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Retail Relay (Abridged)

The last-mile delivery cost kills most home delivery businesses. I knew we could find a better way.

—Zach Buckner, CEO of Retail Relay

Zach Buckner, the 31-year-old founder and CEO of Retail Relay, was again confronted with an ongoing frustration of daily suburban life. After his third trip to a local hardware store to get supplies for the same home-improvement project, Buckner realized that a one-day project had now effectively become an all-weekend affair. He had spent more time shopping than installing new wiring in his 1930s-era house. Buckner had studied electrical and systems engineering and completed many consulting assignments for companies looking to improve their business operations. He drew on that knowledge and experience to come up with the concept of Retail Relay (**Figure 1**). And a new paradigm for online shopping was born.

Buckner was determined not to repeat the mistakes of others who had started online shopping ventures. To make Retail Relay successful, it would be imperative to cut out the last-mile delivery costs and to minimize up-front working capital requirements. Last-mile delivery costs greatly reduced operating margins. Getting a truckload of products to a single neighborhood or workplace location was not nearly as costly as paying for drivers and trucks to bring products to individual homes. Likewise, a simple initial distribution system would not require the kind of "Willy Wonka operation" that had strained the financial viability of so many other businesses.[1] Another online retailer, Fresh Direct, had been able to make its more expensive warehouse and home-delivery system work, but it operated in a densely populated area of New York City. Buckner wanted to find several locations that were convenient for many customers, both in location and in ease of order pickup. These pickup locations would be the relay point for the grocery items on their journey from farm or store to the customer's home. If these cost-reduction measures were successful, they would allow Retail Relay to provide this service to customers without charge, which effectively meant customers would pay the same price for these items had they shopped at the retail stores themselves.

Retail Relay Operations

Retail Relay initially set up its operations in Charlottesville, Virginia, a city with a population of 50,000 that was home to the University of Virginia as well as several other large private and government employers. Although pockets of poverty existed in Charlottesville, significantly more than the average number of residents could be described as having a high level of income and/or a high level of education. It also had an unusually

[1] Zach Buckner used the phrase "a Willy Wonka operation" in reference to the movie *Willy Wonka and the Chocolate Factory* as a way of implying a highly elaborate and automated system.

This case was prepared by Ron Wilcox, Professor of Business Administration, and Kelly Brandow. It was written as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation.

high proportion of residents who were interested in local and organic food. Retail Relay's management team believed that Charlottesville was an ideal location in which to test its concept.

The typical customer order and product pickup process could be described in six discrete steps:[2]

1. Customers submitted their orders and paid for those orders online,[3] selecting from what evolved into a mostly grocery and home products assortment. Customers wanting to pick up their order the next day had to place it by midnight the night before.
2. Orders were downloaded by Retail Relay immediately after midnight, and then broken down and transmitted to participating retailers.
3. Retailers used these orders to pack and sort bags according to customer numbers.
4. Orders were picked up by a Retail Relay driver the following morning and returned to the warehouse, where they were manually resorted.
5. The orders from multiple retailers were resorted according to customer and repacked onto the truck in the appropriate temperature zone (shelf-stable, refrigerated, frozen). Any one customer might have bags from several retailers and multiple bags from a given retailer(s).
6. Finally, orders were transported to the customer pickup location in a Retail Relay truck (**Figure 1**).

Figure 1. A Retail Relay delivery truck also served as a moving billboard.

Source: Author photograph.

Prices and Promotions

The basic contract with suppliers stipulated that suppliers must sell products to Retail Relay at 20% less than their in-store shelf price. Given its distribution costs, this effectively meant that Retail Relay's margins were about 15%. The retail price to customers was set to the current shelf price at the supplier's brick-and-mortar establishment. Suppliers were required to input their own product prices, using in-house developed iPhone, BlackBerry, and Android applications to access Retail Relay's ordering system. While it was possible for Retail Relay to audit its system to make sure its prices were indeed the same as an individual supplier's regular shelf prices, it was more difficult to know whether every deal price offered at a supplier's store was passed through to Retail Relay customers. As a practical matter, management believed that some suppliers were more diligent than others in making sure their Retail Relay price matched their true shelf price.

[2] Retail Relay did offer a fee-based home-delivery option, but this constituted only a small part of its business.
[3] Retail Relay's website, http://retailrelay.com/ (accessed Sept. 28, 2016).

The Purchase Study

Retail Relay conducted a study using 587 randomly selected customers who had made their first purchase from it at least within the last two years. The results of this study, both regarding the size of the average purchase, and the probabilities that any individual customer made a specific number of purchases in this time frame, is given in the Excel file associated with this case.[4]

Retail Relay wanted to test the efficacy of two price-promotion methods. The first was a home-delivered flyer that it distributed to 2,000 homes in a Charlottesville subdivision. The flyers contained a coupon for 10% off the total price of a Retail Relay order. The cost of this door-to-door program, including printing, transportation, and labor, was approximately $1,200 and produced a total of seven users, all new customers.

Retail Relay also tested coupons inserted in Valpak's blue envelope mailers that also contained promotional offers from many companies, most of them local. Retail Relay's coupon offered $5 off any purchase of $25 or more and $15 off a purchase of $100 or more. An example of the Valpak insert can be found in **Exhibit 1**. By purchasing insert coverage across three separate mailings at a total cost of $1,100, Retail Relay was able to reach approximately 60,000 homes in the greater Charlottesville area. From coupon redemptions, which required customers to input a promotional code when they made their online order, and previous purchase data, management determined that these Valpak inserts were redeemed by 58 new customers and 10 existing customers.

Management wanted to determine the profitability of these promotions. An important part of this analysis would be the determination of customer lifetime value (CLV), a metric that assigned a dollar value to a potential new customer. A CLV analysis of its customer-level data would allow Retail Relay to answer the question: "If I acquire a new customer, on average how much money is that customer really worth?" The **Appendix** of this case provides a description of how to apply a CLV analysis to the data contained in the Excel file accompanying the case.

The Richmond Expansion

In its Charlottesville birthplace, Retail Relay enjoyed robust and profitable growth, but Buckner and Katz had already made plans for expanding to other locations. On the immediate horizon was a planned expansion in the summer 2010 into the Richmond, Virginia, market. Katz was put in charge of making plans for the expansion, and there was much to consider.

The city of Richmond anchored a metropolitan area of approximately 1.2 million people, with the population of the city proper slightly more than 200,000. The city and surrounding metropolitan area were more economically diverse than Charlottesville. This market presented its own set of challenges. New pickup locations had to be selected, a new sorting facility established, and—because Richmond was 70 miles from Charlottesville—a new supplier base developed. As Katz assessed the situation, he considered whether to enter the market with an aggressive customer acquisition effort, spending the profits the Charlottesville market had generated on promotions designed to gain rapid market penetration. He asked himself: How much money was a new customer really worth and what were the most effective promotional ideas for reaching one?

[4] Ron Wilcox, M-0784X (Charlottesville, VA: Darden Business Publishing, 2010).

Exhibit 1

Retail Relay (Abridged)

Example of Valpak Insert

Source: Retail Relay; used with permission.

Appendix

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Customer lifetime value (CLV) can be calculated using a number of different methods. The most appropriate method is often governed by the features and restrictions of the data that are being analyzed.

The data in the Excel file associated with this case have two important features that affect the way they should be analyzed. First, the data are organized by purchase occasion rather than by time period. Second, we can easily determine the probability that a customer who makes purchase number *t* will go on to make purchase number *t + 1*. Therefore, we can also determine the probability that any new customer making their first purchase will continue to purchase through occasion *t*. Stated another way, these data allow us to answer questions such as: "What is the probability that a new customer will make purchases from Retail Relay on at least 10 occasions?" The data contain information on 30 potential purchase observations.

Instead of the constant retention rate found in some models of CLV, we have purchase-occasion-specific rates. The CLV expected from a new customer can therefore be calculated by:

$$CLV = \sum_{t=1}^{30} \frac{r_t M_t}{(1+i)^{(t-1)}}$$

where

- r_t is the probability that an individual will make purchases on at least *t* occasions given that they have made their first purchase. For the first purchase occasion, $r_t = 1$.
- M_t is the dollar contribution margin of a shopping basket at purchase occasion *t*, adjusted for distribution costs and coupon redemption expenses.
- *i* is the relevant discount rate between any two purchase occasions. Because the average interpurchase time between purchase occasions in these data is about three weeks, the relevant discount rate can be approximated by dividing the annual rate by about 17. More accurately, the annual rate (*a*) can be converted to the three-week rate by the formula

$$i = (1+a)^{1/17.33} - 1.$$

- It should be noted that if the data provided in the Excel spreadsheet do not provide the retention rate (r_t), some (minor) data manipulation is required. Finally, while the predicted CLV might increase if we had data beyond 30 purchase occasions, 30 occasions is sufficient to provide a reasonably accurate estimate of CLV for the purposes of this case. The case provides data for what might most accurately be called about a two-year CLV (30 weeks * average interpurchase time of 3 weeks = 90 weeks).