Customer Retention is NOT the End Game

The Beneficial Economics of Employing Analytics to Manage Customer Migration

By David Bartenwerfer

CUSTOMER RETENTION is one of the core objectives of the Marketing function. Indeed, Marketers invest large sums to understand their customers with the intent of favorably swaying their purchasing patterns. To retain customers and encourage them to spend more, Marketers employ metrics that track satisfaction and defection with the hopes that by tracking these metrics, they can positively influence their bottom line. However, Marketing investments designed to promote loyalty among high-value customers are highly varied in their success rates and don't go far enough to fully capitalize on the revenue opportunities of their current customer base.

RECOGNIZING GRANULAR CUSTOMER DYNAMICS

Customers vary in their purchasing patterns over time and understanding the analytics of these revenue dynamics offers a profitable opportunity for Marketers. By better understanding the changing feelings and requirements of customers who have decreased their spending, Marketers can address issues before those customers defect entirely. Also, there is much to learn from customers who are migrating their revenues in a positive direction as they provide a profile of the type of customer willing to increase their rate of spending. Furthermore, the understanding of both can lead to more accurate forecasting models, which will help Marketers predict the impact of future programs.

Loyalty marketing programs and their early derivatives have been around since the late 1700s when merchants gave out small copper tokens which could be collected by customers and exchanged for items in their stores. Throughout the next centuries, companies have used premiums, boxtops, trading cards and other prizes—on to today's frequent flyer and frequent buyer card programs—to entice repeat purchases from customers. The concept was expanded in the 1990s from merely a model for conducting business to becoming a vehicle for marketing and advertising and has made it ubiquitous in consumer marketing organizations. Indeed, many loyalty programs have changed the way customers interact with the companies from which they purchase products or services and by how much.

The business model of customer loyalty relies on achieving a specific pattern: quality of product or service leads to customer satisfaction, which leads to customer loyalty, which leads to profitability. The management of granular customer dynamics enhances this business model by helping Marketers measure, understand and then act on the drivers behind the incremental downward and upward movements in consumer purchasing habits.

The mathematics behind measuring customer dynamics can be illuminated by an analytical methodology called Markov chains. A Markov chain is a mathematical system that undergoes transitions from one state to another, between a finite number of possible states over defined time periods. In this case, companies can measure individual customer purchases over a month (or quarter), segment those customers into identifiable groups with similar purchasing sizes, and track the percentage that are moving from one group to the other over time. This article presents an example of the application of the basic mathematics in the context of customer migrations.

THE VALUE OF UNDERSTANDING CUSTOMER DYNAMICS

By re-orienting their understanding of customer buying patterns from defections alone to one based on purchasing dynamics, Marketers can unlock a surprisingly large amount of value. Simply put, many more customers change their behavior than defect outright. Because of that, reducing downward migration by a modest percentage can have a large and lasting beneficial impact. And, managing migration not only gives companies an early indication of a potential customer defection but also helps drive upward migration. Since the opportunities are equally positive in either direction, and because many of the tactics companies can employ to influence their customers' spending are similar regardless of which dynamic they focus on, a company seeking to impact either upward or downward migration can have a huge impact. The benefits to the Marketing organization, and the company as a whole, are numerous:

- **DRIVE LONG TERM REVENUE GROWTH—**By understanding and acting upon customer dynamics companies can identify significant opportunities for incremental revenue growth;
- **REDUCE CUSTOMER DEFECTIONS—**By discovering the drivers of downward migration companies can stop the process that leads to eventual customer defections well in advance;
- **BUILD BETTER FORECAST MODELS—**Tracking customer revenue patterns at a granular level provides hidden detail for forecasters; and
- **PROVIDES A NEW WAY TO GAUGE THE IMPACT OF MARKETING INVESTMENTS—**Customer dynamics provide new metrics to measure the impact of their marketing programs.

Basic Math of Customer Dynamics

As mentioned previously, the mathematics behind measuring customer dynamics can be best modeled by an analytical methodology called a Markov model. In this mathematical system entities undergo transitions from one state to another, between a finite number of possible states between defined time periods. In a customer context, companies will typically look to their customers' revenue production over a month or a quarter, but different industries call for different model structures.

Analytical Overview

In order to employ a Markov model in this context, Marketers should segment their customers into groups with similar levels of revenue production (their "state" of revenue production), and then track the behavior of each customer's revenue state over time to determine how many customers "transition" between the states.

Exhibit 1 illustrates examples of upward and downward migration. On the left side, one can see a group of "high" value customers (based on their level of purchases) in the first month with 10% of those customers decreasing their level of purchases to "medium" and 5% decreasing their level of purchases to "low" from month 1 to month 2. Each industry will define their "high", "medium" and "low" value customers differently. A grocery chain might define a "high" value customer as someone who purchases at least $400 in groceries per month, while a cell phone provider might consider a "high" value customer to be a business entity with multiple users.

The right side of Exhibit 1 provides an example of upward customer migration where between month 1 and 2, 15% of "low" value customers migrate upward to "medium" customers (and 5% to "high" value customers).

So when tracking the rates of transition for their customer segments, Marketers should track the percentage of customers from one state (e.g. "High" revenue producers) to another (e.g. "Medium" revenue producers) over any given month. Of course, the model should be validated with several months of data to ensure it best approximates reality. Validating the model simply means that one should check to see that the values in the state transition matrix are roughly similar month over month, or the differences can be explained by unlikely events (i.e. a hurricane or other service disruption) or seasonality.

A sample customer transition matrix is presented in Exhibit 2. An effective way to set up such a matrix involves a three-step process:

1. Segment customers into states: "High", "Medium", and "Low" as measured by their monthly revenue production.
2. Add in states of "New" to represent new customers acquired in any given month and "Defect" to represent lost customers during any given month.
3. Track the purchasing habits of each individual customer during each of the previous 12 months and calculate the percentage of each customer state that "transitions" to any other customer state.

So the way to read the state transition matrix in Exhibit 1 is as follows:

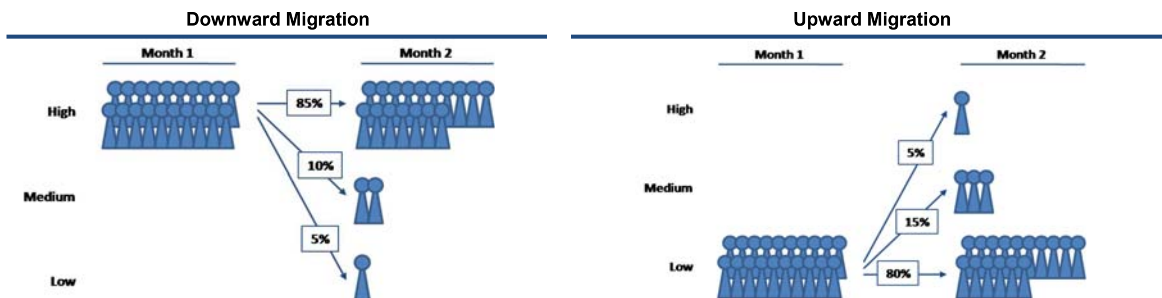
- 85% of "High" revenue customers remain "High" revenue customers one month later.
- 10% and 5% of "High" revenue customers degrade to "Medium" and "Low" revenue customers each month respectively (and 0% defect).
- Similar logic applies for "Medium" and "Low" revenue generating customers.
- 15% of "New" customers enter the picture as "High" revenue customers, while 30% and 55% enter as "Medium" and "Low" revenue customers respectively.

Once the state transition matrix has been created, revenue can be modeled based upon the average revenues for each customer state with simple equations.

Given that, the macro outputs from the model will be a) the populations of each customer state and totals over time, and b) the revenues associated with each of those states over time.

EXHIBIT 1

Examples of Downward and Upward Customer Migration



FORECASTING AND "WHAT IF" ANALYSES

Markov models have been used to forecast everything from stock prices to crop yields to cardiac patients. In fact, Markov models are inherently a forecasting tool because it is easy to employ the associated matrices to predict the future population of each state. And, when those populations produce something, such as revenues, the framework provides a reliable and simple tool to predict future revenues.

Given this, it is now a straightforward exercise to set up "what if" analyses by building a baseline model and then looking for specific variables in the matrix to target for improvement. One can use the model to determine which strategies might prove to be the most impactful from a revenue perspective.

EXHIBIT 2

A State-Transition Matrix

		Month 2			
		High	Medium	Low	Defect
Month 1	High	85%	10%	5%	0%
	Medium	10%	75%	13%	2%
	Low	5%	15%	77%	3%
	New	15%	30%	55%	0%

STRATEGIES

So let's extend the example of the above state transition matrix and find areas which might be most impactful for driving revenues. Here are a few strategies for potential marketing programs that might be worth testing:

- Keep "High" revenue customers from migrating downward to "Medium" and "Low" revenue customers.
- Migrate "Medium" revenue customers to "High" while keeping them from backsliding to "Low".
- Migrate "Low" revenue customers into the higher categories.
- Reduce the rate of defections.

THE IMPACT OF SMALL CHANGES

Each of these four strategies was entered into the model and their results are cataloged in Exhibit 3. The analysis suggests that programs impacting the high revenue customers would have the largest revenue impact, which tracks with intuition.

CUSTOMER INSIGHTS

Different industries can be expected to have very different customer dynamics, and the objective of this article is not to venture into the intricacies of each. However, it would serve Marketers to ask why customers migrate positively or negatively over time in a general sense in addition to their particular industry.

Satisfaction metrics help marketers anticipate possible defections. However, to exert additional influence on customer behavior, Marketers should go beyond a simple understanding of whether customers like or dislike a product or service offering.

In industries that experience frequent customer service issues, those issues can be an harbingers for downward or upward migration depending on how the issue is resolved. But satisfaction alone doesn't answer the 'why' of the migration, nor does it tell of the likeliness of increases or decreases in customer spending levels. There are dynamics at play that concern a customer's individual or family situations, the companies' product or service offerings and those of the competition that all might play a role in revenue migration patterns.

WHY CUSTOMERS MIGRATE - TRIGGERS

Marketers should augment the analytics of the state transition model with a qualitative look at the specific reasons why customers migrate their revenues in one direction or another. This will help guide Marketers in their efforts to influence that revenue migration. Why would customers reduce their spending with a given product?

- Negative experience: The first and most obvious explanation would be a negative experience, either acute or chronic. To that end, Marketers should

EXHIBIT 3

The Value of Customer Migration Strategies over Time

Strategy	Impact on Revenues in 24 Months
Prevent downward migration of "High" revenue customers so retention rate in state improves by 8.8%	21.1%
Improve upward migration of "Medium" customers by 50% and reduce downward migration by 50%	11.6%
Improve upward migration of "Low" customers by 50%	8.7%
Reduce defection rates by 30%	8.3%

cross-reference data on negative customer experiences and look for any resulting downward revenue migration. Then they can experiment with different tactics in order to reduce the likelihood of revenue losses from those negative events.

- Better Options: Customers might also drop their spending levels because, after a rational analysis, they have found a better option from a competitor. Some customers rarely reassess purchasing decisions, but some are doing so quite frequently. So Marketers should keep track of differences in competitors' offerings or advertising to determine if they are resulting in any downward migration.
- Change of Situation: Also, customers might have a change to their situation. Losing a job, moving, or having a baby are life events that might alter the level of spending. Marketers should understand how these life events would impact their share of wallet for their customers and adopt strategies to combat any potential revenue losses.

Why Customer Migrate – Customer Types

To a large extent, most customers keep their share of wallet with a company fairly stable–i.e. they are generally loyal customers. Marketers should seek to understand why their customers are maintaining or growing their revenues with their company. Generally, they do so because of a few reasons.

- Rationality: Customers who frequently and rationally reassess their purchasing decisions may maintain or even increase their level of purchases because the company continues to offer the best value for their specific needs. Marketers should be aware of these customers and their logic for their decisions as those insights may provide ways to stem downward (or increase upward) migration of other customers. Also, negative customer experiences may impact this group of customers more so than is typical.
- Inertia: The second set of loyal customers is those who let inertia drive their purchasing decisions. For them it is simply too much of a hassle to change products or service providers even if they believe they can get slightly better service or value for their dollar elsewhere. This is particularly true in industries with high switching costs like insurance or cell phones or low involvement purchases like utilities. However, Marketers should know that everyone has a tipping point and this type of customer is likely to be the one to, once a decision has been made, reduce their spending/migrate downward and be especially challenging to reverse.
- Emotional Attachment: The most loyal customers are those who feel a strong emotional attachment to the brands that they select. They feel that their choices are what is best for them and they rarely stop to re-evaluate their purchasing decisions. Soft drinks and other heavily branded consumer goods are examples of industries that benefit from customers who are emotionally driven. Marketers should love these types of customers and find out ways to attract more of them.

Delivering Results

So where does a company start in understanding their customer migration patterns? Patterns of customer revenue migration differ from company to company and across industries. These patterns are generally influenced by six industry traits: the level of switching costs, the frequency of purchases, the size of the average purchase, the nature and frequency of interactions with the company, the level of emotional behavior involved in a purchase and the degree of differentiation among competing product or service offerings.

Marketers understand their specific industry traits and should use that information to form hypotheses about how those traits impact customer migration patterns. A six step process can help to grow revenues using state-transition models:

1. **Segment** the customer base into revenue groups in accordance with the state-transition model;
2. **Construct** the state-transition matrix and model;
3. **Validate** the model with data from the past six to twelve months to ensure accuracy;
4. **Assess** the output from the model to look for surprises and insights;
5. **Brainstorm** for ideas for marketing programs that can impact customer migration rates;
6. **Experiment** with those marketing program ideas and analytically evaluate the results to determine which programs are most impactful.

Analytics First

Next they should perform the necessary analytical work on their customer revenue database to cut that information in accordance with the state transition matrix model. The first step is to segment customers according to revenue groups. Each industry and even each company may desire to employ different revenue segments (and purchasing time periods) depending on which type of segment offers a clear distinction between each.

For example, a grocery chain might want to look at customers who spend on a monthly basis and group customers by a percentage of share-of-wallet such as 0-25%, 25-50%, 50-75% and 75% and above. Note that they also may find it beneficial to segment customers first into single household versus family household to make the share-of-wallet calculations more accurate. Either way, it is important to note that at the early stage, there is some critical thinking and planning (and even iteration) that requires some intellectual investment in order to get the most out of this modeling process.

After the first model iteration is complete, Marketers should validate the data for the previous six to twelve months to ensure that the model best represents reality, then review the information that results from their analysis, which sometimes might prove insightful, even shocking. An online grocer employed this model and a key assumption in their business plan (that once customers tried their service, they would get hooked and defections would be minimal) was proven invalid. While outright defections were troublesome, the downward migration rate proved to be very prevalent and a serious problem. In response, information gleaned from the model lead the company to channel more of their marketing investments away from awareness campaigns like television advertising and toward reducing downward migration (pre-defection) such as targeted call-to-action and other loyalty programs.

INTUITION SECOND

Marketers can also review their customer experience history to determine if any major events in the past year impacted customer migration rates. Major negative events such as large service disruptions, price increases, competitive moves or major positive events such as price decreases, favorable press or large product launches may be seen in the data.

After the analytical and historical research has been conducted, Marketers can brainstorm about potential ways to positively impact the identified customer migration patterns—i.e. what programs can they offer that would either a) increase the likelihood of migrating customers towards higher levels of purchasing and b) decrease the likelihood of downward migrations.

This is the time to consider the details of each customer based on the loyalty segments outlined previously. For example, deliberative customers make decisions in an altogether different way than emotive customers.

At this point, Marketers can perform tailored experiments to attempt to drive positive migration. Well-thought-out experiments coupled with the data from the state transition model forecasts can lead to important insights as to which programs will offer the greatest return on investment. Even the CFO will be impressed by efforts here.

THE BUSINESS LOGIC FOR ACTION

Addressing customer retention by itself is not enough. By re-orienting their understanding of customer buying patterns from defections alone to one based on purchasing dynamics, Marketers can unlock a surprisingly large amount of value. Simply put, many more customers change their behavior than defect and, because of that, cutting downward migration by a modest percentage can have a large and lasting impact on revenues and profits. Further, managing migration not only gives companies an early opportunity to alter a downward course before their customers defect entirely but also helps companies drive upward migration. Indeed, managing customer migration can have 10x (or more) the impact of only managing customer defections. The benefits to the Marketing organization, and the company as a whole, are numerous:

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Today, Marketers invest large sums to understand their customers with the intent of favorably swaying their purchasing patterns. To retain customers and encourage them to spend more, Marketers employ metrics that track satisfaction and defection with the hopes that by tracking these metrics, they can positively influence their bottom line. However, Marketing investments are highly varied in their success rates and don't go far enough to deeply understand the revenue opportunities of their current customer base. By employing the method discussed in this article which combines analytics with experience, Marketers can drive revenue gains by looking deep into their customer revenue data and uncovering opportunities for revenue generation that were previously unnoticed.

AUTHOR

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