Practitioner Article

Solving the contact density 'conundrum' for home shoppers

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ABSTRACT Although many of the orders for home shopping companies now come via the internet, it is well known that this is largely driven by the amount of conventional catalogues, and other mail-delivered communications, that are delivered to customers. The 'conundrum' for many home shoppers is how to determine the optimal level of catalogue spend across a season for different types of customer. This article explains a methodology that The Customer Partnership (TCP) Marketing Solutions has successfully used to solve this problem.

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INTRODUCTION

Home shoppers, these days, rely on a variety of channels to distribute information about their merchandise, and receive back orders, of which the internet is becoming increasingly important.

However, home shoppers have also discovered that customer demand from the internet crashes when it is not supported by conventional catalogue and direct mail activity.

Thus, the problem of how much to spend on delivering catalogue-type communications to different levels of customers has not gone away, despite the importance of the internet as a fulfilment channel.

It is also the case that not all types of customers respond in the same way to different levels of expenditure in a season;

some will continue to increase their demand the more is spent on them, although usually at a declining return on investment (ROI) for the home shopper, while others will hit a demand ceiling and not move beyond that.

Many home shopping companies have built reasonably robust models to predict, at an individual level, the amount of demand they can expect from a customer in a season. However, these models do not answer the question of how best to get that demand.

Many have also developed propensity models for individual catalogues that provide a cut-off point below which the responsiveness of customers does not give a sufficient ROI to justify sending them the catalogue. These models are fine for resolving the question of the volume of

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individual catalogues to send, but they do not look at the problem from the customer level, and how best to maximise their demand while keeping within ROI limits for the season as a whole.

The methodology that follows was developed through work with a number of substantial UK home shopping companies to attempt to understand how to resolve this issue, which is here referred to as the 'contact density' problem.

Observation suggests that there are three closely related components to the contact density problem:

- First, what is the optimal level of contact density 'spend' to allocate in a season for different groups of customers, in order to achieve the right balance of net demand and ROI for the home shopping company?
- Second, how is it possible to determine how those customer groups are defined?
- Third, how can selections be made of the individual communications for the individual customer within the season to best spend that resource allocation?

As a result of a number of trials, and naturally some errors, with different home shopping companies a four-stage methodology has evolved for tackling and solving these linked issues, which are almost universally found in the home shopping industry.

As all work carried out by the authors of this article is client-confidential, it is not possible to share any of the actual results: however, it is possible to explain the underlying methodology as it has evolved to date.

FOUR-STAGE METHODOLOGY

The overall process whereby customer value is determined and therefore a contact plan is derived is shown in Figure 1, and explained in more detail below.

Stage 1. Collect empirical evidence on the effects of varying contact densities

Most home shopping companies select individual customers for catalogues using a complex hierarchy of rules, often involving credit considerations, as well as response propensity. As a result, if one looks longitudinally across a season, it is normal to find at an individual level very different levels and mixes of communications sent. It is often discovered to be the case that some individuals are receiving more than 50 communications, whereas others receive close to zero. In some cases, the mix is 'better' because the company has already been testing some contact density hypotheses, and as a result has deliberately varied the contact mix for similar types of customer.

If it is unfortunately found to be the case that all similar customers, and similarity is usually determined at this stage by a model predicting overall net demand in a season, have received the same mix of communications, subsequent analysis is then not able to take place without setting up some prior tests to vary contact densities among similar groups of customers.

Categorisation of contact density

At this point, it is important to understand how the method categorises contact density. There are a number of alternative potential approaches, and each needs to be analysed to see which provides the best explanation of demand behavior. The main types of approach are normally:

- Counting the overall number of communications by type for each customer; types being typically main catalogue, mini catalogue, sale offer and so on.
- Counting the overall weight of merchandise category items shown to a customer; this involves summing the total number of product views in a category

Figure 1: Overview of customer value optimisation methodology.

that have been presented (a considerable task in itself).

- Summing the amount spent on communications in the season for each individual customer.

Associated with these different levels of contact density, it is necessary to sum at an individual level their value of net demand after returns in the season. This should include demand from all channels and sources, regardless of whether directly linked by a source code, and should take into account purchases made after the end of the season if they are for items offered in the season.

Stage 2. Analyse how contact density drives different levels of demand in a season

It is clear that, important as it is, contact density is just one of the factors that drives demand. However, the objective must be to isolate the influence of contact density from other factors such as predicted net demand for the customer in the season, and the characteristics of the customers themselves such as the longevity of their relationship, their age and other demographic characteristics.

Given that net demand in season models usually in themselves take account of a large number of customers' previous purchase characteristics, a useful starting point is to build a measure of how much an individual's demand differs from their

predicted net demand. It is then possible to start looking for explanatory causes for this difference, of which our different measures of contact density are potentially one.

In cases where net demand in season models have not been developed, the experience with the models and method suggests that it is optimal to allow contact density to compete with other customer characteristics for an explanation of what has caused it.

This approach normally makes use of Chi Squared Automatic Interaction Detector (CHAID) models, where the dependent variable is either the difference between predicted and actual net demand, or the net demand itself.

It is often, but not always, the case that the simpler measure for net demand of the overall amount spent on the customer in the season is more discriminatory than the more complicated measures such as the number of catalogues or merchandise images received.

The required outcome from this stage of the analysis is a decision support tool that has three dimensions:

- First, a categorisation of customers into groups that respond most differently to different levels of contact density. In reality, this can often be the quintiles or deciles within the net demand in season model.
- Second, the different bands of contact density using the measure that discriminates best.
- Third, the actual level of net demand in the season for each combination of customer group and contact density band.

Figure 2 shows a typical outcome from stage two, where the columns represent different cost to sale ratios for customer groups, differentiated by contact density and predicted net demand characteristics.

Figure 2: Example outcome from stage 2 of customer optimisation process.

Stage 3. Decide how much to spend in the season for each group

Overall, this is usually a question of balancing the required net demand with minimum requirements for ROI, for each customer group.

The home shopper, knowing the number of customers in each group, can decide on the best mix of demand and ROI to meet their financial targets, by looking across the different bands of contact density.

In effect, this then defines an overall budget for each customer group.

However, a level of complexity needs to be introduced here because often, and as shown in the chart, the relationship between contact density and demand is not linear.

A variety of different results have been observed: there are some low-demand customer groups that give very poor ROI until a certain threshold level of contact density is reached, others reach their peak in the middle of the contact density bands, and a third shows a steady decline in ROI

as spend is increased. The conclusion across a growing number of case histories is that every customer base is unique and that one cannot generalise across the home shopping industry about the relationship between customer groupings, net demand and contact density. However, within a brand the relationships are usually found to be relatively stable.

Stage 4. Plan how to optimally spread the spend across the season

The last stage in the methodology involves deciding how best to allocate a contact density 'budget' for a particular customer group and season into an actual allocation of catalogue communications across the season for each individual.

This 'budget' can either be financial, or can relate to a particular weighting of different types of catalogue.

At this stage, it is necessary to have, or to have developed, response propensity models for each of the main catalogues, or communication categories. A refinement is

to introduce response value models at the same time.

These models will forecast at an individual level the likelihood of response, and the value of that response, if it happens.

The next step is to use contact optimisation technology to allocate the budget for the season across each individual in a way that is going to maximise demand.

Although most home shoppers tend to divide a season into a series of discrete periods such as fortnights, it is preferable first to look at the season as a whole, and to use the contact optimisation tool to allocate the communications across all of it. This allows an allocation of the relative weightings of different catalogues and communications types through the season.

When it comes to selecting customers in a live environment for catalogue distribution, it is then possible to use these weightings to set micro budgets for each customer group for each time period, and pick the best value individuals from within that.

CONCLUSIONS

Experiences of working with home shopping companies in order to manage contact density across a season has shown that there are considerable financial gains to be achieved, in the region of 10 per cent + net demand contribution from the same overall budget, compared to the conventional approach of selecting customers on a campaign by campaign basis.

However, these gains can only be fully achieved by stepping through a development methodology that first enables an understanding of the impact of different levels of contact density for different customer groups, and then takes advantage of that knowledge by managing customer group level contact density 'budgets' across the season.

That said, given the significance of catalogue spend to most home shoppers, the time and cost of the process described here is relatively small compared to the gains in net demand or savings in catalogue spend that can be achieved.