Increasing Marketing ROI with Optimized Prediction

Yottamine's Unique and Powerful Solution

Smart marketers are using predictive analytics to make the best offer to the best customer for the least cost. Many see good results but also find their current tools make this a cumbersome, error-prone process. Yottamine Analytics offers a unique predictive analytics solution that enables marketing analysts to select and rank campaign targets on the basis of their individual predicted profitability, in a single step. Benchmarks show that Yottamine can increase campaign profit by 10% and profit per consumer by 25% over current market leading solutions. In addition to being very fast and highly scalable, Yottamine is also highly automated, eliminating the need for IT skills and trial-and-error parameter tuning.

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Marketing ROI

There have never been more ways for B2C companies to invest (and waste) marketing money, with email marketing, digital advertising, and social media joining traditional direct mail, directories, and print/media advertising in the mix. And, growing campaign complexity and costs raise the risk of wasting money on reaching unproductive consumers.

Smart marketers are improving their campaign responses by moving from just "playing the percentages" to using predictive analytics to optimize branding, messages, offers, and even the product itself. To do this, they are using statistical software algorithms to build models of the most desirable behaviors and applying those models to tailoring ads, offers, and content to the targeted consumers.

But, more responses don't mean more revenue or profit. In fact, in relation to marketing ROI, they are actually inversely correlated.

The key to increasing Marketing ROI is using predictive analytics to target the most optimum consumers, the one who will produce the greatest return for the least marketing investment – Yottamine calls this Optimized Prediction.

What is Optimized Prediction?

Predictive models with the greatest business value are often those which can predict both an outcome and the measurable value of that outcome. Such models are found across many industries including Insurance, Financial Services, and Telecom, and across a variety of applications including ones in Fraud, Risk, and Marketing.

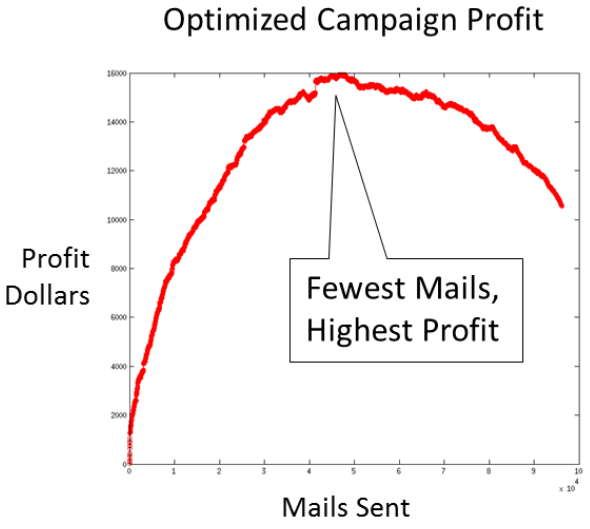
Optimized Prediction enables a bank to avoid the costliest bad loans, an insurance company to predict the claims with the highest losses, or a marketer to better target the most profitable customers.

Optimized Prediction is the ability to classify customers, transactions, and opportunities on the basis of their predicted value, rather than just on arbitrary features or past individual performance, and it is the next big thing in Marketing Analytics.

Optimized Prediction in Direct Marketing

Organizations that rely on high volume direct response marketing can dramatically improve the accuracy and profitability of direct mail through advanced predictive analytics.

For many different kinds of consumer-oriented companies and organizations, direct marketing is an expensive but essential business process. Political organizations, non-profits, and commercial companies all also rely heavily on



direct marketing and must send out many mail pieces or emails in order to get a comparatively small response rate, typically less than 5%.

The goal, then, is to send out the fewest mail pieces possible to the most likely respondents. It is a hard problem because the data is highly imbalanced and there is an inverse correlation between the probability of a response and the value of that response. It requires Optimized Prediction.

Solution Quest

Over many years, the Knowledge Discovery and Data Mining Special Interest Group (SIGKDD) of the Association for Computer Machinery (ACM) has conducted a series of benchmark contests called the *KDD Cup* to identify and validate new advanced analytics solutions for significant real world problems.

Each year, the Cup presents a new problem for software developers to solve, and during the year entrants compete to produce the most effective solution to the current problem. Then in subsequent years after each cup, developers continue to present new solutions that improve upon the results gained by the cup's in-year winners. As a whole, the KDD Cup represents a proving ground of significant use cases for new solutions, as well as a level playing field where solutions can compete for performance superiority.

KDD Cup '98 focuses on the problem solved by Optimized Prediction in the context of direct marketing mail campaign optimization. The use case is for non-profit fund raising, but it also applies to most uses of direct response marketing. The goal of the contest is to build a predictive model that will raise the most revenue at the lowest cost by targeting the most likely responsive donors and excluding the least likely.

Other Solution Approaches

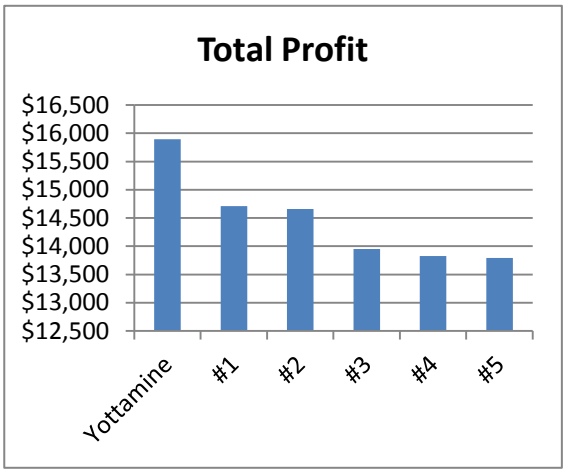
Most solutions to problems like this one use an approach of building a classifier and a regressor separately and then combining the output of the two. A classifier cares only about the accuracy of a case, while a regressor focuses on predicting the value of an outcome.

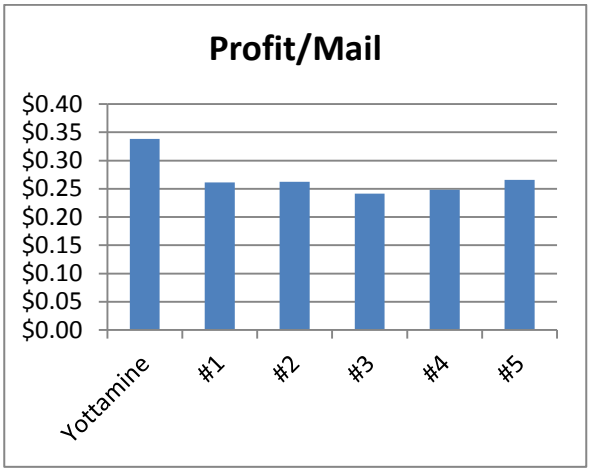
Combining the output of the two independently executed algorithms can produce a better result than the singular methods used by the contest winners, but at a high potential price. In addition to the added time needed to build and test two different models, there can be interdependencies between the models that require a very high level of skill and effort to manage.

Winning Numbers

Yottamine's unique Optimized Prediction algorithm is ideal for use cases like increasing direct marketing campaign profitability. In the KDD Cup test, the winning model is the one that produces the greatest total profit from the fewest mails sent, and Yottamine handily beat the contest winners.

These charts illustrate Yottamine's performance versus the top five results from the competition.

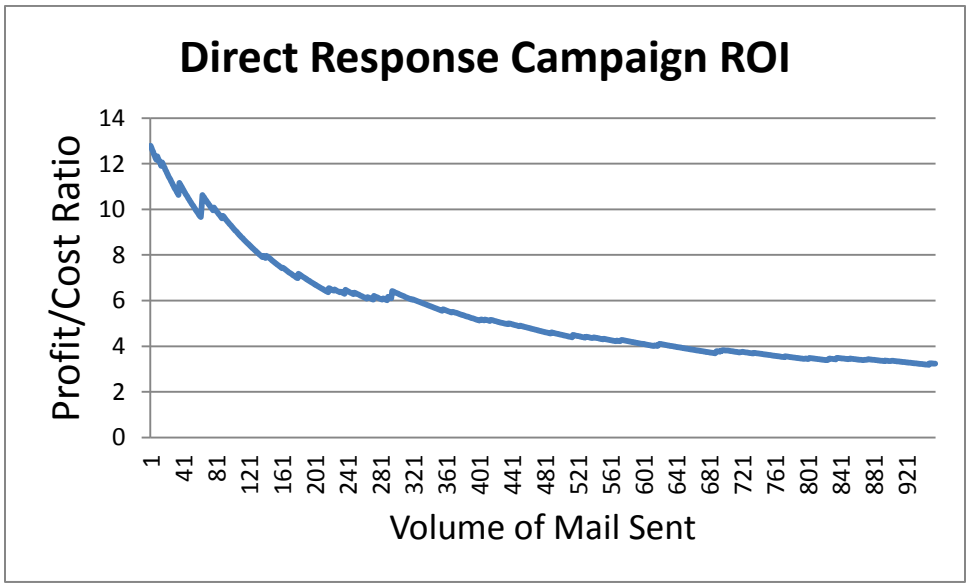




Yottamine's model produced nearly ten percent more profit than the cup winner, but, more importantly, produced almost 30% higher profit per contact.

To put these results into perspective, *The CMO Survey 2014* reports the average 2013 Marketing ROI for B2C product and services companies as 3.8%.

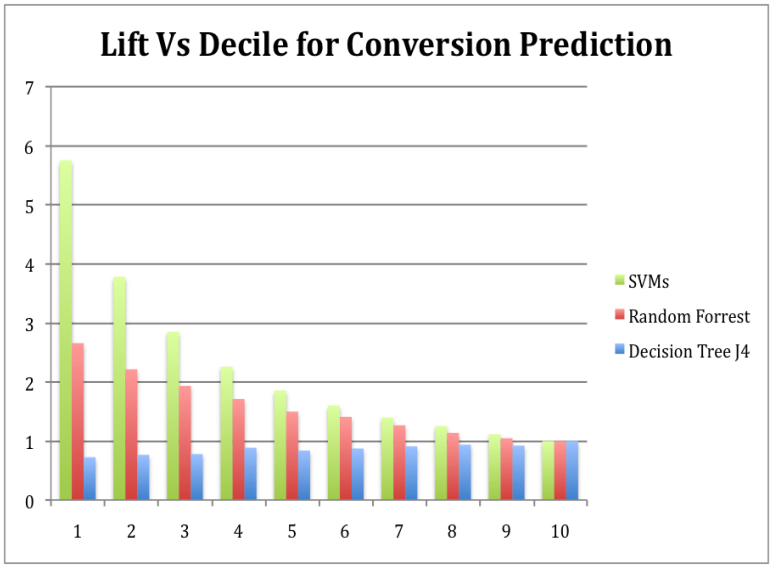
Notably, these test results were produced automatically by the Yottamine algorithm, without the need for special data preparation, tuning tricks, or any human trial-and-error parametric iteration.



The above chart illustrates the most important result of using the Yottamine Optimized Prediction solution. **It demonstrates how Yottamine delivered a 13-fold ROI for the direct response mail campaign.**

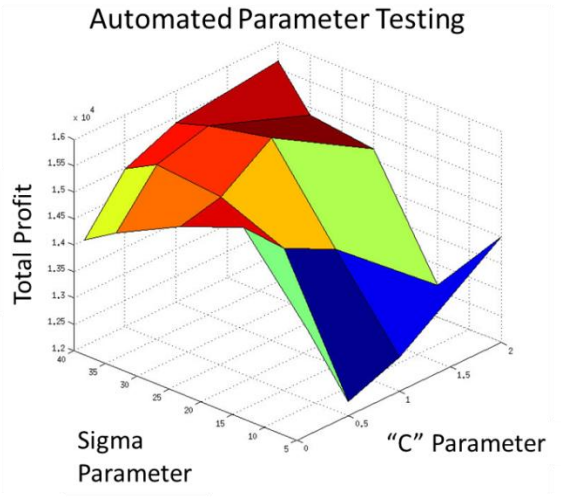
A Unique Predictive Analytics Solution

Yottamine takes a unique approach to Optimized Prediction that combines a predictive classifier with an optimizing regressor in a single, coherent proprietary Optimized algorithm that is much faster and simpler than competing approaches.

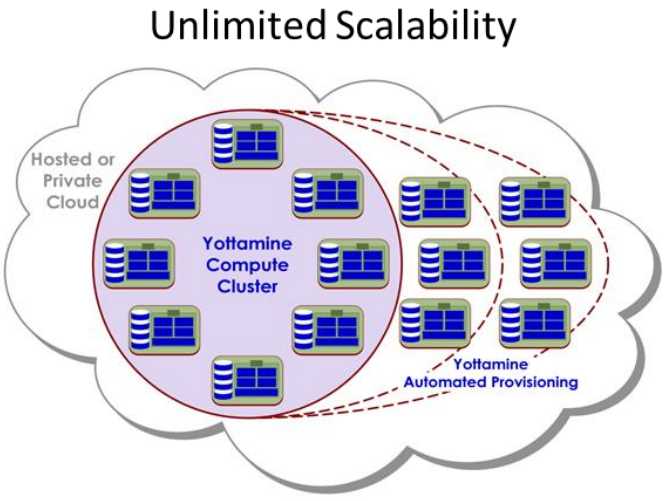


Yottamine's solution is based on kernel methods implemented as a Support Vector Machine. The chart shows the superiority of this technology in producing marketing lift.

The software can model highly non-linear behaviors and can handle problems with many features, achieving great performance without the need to prune features to achieve reasonable performance. With Yottamine there is no performance penalty for feature depth. The algorithm also has the ability to handle highly unbalanced data without applied heuristics or tuning.



Yottamine's Optimized Prediction solution is highly automated, eliminating the need for iterative parameter guessing and tuning, and it is also highly general, eliminating the need for complex data preconditioning, it ensures consistent result across a wide variety of use cases.



Finally, Yottamine's software is highly parallel and built to take advantage of the limitless scale of the cloud, enabling it to rapidly build highly accurate models from very large data sets and all kinds.

Yottamine's Optimized Prediction algorithm is available as an on-line service on a paid usage basis, putting enormous predictive power in reach for organizations of any size, from enterprise to startup.

About Yottamine Analytics

Yottamine is Next-Generation Predictive Analytics

Benchmarks show that Yottamine is the fastest, most scalable Big Data predictive modeling solution available today, beating traditional data mining software, open source libraries, and new solutions, too.

Combining sophisticated *support vector machine* (SVM) algorithms with ultra-parallel programming and advanced data science task automation, Yottamine's machine learning software rapidly builds highly accurate predictive models from very large data sets without guesswork or computer baby-sitting.

How Yottamine compares to other machine learning software

- Speed – Yottamine is thousands of times faster.
    - Build big models quickly and refresh them as often as needed.
- Scale – Yottamine can handle hundreds of times more data.
    - Eliminate sampling risk and work, and get more accurate models.
- Automation – Yottamine is self-configuring and self-optimizing.
    - Reduce skills needed for building, tuning and using models.

Big Data ROI

Predictive analytics can provide the most dramatic return on your Big Data investment by enabling you to use your Biggest Data to gain *actionable business foresight*.

- Predict and prevent customer churn or product failure.
- Detect fraud, default, and other infrequent negative events.
- Present the products, offers, and prices most likely to win sales.
- Rate and rank new business more accurately and more quickly.

Free Yottamine Trial

If you have some labeled machine learning training data ready, you can try Yottamine at no charge to build and test two predictive models, one linear and one non-linear. Get started on the Free Trial page.

Cloud-based – No Cap-Ex and no Scale Limits

Yottamine is currently available as a secure on-line service on the AWS cloud. The service lets you convert business data to blind training data on your premises and then use the unlimited computing scale of the cloud to build your model.

- No hardware or software to buy, install, configure or manage.
- No limits on the size of the data set or compute resources.
- No vendor lock-in – pay as you go, cancel at any time.

To find out more about Yottamine and what we can do for your organization, please contact us.