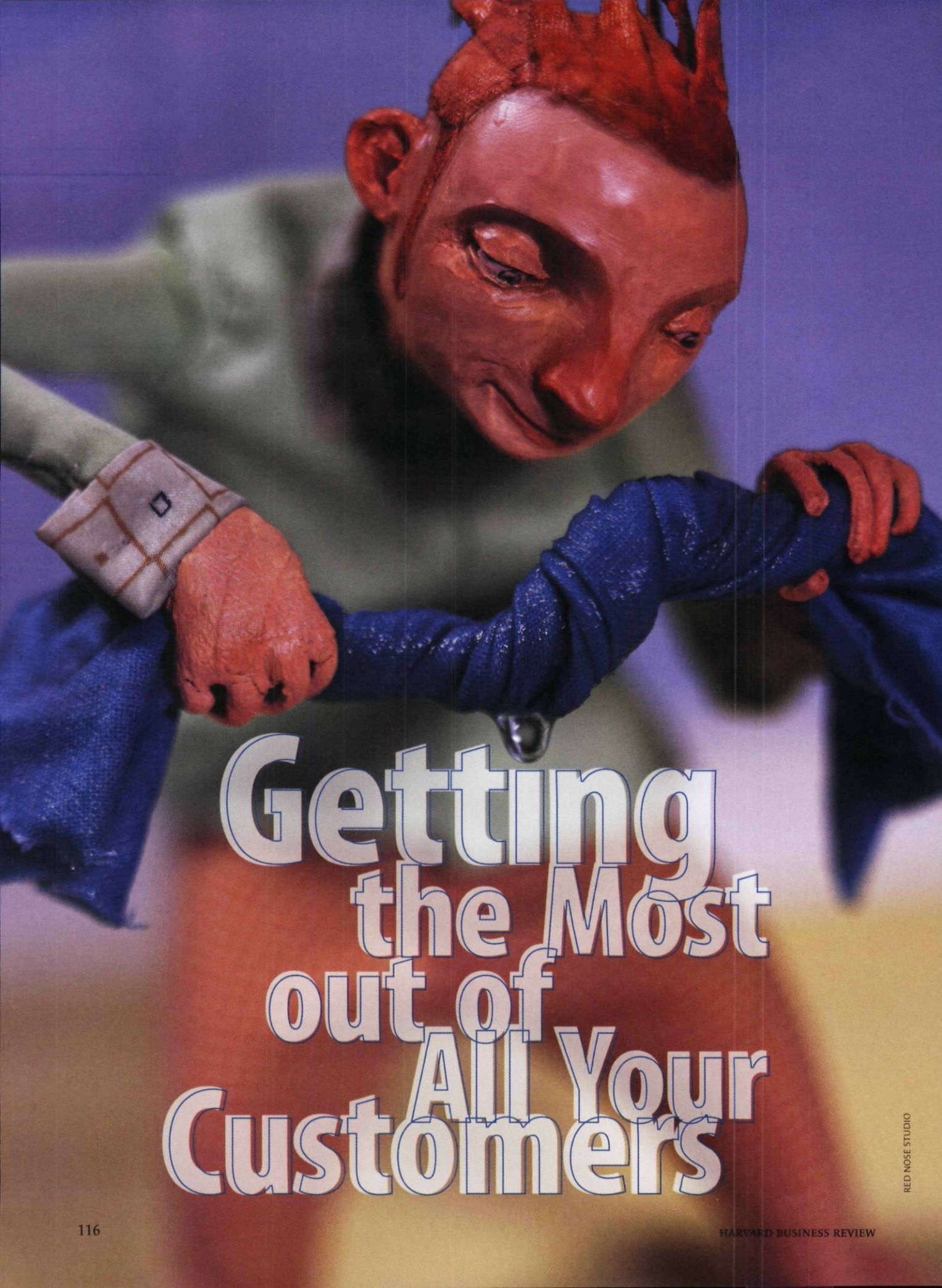

Getting the Most out of All Your Customers

RED NOSE STUDIO

Stable, healthy growth is built on the profitability of customers, not on their raw numbers or their loyalty. New techniques allow companies to focus their marketing dollars precisely where the profits are.

COMPANIES SPEND BILLIONS of dollars every year marketing directly to potential customers and managing relationships with existing ones. Increasingly, thanks to technologies allowing them to gather extraordinarily rich data on consumer demographics and behavior, firms can make the individual the principal unit of analysis and management. Armed with these data, they can tailor their messages–targeting just those people who would be likely to want a particular product or suggesting additional items that current customers would be likely to buy. At the same time, using related technologies that allow them to reach consumers through many different channels, companies can improve the overall effectiveness of their marketing communications, further increasing their potential profits.

Over the last decade, firms in sectors as diverse as retailing, pharmaceuticals, and business-to-business services have increased the scale and pace of their direct marketing and developed an arsenal of analytic tools to help them more precisely identify and manage their individual customers: lift and gains charts; response analysis; recency, frequency, and monetary value (RFM) models; decision trees; decision calculus; and many others. The new tools have gone a long way toward improving the effectiveness of marketing investments. Otto Versand of Hamburg, Germany, the largest mail-order company in the world, is an especially sophisticated user; given enough data, it can predict with almost 80% accuracy whether an individual will respond to a particular mailing. This capacity gives the retailer a significant competitive advantage. In 2003, for instance, Otto Versand was able to grow revenues of its North American subsidiary Crate and Barrel (retail and mail-order) by 12.6% to $865 million in a very hostile retail climate. Using its formidable customer-targeting skills in its joint venture with the Spanish fashion retailer Zara, it also grew revenues in the German market a whopping 70%.

Yet despite such successes, our empirical evidence suggests that many companies are still struggling with their direct-marketing investments. In a recent study, we analyzed the marketing budgets of three well-regarded firms. At one, also a catalog retailer, we estimated that a 31% *reduction* in marketing investment per customer would *increase* average customer profitability by about 29%. An annual decrease of 69%, we found at the second company – a business-to-business service provider – would increase average customer profitability by 42%. Conversely, at the third firm, a pharmaceutical giant, we estimated that a 31% increase in annual direct-marketing investment per customer would improve average customer profitability 36%.

Why are these companies so off the mark? In the following pages, we argue that in making direct-marketing investment decisions, too many marketers still overemphasize short-term cost over long-term gain, favoring the pursuit of customers who are cheap to acquire and cheap to retain without necessarily being very profitable. We also raise a more subtle problem: Maximizing customer acquisition and customer retention separately does not maximize profits. As with any supply chain, companies can get more out of direct marketing if they see it as a single system for generating profits than if they try to maximize performance measures at each stage of the process.

There are some technical difficulties involved, however, because the data companies rely on to estimate the potential profitability of their customer pools are skewed toward the customers they already have. We will present a tool that gets around this problem and allows managers to take an integrated approach to deciding how much and where to spend their companies' marketing dollars and efforts. Using data that companies already gather, the tool

by Jacquelyn S. Thomas, Werner Reinartz, and V. Kumar

can guide managers in deciding how much to spend on direct marketing, what percentages they should devote to acquisition versus retention, and even what percentage of their funds they should allocate to the different direct-marketing channels to get the most profits from each customer. We'll demonstrate how powerful that information can be by applying the tool to the three companies we've studied in depth.

Where Companies Go Wrong

In our experience, most companies still use the customer acquisition rate (the percentage of people targeted by a direct-marketing effort who actually become customers) and the customer retention rate (the duration of a customer's relationship with the firm) as their principal metrics of marketing performance. That's partly because these variables are easy to understand and track and partly because companies have long had an obsession with market share. And for some businesses, of course, they are very accurate proxies for performance – subscriber-based magazines are a case in point.

But for a great many industries, using acquisition and retention rates as measures of overall performance is highly problematic for a variety of reasons. First and most obvious, focusing on raising rates ever higher encourages marketers to overlook the law of diminishing returns. Inevitably, beyond a certain point, the cost of acquiring or retaining a customer outweighs the revenues he or she will bring in; after that point, of course, increasing the acquisition or retention rate only lowers the company's profitability. And yet, we're constantly surprised by how often marketing departments treat cost-effectiveness as an afterthought.

Clearly, companies that focus only on customers who are easy to acquire and retain are not allocating their resources as efficiently as they might.

Many companies alert to this first trap run into a second. Typically, we've found that their managers focus too much on the present cost of acquiring and retaining customers and not enough on their customers' long-term value. Indeed, many marketers explicitly or implicitly group their customers into four segments, solely according to the difficulty and cost of acquiring and retaining them, essentially ignoring the revenues those individuals generate. The first group contains the people who are easy to acquire and easy to retain. The second comprises those who are difficult to acquire but easy to maintain. In the third group are the people who are easy to acquire but hard to retain, and the fourth group holds those who are difficult both to acquire and to maintain. The consequences of this approach are obvious: If both sales staff and relationship managers are targeting the people who are easiest to please, the company will end up with a disproportionate number of customers who are both easy to acquire and easy to retain. Modern technology makes this all the more likely to happen, as it enables marketers to identify precisely who those individuals are.

That would not be a problem if all customers were equally profitable or if acquisition and retention costs were overwhelmingly the major determinants of customer profitability. But a look at the numbers shows otherwise, as we found when we studied detailed customer data provided by the catalog retailer.

We tracked the behavior over three years of a single cohort of customers who all began their relationships with the firm in the same quarter. We determined which group each customer fell into, how much was spent to acquire and retain each one, and what contribution each made to the company's profits. When segmenting customers into the four groups, we set the dividing line between "low" and "high" at the median for both the cost of acquisition and the cost of retention (see the exhibit "Does Cost Drive Profits?).

As we expected, the largest segment – 32% – was made up of customers who were easy to acquire and retain. But they accounted for only 20% of the entire cohort's profits. The largest profit contribution came from the smallest group, the customers who were expensive to acquire but cheap to retain. They made up only 15% of the total but were responsible for fully 40% of the profits. The next largest contributors to profits – 25% of the total – were the seemingly troublesome 28% of the cohort who were both difficult to acquire and difficult to retain. The least profitable customers were the ones who were easy to acquire but then turned out to be difficult to maintain. About 25% of all customers fell into that category, yet collectively they yielded only 15% of the profits. These findings are not unique to this company; for nearly any firm, profitable

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customers will be found in all four segments, though the distribution of profits and customers will vary.

Clearly, companies that focus only on customers who are easy to acquire and retain are not allocating their resources as efficiently as they might. The cost and effort of acquisition and retention is just one of many factors they need to consider. And it's not as if reliable data do not exist on the other variables. In fact, the body of customer data is now so rich that managers can–as those at companies like Otto Versand are starting to do – make accurate forecasts of the potential loyalty and potential profitability of any customer and allocate acquisition and retention resources accordingly.

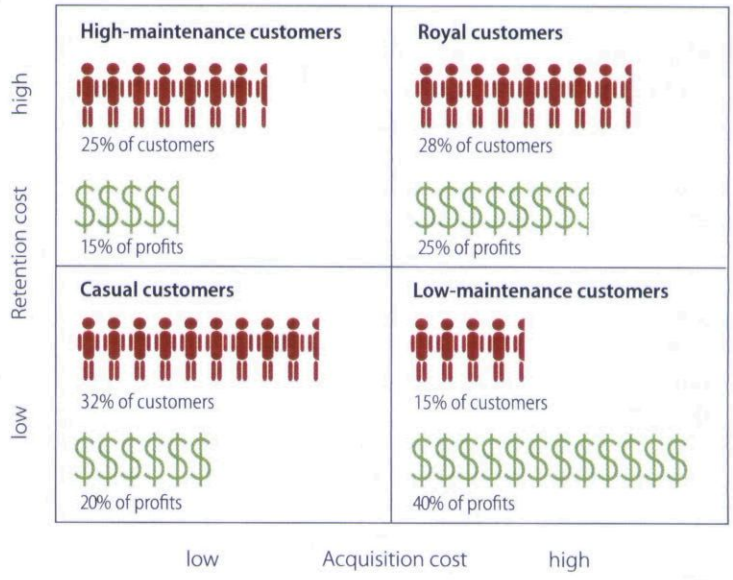
Many companies wise enough to avoid that second trap often fall prey to the third, more subtle trap–treating acquisition and retention as independent activities and trying to maximize both rates. If their marketing budgets are not constrained by other factors, such companies will almost certainly find themselves overinvesting in both activities. In trying to acquire the most possible customers, they will attract some who are not profitable but remain stubbornly loyal and, conversely, others who while highly profitable in an instance or two will never be loyal. If retention efforts simply focus on keeping the most customers, companies will not only waste money trying to retain the loyal unprofitable group but will also vainly throw money after the profitable transient group. What's worse, those funds won't be spent on attracting potentially highly profitable customers who are hard to acquire.

Plainly, then, it's a good idea to integrate the management of customer acquisition, customer retention, and profitability. However, one final – and seemingly insurmountable–technical problem stands in the way. In nearly every case, the models that even the sophisticated direct marketers use to link customer profitability to direct-marketing investments are subject to a failing known to statisticians as selection bias.

Selection bias arises when researchers use a sample that is not truly representative of the whole population. If a sample is biased, any relationships inferred from it can be misleading. In the marketing context, for instance, selection bias can cause analysts to incorrectly predict the impact of marketing activities or customer characteristics on customer behavior, which can lead to bad marketing investment decisions. And since, to uncover relationships between customers and profits, most direct marketers rely heavily on data about actual customers – who are only a subset of the total pool of possible customers–they are bound almost by necessity to estimate the relationship between acquisition, retention, and profits incorrectly. As a result, they will once again ignore the potential of customers whom they have not yet succeeded in acquiring or overinvest in the ones they already have.

Does Cost Drive Profits?

Just because customers are cheap to find doesn't mean they're profitable. That's what this mail-order company found when it related the profits its customers generated to the cost and effort it took to acquire and retain them.



Allocating Resources for Profits

To truly manage direct marketing for profits, marketers need an approach that gets around selection bias so they can uncover the true relationship between customer behavior and long-term profits. We believe that our approach, which we call the ARPRO model (Allocating Resources for Profits), does just that.

ARPRO is essentially a complex regression analysis in which, very broadly speaking, total long-term profitability is a function of factors relating to the amount the company spends on each customer and factors relating to the customer's behavior, with each factor weighted according to its relative importance and the data set adjusted for sample bias.

The challenge in setting up the model, of course, lies in identifying the factors correctly and in accurately determining their relative weightings in the model's various equations. Ideally, these factors should comprise three types of data: what the company does to attract and retain

customers, the demographic and psychographic descriptors of the company's customer pool, and the actual buying behavior of those potential customers (how much they buy, how often, what share of wallet, and so on). Certainly, the richer the available information, the better the predictions.

Some of these factors can be directly observed and controlled: the average amounts spent on acquiring customers or on retaining them, for example. Other, more complex and interdependent factors can only be estimated through their own regression analyses. In particular, the average duration of a customer's relationship with the company is partly a function of the amount spent on retention efforts. Once all the elements that make up these factors have been estimated and the weighting coefficients indicating their relative importance have been assigned, managers can manipulate the model by plugging in different amounts for the factors they control to see which values result in optimal customer profitability.

An integrated regression of the factors determining acquisition, retention, and profitability such as we have just described inevitably suffers from the problem of selection bias because it is based on data from retained customers, which are not representative of the whole population of prospective customers. To correct for this bias, we introduce a statistical correction mechanism called lambda, borrowed from Nobel Prize–winning research conducted by University of Chicago economics professor James Heckman to correct sampling biases in unemployment data. Like customer information, unemployment data are riddled with potential selection biases because they're taken only from the ranks of people who choose to work and not from the ones who don't. Thanks to this correction procedure, we can now construct integrated regression models about acquisition, retention, and profitability that eliminate the selection bias arising from data on a company's retained customers.

To illustrate how the ARPRO model works, we'll take a highly simplified hypothetical case in which the total long-term customer profitability for a company is determined only by how much the company spends on acquiring a customer, how much the company invests in retaining a customer, and the duration of the relationship. Even in this simplest of examples, duration is itself a complex factor determined by how much the company invests in retaining its customers. In estimating the relationship between profitability and these three factors for the company's entire population of current and potential customers, however, we also need to account for diminishing returns on our marketing investments over time. So, following standard statistics practice, we subtract the squares of the two investment factors to simulate that effect. Then we add in the lambda factor to correct for selection bias, apply weighting coefficients ($c_1 \ldots c_6$ and $b_1 \ldots b_3$) to all of these factors, and set a starting intercept point. We now have the following two regression equations:

$$\begin{aligned}\text{Total long-term customer profitability (dollars)} = {} & \text{intercept} \\ & + c_1 \times \text{acquisition spending} \\ & - c_2 \times (\text{acquisition spending})^2 \\ & + c_3 \times \text{retention spending} \\ & - c_4 \times (\text{retention spending})^2 \\ & + c_5 \times \text{predicted duration} \\ & + c_6 \times \text{lambda}\end{aligned}$$

$$\begin{aligned}\text{Predicted relationship duration (days)} = {} & \text{intercept} \\ & + b_1 \times \text{retention spending} \\ & - b_2 \times (\text{retention spending})^2 \\ & + b_3 \times \text{lambda}\end{aligned}$$

Our next step is to quantify lambda. The actual math for this calculation is very advanced and beyond the scope of this article, but the data required are not complicated or difficult to acquire. In our experience, the customer information available to most marketing operations – individual-level data on, for example, when each customer came on board, their purchase behavior while each was active, and the kind of marketing aimed not only at existing customers but also at prospects – is more than sufficient for the calculation. (We would refer readers interested in looking at the math to our working paper.[1]) Lambda is always a positive number and can be greater than one. Typically, the higher the average probability of acquiring customers, the smaller the correction factor, reflecting the fact that a greater portion of the potential customers have already been acquired. In our hy-

pothetical case, let's assume that lambda is 0.6. Note also that lambda is a constant as long as we rely on the same basic data.

Next we determine numbers for the weighting factor coefficients, which is done by working out what those relative weights have been in the past, running historical numbers for the various factors in the equation against historical duration and profitability values. For the purposes of this illustration, let's assume that this analysis yields coefficients for our equation as follows:

$$\begin{aligned}\text{Total long-term customer profitability (dollars)} = {} & 20 \\ & + 5 \times \text{acquisition spending} \\ & - 0.25 \times (\text{acquisition spending})^2 \\ & + 8 \times \text{retention spending} \\ & - 0.1 \times (\text{retention spending})^2 \\ & + 10 \times \text{predicted duration} \\ & + 30 \times \text{lambda}\end{aligned}$$

$$\begin{aligned}\text{Predicted relationship duration (days)} = {} & 1 \\ & + 4 \times \text{retention spending} \\ & - 0.03 \times (\text{retention spending})^2 \\ & + 15 \times \text{lambda}\end{aligned}$$

We are now ready for the final step – seeing what profitability we can predict if we change the levels of investment in acquisition and retention. This is the simplest part of the exercise. All we have to do is systematically plug in different values for retention and acquisition spending into the equations to get alternate customer profitability estimates. After repeating this whole process several times with various amounts, we eventually find the acquisition and retention spending values that optimize customer profitability. In our simulation example for the pharmaceutical company, we used increments of $1, $5, $10, $15, and $20 for acquisition dollars and $40, $50, $60, $70, and $80 for retention dollars. The results of these simulations are summarized in the two tables shown in the exhibit "How Much Should You Spend?" As the tables show, the optimal spending amounts are $10 on acquiring a customer and $60 on retaining her. Note that investing $60 on retention would not optimize relationship duration, which confirms our belief that retention rates are imperfect predictors of profitability.

What we have presented here is a very simplified model. In practice, we often use a greater number of more precise input variables, including, for instance, the amount of investments in acquisition and retention made in each marketing channel – direct mail, e-mail, and so forth. For a list of the sorts of factors that companies can plug into their equations, see the sidebar "What Drives Profitability?" Indeed, the only drawback of this model is that it cannot be used to assess the effectiveness of broadcast advertising, where customer response is impossible to break down by individual. But it is absolutely applicable in any situation where information on individual customer behavior is available and where resources are expended on individual customers, which thanks to modern CRM technology is becoming the dominant approach to marketing in an increasing number of industries.

How Much Should You Spend?

Perhaps even more important than spending the optimal total amount on direct marketing is allocating that budget correctly between acquisition and retention efforts. Using our model, you can find the right split. In this example from a pharmaceutical company, we can see, in the first table, the point at which extra spending on customer retention starts to reap diminishing returns. Here, the highest retention rate is achieved with an investment of $70 per customer. But, as the second table shows, the maximum customer profitability occurs when $10 is spent on acquisition and $60 on retention per customer. Thus, the recommended budget split between acquisition and retention is 14% on acquisition (10/70) and 86% on retention (60/70). Together, the tables clearly show that retention and profitability are not altogether mutually reinforcing objectives; optimal allocation decisions derived for each are not necessarily optimal overall.

Average customer relationship duration
(as a function of retention spending)

Retention spending (per customer)	$40	$50	$60	**$70**	$80
Estimated relationship duration (days)	122	135	142	**143**	138

Average customer profitability
(as a function of acquisition and retention spending)

		Retention spending				
		$40	$50	**$60**	$70	$80
Acquisition spending	$1	$1,423	$1,543	$1,583	$1,543	$1,423
	$5	$1,437	$1,557	$1,597	$1,557	$1,437
	$10	$1,443	$1,563	**$1,603**	$1,563	$1,443
	$15	$1,437	$1,557	$1,597	$1,557	$1,437
	$20	$1,418	$1,538	$1,578	$1,538	$1,418

What We Found

How important is it to optimize spending on direct marketing? Results from our detailed analysis of all three companies demonstrate that even small deviations from the optimal levels of customer profitability are expensive. (You can see the numbers in the exhibit "How Wrong Can You Be?") Let's suppose the catalog retailer, for example, cuts marketing costs by 10%, saving $250,000. The reduction, we estimate, would lead to a 1.2% decrease in profitability per customer. On a base of 60,000 customers, our model indicates that would result in a loss of about $1.8 million in long-term customer profits.

Our findings underline the fact that maximizing the likelihood of acquiring or retaining an individual customer is not the same as maximizing overall customer profitability. By spending more than the optimal amounts we propose, the B2B firm, for example, could indeed increase the likelihood of acquiring a customer (from 22% to 26%) and increase the expected duration of that relationship a bit (from 46 months to 47). Similarly, the pharmaceutical firm, by spending beyond the profit maximization level, could increase the likelihood of acquiring a customer from 24% to 29% and extend duration by four months. But those increases won't translate into optimum profitability.

Yet if spending too much on marketing is bad, spending too little – especially on customer retention – is nearly always worse. If we look only at deviations from the optimal acquisition budget and keep all other factors at their optimum levels, we find that the effects of underspending and overspending are roughly equal for all three firms. But when it comes to customer retention, stinginess is significantly more harmful than extravagance. That's partly because of the correlation between customer profitability and relationship duration: Diminishing returns diminish more swiftly when you overspend on retention than when you underspend.

These differences in the relative impact of retention and acquisition investments complicate the question of finding the right balance when deciding how much to invest in each. Suppose, for instance, that the marketing department of the pharmaceutical firm in our study is ordered to reduce its total direct-marketing and communication budget by 5%. It can do so in several ways. One is to cut its acquisition and retention budgets by 5% each. Another is to cut its acquisition budget by 25%, leaving the retention budget unchanged. Obviously, deviating from

What Drives Profitability?

Many factors go into determining customer profitability, and, of course, they vary from industry to industry and from company to company. Here are the specific factors we looked at in deriving regression equations for acquisition likelihood, relationship duration, and customer profitability at a pharmaceutical firm. This company has three products, one of which accounts for 90% of its revenues. A doctor is considered to have been acquired if he or she writes a prescription for any of the company's products.

Acquisition Likelihood Equation:

Factors affecting acquisition likelihood include

- acquisition expenses
- number of face-to-face contacts and number of telephone contacts the sales reps make to the doctor's office
- number of doctor-initiated contacts made to the firm inquiring about its products
- doctor's age, gender, and years of experience
- average number of patients the doctor sees per month

Relationship Duration Equation:

Factors affecting the relationship duration include

- retention expenses
- number of face-to-face contacts and number of telephone contacts the sales reps make to the doctor's office
- number of doctor-initiated contacts made to the firm inquiring about its products
- number of prescriptions written for the firm's products
- number of different drugs for which prescriptions are written
- share of prescriptions (of the total number of prescriptions written, how many were for the firm)

Profitability Equation:

Factors affecting profitability include

- acquisition expenses
- retention expenses
- number of face-to-face contacts and number of telephone contacts the sales reps make to the doctor's office
- number of doctor-initiated contacts made to the firm inquiring about its products
- number of prescriptions written for the firm's products
- number of different drugs for which prescriptions are written
- share of prescriptions
- estimated relationship duration

How Wrong Can You Be?

How much money could a company make if it optimized its direct-marketing expenditures? Here's what we found when we ran the numbers for three companies in three very different fields.

Company	**How much more or less should be spent** on direct marketing to reach optimal levels.	**How much profits would increase** if spending on direct marketing were optimal.
B2B	↓ –68.30%	41.52% ↑
Pharmaceutical	31.40% ↑	35.80% ↑
Catalog retailer	↓ –30.70%	28.90% ↑

the optimal expenditure level in any way would reduce the firm's returns. But the reduction would be much less severe if it cut both budgets. We estimate that for every $1 underinvested in the relationship, optimal long-term customer profitability would be reduced by $1.25. But if the pharmaceutical company were to make the 25% cut in acquisition investment, every $1 underinvested in the relationship would reduce the customer's optimal long-term profitability by $3.03.

We find a similar result with budget increases. Say the firm increases its total budget beyond the optimal level by raising both the acquisition and retention budgets by 5%. Under this scenario, every dollar overinvested in the relationship reduces the long-term customer profitability from its optimal level by $1.22. But suppose the 5% total increase were accomplished by increasing the acquisition budget 25%. This is worse because then for every dollar overinvested in the relationship, the customer's long-term profitability drops by $2.83.

In fact, finding the optimal balance between investments in acquisition and retention can be more important than finding the optimum amount to invest overall. It seems reasonable to suppose, for instance, that reducing the optimal total expenditure by 10% should result in less attractive ROIs than reducing it by 5%. But we found that was not necessarily the case. To continue with the pharmaceutical company, we found that reducing the total budget by simultaneously reducing its acquisition budget and its retention budget 10% is better (a loss of $2 in profits for every dollar saved in costs) than reducing the total budget 5% by decreasing acquisition spending only (at which point the company loses $3 in profits for every dollar saved in acquisition costs).

Finally, we took our analysis of the three firms down to a granular level and looked at the impact of choices in communication channels on investment effectiveness. We were able to obtain precise recommendations for the optimal communication strategy. We found, for example, that average customer profitability would be maximized if the B2B firm allocated 80% of its communication efforts by volume (that is, the number of communications) to e-mail, 11% to phone contacts, 7% to Web-based interactions (which in this case are all customer initiated), and 2% to face-to-face contacts. Of course, these numbers reflect to some extent the cost differences between the channels. If an e-mail or Web message costs $1, for instance, then a phone call costs $20, and a face-to-face communication, $200.

We were able to go further than an overall breakdown of communication instances by channel, as we can demonstrate with the B2B example. Given the low cost of e-mail communication, an obvious question for the company is "To what extent should e-mail be used in conjunction with other modes of communication?" Our model was able to tell us that the most efficient way to maximize profitability is to use telephone interactions and e-mail communications *simultaneously* 37% of the time that telephone contacts are employed. We also found that 67% of the time a face-to-face contact is employed, an e-mail should accompany it.

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In business environments where decisions about allocating marketing resources increasingly occur at the individual account level, it is critical for marketers to understand that individuals who are easy to acquire and retain may not be the most profitable customers. Our model incorporates profitability into marketing-mix decisions, revealing both how much companies must spend on direct marketing to maximize profitability and how they should most profitably allocate that spending – not only in terms of acquisition and relationship management efforts but even down to the level of choices between various direct communication channels. Managers need not invest huge amounts in gathering data to implement the model; they can safely rely on the information they already collect. Their resource allocation choices, in turn, will provide a clear set of attainable, profit-linked marketing goals for which managers can be fairly held accountable.

1. Werner Reinartz, Jacquelyn Thomas, and V. Kumar, "Balancing Acquisition and Retention Resources to Maximize Customer Profitability," Insead working paper no. 2004/28/MKT (2004).

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