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# The Optimization of the Optimal Customer

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## ABSTRACT

For marketers who are responsible for identifying the best customer to target in a campaign, it is often daunting to determine which media channel, offer, or campaign program is the one the customer is more apt to respond to, and therefore, is more likely to increase revenue. This presentation examines the components of designing campaigns to identify promotable segments of customers and to target the optimal customers using SAS® Marketing Automation integrated with SAS® Marketing Optimization.

## INTRODUCTION

In database marketing, determining the right offer, at the right time, presented in the right channel demands that you have a SAS Marketing Automation and SAS Marketing Optimization process that takes all the variables into consideration at execution time. This process includes: 1) identifying segments in your target audience 2) determining what promotion is most relevant to the customer, and 3) identifying the media type to which the customer is most likely to respond.

Beyond analyzing characteristics of customer data to determine the category of segments for your target audience, you must also look at the segments with a broader scope across all campaigns to truly identify which eligible customers from your target audience are the most “optimal”. If the data is structured properly and available, SAS Marketing Automation can simplify the process of identifying and executing criteria for campaigns in an automated approach. In addition to identifying optimal segments, predictive model scores can enable SAS Marketing Optimization to algorithmically determine—given a list of customers across campaigns—which are the optimal customers to target, what product they should be offered, and the channel through which they should be contacted in a campaign. The definition of optimal customer is in part projected using predictive models (that is, propensity to respond model, propensity to buy model, and best channel model), as shown in the following figure.

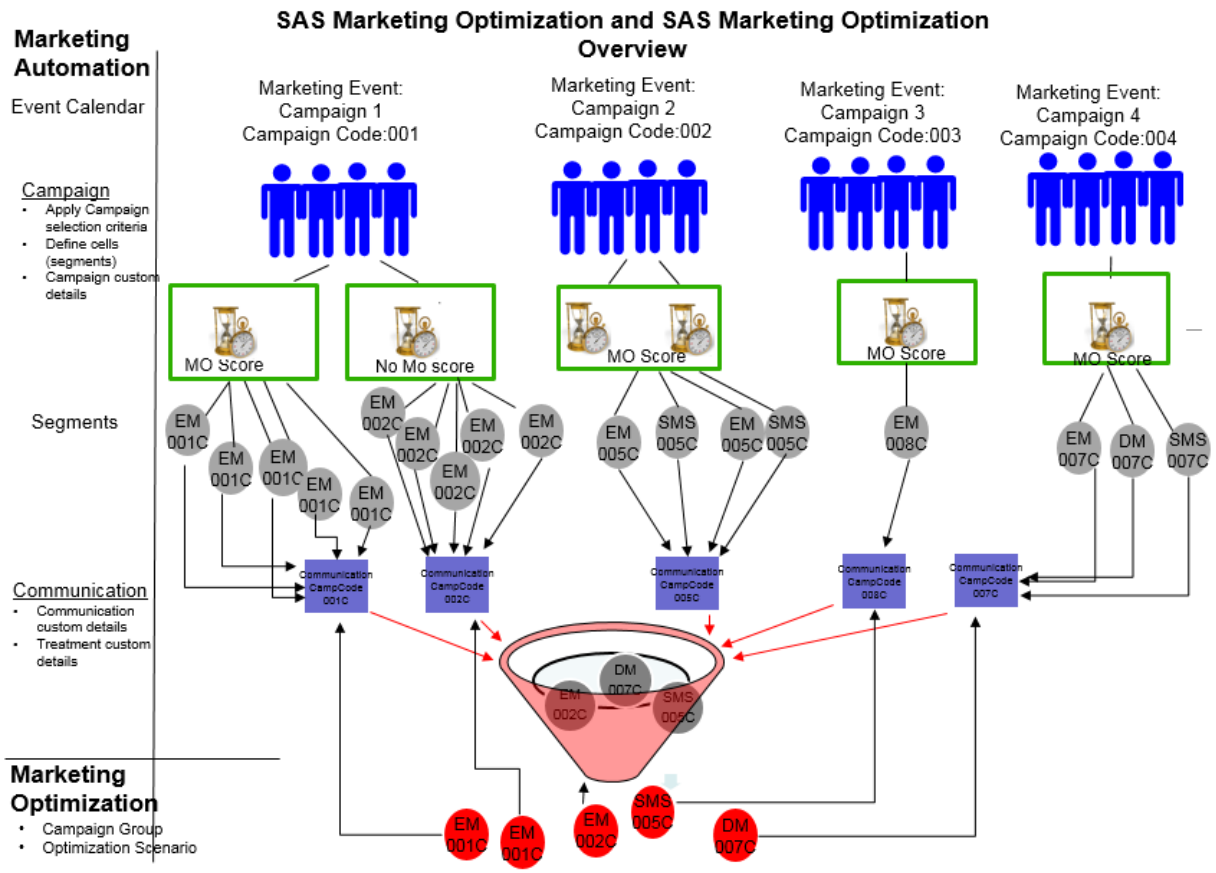


Figure 1. SAS Marketing Optimization and SAS Marketing Automation Process

## CUSTOMER SEGMENTATION

SAS Marketing Automation enables you to apply selection criteria and - exclusions to identify your segment requirements for optimization in an automated approach. Campaign segmentation is the process of taking your marketable audience or customer base and organizing it into categories based on common characteristic such as purchase pattern behavior, demographics, lifestyle, or psychographic characteristics. The process of organizing customers into logical groups for segmentation can vary based on the customer relationship journey and life cycle, as shown in the following figure.


**Figure 2. Customer Journey**

The benefit of organizing customers into different categories is that it can create more personalized experiences for the customer, resulting in improved response rate that can lead to improved return on investment (ROI). Each personalized communication is an opportunity to engage with the customer during that phase of the journey.

The numbers of segments to create in a campaign should be based on the characteristics of your data, but you should be cautious in creating too many segments or not creating enough segments. Creating too many segments hinders the ability to create uniqueness among your customer base and customize your messaging. Creating too few segments does not allow you to have enough uniqueness and makes the arbitration process in optimization more challenging. Your segments must be identifiable, yet very distinct. There should be no overlapping segments. Segments that overlap make it difficult to create specific categories with customized messaging.

Commonly identified segments include the following:

- **contact reason** – the purpose or desired outcome of the contact: informational, brand development, or profit.
- **demographic** – statistical data about the characteristics of your customer base. It includes age, gender, income, and so on.
- **interaction –** recent historical response to business interaction.
- **purchase pattern behavior** – buying history of your customer base.
- **psychographic** – statistical data about personality traits, values, attitudes, interests, and lifestyles of your customer base.

Segmenting your customer base includes a number of benefits, which are described in the following sections.

### CREATING PERSONALIZED MESSAGING

The ability to send targeted messages to a specific segment is probably the most important benefit to target marketing. Not all customers are interested in the same product or services. Segmentation within a campaign allows you to send do-it-yourself customers a list of classes offered that can drive foot traffic in the store from local homeowners and target professional contractors with marketing promotions on commercial material.

### BUILDING RELATIONSHIPS

Segmenting customers at a department store allows you to send specific messages based on purchase pattern behavior. Customer segmentation allows you to present timely marketing promotions that helps to

create a relationship between the customer and the brand. Customers start to believe that the business providing the product or service understands their need, and they look forward to receiving the promotions.

### SAVING MONEY AND TIME

The monetary aspect of target marketing can be an easier component to measure and track. Segmenting marketing campaigns allows you to reduce time and cost by sending a communication to a very specific population instead of sending the same message to the entire list, crossing fingers, and hoping you have a good response. Target marketing reduces cost because resources aren't wasted on creative and fulfillment processing on customers who would likely never respond to a mass mailing with the same offer.

Customer segmentation is part of the equation to send the right message to the right person at the right time in their buying cycle. Another part of the equation is presenting the "right" message to the "optimal" customer using the media channel to which the customer is more likely to respond.

### OPTIMIZING ARBITRATION

The ability to adjudicate across segments to determine the right offer, at the right time, for the right customer is driven by identifiable segments. If too few segments are identified and the segments are strictly the result of a pre-determined analytic score, the process to arbitrate is restricted by the input source and does not provide the flexibility to mature and expand fluidly.

## MEDIA CHANNEL SELECTION

Understanding the preferred method of contact of your segmented audience is critical to identifying the optimal customer. Presenting a customer with SMS messages repetitively who has never responded to an SMS message and has responded only to an email communication results in no response.

The ability to effectively determine your customer's preferred media contact channel requires analysis of your response data to determine which media channel your customer is more likely to respond to. Media vehicle response attribution is based on available historical data collected over a period of time, as shown in the following table.

| Channel | Channel Description | Call to Action, Response, or Activity |
|---|---|---|
| Online | Email | Opens, Clicks, Sent, Not Sent, Page Visits |
| Postal | Mail | Redemption, Follow-Up Call, Walk-In |
| Social Media | 1. SMS (text messages)<br>2. Facebook<br>3. Twitter<br>4. Google | Activity Type (that is, mention, follow), Sentiment (that is, positive feedback, negative feedback) |
| Kiosk/Terminal | Point of Sale | Dispense, purchase |
| Telemarketing | 1. Home phone<br>2. Cell phone<br>3. Business phone | Positive Contact (converted to response to call to action) |
| Device | 1. Push Notifications<br>2. SMS | Registration on website based on receipt of "pushed" or "SMS" contact that is linked to the device |

**Table 1. Media Channel Selection**

## CAMPAIGN ELIGIBILITY

In addition to categorizing customers into segments and determining through what channel they will be contacted, you must also allocate the campaigns into promotion function types. Promotional campaigns have different purposes and marketing functions. Therefore, not all promotions are candidates for optimization.

| Promotion Function | Promotion Description | Optimizable |
|---|---|---|
| Upsell | Encourages the customer to spend more money, buy a more expensive model of the same type of product, or add related options that relate to the purchased product (features, warranty, and accessories). | Yes |
| Cross Sell | Encourages the customer to look beyond current need or desire into other areas from other categories. | Yes |
| Retention | Provides incentives to a customer to prevent defecting, canceling, or returning product or services. | Yes |
| Activation | Provides incentives to a customer to take action that doesn't necessarily correspond to purchasing a product or services but is more of brand experience or interaction. | No |
| Welcome | Does not typically provide an incentive to take action or make a purchase. Its sole purpose is to greet the customer and give the customer the impression of having a personal relationship to make the customer feel like he or she is a valued customer. | No |
| Informational | Does not typically provide an incentive to take action or make a purchase. Its purpose is to increase brand recognition and cement the customer relationship with the brand by providing material. | No |
| Abandoned Cart | Typically a campaign that reminds customers that they have products in their online shopping cart that have not been purchased to encourage them to make a purchase. | No |
| Product Promotion | Promotion of a specific product or service that encourages the customer to purchase the product or service. | Yes |

**Table 2. Campaign Eligibility**

## MARKETING AUTOMATION COMPLETE, NOW WHAT?

Using the output from SAS Marketing Automation as the input to SAS Marketing Optimization is known as Marketing Optimization Marketing Automation (MOMA). After identifying your target audience, segmenting them into unique clusters, and executing and tracking the results using SAS Marketing Automation, we use SAS Marketing Optimization to determine—considering a customer's buying patterns and preferences—the best mix of products, offers, and media channel in which to distribute the offer to increase the likelihood of customer response, thereby maximizing the success of my campaign.

SAS Marketing Optimization makes the decisions about which individuals get offers for campaigns by optimizing the marketing cells from SAS Marketing Automation in a *campaign group*, the integration point of MOMA.

All the SAS Marketing Automationcampaigns that compete for resources are added to the campaign group, and SAS Marketing Optimization optimizes the campaign group. Within the campaign group, optimization settings controls the frequency of the optimization process and execution schedule of campaigns. The optimization horizon ("look-ahead") period and contact history ("look-behind") period are key factors in the management of the schedule.

Using SAS Marketing Optimization and SAS Marketing utomation requires data preparation unique to how the selection, segmentation in SAS Marketing Automation and arbitration in SAS Marketing Optimization process works. This includes the following factors:

- single view of a customer in the marketing data repository
- analytics to create model scores that coincide with arbitration business objective
- transposition of model score data in marketing data repository to one column per score per subject

SAS Marketing Automation can consume data for selection and segmentation in the format below:

| Subject ID | Model Name | Model Score |
|---|---|---|
| Pamela123 | A | 0.1 |
| Pamela123 | B | 0.2 |
| Pamela123 | C | 0.3 |
| Pamela123 | D | 0.4 |
| Renee890 | A | 0.3 |
| Renee890 | B | 0.2 |

**Table 3. Exhibit A**

SAS Marketing Optimization requires data in a format different from SAS Marketing Automation. SAS Marketing Optimization data must be to be transposed to the format below for consumption.

| Subject ID | Model_Score_A | Model_Score_B | Model_Score_C | Model_Score_D |
|---|---|---|---|---|
| Pamela123 | 0.1 | 0.2 | 0.3 | 0.4 |
| Renee890 | 0.3 | 0.2 | | |

**Table 4. Exhibit B**

The driving factor in offer assignment within SAS Marketing Optimization are models and model scores, business objective, constraints, and contact policy. Using SAS Marketing Optimization to manage offer assignment reduces the effort to define finite micro-segments using historical transaction data. However, you should be cautious of the level of granularity that is applied in using analytic scores to drive segmentation within the integration of SAS Marketing SAS Marketing Automation. Using very specific models scores for every possible segment type or too few segments can have an adverse effect on the optimization process. Segments that are strictly the result of a pre-determined analytic input score can restrict the arbitration process and not provide the flexibility to mature and expand fluidly.

Model score information can present a number of forms for campaign targeting, including the following:

1) response probabilities:
    a. individual subject level - calculated by an analytical model
    b. subject segment level - extrapolated from the past results of similar marketing actions
2) probable average sales values:
    a. individual subject level - calculated by an analytical model (unusual)
    b. subject segment level - extrapolated from the past results on similar marketing actions
    c. offer level - extrapolated from sales reporting

In the assignment of offers, SAS Marketing Optimization calculates the solution using a numerical estimate of the value that making an offer to an individual contributes to the solution based on the business rules input into SAS Marketing Optimization. When you use the analytical scenario method, a numeric value comes from a model score. SAS Marketing Optimization makes the decision to give an

offer to a subject based on the model score. Each subject and the eligible offer associated with it correspond to one decision. The number of decisions in the total SAS Marketing Optimization problem is the number of subjects × the number of offers.

The SAS Marketing Optimization scenario defines the optimization problem in business terms. The objective function or goal of the optimization problem is to either maximize or minimize the aggregate measure of the values that come from assigning offers to subjects. You build the scenario in SAS Marketing Optimization using rules such as the following:

- contact policies or the number of offers a subject can receive.
- constraints or limitations on such things as campaign budget or segment size.
- blocking contact policies that prevent individuals from receiving certain offers based on business rules.
- suppression rules or added criteria that limits subjects or offers.
- filters that further restrict any of the preceding elements. For example, a filter can restrict the contact policy to a subset of the communications.

**BUSINESS OBJECTIVE PLANNING**

The business objective is one of the variables in identifying the best offer in the optimization process. It can include campaign goals such as maximizing profit, maximizing response, or minimizing unresponsive customers.

In SAS Marketing Optimization the business objective for analytical scenarios must align with your model scores. The model scores are fundamental to how SAS Markting Optimization calculates the solution. For example, a customer could have a revenue model in which the objective is to maximize revenue.

**BUSINESS CONSTRAINTS PLANNING**

Constraints within SAS Marketing Optimization allow you to apply business rules that aid in the arbitration process and refine who is selected for an offer. Constraints help to control certain things such as printing budget and call center capacity. Identifying business constraints require that you coordinate your business rules and contact policies holistically across your various types of campaigns and channels. For example, do you have operational constraints that limit your budget or capacity?

**MAX/MIN CONTACT POLICY**

For example, are you bound to a certain number of contacts per customer per year? Can you have a follow-up offer or repeat the same product offer more than once a year? Do you need to account for trigger-based campaigns? Are you restricted to the number of contacts within a given channel within a certain period of time?

As long as these inputs are rational and reasonable, and your models and variables have been set up correctly, SAS Marketing optimization delivers a data-driven approach to selection.

## TIPS FOR SUCCESS

**Be prepared for resistance**. Managing and executing the change management process is often more difficult to control than technical challenges, politics and personnel. Marketers accustom to managing every aspect of a campaigns manually are often uncomfortable releasing control and migrating to a data driven solution. Take baby steps Avoid trying to solve all of the organization marketing problems in a big bang approach. Start with a small subset of campaigns that can allow users to get comfortable with the process change. Starting with a specific channel then rolling out to be omni channel, a smaller business unit or a specific product will show value, build confidence with users.

**Manage and be informed on your models**. For example, if propensity rates are being compared to each at the individual level, keep track of new models being added or replace to ensure they are consistenly aligned as they are rotated in and out of use. The optimization process is only as good as the model data being used as input. Budget and cost assumptions must be aligned or the results of the arbitration process can prove to be infeasible or not accurate.

**Do not let your process run on auto-pilot**. Always check, re-check and check again to make sure that data, constraints, business objectives are retuning expected results. Always check for heck for reasonableness, and take the time to understand the impact of various factors that are affecting the solution. Every time you move a lever in an optimization problem, your other variables will be rebuilt quite dramatically. You need to understand the impacts of those interactions.

## CONCLUSION

SAS Marketing Optimization and SAS Marketing Automation provide you with the ability to define selection and segmentation criteria and create the optimization input. Creating the optimization input tables as part of the integrated SAS Marketing Automation and SAS Marketing Optimization solution eliminates the need to have an external extract transfer load (ETL) process to collect the data and make available for consumption. The integration of SAS Marketing Automatoin and SAS Marketing Optimization delivers a seamless solution that provides the ability to execute the arbitration process to identify your most optimal customer and return the results back to SAS Marketing Automation in a continuous, automated approach

Key financial benefits of SAS Marketing Optimization are noted in "The Total Economic Impact of SAS Marketing Automation" written by Jeffrey North. The commissioned study highlights include the following:

- **marketing return on investment**: Increased targeting effectiveness results in higher response rates, improved channel effectiveness, reduced spending, fewer deleted emails, and fewer unwanted direct mail solicitations. The math-based approach offered by SAS Marketing Optimization produces results that are superior to segmentation alone and rules-based approaches to prioritizing marketing offers.
- **contact policy management**: A contact strategy is critical to avoid over-saturating customers and violating corporate governance requirements. SAS Marketing Optimization can eliminate uncoordinated and conflicting communications while incorporating relevant relationship factors such as customer risk, advertising exposure, and house-holding into the optimization process to ensure that valuable customers are receiving the best possible set of communications across every channel.
- **organizational efficiency**: What-if analysis can show where and how changes in channel usage, target customer segments, campaign budget, and other constraints will affect the business, and highlight financial opportunities and unused capacity. SAS Marketing Optimization is an algorithmic solution that identifies the right offer, to be delivered at the right time, to the right customer while staying within decision variables. The key underlying variable that drives the algorithmic process is model scores from analytics. In addition, other decision variables include objectives, constraints, channel capacity, and management of contact policy to avoid over communicating to the customers while averting cannibalization of futures sales within and across campaigns.

## REFERENCES

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