GUROBI OPTIMIZATION | The World's Fastest Solver

PRINCETON CONSULTANTS
Information Technology and Management Consulting

LITYX

Solution Brief:
Marketing Campaign Optimization

When it comes to business-to-consumer (B2C) marketing, companies from various industries across the business spectrum – including retail, financial services, travel, and e-commerce as well as higher education and non-profit – all face essentially the same challenge: They need to figure out the best way to use their limited resources (including marketing budget, channels, tools, and workforce capacity) to identify key audience segments and market their products to their highest value customers and prospects.

To overcome this challenge, you must be able to:

- Use your data to make the best possible decisions about which customers and prospects to target, when to target them, and how to target them (i.e. which marketing levers – such as channels, creative assets, and offers – to use),

- While adhering to your business rules and constraints (including budgetary, channel, customer segmentation, and inventory constraints as well as industry regulations and individual customer's contact preferences),

- And ensuring you realize your business objectives such as maximizing revenue growth, customer lifetime value, and the impact and ROI of your marketing campaigns.

But – in order to achieve this – which advanced analytics tools and techniques do you need?

For decades, leading companies have been using mathematical optimization – in a wide variety of off-the-shelf and custom-built solutions – to conquer their B2C marketing challenges and boost the efficiency, effectiveness, and value of their marketing campaigns.

While machine learning – another go-to advanced analytics tool for B2C marketers – is highly effective at targeting customers and prospects by predicting their propensity to respond and their lifetime value (by scoring, ranking, and sorting contacts based on past buying and browsing behavior), it doesn't allow you to incorporate your company's unique business objectives and constraints into your targeting decisions.

Mathematical optimization solutions provide an opportunity to leverage machine learning to make the best possible targeting decisions. Machine learning-based predictions of value, response, and other behaviors can serve as inputs into an optimization process that accounts for a company's business rules and objectives.

By utilizing these two advanced analytics technologies together to conduct your B2C marketing campaigns, you can achieve "Decision Intelligence" – the capability to make optimal decisions to reach your organizational goals and to meet the needs of your customers and prospects. This enables you to efficiently target the right person, with the right offer, through the right channel, at the right time – and ultimately drive increased sales and ROI on your marketing campaigns.

Even as the business world becomes more and more complex and competitive – with saturation across marketing channels increasing, customer demand for personalized products and services growing, and marketing budgets shrinking – leading organizations continue to rely on mathematical optimization (on its own and in combination with machine learning) to help them make the best possible decisions on how to run their marketing campaigns so that they can maximize the response and revenue that these campaigns deliver.

Key Features

Although marketing campaign optimization applications vary widely across different industries and companies, they all typically possess a few fundamental features:

Mathematical Optimization Model

Each marketing campaign optimization application contains a detailed mathematical optimization model that encapsulates your entire B2C marketing process including:

- **Your decision variables:** The critical decisions that you must make – such as which particular customers or prospects to target, when to target them, and which channels (email, social media, digital display or TV advertising, direct mail, or others), creative assets, and offers to use – are defined in your mathematical optimization application.

- **Your constraints:** Your constraints – such as budgetary, diversity, customer segmentation, channel, and inventory constraints as well as industry regulations and individual customer's contact preferences – are embedded in your mathematical optimization application. This enables you to make sure that your marketing campaigns always adhere to these constraints and comply with relevant regulations.

- **Your business objectives:** The business goals of your marketing campaign – such as maximizing customer acquisition, retention and lifetime value, minimizing marketing spend, or boosting sales – are captured in your mathematical optimization application.
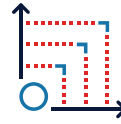
Machine-learning Integration

You can combine the power of two cutting-edge advanced analytics technologies by feeding your machine-learning-based predictions (on individual customers' and prospects' propensity to respond and the value of their response) into your mathematical optimization application, which uses these machine-learning predictions (along with other customer, market, and product data) to generate optimal marketing campaigns.

Decision Intelligence

Mathematical optimization empowers you to model, foster, and execute optimal decision-making across your marketing campaign operations. Mathematical optimization enables you to simplify and automate highly complex targeting decisions – so that you can optimize the offers that you make to specific prospects at given times (while taking into account your company's business objectives and constraints) and get the most value out of your marketing campaigns, budget, and resources. Rather than making a decision about what offer to make each prospect independent of other prospects, mathematical optimization makes a decision about all prospects at one time, trading off the benefits and costs of all prospects against each other in order to make a decision on a collection of offers for every prospect that benefits your organization.

Socially Responsible AI

Addressing social issues and injustices is a top priority on the strategic agendas of a growing number of organizations today. Mathematical optimization – by allowing you to define your company's social responsibility, diversity, and other priorities as constraints in your application – enables you to ensure that your marketing campaigns are aligned with your enterprise's strategic social responsibility and diversity imperatives and initiatives.

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Business Benefits

Utilizing mathematical optimization to construct and conduct your company's marketing campaigns can deliver numerous business benefits, which can be broadly classified into two categories:

Efficiency

- Better utilization of marketing budget and resources

- Reduced operational costs and marketing spend

- Improved speed, productivity, and time-to-market across marketing campaign operations

Value

- Higher response rates and ROI on marketing campaigns

- Better alignment of marketing campaigns with company specific business rules, objectives, and corporate social responsibility initiatives

- Improved targeting, customer acquisition, retention, and lifetime value

- Increased sales, revenue growth, and profitability