# Improving the results of your promotions through insights in customer behavior

How Dirk steers its promotions to maximize their impact using Big Data Analytics

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Promotions are for supermarkets one of the most important marketing instruments. The promotion revenue in the Dutch supermarket sector each year is well over € 5 billion, which accounts for almost 15% of the total Dutch supermarket revenue of € 35 billion. Every week hundreds of product promotions are offered in various supermarkets. Promotions affect each other and also have a strong influence on the sales of other products. Despite the huge amount of promotion revenue, only a small number of retailers – and also few suppliers – have a detailed, full insight in the net result of their promotions. Until recently, this also applied to Dirk. However, in 2016 Dirk established a data analysis suite together with MIcompany. This suite can be used to follow the behavior of individual customers before, during and after the promotions. In the following article we will explain how Dirk makes the different effects of promotions visible, and improves the promotions results through analyzing their customer behavior.

### There are different stakeholders that determine the effect of promotions

It is not easy to determine whether a promotion is successful or not. In particular because every week hundreds of products are being promoted. Dirk has identified 12 factors which influence the result of a promotion. These can be summarized in 4 important, relevant stakeholders. These are shown in Figure 1.

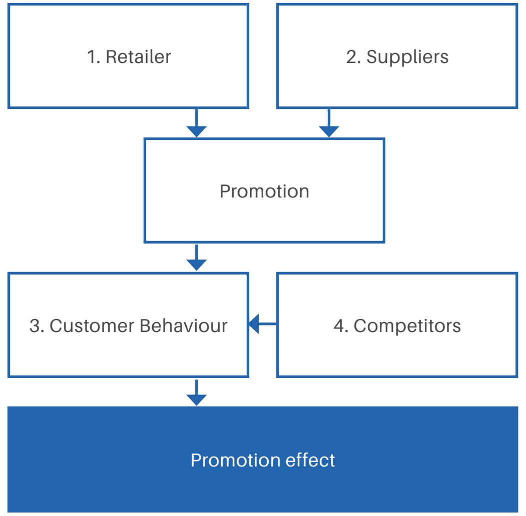


Figure 1. Conceptual model of the effect of promotions

### Customers

The most important stakeholders are the customers. This is exactly the group of which the least is known about their behavior. We can take beer promotions as an example. Every week beer is on promotional sale at one of the supermarkets, often at a very competitive price. Not all customers react in the same way to these offers. Some are very insensitive of promotions and only buy beer when they need it, not caring about an offer. Others make a big detour, because their favorite beer is on promotional sale at a supermarket other than their usual supermarket. Regular customers of the supermarket may buy an extra crate of their favorite beer for their supplies if it's on promotion. This difference in customer behavior has a lot of impact on the promotion effect. After all: In the first case the retailer only earns less by having beer on promotion.

In the case of the customers who make a detour, they wouldn't be in the shop at all without the promotion. Therefore, their entire visit and all the products in their basket can be attributed to the promotion. For regular customers we have to take the hoarding effect (the effect that customers buy extra product for their supply and therefore show a decrease in buying this product in the weeks after the promotion) into account, which influences the effect of the promotion negatively for the retailer.

In order to determine the effect of the promotion, insights in customer behavior before, during and after the promotion is needed. Dirk uses the Retail Analytical Suite (RAS) developed by MIcompany to accomplish this. The RAS is a standardized analytical environment, in which the evolution of customer behavior can be followed through time. As an example, the RAS can be used to determine whether a customer became a new customer because of the promotion or had they purchased the product before, or if it was an existing customer who bought the product for the first time thanks to the promotion and kept buying it afterwards.

### Retailer

Of course, the retailer itself is also an important stakeholder. Dirk decides weekly on what products to offer a promotion, at what price, and where it will be displayed in the brochure as well has how they uses additional media. For a lot of food retailers, their weekly promotions are still the most important form of communication, in which the traditional brochure still has a prominent function today. Because a lot of retailers show a repetitive cycle when it comes to their promotions, they are just maintaining the purchasing behavior of their customers.

### Suppliers

The third group of stakeholders are the suppliers, who often finance supermarket promotions of their products directly or indirectly. Agreements made between the suppliers and the retailers about the selling price, the discounts on purchasing price and the other contributions influencing the margin per product promotion, as well as the possibility for the retailer to further discount the products during the promotion period. The latter obviously also influences the customer reaction on promotions which are therefore also influenced by suppliers indirectly. Sometimes there are tensions between the prices the retailer uses and the prices of a supplier, as the recent publicly held discussion between Dutch supermarket chain Jumbo and supplier Heineken shows us. Jumbo came into conflict with Heineken about the delivery of crates of beer, which was reduced by Heineken when Jumbo wanted to give a super summer discount which would have greatly increased demand.



### Competitors

**The regular prices and promotions of competitors also form an important driver of the promotion effect. They have impact on the attractiveness of the Dirk promotion for customers and therefore influence the (extra) sales of the promoted products. The impact of this influence from competitors can differ regionally.**

### The methodology: from the single revenue of the promoted product to the total value effect of the promotions

The difference between a fiasco and a very successful promotion is the difference between many euro's lost or a large positive net result. There is a risk that during the weekly composition of the promotions experience and gut feeling count too heavily and some crucial questions are overlooked:

"Do these beer promotions really lead to extra revenue and new customers, although we don't earn a penny with it?"

- "Which promotions actually bring new customers to our shops?"
- "With which promotions do we earn money?"

If only the total uplift in sales and the extra revenue and margin of the promoted product are taken into account, there is a big risk that false conclusions are being made about the result of the promotion. Together with MIcompany, Dirk has developed a methodology to quantify the different effects of every promotion on revenue and margin and consequently determine the actual effectiveness of a promotion. In this methodology six effects of the promotion are modeled which adds up to the promotion result. This promotion result is the total effect of the promotion, expressed in extra profit. For this purpose, net cost price with all compensations and discounts is taken into account. In figure 2 the six modeled effects are shown.

Sales promotion product
The first step is to determine the sales of the

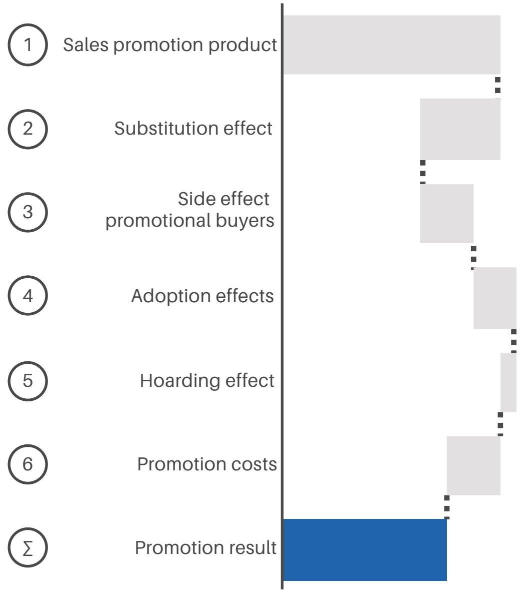


Figure 2. Schematic presentation of the effect of promotions

promotion product. How much beer is sold during the promotion period? The revenue is calculated simply by multiplying the sales during the promotion period by the selling price. To determine the margin, cost prices and additional agreements with suppliers are taken into account.

1. Substitution effect
   Without the promotion beer would still been sold to some customers. We call this the substitution effect. In order to determine the substitution effect at Dirk, the regular sales of the promotion product itself as well as of the substitution products are computed. For both the product itself, e.g. a crate of Grolsch beer that is on sale that week, and its substitutes, crates of beer of other brands or the sales of individual cans of beer, the sales in the promotion week are compared to the sales from a regular week. Some product groups have an even broader effect on sales. In this group one should also take the sales of different products in the same category into account. This applies to the sales of pears when apples are on sale for example.

2. The regular sales are determined by a baseline model. In this model, other important effects on sales, such as the season and the promotions of competitors, are taken into account in order to be able to determine the real promotion effect.

3. Side effect promotional buyers
   Sometimes customers make a well thought out decision of going to a specific supermarket only because of one or two attrac-

tive promotions. If these customers buy other products during this visit, then their whole basket will be attributed to the concerning promotion(s). In this case the effect of the promotion is even bigger than the extra revenue and margin of the promotion product itself.

4. Adoption effects
   Besides the effects mentioned above which take place during the promotion, there are also effects which take place in the period after the promotion. New customers that went to Dirk for the first time because of the beer promotion could return in the following weeks and do their grocery shopping at Dirk. Also a product adoption can arise. In this case, customers who purchased a product on sale which they have never bought before, purchase it again in the following period. Or, and this is what every brand producer dreams of, customers keep purchasing your brand after they tried the product when it was on sale. The only way to follow this switching behavior through time is by using customer data. The effects are found in practice to occur to specific customer groups which differ per promotional product.

5. Hoarding effect
   The hoarding effect appears when customers purchase extra of the promotion product or purchase the promotion product earlier than normal. By following the customer behavior through time, it can be found that customers purchase less of the product in the weeks after the promotion. The margin that is lost because of this, is also a part of the promotion effect and is taken into account in the evaluation of the promotion in the scheme in figure 2.

6. Promotion costs
   The last effect is formed by the additional costs made by the retailer. These include the costs of communicating the promotion (media, printing brochure etc.) and the extra wastage because the expiration date of more products is exceeded. In order to determine whether the promotion was actually a success, the net calculated profit per promotion has to exceed the costs of the communication to reach a positive promotion result. A good attribution of these costs is necessary to enable this calculation.

## Profound insights in promotion effectiveness enables improvements

All above mentioned effects are calculated on an individual product level to determine the end result of a promotion. This allows Dirk to make fact based judgements on all promotions and select the most attractive promotions for its customers or adjust the conditions or the presentation of the current promotion to achieve a positive effect on the result. The impact of these promotions can be considerable, calculations by MIcompany show that an improvement of up to 50% on the net promotion contribution is possible.

## Important learning experiences

The methodology explained above is applied on all promotion offers from the last two years and the outcomes are tested thoroughly . What did we learn from this?:

- The 80-20 rule of thumb also holds for promotions. Measured over a year, only a small number of promotions account for a considerable share of the total value effect of all promotions. Choosing and composing a small amount of good promotions in a smart way can therefore be very effective and can save a lot of the preparation time and costs.
- There are promotions with a positive substitution effect. A promotion on a “hidden” product group with relatively low regular sales can have a positive effect on both the sales of the promotion product and on the sales of its substitutes.
- Promotions on products that are sold for daily use and that have a short expiration date, earn special attention. Although these promotions create a lot of revenue, the uplift is often too low to compensate for the lower margins.
- Not all promotions that are successful in terms of revenue create value. A big positive revenue effect can still lead to a big negative margin effect in the case of promotions on products with a high promotion revenue and low margins.



Bart Oprel, CFO of Detailresult Groep: “We have the conviction that investing in smart usage of data can deliver a lot of value. With data analysis and with the methodology and tools to analyze and predict the promotions of Dirk we have made a huge step in our insights and knowledge about promotions. By doing this we can improve our promotions weekly and follow the behavior of our customers in detail.”

Roland Tabor, partner at MIcompany: “Because of their big number of products, many customers and high purchase frequency, retailers have an immense amount of data. However, big differences in customer behavior and all kinds of interaction effects are making good usage of this very complex. Retail is therefore eminently the sector in which a solid and analytical approach makes the difference. MIcompany has developed solutions for this, a Retail Analytical Suite, in which customer behavior is followed through time, and a ROI methodology whereby the amount of data becomes a strength of the retailer. Dirk is a magnificent example of this!”