

Think before you link!

An introduction to Linkage Analysis



If your organisation seeks to understand how 'doing the right thing' leads to positive financial outcomes, you need to look at linkage analysis.

If you want to know how customer satisfaction is related to loyalty, how changes in operations affect retention or how satisfaction relates to revenue, linkage analysis will help. But it's a process that many struggle with. This white paper explains how to go about linkage analysis for the best results.

Although we feel intuitively that improving customer service impacts the bottom line, it is something that many organisations find hard to prove. At Maritz Research we asked executives in Fortune 1000 companies about their challenges in putting the Voice of the Customer to work for their businesses. For those that believe linking feedback is a priority, nearly four out of five reported

that their companies are "struggling" or "doing a mixed job" at this aspect of their CEM programs. Around half are "actively seeking a solution" for establishing linkage to financial results, operational metrics or both.

So what is Linkage Analysis?

Linkage is the statistical process by which we connect input measures from one data source to output measures from another. Survey, customer, employee, operational and financial data all represent the different types of data we use.

There are two types of linkage process – simple and complex. Simple linkage connects a single input to a single output. For example, customers' satisfaction with their sales experience at an auto dealership may be related to their subsequent decisions to have a service performed at the dealership.

Complex linkage connects many inputs from one data set to an outcome in another data set using a predictive model with multiple data sources like regression analysis, 'PLS' (partial least squares) or 'logit'.

For example, we can take 10 different service attributes, an overall satisfaction score and a loyalty measure from a bank's customer loyalty survey and use them to predict the profitability of the customers surveyed.

Sometimes linkage allows managers to explore "what if?" scenarios. Using simulations, we can explore potential financial situations, such as possible revenue increases resulting from shortening the claims handling process, or the incremental annual revenue an auto dealer could gain in sales and service revenue by increasing satisfaction.



Identifying the variables...

For a successful linkage programme, managers and analysts must first identify the variables to include in the linkage model. That means identifying all the variables that affect the outcome. Needless to say, an incorrectly specified model provides misleading and potentially harmful statistical estimates or predictions.

Data integrity problems (such as colinearity) can occur when linkage models get unnecessarily detailed and complex. The more complex the model becomes, the more likely it is to become unreliable.

To deal with this, Maritz has developed its 'Planning' approach using data checks and statistical models to prevent errors in complex linkage models and to integrate the right inputs with the right outputs. An important part of designing a successful linkage project involves developing an inventory and an in-depth understanding of information sources available. Both are achieved through the Planning process.

Selecting appropriate inputs

The linkage model must include all data sources that impact the outcome in question, even those which might not remain constant.

For example, companies often want to answer "How much does customer satisfaction affect my market share?" For this, we need a model that doesn't only relate customer satisfaction to market share. In most markets there are

competitors, who typically do not wait passively while a brand works to improve its performance. A model that ignores the impact that competitors and their activities can have on market share is unrealistic, and will misrepresent most industries.

Sometimes companies ask questions like "How will a one point change in my customer loyalty score impact my bottom line revenues?" In this case, in addition to the competition, a properly specified linkage model will also include information on the overall market size and its drivers, including macroeconomic variables as inputs.

It's not enough to predict the share of the pie; we need to quantify how the overall size of the pie affects the size of the slice.

As the 2008 recession showed, even companies that do everything right in improving their customer satisfaction can lose revenue due to economic effects outside their control.

Selecting appropriate outputs

When developing a linkage model, managers typically focus on how measures of customer satisfaction and loyalty are linked to financial performance: "If we improve loyalty by x%, what is the corresponding increase in revenue?"

Our experience is that customer satisfaction and loyalty metrics will not always be the best predictors of business results. For example, when buyers perceive little difference in the quality of products or services provided by different competitors, they view them as commodities and the brands will compete primarily on price. Similarly, in many markets it is important to know how the strength of one's brand compares to competitors. In these cases, narrowly focused customer experience metrics by themselves may link poorly to financial consequences.

Selecting the right set of market or financial performance measures may also pose a challenge. Often measures of customer satisfaction, value, and/or loyalty show little or no direct relation to outcome measures such as revenues or units sold per customer. Only when the linkage model contains all the variables affecting the outcome will a meaningful picture emerge.

Whether simple or complex, linkage requires discipline when merging datasets and modelling relationships between them. Linkage pays off this investment, however, by contributing greatly to the credibility and actionability of customer experience programs.

For a case study of linkage in action [click here](#).