

Measuring the Impact of Poor Quality on Customer Loyalty

How do you figure the cost of a failure in a vendor's quality, such as a grocery store being out of milk or a passenger plane arriving an hour late? Assuming customers can defect to a competitor, such failures do carry a measurable cost.

Frequently, however, attempts to model the cost of malfunctions in products or services treat their customers' response as if it were some simply defined, stationary mathematical function. These models try to put quality costs in terms of, say, the number of units of demand lost any one stockout or the number of minutes any single plane is delayed. Their big drawback is that they do not measure the cumulative impact that repeated failures can have on customers' attitudes toward a supplier.

Noah Gans of the Wharton School's Operations and Information Management Department has developed analyses that offer a more elaborate description of the effect of quality on customer loyalty: the actual quality of the supplier, the customer's ability to distinguish between good and bad suppliers, and the customer's prior beliefs about a supplier. What makes Gans's analysis different from the more traditional operational models is that Gans actually models customer demand.

The most practical feature of the model for suppliers of all kinds is that they can use it to help develop effective quality strategies. Here are some of the most important findings suggested by the model of how consumers choose a supplier based on quality:

1. A dominant, high-quality supplier would see increasing revenue returns from raising its quality. Meanwhile, a smaller, lower quality competitor would see decreasing revenue. So how does the lower quality supplier compete? Ironically, it may actually be to the advantage of the lower-quality firm to teach customers (through advertising and promotion) to be more

discriminating. While a more discriminating customer would find the lower-quality firm less adequate on an absolute scale, the negative effect of greater customer discrimination would be even stronger on the quality leader: The more discriminating the consumer, the more the quality leader looks like its low-quality competitors.

2. The model shows there are increasing returns in customer loyalty in exchange for a supplier's improvements in quality. For that reason, increasing revenues motivate suppliers to improve their quality levels. Because of cost considerations, however, there is a limit on how much vendors can afford to improve quality. This leads to a second irony: As a practical matter, for suppliers that compete on quality, the best strategy is to match the quality level of competitors. In this way, suppliers actually avoid quality competition.

3. Because the customer's expectations of quality have a big influence on where he or she will shop, the model illustrates the benefits of advertising and promotion. For instance, advertising may improve the consumer's "prior beliefs," that is, assumptions, about the quality of a supplier. By the same token, a merchant may also benefit from negative publicity about an alternative supplier. After all, the expected duration of a customer's loyalty increases with the consumer's prior belief that a given supplier is good. Conversely, the probability that a customer will defect to a competitor increases with the consumer's prior belief that the supplier's competition is better. But these beliefs are typically not very strong or long-lived. No supplier can rely on a customer's eternal loyalty. In fact, marginal changes in a consumer's prior beliefs may be easiest to obtain for suppliers that appear to be "average" to consumers.

4. Suppliers' abilities to change prices may be limited. So, in deciding what is the proper level of quality to set, a supplier must trade off revenues with costs. Costs increase with the level of quality offered, but a supplier's quality strategy is also influenced by revenue growth in response to changes in quality. The optimal action for suppliers, then, is to choose a quality level for which the marginal revenue from a quality improvement equals the marginal cost of the change.

The cost model presented by Gans is more abstract than that found in more traditional operational models. Nonetheless, it provides a valuable alternative to traditional inventory models that do not explicitly include the effects of poor quality on demand.

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