The Art and Science of

Attrition Modeling

Attrition

Of the three most critical marketing objectives: 1) Acquisition, 2) Retention, and 3) Lifetime Value Maximization, arguably the most critical for maintaining and growing your bottom line is customer retention. While always an area of concern, if you're in a mature industry, find yourself operating in increasingly difficult economic conditions, or face growing competitive pressures, <u>the need to retain your customer base and protect it from attrition is underscored</u>.

WHAT IS CUSTOMER ATTRITION?

Also known as customer "churn", "retention" or "defection", attrition programs are rapidly becoming an area of increased strategic focus for many industries.

Simply stated, attrition is experienced whenever a customer stops doing business with you. Accordingly, if you've found that your customers are "attriting" at a growing rate, or a rate that's competing with your rate of acquisition, serious financial trouble will almost certainly be an outcome.

On the other hand, *marginal increases in customer retention rates <u>will</u> have a significant impact on your bottom line*. This is because of a classic maxim that every marketer knows, "It costs much more to acquire customers than it does to keep them."

DEFINITION MATTERS ... A LOT!

While attrition is conceptually easy to understand, specifically defining it presents an important challenge.

For example, in situations where contracted products or services are involved (ex. telecom), defining attrition might seem to be a simple task ... it's when customers stop paying their monthly bill or when they don't renew their agreement. Right?

Then what about customers who're paying their monthly invoice but have either stopped using the service or have significantly decreased their usage? If they're consuming less, they're also less likely to be loyal and they can quickly enter an "at risk" status.

Or what about situations where contracted services aren't involved, for example, retail? How do you know when you've actually lost a customer? What is the appropriate time period? Is it when they don't purchase again after one month? Three months? Does seasonality matter? And can it vary by customer type?

CAUSES OF ATTRITION

Clearly, rates of attrition and associated causes can be complex and will vary across your customer spectrum. So it's of vital importance to identify the causes because, once done, you will be in a better position to prescriptively address them via targeted campaigns.

For most industries, the causes of attrition can be grouped into one of two primary categories:

❶ **INVOLUNTARY ATTRITION** is associated with events or circumstances that are generally beyond the control of your customer or your organization. Examples of this category include death, loss of employment, lifestage changes, and relocation to geographies that your organization does not service.

❷ **VOLUNTARY ATTRITION** is usually the result of a customer choice. Included in this category are causes such as price changes, competitive actions, product, and service issues. Stated differently, voluntary attrition relates to areas of customer dissatisfaction or changes in perceived benefit.

Since involuntary attrition is rarely preventable or addressable, efforts invested to retain this category will not be productive. In contrast, voluntary attrition is the category where the greatest successes can be realized because these causes can be addressed.

THE MOST COMMON SOLUTION: REACTIVE CUSTOMER SERVICE/MARKETING PROGRAMS

Stemming attrition is an ongoing, dynamic process that must sense and respond to an ever-changing external environment. Meeting this challenge requires the seamless internal coordination of all customer touchpoints in an objective fashion.

At the time a potentially relationship-threatening issue is identified, every credible organization reacts quickly on a micro level to resolve the issue, satisfy the customer, and hopefully retain their loyalty. Similarly, on a macro level, smart businesses track their customer interactions to identify negatively-impacting trends and implement changes to prevent recurring issues.

When these strategies are operating effectively, an organization will be ready to take the next step to protect its customer base. This is a proactive strategy that anticipates attrition on a macro level while reaching at risk customers on a micro level. It is the purview of Predictive Analytics and it can be extremely effective.

THE ULTIMATE: PROACTIVE PREDICTIVE ANALYTICS

The process of **predicting customer attrition before it happens** can draw from a wide range of machine learning and statistical techniques. While knowledge of algorithms, formulas and higher level math may be the most visible part of predictive analytics and they play a significant role, they are but a partial list of the tools of the trade.

The key to successful predictive model development is process and skills-dependent. Part art and part science, it requires sound analytical interpretation gained from methodological, thorough analyses of your data prior to building a model. These insights and newly-discovered knowledge will lead the modeler to match your unique data patterns with the most appropriate modeling techniques to proactively predict your most likely defectors.

After development, your model will become part of an ongoing, measurable process. While its power lies in the ability to predict likely behaviors, it cannot take the correct measures to motivate your customers. So, as is true with preventative and reactive strategies, the ultimate success of proactive attrition prediction requires the right timing, stimulus, coordination and execution through your customer touchpoints.

WHAT'S THE BEST ATTRITION ALGORITHM?

In short, no single "best algorithm" exits. Every situation is unique and your customer characteristics and operating environment may favor one algorithmic solution over another.

Traditionally, the most commonly-employed modeling algorithms for attrition prediction have included:

- Decision Trees,
- Logistic Regression, and
- Neural Networks.

While these algorithms are still widely-used and are effective, the palette of available tools has expanded. And it also may include other, lesser-used techniques. Collectively, these can include:

- Random Forests,
- Bayesian Analysis,
- Fuzzy Analytics,
- Cluster Analysis, and
- Survival Analysis.

In addition, as a direct result of the ongoing advancement of computing power, more, and more potent sampling techniques are now practical. This same progression has also made it situationally-practical to combine multiple modeling methods for extra checks and balances through an approach that has come to be known as an "ensemble modeling".

BUT IT'S ALL ABOUT THE DATA!

It's a fact. Everything that has to do with the development and success of a proactive attrition program will rely on access to quality data. The process is centered on data so a model will never be more effective than the data used to develop and feed it. It all revolves around your data.

Therefore, it should come as no surprise when we say that **60% to 80% of total model development time is typically devoted to carefully and skillfully preparing and evaluating your data.**

Through "discovery", the first phase of data preparation requires a comprehensive survey and understanding of available, internal data. These sources can include:

- Sales, Credit and Payment History
- Geographic Location Attributes
- Customer Service Data
- Internet Usage and e-Communications
- Promotional History

Other primary and secondary sources are typically considered at this juncture. Most notably, these include consumer demographic "overlays" and marketing research.

The initial phases also consider data hygiene practices such as deduplication, editing, change of address and deceased processing, all of which are vital to identifying customers that may fall within the involuntary category.

Data for attrition modeling is also characteristically more involved. Since initial benchmarks for future prediction must be established, a "cross-sectional" perspective of your customers at a beginning point is usually in order. Concurrently, "the future" of attrition timing varies by customer conditions, so a "longitudinal" or customer perspective that extends in a time series is also needed.

And finally, the various data sources must be data is sampled, collected, assembled and "transformed" into analytical datasets so that "exploratory analytics" can be conducted to identify useful data items and relevant patterns for modeling.

WHAT'S NEXT?

Successful development of an attrition model is usually not an end, but is just one step in the process. More often than not, initial success leads to a "Can we do more like this?" question with a "Yes!" answer. In turn, this leads to additional, more highly-targeted models that collectively produce even greater levels of retention and profits.

Of course, there's more we can add to this conversation but we've run out of space. So feel free to give us a call. We'll continue the discussion, we'll answer your questions, and you'll *never* receive a high pressure sales pitch.

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