

Predicting Customer Churn for John's Hopkins University & Medicine well in advance and making recommendations to reduce it

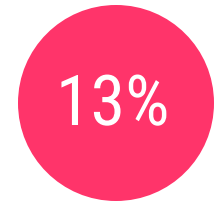
About Johns Hopkins University & Medicine - Development and Alumni Relations & the Problem

DAR is responsible for all the fundraising for Johns Hopkins University & Medicine. Johns Hopkins is not just one of the nation's best universities but is even more renowned for its work in medicine. DAR raises more than 2 billion dollars every year.

While some of the donations come from big businesses and individuals like Micheal Bloomberg, much of the donation comes from alumni base, their relatives and friends. Also, a significant chunk of donations comes from patients who got treatment in their hospital.

There are various types of subscriptions JHU sells to leads. The two most popular subscriptions are - Annual Giving and Gift Planning. For both, customers renew at the end of the year. if they do not renew within 30 days after the end of the subscription, they are called churned.

Now the big problem is that every year there is almost 23% churn, meaning people not renewing their donations. This is a huge headache for JHU as recurring donations are 80% of their total revenue and they often miss goals because of this. Further, it is 5 times more costly to acquire a new customer than retain an existing one. The management is not able to know churn in advance and when the customer doesn't renew the subscription, the reps find it extremely difficult to bring them back. 90% never come back after churn.



13% reduction in churn



Individual Action plan for Customers to stop Voluntary Churn



8 million projected recovery from churned customers who have high Future Value left

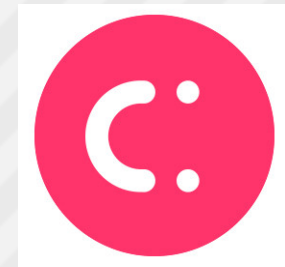
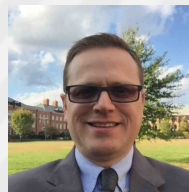
Goals

- Increase the retention of Annual Giving and Gift Planning programs - the 2 most popular subscriptions.
- Create a churn probability for every customer and indicate when exactly they would be churning.
- Recommend the next best possible action for every customer to reduce or stop their churn.
- Understand the factors behind churn. Create a roadmap to reduce cancellations in the long term.
- Calculate customer future value to prioritize customers from a large pool of potential churners.

“Their team completed a thorough analysis of donor churn. They explained to us really well the factors behind churn and made specific plans for a similar cohort of customers to bring down the churn. During this project, they facilitated meetings with great information. We also got innovative metrics like Customer Future Value from the Cliently. I am impressed with their understanding of Analytics and passion for Data”

Carlos A Rodriguez

Director of Business Intelligence and Analytics
Johns Hopkins University - Development & Alumni
Relations



Challenges and Implementation

The data for different departments sits in 9 different CRM's. Further Medical has its own CRM and University has its own. The first objective was to bring all the datasets from various CRM's and other data repositories into one place. Using our proprietary system, we were able to do just that. If not for this, it would have been a significant time spent simply in unifying the data.

Once the data was aggregated, we converted the transactional dataset into one row per customer. Churn modelling requires one row for every customer, so for instance, if there were 5 transactions (5 rows in CRM for a customer), we totalled their donation amount, calculated days between the first and last donation and so on, to get the maximum possible information into one row for every customer with lots of variables.

After the conversion, we realized that the data had severe quality issues such as missing values, different formatting within the same columns, out of order and duplicate values, wrong entries (for example -company account filled as person's account) and so on.

Many times consultants build their models just off the raw data. This means, your machine learning model is being built off a dataset with poor integrity. There were more than 400 variables associated with every donor and we had to understand each and every variable to make it homogeneous data. Our system corrected for irrelevant observations, duplicate values, and missing data.

Next, we took existing variables such as date, text columns, emails, and addresses and broke them down into sub-variables. For example, we took the "contact email" column and broke it down into personal or business email; and email service provider.

Why did we do this? Because what the models ended up showing was that those who had a personal email listed with JHU, were twice more likely to churn. Those with outlook email addresses had 3 times more future worth than average.

Another key column was transcripts of phone conversations and emails of donors with Reps. We broke it down into a few topics (subjects) and sentiment scores. We found words like “debt”, “buying house”, “moving to another state”, increased the chances of churn by as much as 80%. Words like this now act as a trigger now Reps to know if the customer is likely to churn soon. Reps are also able to see the sentiment of donors in real-time now, with a scoring model from -100 to 100.

Towards the end, we used two types of modelling techniques -

- The usual machine learning modelling to predict churn and give everyone a probability of churn. The closer the probability to 1, the higher the chances of churn.
- We used Survival Analysis to predict when exactly customers will churn. Because even with the same probability of churn, two people may have a very different expected lifetime (until they churn).

Armed with this data, JHU is now able to focus attention on potential churners just when they are about to churn.

This now led to the next 2 big questions for JHU:

- There is such a huge number of customers about to churn. How do we prioritize?
- What is the best action plan to reduce churn? Both short-term and long-term.

In terms of prioritization, we calculated every customer’s future value, which is the donation amount that JHU will get from donors in the future until the date of churn. So now JHU can now prioritize the highest future value of their donors as a leading metric.

Another insight the data exposed, many of the clients who had discontinued their donation recently had a pretty high CFV. Just some 2,000 customers alone had a combined \$8 million of future worth potential. These untapped opportunities helped JHU understand where the additional time of their reps should be spent.

The second question put forward to us was much more complex. We studied the past churn management campaigns and a combination of variables causing churn. We grouped similar behaving customers and analyzed the primary factors that lead to their churn. From here we came up with a game plan on how to greatly reduce churn going forward.

Optimization

If we just take the whole project as a one-off project and build a model and handover to the team, it will soon start losing accuracy and in a matter of few months, models will become redundant as you will be better off guessing. So we set up an infrastructure for automatic updates on data. The moment a customer's field changes, he/she is assigned a new churn score and every few days, the models run again with new data.

As more data is continually added, the scoring becomes more accurate.

We were able to create an integration with their custom CRM to update the churn scores every time a field was updated. This is done using a combination of webhooks and APIs. While their Account Executives were able to prioritize their accounts based on an easy to consume Churn score.

Solutions

- The foundation is projected to reduce churn by as much as 13%. A year to year comparison shows, next year there will be 10,000 fewer churners.
- A roadmap for higher retention of recurring large donors
- A probability of churn and the date of churn for every customer in the database.
- Specifically tailored plan for each individual to reduce chances of churn by the highest.
- The list of 2000 churners, with a combined future potential of 8 million dollars and how to reach out to them to bring them back.
- Suggested management some of the big factors causing generic churn, like wait time of more than 3 minutes for customer support, more than 4 phone calls at the end of renewals.



- Giving more priority to high CLV customers will save 100 million dollars worth of churn in the next 5 years.
- The chances of stopping churn with a specifically tailored action plan for each customer is 15 times more effective than choosing random churn management campaigns.
- Ability to conceive and implement strategy without a team of Data Scientists and Analysts Savings of over \$350K.

Learn more about Cliently

Cliently is the first truly AI-based Revenue Intelligence Application.

Create custom Recipes (Views) to understand the entire Sales Journey from all of your sources in one place.

Automatically generate customized Real-Time AI predictions that tell reps which accounts and contacts to engage with and which action to take in order to maximize sales and save countless hours. Reps get insights, recommendations, and predictions from data in a very consumable way.

Create engaging automated outreach playbooks for your Sales team with an omnichannel approach using everything from email, to videos, to gifts. Reps can take action directly from Cliently's UI.

<https://www.cliently.com>

info@cliently.com

