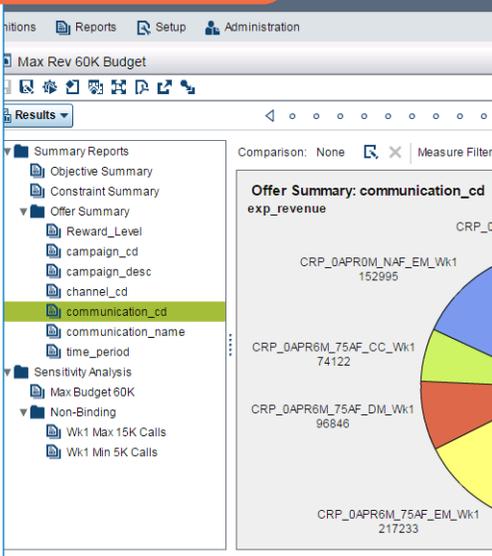### What does SAS® Marketing Optimization do?

SAS Marketing Optimization enables you to make the most of each individual customer contact by determining how business variables – e.g., resource and budget constraints, contact policies, the likelihood that customers will respond and more – will affect outcomes.

Why is SAS® Marketing Optimization important?

SAS Marketing Optimization increases the ROI of marketing campaigns by enabling you to determine the best offers for individual customers. It also enables you to judge how changing business constraints – e.g., reallocating budgets, increasing channel capacity, altering contact policies – will change results.

For whom is SAS® Marketing Optimization intended?

Marketing campaign managers, business analysts, segment managers and quantitative analysts can use SAS Marketing Optimization to ensure that direct marketing activities deliver the greatest possible economic results.

SAS® Marketing Optimization

Better campaign returns through analytical optimization

Overview

As marketing organizations face increased pressure to do more with less, cutting through marketing noise to deliver the right message to a receptive customer can present serious challenges. While segmentation, predictive modeling and testing can improve the effectiveness of individual customer interactions, they can't address the full scope of daily marketing realities alone.

Marketers must balance competing business goals across divisions, manage multiple marketing programs against constraints (e.g., channel capacity), control budgets and adhere to customer contact policies. Internal political battles add another layer of complexity. How does a multiproduct organization with hundreds of campaigns and millions of customers decide which campaigns go to which customers?

To maximize profit or ROI, enforce contact policies and stay within budget, you need far more than just experience and intuition. SAS Marketing Optimization applies mathematical techniques to maximize campaign returns by revealing how to make the most of each individual customer contact – while taking multiple business variables into consideration.

A user-friendly interface lets you easily perform what-if analyses to determine the best offers for individual customers, as well as understand how changes in business constraints will affect outcomes. You can choose which customers to target to maximize profitability, boost response rates, etc., while taking into account customer preferences, propensities, profitability, costs, contact policies and other goals.

Key Benefits

- **Know how business constraints will affect your marketing programs**. True mathematical optimization gives you an accurate, quantitative prediction of how constraints will affect your overall contact strategy. You can also combine constraints based on budget limits, channel capacities and contact polices, or create custom constraints, such as a minimum ROI or minimum revenue threshold required.

- **Accurately gauge the impact of changes**. Easily create what-if scenarios to see how changes to business constraints – no matter how complex or numerous – would affect outcomes. If you don't see the results you want, you can easily modify scenarios and run them again and again.

- **Simplify optimization**. An easy-to-use, browser-based interface intuitively and logically guides marketers through normally complex optimization processes – including scenarios, constraints, reports and analyses. Wizards assist users with more complex tasks.

- **Solve more complex business problems in a fraction of the time**. SAS gives you more power and more processing speed for faster, easier access to accurate information. A high-performance optimization engine delivers improved scalability and a faster computation time, enabling you to optimize millions of rows of customer data quickly and efficiently.

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Product Overview

SAS Marketing Optimization uses a mathematical optimization process – accessible via an intuitive interface – to improve the economic return of business-to-consumer direct marketing campaigns. The solution can also be used with SAS® Marketing Automation, SAS® Enterprise Miner™ or other SAS solutions to get the most out of your investments in campaign management and data mining applications.

Easy-to-Use Interface

A user-friendly interface guides users through the solution using intuitive, logical processes. Wizards assist you with more complex tasks. All scenarios, constraints, reports and analyses are defined and performed through the user interface.

Robust Optimization Formulation

You can combine constraints based on budgets, channel capacity, cell sizes, hurdle rates and individual customer contact policies. You can even create custom constraints, such as a minimum ROI or revenue threshold. For example, you can specify financially based tactical constraints, such as "spend at least $150,000 on offers to undermarketed customers in the Northeast."

The first step is to define business objectives that focus on optimizing parameters, such as profit, revenues, response rates or total marketing cost. You can also define two objectives in the same scenario to see how competing goals, such as maximizing profit and minimizing risk, affect each other.

Next, you define business conditions that require a limit – e.g., you could put a ceiling on the total budget, or hold aggregate portfolio risk under a specific threshold. You can also include contact policies at the household or customer level within the same scenario.
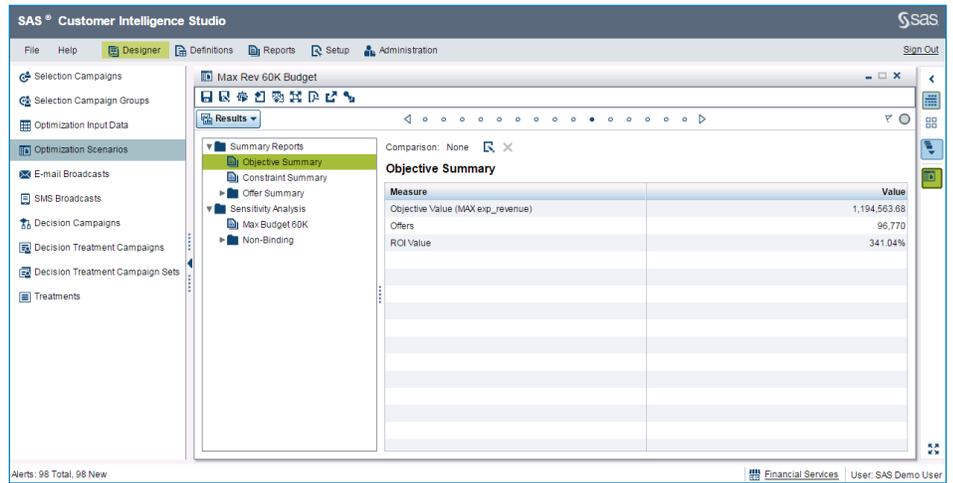
Marketers can create scenarios to maximize for profit, revenue, ROI, channel lift, budget, probability or other measures specific to their business.
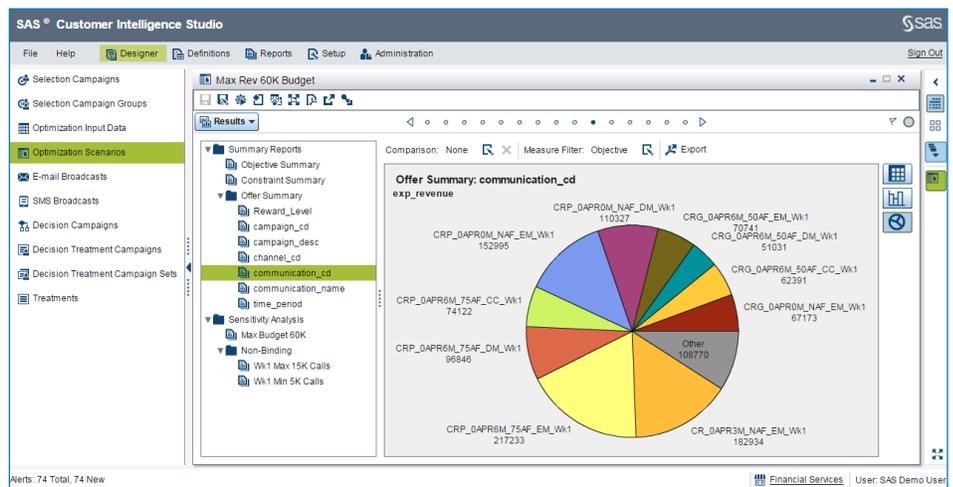
Embedded reporting delivers graphical results around offers, channels, constraints and capacities – among other metrics.
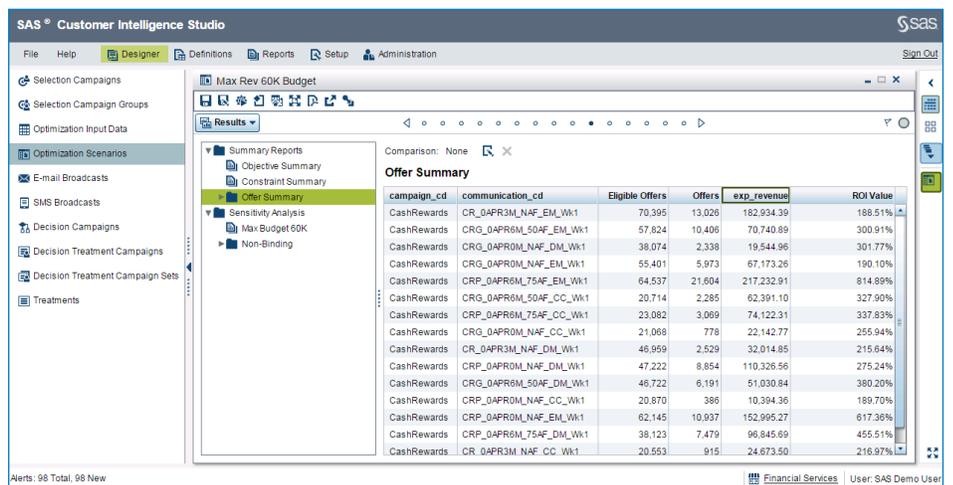
Results of optimization scenarios can be viewed at the campaign or communication level – and show detailed financial metrics and offer results.

Scenario Analysis

Within an optimization project, you can define alternate scenarios. Each scenario can have a different set of constraints, marketing costs, business objectives and customer contact policies. After specifying constraints, you can optimize multiple scenarios, then review and compare the outputs to determine which scenario will bring the best results.

Data Visualization and Reporting

User-friendly data visualization and reporting capabilities let you actually see the results of your optimization efforts. Multiple views of a project are available, so you can get exactly the information you need. For example, offer summary reports and graphs show total offers and expected profitability. Constraint summaries show actual resource consumption, as well as opportunity costs for constraints. Sensitivity curves show optimization objectives (e.g., profit) corresponding to a wide range of constraint values, which enables you to easily analyze trade-offs between objectives and constraints. If you define a secondary objective, a range analysis chart will show the trade-offs between objectives.

Contact Strategy Enforcement

To prevent conflicting communications and unwanted clutter, you can designate a maximum number of offers that each customer should receive throughout the set of campaigns being optimized. You can also set limits on rolling time periods, channels and which products to market to each customer.

By setting and adhering to corporate, organizational and departmental contact strategies all at once, you can avoid over-contact, saturation and ultimate customer disillusion. You can use this sort of information to enhance your corporate contact strategy, to ensure that you deliver offers that are anticipated, relevant and personal every time.

Key Features

User-Friendly Interface
- Centrally administered thin-client user interface involves no prior setup, and can be run from any browser.
- Wizards are used for frequent tasks and for integrating with SAS Marketing Automation.
- User interface-level integration with inbound, outbound and real-time marketing applications, allowing end users to move between tasks via a navigation menu within the left-hand margin.
- Flexible security and permissions management via a dedicated page within the interface.
- Integrated faceted search capabilities for searching the metadata for items based on specific attributes.
- Ability to:
  - Attach conversation threads in text form, as well as insert third-party attachments (e.g., Microsoft Word or Excel files).
  - Reuse existing work (e.g., to create, copy, re-name, delete or compare scenarios).
  - Hide or expose advanced optimization functions to support different user needs.
  - View optimization table data directly from the user interface.

Optimization Formulation
- Ability to account for:
  - Budget, contact policies and resource consumption.
  - Channel availability for store, branch, call center, direct mail, email, mobile, etc.
  - Customer-level attributes, such as consumer credit scores or recent purchase amounts.
  - Desired minimum or maximum cell sizes for any campaign, offer or combination of offers.
  - Nearly any custom customer-level criteria (e.g., total revenues greater than or equal to $25 million, or average portfolio risk score greater than or equal to 680).

Scenario Analysis
- Ability to:
  - Optimize multiple scenarios, then review and compare outputs.
  - Run different scenarios based on constraints and optimization objectives, contact policy and offer economics.
  - Send output – i.e., the optimal solution – directly to the campaign execution system.

Data Visualization and Reporting
- Ability to generate:
  - Summary reports and graphs showing total costs, total profit and other metrics by offer, product, channel, time period, campaign, offer group or subgroup.
  - Optimal results by offer, product, channel, time period, campaign, offer group or subgroup.
  - Visual sensitivity analysis for all constraints.
  - Range analysis graphs when two objectives are defined.
- Collaborative capabilities let you publish or email reports about competing scenarios before execution.
- OLAP cubes, which are automatically created based on input data and results of scenarios, enable detailed analysis of results before execution.
- Rich reports compare differing objectives within a scenario and show comparisons across scenarios to reflect the impact on various counts and critical measures.

High-Performance Optimization

To accommodate the growing sophistication of marketing programs, SAS Marketing Optimization is now underpinned by high-performance analytics from SAS.

Built on a high-performance optimization engine, our high-performance optimization improves scalability and reduces computation time, enabling you to optimize millions of rows of customer data quickly and efficiently. The software makes it faster and easier to get accurate information, so you can make smarter decisions and solve more complex business problems.

In fact, problems that were previously unsolvable due to size or complexity can now be handled easily. For example, you can now optimize runs with hundreds of campaign offers, thousands of contact policy constraints and millions of rows of customer records in just minutes, rather than the hours or even days it would take to run in the past. That's because massive customer data is sent out to the appliance, distributed, optimized and returned in an easy and efficient fashion. In addition, you can:

- **Get more accurate optimization results**. Run optimizations against the entire set of customer data, not just a sample or control group. This enables you to test and experiment with different modeling techniques against all of your customer data.
- **Enhance the speed of optimization**. Perform detailed modeling, selection, and what-if analysis at a much faster rate, enabling you to solve critical business issues and make fact-based decisions quickly and confidently.

To learn more about high-performance optimization, download white papers, view screenshots and see other related material, please visit sas.com/ marketingoptimization. For information on configurations and system requirements, please contact your local SAS sales representative.

Key Features (continued)

Contact Strategy Enforcement
Ability to specify:
- How many offers to assign each customer or household across the planning horizons or rolling time periods.
- Number of offers from a group or subgroup (e.g., make – at most – two cross-sell offers through email or one rebate offer per brand).
- Blocking policies (e.g., if you make Offer A, don't make Offer B for three weeks).

High-Performance Optimization
- Ability to:
  - Schedule, execute and optimize more campaigns using a high-performance framework.
  - Solve complex optimization problems that were previously unsolvable due to the scale of the optimization problem (thousands of constraints, thousands of policies, millions of customers, etc.).
  - Use industry-leading relational database management systems, such as Teradata and Greenplum, for optimal throughput.
  - Perform test and control procedures against entire customer data stores, not just sample groups.
  - Automate more processes in a high-performance fashion to improve marketing efficiencies.
  - Run larger optimization jobs against more customers to reach larger customer segments more quickly.

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