

Marketing Without Rules:

How Automated Analytics Lets Marketers Get Better Results with Less Effort without Losing Control

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Good marketers have always known they should tell the right story to the right person. In the days of broadcast advertising, this was impossible: the best they could do was to find the right story for the right segment within the mass audience. Personally addressed media, starting with direct mail and later extending to digital interactions, let marketers deliver different stories to different people. But personalization was constrained by limited data about recipients and limited technology. The best most marketers could do was to divide their audience into several segments and send each segment its own message.

Today, those data and technical barriers have been replaced by the opposite problem: marketers have more data than they can analyze and more messaging options than they can manage. At the same time, customers expect highly personalized treatments and can easily switch to competitors if those expectations are not met. The challenge is no longer how to send each person a different message. Now, it's picking the right message from the near-infinite number of choices.

Marketing technology has evolved along with data and delivery systems but not enough to keep up with the problem. Campaign management software to run ad campaigns and to segment direct mail lists was replaced by marketing automation systems to generate personalized emails and Web pages. Cutting-edge marketers are now replacing marketing automation with journey orchestration systems that monitor events and coordinate customer treatments across all channels. Yet even the most modern systems still require marketers to define rules that determine what is sent when to whom. Marketers are still making the core decisions. Modern software just makes those decisions easier to execute.

There's nothing wrong with marketers making core decisions. Most of us aren't yet willing to hand control to the computers. But using rules to express decisions is inherently limiting. Marketers can only define so many rules before they run out of time in the day and before the rules become too complicated to understand and deploy with confidence. Yet the number of decisions continues to rise as marketers use more data to pick from more messages to deliver at more possible times across more available channels. In short, the number of rules is ultimately fixed while the number of decisions never stops growing. Something has to give: either marketers stop trying to make the best decisions or they stop relying on rules.

Where Rules Fail

Rules are problematic today in almost every situation because companies can interact with customers in so many different ways. But the need to replace rules is more pressing in some situations than others. Factors include having many different offers to choose from, frequent changes in the items offered, high value per customer, large amounts of customer data available, and high customer expectations for personalized treatment. Businesses that meet some or all of those conditions include:

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- High-end financial services such as asset and wealth management, business banking, and corporate insurance. Companies in these industries are constantly creating new products, such as new mutual funds or insurance options, and new materials such as market analyses and investment advisories. Marketing programs and personal advisors must match these to the specific needs and interests of individual customers, drawing on customer preferences, financial position, current investments, market developments, business situation, and other factors. Manually-adjusted rules can't keep up with the large number of options, quick changes in what's available, and complex analysis needed to determine what is relevant to individual customers.
- Business media and research firms. Content is the primary product of these businesses and many create new materials every day. Presenting each customer with information she wants is essential to building traffic and loyalty. Customer behaviors are the key to understanding their interests. But matching behaviors to related contents requires complex assessments that are almost impossible to build into conventional rules.
- Content marketers who have invested heavily in creating large libraries of materials. Many technology firms have taken this approach, which relies on attracting prospects and building relationships by providing a constant flow of relevant materials. Rules cannot easily be adjusted for every new item or to reflect different interests of customers at different stages in the purchase cycle.

The Decision Making Process

Before looking for alternatives to rules, we need to clarify the decision-making process itself. It can be broken down into the following steps:

- **Gather relevant data.** The primary data is information about the customer herself, including past behaviors and current situation. This gives a rational basis for predicting how she might respond to different messages. You'll also want similar information about other customers, especially when information on the current customer is limited. In addition, the current situation, or context, can have a major impact on behaviors because customers are most likely to respond to immediate needs. This means that real-time information is often very important. Context may include non-customer data such as recent stock market behavior or the local weather. One trick to making good decisions is to know which contextual data matters in each situation: investment decisions may be heavily influenced by stock market, while clothing purchases are more likely related to the season and weather. Other types of contextual information include stage in the buying cycle or time remaining on a service contract.
- **Identify available options.** Even in simple retail marketing, marketing options include which channels to use to reach the customer, when and how often to contact them, which products to show, what price to offer, any special deals (coupons, free shipping,

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etc.), and what presentation to use (language, pictures, colors, design, etc.) Marketers outside of retail may not be selling a specific product but must still choose which content to offer (which news article, study, movie, etc.) or what action to encourage (meet with a salesperson, call customer service, try a new product feature, etc.) The available options are an important variable: if customers want chocolate ice cream and you only offer vanilla or strawberry, you will never receive the maximum potential value.

- **Find the best choice.** This generally means “pick the option with the highest expected value”. That’s easy to say but picking the right value measure and estimating it accurately are hard. Value should generally be measured over the total customer lifetime, which often implies short term sacrifices such as accepting lower immediate revenue or incurring a service cost. Value calculations are not simple and estimating the impact on value of a particular choice adds another layer of complexity. Marketers often avoid value calculations by substituting a simpler measure such as accepted offers or movement to the next stage in a sales cycle. It’s much easier for predictive analytics systems to estimate the likelihood of immediate actions than the incremental impact on long-term value.
- **Execute the decision and learn from the results.** The chosen option must be translated into action. This usually requires connecting the decision-making system to a delivery system such as the email agent, Web site, or call center. It’s also important to record the decision, confirm that it was executed, and analyze the results. This provides feedback to learn what worked and improve prediction capabilities. Learning should cover both immediate results (was the offer accepted?) and long term results (was the customer’s ultimate value increased?). Learning should also include deeper insights into what drives customer behavior, which can be especially helpful in understanding what new options should be added. This is another feedback loop that grows value over time.

Decision Method Criteria

Now that we’ve defined the process steps, we can set criteria to evaluate decision-making methods:

- **Uses all possible data.** Data include static or slowly changing customer attributes such as age and gender; past behaviors such as purchases and Web pages viewed; and current context such as location and purpose. They also include derived attributes such as interests inferred from past behaviors as well as non-customer data such as time of day, current weather, promotion contents, and product information. Many of these will be real-time inputs.
- **Adapts to new data.** The system should recognize which data is relevant for predicting behavior or value, even if the relationship has not been specified in advance. It should also accept new data inputs as these become available and find

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out which of those are useful. More broadly, it should automatically adjust how it uses different data elements as their relation to results changes over time and under different circumstances.

- **Considers all options.** The system should easily incorporate new options such as products, messages, offers, and channels. This may imply automatically classifying new products or content materials and automatically testing response to new items. As a practical matter, it also includes features to automatically exclude options that should not be considered in a particular situation – such as offering products that are out of stock or recommending services that are not available where the customer lives.
- **Seeks a valid goal.** The system should be designed to achieve a sound business goal. This means it needs a realistic way to measure, or at least estimate, the effect that any option has on that goal. The goal definition needs to be explicit and the users should be able to assign different goals in different situations.
- **Learns from results.** The system needs to capture results and use them to improve future performance. Learning comes on many levels, including adjusting to near-term changes in customer behavior, incorporating new data elements and new options, improving prediction results, and identifying opportunities for new products or messages. Learning can be automated but should also include analytical tools that let users explore results for themselves.
- **Gives marketers control.** Marketers don't need to make each decision but they must still understand and monitor what automated systems are doing. The specific control mechanisms can vary widely but they should generally give marketers an overview of how customers are treated through their lifecycle and drill down to understand what would happen in specific situations. This usually involves a combination of reports, simulation, and testing tools.

Rule System Weaknesses

These criteria make it easier to understand where rules fall short.

Criterion	Rule Systems
Uses all possible data	Rule-based systems rely on users to determine which data elements are considered and how they are used. There are severe limits to how complicated the rules can become before users lose the ability to design or manage them. It's especially hard to write rules that adjust in real time to changes in context.
Adapts to new data	Users must manually adjust rules for new data and for changes in using existing data. This effort limits how often these

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	changes can be made. Rules cannot discover any new relationships for themselves.
Considers all options	As with data, rule-based systems can only consider options that are explicitly built into their design. Adjusting to new messages, products, or channels requires painstaking changes. The more options there are, the harder it is to capture them all in rules.
Seeks a valid goal	Rules don't seek goals by themselves. Users must define rules that lead to the desired outcomes. This puts a heavy burden on users to do the correct analysis.
Learns from results	Rules don't learn. Users need to continuously evaluate results to see if changes are needed. Then they must determine what those changes are and make them.
Gives marketers control	All but the simplest rules can be difficult for people to understand. It's even harder to foresee how different rules might interact. At best, rule-based systems can provide reports that show users what is happening.

Automated Analytics

It's easy to find alternatives to rules for making decisions. You could roll a pair of dice, throw darts at a board, or ask your boss what she wants. What's hard is finding an alternative to rules that gives better results. Continued advances in computer power and analytical methods have now made automated analytics a viable alternative to rule-based methods.

Let's look at how an automated analytics system manages each step in the marketing decision process.

- **Gather relevant data.** There's nothing inherently different about data gathering for automated analytics systems. But, because they are running sophisticated algorithms, automated systems can use more data than manually-created rules and generate more accurate predictions. This can be especially important when consolidating data across multiple channels. One typical approach is for automated systems to identify clusters of customers with similar behaviors and to use those clusters as the basis for understanding customer interests, creating content, sending messages, and analyzing results.
- **Identify available options.** Like data gathering, option definition is outside of the decision system. But automated systems can analyze product, content, and offer attributes to find concentrations or gaps in the existing set of options. They can also

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compare option attributes to customer interests, making tentative decisions about which choices are appropriate for each customer even before any testing begins – and without marketers needing to write rules to do the matching.

- **Find the best choice.** This is what automated analytics do best. They can run sophisticated algorithms that match customers against different channels, products, and offers. They can predict the results of specific choices, considering many more alternatives than conventional rules. They can automatically execute tests that verify predictions and improve future decisions. The algorithms can include multiple complex value measures and can optimize decisions against one or several measures. Automated systems can still apply basic rules such as excluding unavailable products or to impose specific business policies.
- **Execute the decision and learn from the results.** Execution systems don't care how a decision was made. But automated decision systems do have advantages because they can send many versions of a message as easily as they can send a few: rule-based systems often require additional manual effort to set up each new version. Automated systems will automatically learn from results, adapt to short- and long-term changes in behaviors, and deploy the resulting knowledge to improve future performance.

Automated Analytics Evaluation

Let's measure automated approaches against the same criteria we defined earlier.

Criterion	Automated Analytics Systems
Uses all possible data	Automated analytics can consider a virtually unlimited number of data elements. Algorithms can easily adjust decisions based on real time inputs.
Adapts to new data	Automated analytics can easily incorporate new data elements, discover new relationships, and adjust how existing elements are used.
Considers all options	Automated analytics can discover new products, channels, and offers as they appear. They can predict performance based on matches between customer and offer attributes and then automatically run tests to verify and refine predictions.
Seeks a valid goal	Automated analytics can optimize to meet goals defined by the user. They can calculate estimated values with little user assistance.
Learns from results	Automated analytics are constantly re-analyzing

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	performance and making adjustments.
Gives marketers control	One disadvantage is that the reasons for automated decisions are often hidden. But marketers still have control because they can see which data the system is weighing heavily and what decisions it is generating. This gives practical insight into what is happening inside the black box. Analytical systems can also alert users to major changes in data, decisions, or results. Users can set constraints and defaults to limit damage if problems occur.

Digging Deeper

Replacing rules with automated analytics isn't simple. Here are some of the real-world nuances to consider.

- **Hybrids.** In practice, automated analytics systems incorporate rule-based methods. The products, offers, and channels available to consider are often constrained by rules that exclude items for reasons such as availability, compatibility, or company policy. Rules can also check the reasonableness of automated decisions, providing protection against undetected errors. In general, combining rules with automated analytics provides better results than either method alone. Marketers should beware of any solution that claims to be entirely rule-free.
- **Recommendation vs optimization.** Some systems maximize an immediate result such as email open rate or product purchase. Other systems maximize a long-term goal such as future renewals or lifetime value. Raab Associates calls the first type of system a recommendation engine and the second type an optimization engine. Other people may use other labels. Either way, the distinction is important. It's much easier to build an analytical system that only looks at immediate results but it's ultimately more useful to make decisions that improve long-term value. Some features needed for long-term optimization include control groups to measure performance over time and advanced analytical methods to estimate the incremental impact of multiple factors on the final result.
- **Multi-step campaigns.** Analytical systems are much better than rules at selecting a single treatment by itself. But a sequence of treatments is more complicated because the impact of later decisions can affect earlier choices and messages must be scheduled over time. Rules let marketers set up message sequences directly, giving precise control where automated systems do not. This is why branching campaigns flows are the centerpiece of many marketing automation systems. But the branching flows are hard to manage once they exceed a fairly low level of complexity. One promising approach is hybrid solutions that embed automated decisions within a rule-driven framework. There is also continuing work at building analytical systems that

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can automatically evolve effective multi-step processes. As the analytical systems become more powerful, this may become the standard solution.

Summary

Today's marketers have an unprecedented opportunity to deliver messages tailored to the needs of each customer. But taking advantage of this opportunity requires working with more data and choosing among more options than rule-based methods can support. Automated analytics offer an alternative that will produce better results with less effort. These systems can keep marketers in control by letting them set goals and monitor outputs. Practical solutions will combine automated analytics with rules to get the benefits of each. Marketers who want to improve their company's performance and keep pace with the accelerating changes in their industry should give automated analytics a close look.

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About Raab Associates Inc.

Raab Associates Inc. is a consultancy specializing in marketing technology and analytics. Typical engagements include business needs assessment, technology audits, vendor selection, results analysis, and dashboard development. The company also consults with industry vendors on products and marketing strategy. It publishes the B2B Marketing Automation Vendor Selection Tool (VEST), the industry's most comprehensive independent guide to B2B marketing automation systems.

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