as we first had to show the impact of overcoming heuristics models and to build a more comprehensive one from scratch.

The approach

We leveraged technology to help our client overcome the limitations of heuristic models and bring us closer to the truth of which advertising channels were really aiding our customer. First, we teamed up with the client to implement a custom made data-driven attribution model based on Markov Chains. We used a stochastic process to understand how much each individual keyword increased the chance of a user eventually converting further down the line. Conversely, we estimated what would happen to the conversion rate if any given keyword was removed. Second, we extracted the conversion path data from Google Analytics. Third, we applied a script written in R to calculate the Markov Chain values. Finally we started adjusting bids using the calculated values accordingly in the advertising campaigns.

The results

The Markov Chains attribution model demonstrated the value of upper funnel keywords on Google Search advertising, which are usually overlooked in a last-click world. This breakthrough change allowed us to better allocate the client's resources. The campaigns immediately benefited from a significant boost in performance with more conversions at a lower CPA. Furthermore this approach was essential in shifting the business strategy towards a more upper funnel oriented approach that has unlocked further investments in advertising. With these results we were able to successfully illustrate attribution as an iterative process resulting in the client currently evaluating the possibility of introducing Google Analytics 360.

"A smart attribution model is imperative for advanced performance advertisers. The Markov Chain's approach has boosted our results and kicked off incremental growth for the business"

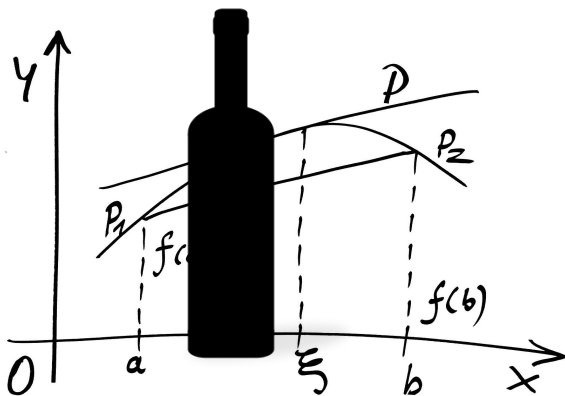Acquisition Director

-37%
Cost per Acquisition in Canada

-30%
Cost per Acquisition in India

-25%
Cost per Acquisition in Brazil

Partners in Wine: leveraging client data to grow Google Shopping Advertising Campaigns

Our Client is a big player in wine ecommerce with the largest catalogue on the Italian market. Through working together we found that the wine industry is as fascinating as it is competitive.

User behaviour is complex and product inventory is constantly evolving. By analyzing keyword data from all relevant consumer searches throughout their shopping journey we could see how real wine lovers are sophisticated one-of-a-kind customers and have an elaborate research behavior. They will rarely search for just a "Chianti" or a "Pinot Grigio", but most frequently will search for a specific region, appellation, cellar, year, flavor and so on.

The dynamic nature of the Client's inventory also had to be taken into account as the product team was focused not only on expanding the reach of the catalogue, but also on introducing new products where profit marginality was often varied.

The challenge

Usually marketers deal with Google Shopping advertising by using either a product-driven or query-driven strategy. In the former, Ad Groups are split by Categories (or Brands); the main disadvantage is that the same ad appears regardless of the intent of the potential customer. On the other hand, in a query-driven approach we consider the different potential values of the queries and we distinguish which ad to serve accordingly. However, at this level of granularity the bidding may get trickier as often not enough data is available. We had to overcome the disadvantages of the above mentioned approaches and find a strategy that could increase the end user engagement and at the same time maximize our Client ROAS.

The approach

We teamed up with our Client in order to create a structure within Google Shopping advertising able to take into account three elements: device type, product margin, and keyword value within the funnel. First, analyzing the customer purchase behavior together with our Client, we noticed that searches made via desktop rather than mobile would occur at different times and showed different conversion rates. Secondly, we analyzed the different SKU margin and focused just on top selling products. Finally, we categorized keywords according to the user's propensity to purchase. Our hypothesis was to give priority to keywords used in the final stage of the funnel, ie: searching for the full 'name' of a wine, the region, appellation, cellar, year, flavor etc. and to serve them to so-called "hard core users", those who were actually ready to buy.

The results

We managed to focus resources only on those users with a higher propensity of purchase and only on the Client's products with the highest margins. As a result, from an end user perspective, we maximized the customer experience leveraging long tail keywords and showing only highly relevant products. At the same time, the ads we created would only show products with higher margins and would automatically update according to the product availability and price. This meant we were able to maximize ROAS for our Client.

"We have fully leveraged the complexity of having the largest catalogue in the Italian wine ecommerce"

Growth Marketing & Co-Founder

+82%
Revenue YOY

+39%
Media Spent YOY

+94%
Sales YOY

The sniper approach: micro targeting on Display to raise awareness

The sniper approach: geographic micro-targeting on Display to raise brand awareness

Our Client is a large Italian online classified site and the automotive category represents a large part of their business. Buying a car is often a complex process with a long information phase. Consumers often search online before buying and use their phone while physically visiting a car dealership. We partnered with the Client to leverage that information and develop a carefully crafted micro-targeting strategy.

Our aim was to increase brand awareness among end users during those highly relevant micro-moments and among B2B clients.

The challenge

We wanted to focus on both sides of the market. On one hand we aimed at consumers looking for cars online and/or comparing prices while in the car dealership who had to be exposed to the brand when in a relevant, high-intent context. On the other hand, we wanted to reach out to car dealers, who had to be reassured about the presence of our brand in these pivotal moments.

The approach

There is a tremendous number of car dealerships in Italy, but usually they are located and concentrated in very specific areas (representing less than 0.8% of the Italian geography). Since the overall objective was to increase brand awareness towards a specific target, we decided to leverage the concentration of car dealers and to "micro-target" only geographic areas with a high density of car dealerships. As 'snipers' we aimed our advertising campaigns only on the radius of concentration of the car dealerships. Our intention was to buy all the possible Mobile Display placements as we wanted car dealers and consumers to be exposed to the Brand in the moments that mattered. Given that we could only target a 1km radius (0.6 miles) and there was no option to target buildings or city zones, we wanted to find a way to better target locations at scale. Using K-Means Clustering we micro-targeted those geographical areas with a high density of car dealerships and then maximized impression share in the identified areas so that car dealerships and their visitors would be exposed to our Client's brand as much as possible.

The results

Leveraging location data can help businesses craft messages that are highly relevant at a specific point of the user journey. By serving users with ads in a pivotal moment in their decision making process we helped build brand awareness at the time it counted the most.

"Relevance in moments that matter is key for our users. This approach allowed us to be in front of them, exactly when they needed our help."

Marketing Director

66%
Car Dealerships in the area of interest reached

50%
Google Display Network Impression Share

+16%
Uplift in weight of total direct traffic in interested area

< 1 K
Media Budget lower than 1 K