

THE BEST IS YET TO COME.

Predicting customer behavior with data.

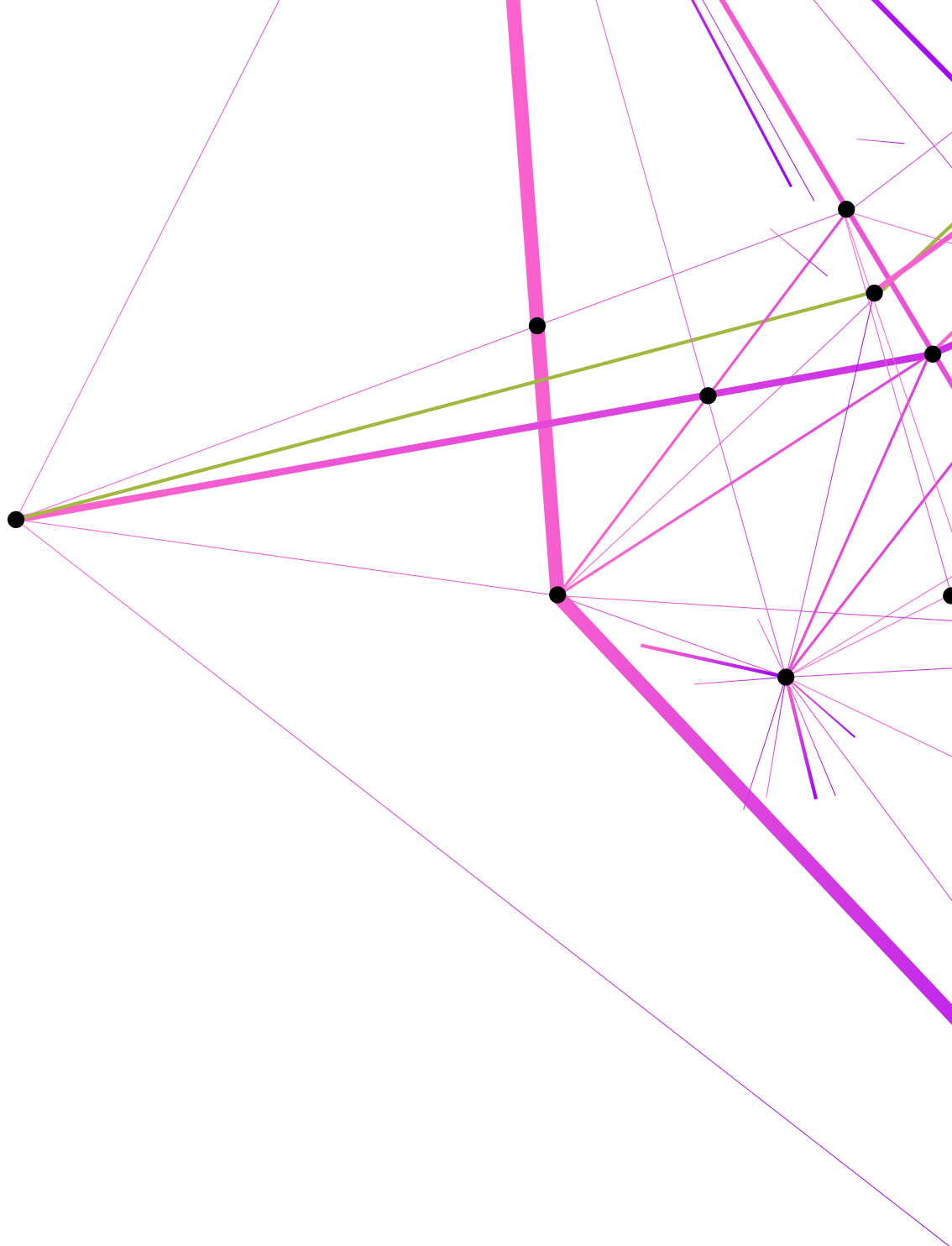
2016

Part 3

A step-by-step guide to
data-driven marketing

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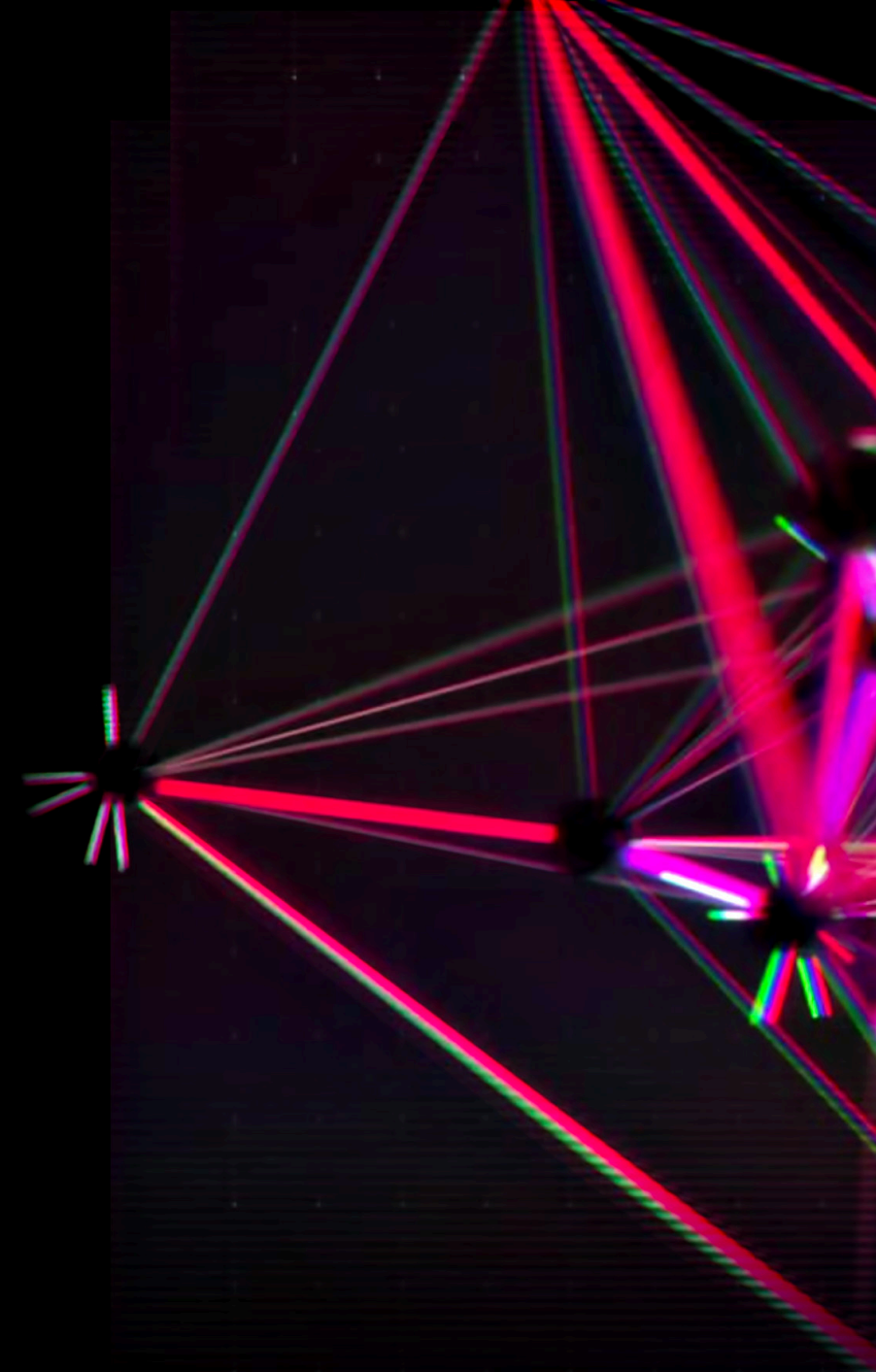


Nobel prize–winning physicist Niels Bohr allegedly said, “Prediction is very difficult, especially about the future.” But that was before big data.

Today, certain kinds of prediction are much less difficult than they used to be. We now have an unprecedented amount of consumer information available, plus the technology to crunch the numbers. Marketers can tell with greater accuracy than ever before how their customers are likely to behave—sometimes even before the customers know themselves.

This three-part, step-by-step guide to data-driven marketing explains how to use mountains of available data to create the best possible customer experience and grow your bottom line:

- **Part One** covers the importance of accountability and attribution, explains what data-driven marketing can help you accomplish, and provides details on how to get started.
- **Part Two** discusses how to merge data from disparate sources to create a complete view of every customer and how to use that understanding to deliver a seamless customer experience.
- **Part Three (this eBook)** explains how to use data and software to predict what customers will do and how to turn that new knowledge into a business advantage.



Get to **KNOW** your crystal ball.

At its most basic, predictive marketing is simple. You're almost certainly doing it now. Think of it like this. A retailer sees a significant increase in sales on Black Friday. The next year, they see a similar bump. Using this information, the retailer can **predict** that on the next Black Friday, they'll probably see a similar increase, so they can plan accordingly.

That's the core of predictive marketing.

Of course, simplistic examples like this one are only applicable on a limited scale. But the scope of predictive marketing today is practically limitless. With the right technology, the right people, and the right processes, predictive marketing can propel your business forward with incredible velocity.

"Predictive marketing," says John Bates, senior product manager of data science and predictive marketing solutions at Adobe, "offers the cure to almost every ill-informed analysis and poorly managed optimization effort by unearthing hidden patterns in large sets of data and providing foresight for future decisions. Predictive marketing provides the marketer with the ability to intelligently interact with their customers at every stage of engagement—disrupting past...performance with unprecedented levels of success."¹

Consider a real-world example. Innovative PC manufacturer Lenovo has built a predictive model they call the Lenovo Index for Scoring Audiences (LISA). This model hooks into Lenovo's analytics software to predict the likelihood that a visitor to the website will buy something. This information is stored at the cookie level on the site, so when a customer comes to the site, Lenovo's targeting software can immediately read LISA's prediction and then deliver the customized content that will most likely meet that customer's needs.

"[LISA is] almost 90% accurate," says Ashish Braganza, who's the senior manager of global business intelligence at Lenovo. "[And] it's actionable in real time." Think about that for a minute. What could you do with a tool that could predict your customers' behaviors with 90% accuracy?

Obviously, the Lenovo story is only one example. Bates describes another, one that takes the hypothetical Black Friday example into the real world. A leading technology company built a "predictive model that would forecast traffic levels and identify the primary acquisition levers that they could 'pull' that would have the greatest expected impact on future traffic levels." The model came in handy when weeks before Black Friday and Cyber Monday, it predicted a 20% decline in year-over-year traffic. This information gave the company a chance to be proactive.

"In an effort to increase the expected traffic levels," says Bates, "the key stakeholders for each marketing channel...met and strategically planned initiatives to take advantage of those traffic acquisition levers that had been previously identified."

While the economy and other market influences still took their toll, the company's predictive model allowed it to stave off the worst. The company saw only an 8% decline, instead of the predicted 20%—a difference that translated into \$2.5 million in incremental revenue in two days.²

“Predictive marketing empowers a digital marketer with the ability to essentially change the future of their business,” says Bates. “Though marketers face competing marketing budgets and fierce competition within their industry, predictive marketing provides a means for leveling the playing field.”³

As these examples show, predictive marketing is not some program that is successful in isolation. The whole point of making predictions is to take action, so the real value of predictive marketing lies in what it allows you to *do*. As Bates puts it, “Predictive marketing...empower[s] digital marketers with the ability to make intelligent, forward-looking decisions through automation, visualization, and user experience innovations coupled with powerful predictive models.”

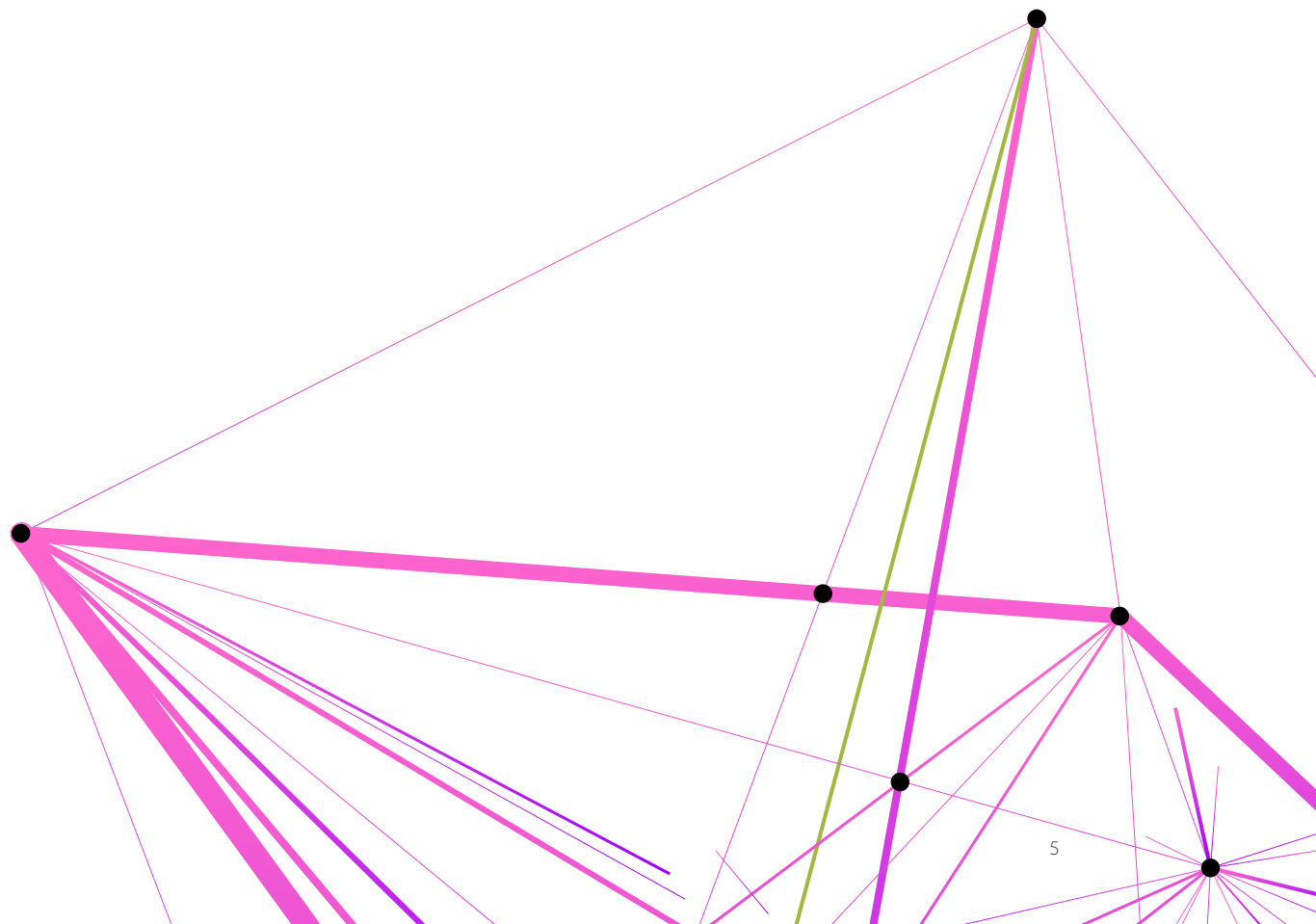
For example, predictive marketing takes testing and optimization to a new level by allowing you to evaluate all the data and variables about a campaign in real time, so you can determine which ones to focus targeting and further testing on.

Again, at its most basic, it can be as simple as following year-over-year trends and learning from them. But the kind of predictive marketing that Bates talks about, the kind that will change the future of your business, involves much more. The most successful brands today are using the kind of predictive marketing that layers in content from a variety of sources—including first-, second-, and third-party sources. It’s tested rigorously and then automated, so you can confidently deliver experiences with lightning speed and responsiveness.

Condé Nast is one of those brands. It uses sophisticated predictive marketing to forecast important trends, which ultimately allows the company to sell more subscriptions. For example, by using a model to calculate traffic across devices, analysts can predict impressions per page and set budgets and goals based on projected revenues.

And once they have people on those pages, the publisher knows what to share with them to encourage them to subscribe. For instance, data shows that new readers are most likely to respond to ads emphasizing the interesting content of the brand. On the other hand, repeat visitors are more likely to subscribe when shown ads highlighting sales and special offers.

The ability to effectively use predictive marketing is one of the hallmarks of data-driven marketing maturity. Let’s dig in deeper and discover why.



Pull back the CURTAIN.

The math that underlies predictive marketing has been around a long time, but analytics solutions take these algorithms and procedures and apply them in new ways. As your company's data-driven practice matures, you'll follow a similar path. Start with simple principles and then apply them in increasingly complex ways for more useful analysis:⁴

1

Study one factor. Make some simple calls about the future of your business. This is where most companies new to predictive marketing start their journey. Using basic spreadsheet software, study historic trend lines to forecast expected revenue tomorrow, next week, or next year, which is useful for setting budgets and goals. Data scientists call this kind of analysis "univariate time series," because you're looking at only one variable over time, ignoring how other factors might come into play.

2

Study two factors. Begin to use correlation analysis to make predictions about customer behavior, and thus start to gain control over future revenue. Also discussed in Part Two of this series, correlation analysis looks at two trends or factors to see how they relate and whether one might be able to predict the other. You can use ordinary spreadsheet software for correlation analysis.

3

Study three or more factors. Move towards multivariate regression, or analytics that look at the relationship among many factors. Some of this can be done with spreadsheets, but at this stage, most companies turn to specialized data-driven marketing software. Most spreadsheet software has limitations. For instance, one common brand offers about a million rows, which isn't enough if you have 10 million customers.

4

Leverage real-time data. Use software to do multivariate analysis based on real-time data, predict customers' behavior, and instantly match them to the appropriate content. This is the most advanced level of predictive marketing.

Tools of the trade.

Predictive marketing involves a wide variety of practices, tools, and technologies. Here are some of the most important.

Segmentation. Digital marketing software divides audiences from within your own database into segments—groups of customers with similar traits—based on defined criteria. The software can do this in real time, so segments are defined not only by the demographic data, but also by the customer's location and daily activities.

Micro-segmentation. With the amount of data available today and software with the ability to analyze thousands of variables, it's possible to create segments of as few as a hundred people.

Look-alike modeling. After you define a segment, the software can look through prospect databases to find more customers who share similar profiles. It can then define a "look-alike" group that, while it may not share all of the same traits, is larger than the original segment, offering an opportunity to broaden a campaign.

Machine learning. Machine learning algorithms—a form of artificial intelligence—can be programmed in digital platforms to change experiences based on incoming data, so that a formula used this morning can be tweaked to operate differently this afternoon.

Read minds and then **DO SOMETHING ABOUT IT.**

The predictions you make with predictive marketing allow you to refine the ways in which you communicate with your audience. This is obviously good for your audience because you're sending messages that get them what they want, and it's good for you too. If you can predict the right message, content, or experience ahead of time, you can deliver much more efficiently and inexpensively. This kind of data-driven, prediction-based optimization gives you greater control over your marketing campaigns.

Let's say an appliance company wants to increase sales of its new high-end dishwasher with an email campaign. Previously, the marketing department would send an email to all customers advertising the new dishwasher. But many customers wouldn't even open the email because they didn't need a new dishwasher, or they would delete it because the appliance was out of their price range. The result? An expensive email campaign and a warehouse full of unsold dishwashers.

Instead, the marketing department could use predictive analytics to learn that customers are most likely to be interested in a new dishwasher when their current dishwasher is between seven and nine years old. Or that households most likely to purchase expensive models have an annual household income of over \$100,000, own homes of more than 3,000 square feet, have granite countertops in their kitchen, and often have teenage kids living at home.

Of course, our fictional company needs the analytic power to know this detailed data, but assuming they do, and armed with this valuable information from predictive analytics, the marketing team can create an email that resonates with the customer. They design the ad so that the potential customers can picture the dishwasher in their own kitchen, perhaps showing a home with granite countertops and a family with teens. The next step is sending the email to the people they identified as most likely to want the new appliance.

This time the results are dramatically different. The proportion of people who open the email is significantly higher. Even better, the campaign results in more click-throughs to the website. Over the next few weeks, fewer dishwashers are sitting in the warehouse, and sales of the new model have gone through the roof. Quite simply, everyone who received the email was more likely to be in the market for a dishwasher in the near future and could afford the price tag. This made for a more efficient, focused campaign. But more importantly, the customers felt that the brand understood their needs because they received an offer that was relevant and timely.

This process can be refined even further—and made even more efficient—by optimizing the content of the first-round email through testing. Let's say you have two different value propositions and you want to see which one the customer responds to better. Once you have enough data to make a call on the test, you can dynamically update unopened versions of your email while they're still in your customers' inboxes. If you find in the first few hours of the campaign that the email focusing, say, on time-saving features that give users more family time has a higher open rate than the messaging about energy efficiency, you can make a change on the fly. The recipients who open the email after those changes will see a different, more effective version. This is optimization with precision, made possible by the fact that you did all the heavy lifting with predictive analytics, freeing up the time, resources, and brainpower to plan and execute these kinds of laser-focused tests.

You want the maximum revenue with the minimum possible marketing investment.⁵

ANDY FRAWLEY
EPSILON
CEO

Get **OPTIMIZED.**

Testing for optimization reveals which promotions are the most appealing, so you can decide which to push and which to abandon. With predictive marketing, however, your ability to make those decisions is greatly enhanced. Drawing on thousands of layers of data and analyzing it carefully, you can create a perfectly tailored experience, not only to broad segments of your audience, but to micro-segments of as few as 100 people.⁶

In using predictive analytics, you're not trying to get better at being reactive. The goal is to take a proactive approach.⁸

JOHN BATES

group product manager
Adobe

Predictive marketing enables advanced optimization. To get the most out of that optimization, though, your department, and ideally your whole company, needs to have a data-driven mindset. Not sure if you're ready? Start by asking questions about your team in these key areas:⁷

Culture: Are you ready to make data-driven decisions and challenge existing assumptions? Becoming predictive marketing pros may require a cultural shift within your company.

Strategy: What are your ultimate goals and priorities? Do you have a roadmap for how to get there?

Execution: How developed are your company's internal processes for predictive marketing and data-driven marketing in general? Are you able to gather the information that will allow you to make the right predictions? Are your software and infrastructure fully integrated across your organization, so the same data is available to all? And how quickly can you test an idea for an email campaign, an image, or an ad?

Leadership: Is the executive team onboard? Does leadership have the vision and influence to put a data-driven culture in place?

Organization: Does your team have people with the right skills in the right roles?

Reach: Do you know which customer contact points it will be most valuable to optimize, and are you prepared to handle all of them?

Be **AUTOMAGICAL.**

Where predictive analytics really starts to feel like magic is in automation.

Automation is mostly valuable because it allows you to scale. It gives you the power to take one valuable process and do it over and over again to a degree that's impossible for humans.

Historically, automation worked like this: You set up a manual rule or condition. Once that condition is met, whatever system you're automating performs the action you programmed it to do. For example, you could set a rule that every time a new prospect fills out your lead form, a new record is created in your CRM system.

Because this kind of automation is limited by the manual rules you set, it is—while still useful—limited. With predictive analytics, on the other hand, the software sets the triggers based on the predictions it's making. This takes the idea of scale to a whole new level.

So, based on your customer segments, your marketing team should dream up opportunities and experiences to offer would-be buyers. Then you can program an algorithm to send those offers out when certain criteria are met. Based on the reaction to the offers, the software can automatically select the next best offer, and the next.

All the while, the software is incorporating information on customer responses into the existing database. Based on machine learning, the algorithm itself evolves, self-optimizing and improving itself based on what customers actually do in real-time.⁹

For example, Ronald, a customer for a musical equipment vendor, is part of multiple testing campaigns in a short period of time. The first is based on historic behavior: Ronald has always browsed the site for guitar-related gear, so on his next visit, he is presented with two offers, one for a set of strings and one for a package of picks. The software records the fact that he puts the strings in his online cart. Ronald is then subject to a second test: He is presented with two upsell offers, one for more strings and one for sheet music. The software records that he buys the sheet music. At checkout, he is part of a third test: He is offered the chance to get a discount by joining a loyalty program. Does he take it? The software records his choice once again.

"The more the customer engages with your brand, the more you can cull valuable data and determine what makes him tick," says Kevin Lindsay, head of product marketing for Adobe Target.¹⁰

At every step of the way, the predictive analytics algorithm learns not only about Ronald, the individual, but also about the likelihood of customers with characteristics similar to Ronald doing certain things. It may be that based on thousands of Ronald-like shoppers, you know that people who buy strings and picks are very likely to also buy sheet music. With this new knowledge gleaned from your predictive analytics, you've uncovered a new customer segment and sales opportunity.

This automated process gives you the ability to use real-time data to make the customer feel instantly known and understood, as you do when you get a product recommendation that perfectly matches your needs. The marketer, meanwhile, is learning and selling fast. It used to take a data scientist weeks, if not months, to analyze data and make predictions, but through automation, you can do this kind of optimization in seconds with the press of a button.

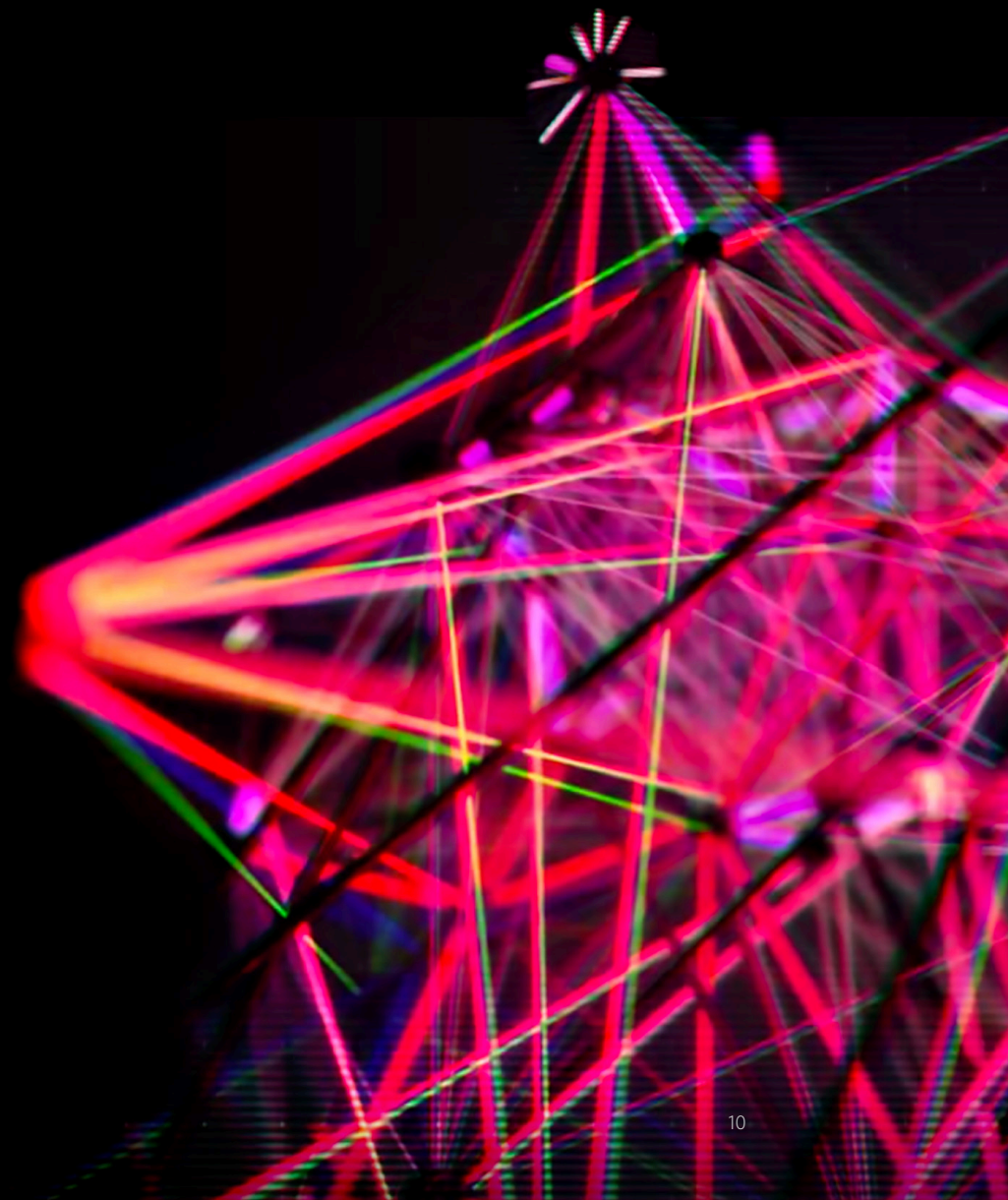
Get **CREATIVE.**

Of course, it's never just about what the algorithms can do. Sometimes it seems as if the whole world is becoming automatic, but in marketing, at least, the machine will never fully replace the human. As pointed out previously, automation is tremendously powerful for scaling tasks. For example, a machine can send out a million emails in a short time, which is humanly impossible. But "send" doesn't mean "write" or "create." A machine can be programmed to respond to a customer action by sending out a specific message. And it can be programmed to do that kind of thing in complicated ways—for example, sending out message "A" if one set of criteria is met, "B," for another set, "C" for a third set, and so on.

But a machine can't set goals or strategize. It can't design the most eye-catching visual effects, read cultural nuances, or understand why a video goes viral. It has no sense of humor. In short, it lacks many of the skills required to create effective campaigns. (Software that composes written content exists but is in its infancy.) Machines can only serve up what humans program them to do. As with all personalization efforts, including predictive marketing, both machine power and human decision-making are required to make the process successful.

There has to be a top-down initiative to test, to experiment, to be able to fail and learn from mistakes.¹¹

MORGAN VAWTER
Accenture



Create the **FUTURE.**

Predictive analytics allows you to decide what your customer's experience should be like. This is an ongoing process, applicable at every point in the customer's journey. Marketing is no longer about the one-time offer. It's about the customer receiving appropriate, well-timed offers and messages at every turn, whether that's on their social media feed, their mobile browser, or the floor of their favorite retail store. It's not only about the *best* experience, but also the *next* experience. Every visit to your site should be at least as compelling as the last one.

So what's the perfect customer experience? And how do you provide it without going overboard? If you don't personalize the customer experience, you simply won't be noticed. On the other hand, marketers are rightly concerned about straying into the "creepy" zone, which should be avoided at all costs.¹² You never want a personalized ad to inspire a customer to think, "*Wait, is someone actually watching me?*"

The thing to remember is that customers are most likely to get that creepy feeling when something is not quite right—when, for example, they're served an ad one too many times for a product that doesn't fit their needs. When something is actually the perfect thing at the perfect time, it just feels spot-on. And spot-on isn't creepy. It's welcomed.

If a woman shops for cowboy boots, and then a pair she browsed follows her around the web for the next six months, she may feel annoyed. But when she's on her way home from work and needs a quick dinner recipe that meets her dietary restrictions, and one pops up on her phone, she's more likely to think, "*Cool,*

one less decision to make." That's why constant data collection is so important. If you're always refining your customer profile, you're less likely to be the stalker and more likely to be the hero who saves the day with the perfect meal for dinner.

It's important to remember that personalization goes well beyond demographic data. The right content is important, but so is conveying it through the right channel at the right time. Which device is your customer using at 6 p.m.? Her desktop, in which case an email might be most appropriate? Or does she tend to switch over to her phone around 5:45 p.m., in which case a push notification might be the ticket? Timing is crucial. That dinner recipe isn't going to be very useful at 8 a.m.

Data-driven marketing can be even better at timing than a real, live sales-floor pitch. On a car showroom floor, a saleswoman can gather plenty of data about the customer from observation and conversation. But because she knows her captive audience could walk out the door, she may try to push a sale on someone who isn't ready to buy. This can fall flat or even backfire, repelling a customer who might have bought a car just a few weeks later. By understanding the customer, who she is, what she cares about, and what motivates her to head to the dealership, you'll have a higher chance of making the sale. If you think of the customer's interaction with the automobile brand as a journey, when she stops in the showroom and what she's driving are just as important as where she's going.

In digital marketing, though, you can reach out to customers when the time is right and hold off when it's not. A major amusement park found that there's

a very specific window of time in which it's effective to try to sell packaged trips: three months before kids get their spring break from school. If they pitch too early, offers fall on deaf ears, because parents aren't ready to think about it. If they pitch too late, though, families may have already made other plans. "Many technology companies have focused on matching the right content to the right person, while disregarding the importance of the right time. Getting timing right is the big opportunity now," Bates says.¹³

Here are some personalized experiences you might program:

- Presenting product recommendations when the customer logs on based on the customer's social media likes and activities.
- Presenting ads with images that the customer will like based on the last few blog posts they've read.
- Offering timely and relevant discounts via push notification or text message using geo-targeting when a consumer is near the store.
- Emailing offers for products that coordinate or work with an item the customer has previously purchased.

The range of personalized experiences you can offer your customer is as big as your imagination—and your imagination is required to come up with the most interesting and appealing offers possible. Once you have the next great idea, you can program software to personalize automatically, so you knock it out of the park with your customer while saving time and increasing sales.

What's **NEXT?**

As data-driven marketing becomes more widespread, successful companies won't be able to compete without it. It may seem mysterious and daunting when you're getting started, but as this three-part series demonstrates, it involves more math and logic than magic. Your program can start small and progress in methodical steps using your existing resources. Or you can go big, to where you're testing and optimizing in milliseconds and profitably predicting the actions of millions of customers.

Need more information? **Part One** of this series explains how to get started using the data you're already collecting and how to establish attribution, or which campaigns are responsible for which results. **Part Two** explains how to build a complete profile of every customer and use it to provide a seamless consumer experience that will retain business over the long term. To learn more about all of the concepts covered in this series and explore data-driven marketing at a deeper level, check out this [link](#).

Adobe can help.

With the advanced analytics capabilities in Adobe Analytics and the testing and targeting capacity of Adobe Target, it's easier than ever to understand, predict, and manage your customers' paths to conversion. With advanced anomaly detection, audience segmentation, and machine learning, predictive modeling can help you understand your key audiences and the experiences they're looking for, so you can make smarter marketing decisions and exceed your customers' expectations.

These solutions and more are fully integrated through Adobe Marketing Cloud. With tools to help with dynamic ad buying, content delivery, campaign automation, or social integration, you have an unparalleled opportunity to turn deep customer insights into business results.

To learn more about how you can build stronger relationships with your customers through data, visit <http://www.adobe.com/go/data-driven-marketing>.



Adobe Marketing Cloud empowers companies to use big data to effectively reach and engage customers and prospects with highly personalized marketing content across devices and digital touch points. Eight tightly integrated solutions offer marketers a complete set of marketing technologies that focus on analytics, web and app experience management, testing and targeting, advertising, audience management, video, social engagement, and campaign orchestration. The tie-in with Adobe Creative Cloud makes it easy to quickly activate creative assets across all marketing channels. Thousands of brands worldwide, including two-thirds of Fortune 50 companies, rely on Adobe Marketing Cloud with over 30.4 trillion transactions a year.

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