Snowflake Special Edition

Cloud Marketing Analytics

for dummies®
A Wiley Brand

What is cloud marketing analytics?

How does siloed data block 360° customer views?

How to easily unify and analyze all data

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David Baum

About Snowflake

Snowflake delivers the Data Cloud — a global network where thousands of organizations mobilize data with near-unlimited scale, concurrency, and performance. Inside the Data Cloud, organizations unite their siloed data, easily discover and securely share governed data, and execute diverse analytic workloads. Wherever data or users live, Snowflake delivers a single and seamless experience across multiple public clouds. Snowflake's platform is the engine that powers and provides access to the Data Cloud, creating a solution for data warehousing, data lakes, data engineering, data science, data application development, and data sharing. Join Snowflake customers, partners, and data providers already taking their businesses to new frontiers in the Data Cloud. **snowflake.com**.

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Cloud Marketing Analytics For Dummies®, Snowflake Special Edition

Publisher's Acknowledgments

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Introduction

Today's consumers are in control. They choose how, when, and where they wish to engage your brand. They select a blend of channels they want to use, whether it's email or web, mobile or social, telephone or chat. Along the way, they expect you to know their interests and preferences and to use this knowledge to provide consistent, timely, relevant, and personalized experiences.

Each consumer engagement leaves behind a trail of data — clues about a particular encounter and about how that individual might behave in the future. Analyzing these interactions helps business-to-business (B2B) and business-to-consumer (B2C) marketers make quantifiable assessments about what consumers will respond to and what they will ignore, as well as when to make real-time adjustments to their marketing campaigns.

Data about customers, prospects, and campaigns builds up quickly: in customer relationship management (CRM) systems, in marketing automation systems, and in dozens of specialized marketing apps that can comprise your marketing technology (MarTech) stack. Much of this data gets sequestered in individual "silos." Hence, it's difficult to unify and integrate, either in a customer data platform (CDP) or in other common data repositories. And yet properly acquiring, managing, and analyzing data is the supreme task facing marketers as they seek to enrich their customer profiles and refine their marketing strategies.

To succeed with marketing analytics, you must access, centralize, and normalize all types of data and make it actionable for business intelligence (BI) and data science initiatives. Acquiring consistent, accurate data is the key to segmenting customers, creating specialized content, formulating unique offers, and measuring the return on your marketing investments. That's what this book is about.

About This Book

You will find this book important if you want to:

» Supply your marketing team with simple but powerful analytics, without the complexity of managing a traditional data warehouse, data lake, or other type of database management system

» Efficiently acquire and share first-party, second-party, and third-party data to maximize the impact of your campaigns without having to copy or move data

» Help your team use its data to progress up the *marketing analytics maturity curve,* from customer 360 marketing, to ROI analysis, to campaign optimization, to data science

Icons Used in This Book

Throughout this book, the following icons highlight tips, important points to remember, and more:

TIP

Advice about how to maximize marketing analytics in your organization

REMEMBER

Concepts worth remembering as you immerse yourself in understanding today's analytic platforms, processes, and tools

CASE STUDY

Current stories about organizations using analytics to improve their businesses in innovative ways

Beyond the Book

If you like what you read in this book, visit `www.snowflake.com` to learn more about analytic solutions from Snowflake and its partners, order a free trial of Snowflake's platform, view webinars, or get in touch with a member of the Snowflake team.

IN THIS CHAPTER

» **Defining key analytic concepts**

» **Tracing the evolution of marketing**

» **Understanding the value of data**

» **Defining analytic objectives**

» **Building your marketing team**

Chapter **1**

Understanding Marketing Analytics

The adage, "I know half of my marketing dollars are going to waste. The trouble is, I don't know which half," describes the scatter-shot approach of mass marketing that characterized the discipline for decades. Marketers can no longer make that excuse, however. Marketing is expensive, and management wants proof that it works. The chief marketing officer (CMO) and other senior executives expect marketers to roll out creative campaigns that generate positive results and explain how well each campaign works and why. CMOs insist on accurate measurements that demonstrate value to the organization.

Defining Marketing Analytics

Customers and prospects generate data when they click your offers, interact with your websites, and respond to your campaigns. All B2C marketing departments collect this data to varying degrees, both online and in-store via beacons, point-of-sale (PoS) transactions, and other data gathering and customer engagement methods. B2B marketers also gather data from many digital touchpoints. They generally don't meet customers in a store, but

they still engage in face-to-face interactions via webinars, conferences, and other events.

REMEMBER

Marketing professionals use analytics to measure the impact of their offers and campaigns through each channel and customer touchpoint. Marketing analytics provides a consistent framework for measuring each initiative in terms of its strategic returns, overall value, and payback period.

Tracing the Evolution of Marketing

For both B2B and B2C scenarios, your data should clearly tell a story of how marketing impacts revenue. Unfortunately, many of the traditional approaches to marketing don't adequately address today's hyperconnected customers and the growing number of digital and in-person channels they use.

The marketing world has shifted from mass-media outreach to personalized engagement. Rather than blanketing an entire market with a general message, marketers now routinely home in on demographic subgroups — such as college-age males or retired seniors — and target them with offers designed just for them. Over time, as marketers collect more data, they refine their messages to these subgroups.

Taking the relationship further, *personalized marketing,* sometimes called one-to-one (or 1:1) marketing, involves getting to know your customers as individuals, establishing mechanisms for interacting with them, and customizing your business for them. Each new campaign seeks to deliver relevant messages at the right time, on the right channel, and to the right people to help the organization achieve its business goals (see Figure 1-1).

The Internet has caused a decisive shift from *vendor-initiated* interactions (such as TV commercials that push messages to prospects) to *customer-initiated* interactions (such as when customers decide to follow your brand on Instagram). Turning the tables from *push* to *pull* has fundamentally altered the nature of marketing. For example, marketers use search engine optimization (SEO) techniques to target people searching on specific keywords on Google, Yahoo!, Bing, and other search engines — often

in conjunction with "pay per click" advertising campaigns on those same search engine sites. They also run ads on social media networks to target individuals based on known hobbies, shopping patterns, and interests.

FROM MASS MARKETING TO PERSONALIZATION IN 50 YEARS

1970s	1980s	1990s–2000s	2010s	2020s
Mass Marketing	**Audience Segmentation**	**Customer-Focused**	**Customer Retention**	**Personalization**
High volume/broad appeal	Marketing via research	Delivering lifetime value	Creating lasting loyalty	Targeted messaging and offers
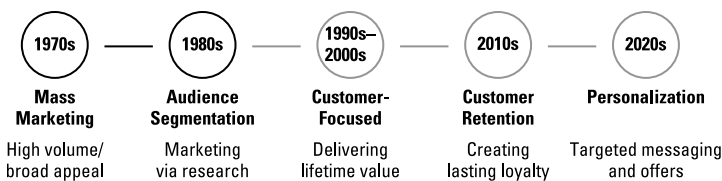
FIGURE 1-1: The path to personalized marketing.

Compare these precision marketing tactics to the mass-market approach of yesteryear, when marketing consisted of generalized display ads in magazines and newspapers, along with expensive TV commercials geared for large audiences. While mass marketing is still a viable way to build awareness, establish a brand, or attach your company to a larger trend, it has slipped into the background with the advent of these newer, more precise forms of outreach. According to CNBC's article "Super Bowl draws lowest TV audience in more than a decade, early data show," Nielsen ratings found that 98.2 million people watched the Super Bowl in 2019, and advertisers paid an average of $5.25 million for each 30-second spot. By contrast, advertisers spent nearly $135 billion on Google Ads in 2019, according to Statistica's report "Advertising revenue of Google from 2001 to 2019." Google's economic impact reports claim that businesses obtain an average return of eight dollars for every one dollar invested in these campaigns.

As TV viewership dwindles, marketers must acknowledge that consumer eyeballs are looking elsewhere and that sending targeted offers to select groups of qualified prospects is much more cost-effective.

TIP

Mass marketing campaigns remain an important aspect of building your brand, but more targeted forms of outreach should supplement them. Back up your general awareness-building campaigns by intelligently segmenting your customers and delivering personalized messaging and offers to each of those customer segments that address their needs and interests.

Understanding the Value of Data

Every tool marketers use to communicate with consumers generates data. However, to be truly data-driven, a marketing team must base its strategies on the analysis of large, diverse data sets that combine information from multiple sources, applications, and tools. This allows marketers to determine which creative assets drive the most engagement, which creative materials result in the best conversion rates, and which channels yield the greatest results from highly targeted audiences.

Each initiative builds on the ones that precede it as you gather data about opens, click-throughs, responses, and sales. Analyzing this data helps you refine your campaigns, gather leads, and turn prospects into customers. Gradually, you amass more and more information about the people you are trying to engage as you segment them based on age, gender, geography, purchase intent, and many other variables. The more information you gather about how customers and prospects interact with your brand, the more successful your campaigns will be.

Marketers use a wide variety of software tools to determine how their campaigns perform. The data generated by these tools helps them make better decisions about how to engage their audiences. You must cast a wide net to do this well. For example, you must seek to understand the typical profiles of your customers, carefully define the products and services you sell, highlight specific brand attributes that matter to specific types of people, and determine how all those factors relate to your larger business goals.

Marketing analytics involves psychology as much as it involves technology because it identifies the *behavioral* components of the purchasing process and *quantifies* that behavior. Marketers seek to understand interaction patterns through the various channels customers use. They rank each interaction within each channel to gauge success in terms of engagement, revenue, visibility, click-throughs, conversions, and other factors.

REMEMBER

Marketing analytics involves the technologies and processes marketers use to measure the performance and evaluate the success of their marketing initiatives. *Marketing metrics* are the data points and key performance indicators (KPIs) derived from the data you gather. *Marketing analytics* puts those data points in context to reveal how your marketing efforts translate into revenue.

Grouping customers and prospects

Marketing analytics becomes progressively more important as marketers gather new customer data and combine it with existing account information to create detailed customer profiles. Similar or "like" profiles are grouped to create *segments*. The better you define these segments, the better you can delineate your outreach for different types of people.

Marketers use the term *persona* to define prospects and customers on a more personal level. A persona is a composite sketch that defines people with similar traits, beliefs, attitudes, and values as they pertain to your products and services. These character profiles define *qualitative* traits, such as motivations and preferences. Segments are high-level categories that classify groups of people based on quantitative research. Personas highlight specific details about these people based on their behavior.

Fleshing out segments and personas is the starting point for understanding the customer journey, so you know how to reach different people at different stages. Is each prospect already defined in the customer relationship management (CRM) system? What are their respective levels of interest? What are the leading indicators of relevance to your offering? What is the next action you should take to move them forward in the sales funnel? These are likely questions to ask.

Once the responsibility of the sales team, more and more of these questions are now answered by marketers, notably at B2B companies, where marketers often try to guide prospects through a proof of concept or product trial before the sales team gets involved. Marketing helps move potential accounts through the sales funnel. The sales team focuses on closing deals rather than building awareness and nurturing leads. As marketers create customer profiles and establish customer segments, they can best target qualified groups based on their unique interests and concerns.

As you segment and rank customers, think about their total spend and the velocity and continuity of their shopping patterns. How frequent are repeat purchases? Is their behavior consistent across channels? Are they active on social media? Retailers use these extra data points to flag high-value shoppers and assign "clout scores" that indicate each shopper's lifetime value and their degree of influence on other shoppers.

Targeting segments with knowledge about their historical and future propensity to respond and convert is a sure-fire way to make your segmentation more accurate and communications more effective. This kind of *response* attribution is key to building that feedback loop of information required to optimize your marketing communication and enable your business to thrive.

Understanding marketing attribution

How do you determine which of your marketing tactics are contributing to sales or conversions? Answering that question plunges you into the realm of *marketing attribution:* the systematic practice of evaluating how consumers interact with each marketing campaign and touchpoint as they move from initial encounter to final purchase and beyond. The goal is to figure out which channels, messages, and offers have the greatest impact on the decision to *convert:* to take the desired next step in the sales funnel.

Marketers use a variety of *attribution models* to determine which consumer actions can be attributed to which campaigns. Each model seeks to establish how consumers interact with your marketing messages and which messages trigger a desired response. For example, if 10,000 prospects are exposed to a Facebook ad and 100 of them convert after clicking through to a coupon on your website, you can weigh the value of each marketing initiative and then determine how much of your marketing budget to devote to each of these initiatives in the future.

Attribution allows you to quantify the success or failure of each marketing initiative based on how individuals respond. You also start determining the value of each individual to your brand. Perhaps you spent $25 marketing to one individual who made a $100 purchase, and $50 marketing to someone who spent zero. You want to ascribe a specific value to each offer and define how it has influenced various customers.

REMEMBER

The more data points you have on your products and customers, and the more scientific you can be with your marketing, the more refined your attribution models can be and the better delineated your segments will become. For example, a clothing retailer might have a segment called *trendsetters* to segment people who buy popular products at full price early in the retail cycle. The retailer might also have a segment called *bargain shoppers* that includes people who wait for end-of-season closeouts, clearances, and sales.

BENEFITS OF MARKETING ATTRIBUTION

Getting your attribution models right takes time, especially when evaluating data sets for online and offline campaigns. However, according to Marketing Evolution's article "Marketing Attribution: A Guide to Models, Tools, and Strategy," the effort pays off with five valuable benefits:

Optimized marketing spend: Attribution models give marketers insights into how marketing dollars are best spent by showing touchpoints that earn the most engagements.

Increased ROI: Effective attribution enables marketers to reach the right consumer, at the right time, with the right message, leading to increased conversions and higher marketing ROI.

Improved personalization: Marketers can use attribution data to understand the messaging and channels preferred by individual customers for more effective targeting throughout the customer journey.

Improved product development: Person-level attribution allows marketers to better understand the needs of their consumers. These insights can be referenced when making updates to the product and delivering the functionality consumers want.

Optimized creative: Attribution models that can evaluate a campaign's creative elements allow marketers to hone messaging and visual elements and better understand how and when to communicate with users.

Setting Analytic Objectives

The goal of marketing is to generate sales *and* develop strong customer relationships. Your customers are your best advocates, and you want to obtain positive recommendations from them — to encourage grass-roots movements that enhance your brand's public perception.

Retained customers are your highest-value customers because you don't have to spend money to acquire them or re-engage them. Once they follow your company, they will regularly see

your offers. In fact, according to Hubspot's article "Cross-Selling and Upselling: The Ultimate Guide," the likelihood of an existing customer responding to an offer and converting to a sale is 60 to 70 percent, compared to 5 to 20 percent when that same offer is presented to a new prospect. Your job as a marketer is to cultivate these relationships, nurture each lead, and make sure the people who interact with your brand have positive experiences.

Social media is a powerful lens that magnifies the good and the bad things people say about your company or brand. Today's consumers care about each other's opinions, and those opinions have become tremendously visible, sometimes broadcast to thousands or even millions of followers. Advocacy matters not only in these traditionally customer-oriented businesses, but thanks to review sites such as G2Crowd, a peer-to-peer review site for B2B software, even B2B vendors are impacted by the reviews of their customers.

Retained customers are your highest-value customers. However, if you lose their loyalty, they can quickly move from being advocates to being detractors, and they might even be compelled to share negative experiences. That's why customer loyalty strategists have an important place within the realm of marketing and brand association.

Identifying Roles and Responsibilities

To deliver unified customer experiences across multiple channels and touchpoints, today's marketing teams are often organized to focus less on discrete marketing functions and more on understanding customer personas. Some organizations may call for a decentralized model in which unique marketing teams are tied to each brand. In other cases, a centralized marketing team handles primary functions, with satellite teams specializing in each brand's unique needs.

Whether centralized or decentralized, common marketing roles and functions include people skilled in content creation, demand generation, loyalty programs, social media marketing, search engine optimization, and brand strategy. B2B companies also employ specialists in account-based marketing, partner marketing, event marketing, and analyst relations, along with channel marketing managers and product marketing specialists.

Enlisting IT Expertise

Although most marketers are proficient with the technology applications needed to perform their jobs, they will likely be supplemented by IT professionals in key areas, such as business analysts who can create data models, data scientists who can develop predictive apps, and data engineers who can create data pipelines.

Fortunately, the rise of software-as-a-service (SaaS) and cloud apps have made acquiring and using marketing technology much easier. You don't need nearly as many IT pros to provision technology infrastructure, install software, manage data, and keep everything working properly. With cloud apps, much of that work is handled for you by the cloud vendor. This allows you to put your budget into building a marketing team and hiring technologists that augment their efforts, such as a database administrator who is familiar with your chosen customer data platform, a data engineer who understands the connections among your marketing apps, or a data scientist with specialized skills in your industry.

At larger companies, the analytics team may be embedded within a central IT group, yet augmented by technology professionals within each of the brands. This central IT team might handle operational analytics for HR, finance, marketing, sales, and other domains. The team might also set technology standards for databases, business intelligence (BI) tools, and data science platforms; assist with master data management (MDM) initiatives; and build and maintain a BI competency center. IT provides the data foundation, enforces the security standards, and helps ensure that all departments adhere to corporate compliance mandates.

Marketers need to marry the data to the vision, and that means building technology expertise within marketing. Today, as data and analytics continue to distinguish high-flying companies, marketers need to be comfortable with technology to really spread their wings.

Regardless of which structure you choose, all marketing activities and campaigns must be informed by a deep understanding of customers. In the digital age, a more modern marketing structure might focus less on grouping marketers by channel or product or geography. Instead, consider focusing your team on the stages of the customer journey. Customers rarely traverse this journey in

a linear path, but they do experience most stages at one time or another. The goal is not merely to gather leads but to build consumer insights as a foundation for defining and targeting audience segments.

THREE WAYS TO IMPROVE MARKETING EFFECTIVENESS

Marketing is a team sport that succeeds when like-minded people collaborate. Follow these basic guidelines to move your marketing practice forward.

1. Collaborate with IT: Many marketing teams work in silos, each with their own goals and campaigns. By collaborating with IT, marketers can learn where the data comes from, gain wider access, and evolve their programs over time.

2. Analyze outcomes: Digital interactions with your brand leave a trail of data from nearly every customer interaction. Prioritize investments in digital channels and develop analytics to collect this data and measure its impact.

3. Follow the data: Observe how your customers behave across channels, and which channels perform best. This will help you determine where to invest your marketing dollars.

Chapter **2**

Gathering Data for Marketing Analytics

To enable comprehensive analytics, you should collect first-hand data from all your primary customer touchpoints and consider second- and third-party sources. This chapter outlines the basic types of data you need for marketing analytics, provides details on how to enrich and refine your data sets to make them progressively more valuable and relevant, and discusses how to enforce data integrity as a prelude to embarking on larger and/or critical analysis.

Gathering Customer Data

Customer data is fundamental to every aspect of marketing analytics. This data falls into three basic categories:

» **Customer attribute data**, including information about channel preferences, gender, birth date, address, financials, and geographic location.

» **Transaction data** collected via email opens, click-throughs, web purchases, point-of-sale (PoS) purchases, or any other events you define as a conversion.

>> **Engagement data** collected from marketing campaigns, such as advertising contacts and responses, web and application behaviors across devices, customer service, and loyalty programs.

Ways to collect customer attribute data include website forms, email registrations, online surveys, newsletter subscriptions, and comment fields on blogs and other interactive content.

TIP

Asking customers how they prefer to be contacted allows them to self-identify and enables you to request permission to store their information. Consider offering rewards and incentives for sharing their data, and tell customers what they will gain by providing it. For example, you might offer customers a premium service, a coupon, a discount on their next purchase, or membership in a VIP program. You can also consider using a login form to access a "gated" online asset, such as a newsletter, white paper, or ebook.

In concert, establish a customer loyalty program and offer customers an incentive for providing their information. Observe their behavior, recognize something special about each segment, and reward them for giving you their data by delivering something relevant. Target your best customers and call them trendsetters. Tell them you value their opinions. But keep it simple. Don't make them spend more than one minute or have them answer more than a few questions. Give them their rewards instantly.

Step one is to get your first-party data in order. Step two is to turn anonymous individuals into known individuals by collecting data from their point-of-sale (PoS) transactions, web browsing activity, and responses to marketing campaigns. In most cases, you can identify people by their web browsers and then link their browser IDs, or *cookies,* to other first-party data. Placing a bit of code on your website or social media page allows you to gather information while people click into your website, fill out forms and surveys, leave comments, or engage with you on social media. Automatically logging this data into your customer data platform (CDP) or customer relationship management (CRM) system can help define audience segments and retarget customers and prospects in your marketing campaigns.

Keep your customer records up to date. For example, is it an active customer account or a prospect account? Which marketing

campaigns have customers responded to? Where are they on their respective journeys? Send the wrong offer, and you lose credibility. A prospect may opt out of your communications or simply ignore you.

Loyalty programs and surveys are particularly effective vehicles for gathering customer data, as are gated assets in which customers must supply basic information before obtaining a download. Encourage customers to self-identify so you have permission to store their information.

Expanding Customer Data Sets

Data you collect directly from customers, site visitors, and social media followers is *first-party data* because you obtain it firsthand. You can enrich these data sets by adding *second-party data* from partners, dealers, and retailers who connect with customers on your behalf. For example, airlines might share data with hotel chains and other hospitality providers as part of a larger loyalty program. Exchanging data helps all parties improve the customer experience and collaborate in joint marketing efforts.

Finally, you can purchase *third-party data* to add more detail about your population, enabling finer segmentation. Which households include parents and children? Who rents versus owns their home? What level of education have people completed? This data is generally collected via surveys, web forms, and even firsthand interviews.

Purchasing customer lists and subscribing to public and private data services can enable more advanced targeted outreach. Keep in mind, if you can purchase something, then most likely so can your competitors.

You can also overlay census information, weather data, health data, and industry data about your markets and competitors. For example, geographic and weather data may influence which offers you send to which ZIP codes at various times of the year. You might offer a discount on sweaters and gloves right after a cold snap.

First-party data is best for retargeting, making predictions, and forecasting behavioral trends, because it represents customers who have a direct relationship with your brand. Second- and third-party data can augment those efforts. However, because of the intermediaries involved, accessing and leveraging second- and third-party data can be less valuable than first-party data and more costly in terms of access and integration. In this respect, first-party data should be considered a priority, since you already have access and permission to use it. Consider second- and third-party data as sources to augment your first-party data, and as an opportunity to fill in blind spots, such as when you do not own the last mile of customer delivery.

CLOTHING RETAILER GETS ITS DATA TOGETHER

Lilly Pulitzer is a high-end women's apparel company with traditional retail stores, a popular ecommerce website, and a thriving wholesale operation. Data and analytics are important to Lilly Pulitzer's marketing team, which is charged with knowing precisely which products are selling and what consumers think of the brand. Marketers also take great pains to track whether in-store shoppers like assistance or prefer to browse independently.

Previously, marketers had to consolidate data from multiple sources to answer these questions. They had lots of different data, which was nearly impossible to combine to produce useful results. To remedy this problem, they loaded their data into a centralized cloud repository that supports many data types. Now consistent data is always available, and a pay-as-you-go costing model means Lilly Pulitzer pays for the cloud service only when an analyst uses it.

This flexible cloud data platform has already had an impact on the bottom line. For example, Lilly Pulitzer offered free returns to all shoppers. Retail managers assumed the offer increased sales because it eliminated any customer's hesitancy about completing a purchase. However, a careful analysis of the transaction data revealed that existing customers rather than new customers used this free service. In response, Lilly Pulitzer changed its marketing strategy to emphasize different customer benefits at each stage of the buyer's journey, reduce costs, and enable marketers to respond more knowledgeably to customer needs.

Properly acquiring second- and third-party data

As explained in the preceding section, you can merge second- and third-party data with your first-party data as you create and enrich the records in your customer data platform or data warehouse. However, figuring out how to combine all this data can be confusing. Many data services begin with an initial download that you must merge with your existing data, followed by monthly updates to keep the database current. Keeping everything in sync presents ongoing integration challenges. You may also have to contend with issues of data quality, data privacy, and data security.

Modern data exchanges or data marketplaces provide an easy way to access such third-party information. This allows you to take advantage of external data without having to move or copy that data. Via a modern data marketplace, data providers let you access read-only copies of a data set maintained in the cloud. You gain on-demand access to ready-to-use data inside a secure, governed environment. This more efficient form of data sharing is available in some modern data platforms, as discussed in Chapter 5.

Gaining visibility into partner channels

Many B2B companies and some B2C companies sell their products through dealers, channel partners, or web retailers, removing their firms from the essential "last mile" of the customer relationship. In this case, you are no longer the entity making sales, fulfilling orders, and logging transactions. While this can extend your commercial footprint, being out of the loop can also mean that you lose the opportunity to collect customer data.

Retailers will often share customer data if you can add value to the exchange, such as establishing a data science discipline that offers useful insights about product assortments, cross-sell/up-sell opportunities, seasonal trends, and more. Barring that, digital distributors may let you have the data for a fee. Look for creative ways to establish these business-to-business relationships to maintain a direct line to the consumer. To maintain direct contact with these end-customers, consider offering product warranties and loyalty programs. Requesting ratings and reviews is another legitimate way to stay in touch and keep your finger on the pulse of customer sentiment.

Gathering Product Data

What type of product data should you collect? Most companies are interested in the physical properties of their products and the price points of those products. In some cases, shelf life or *velocity* is also important: How long is a product maintained at full price? When do you discount it? When do you retire a product or take it off the shelf? Does it have a seasonal cycle, or is it persistent?

Answering these questions helps you understand what product data elements are essential to you. To obtain useful marketing analytics, you also need to pay close attention to how you categorize products, whether by SKU, product ID, subclass, class, or department. Whatever hierarchy you choose, make sure you categorize all products consistently. Keep like items in the same categories and eliminate redundancies in the data so you can deliver accurate search results and recommendations.

Enforcing consistency in product data is vital for advanced analytics and data science initiatives. For example, if you call a certain type of shirt "silky" in one database and "smooth" in another, you must evaluate the shirt as two products. Data science also deals with subjective attributes, such as "popular." Here again, be consistent in defining these attributes. For example, does a product become popular after moving a designated number of units, or does "popular" refer only to products that sell at full price soon after their release?

Customers can access product data in myriad ways, and you don't own every point of contact. For example, one customer might click through to a product listing from an email message. A second might find the listing directly through your website. A third customer might discover the product through a Google search, and a fourth might respond to an ad placed on Instagram. To improve your marketing results and better target people through these different touchpoints, personalize your web storefronts and landing pages to optimize the experience based on who is visiting from where.

Enforcing Data Quality

Marketing analysts need quality data to make informed decisions about customers, prospects, campaigns, and budgets. The higher the data quality, the more accurate the insights. Having inaccurate, incomplete, or inconsistent data may lead you to execute strategies that don't reflect your consumers' true preferences. You won't gain maximum value from your advertising investments, and you may even compromise important customer relationships.

A 2019 report titled "Why Marketers Can't Ignore Data Quality" estimated 21 cents of every media dollar spent are wasted due to poor data quality. Many marketers Forrester surveyed cited data quality as their top challenge, admitting that 26 percent of their marketing campaigns in the past year were hurt by poor data quality.

Data quality becomes especially important when conducting high-volume analyses into constantly shifting factors, such as consumer price sensitivity. If similar products are not categorized in similar ways, conducting these analyses will be difficult, and you may misinform your data models. For example, if a particular style of pajamas is called "velour" in one line and "plush cotton" in another, you may not notice trends when the products start flying off the shelves. Companies that deal with thousands of SKUs and dozens of merchandisers can easily end up with these types of inconsistencies in their data. They must reconcile these differences as they bring product data into their analytic systems — a process known as *master data management,* which is discussed in Chapter 4.

TIP

Organize product data neatly and without duplicates so you can accurately tie together "like" items in your analytic systems. Many companies undertake master data management initiatives to rationalize differences and produce consistent records.

Gathering Company Data

B2B marketers are tasked with building account profiles of organizations rather than individual buyers. In these instances, customer data takes the form of company data. As part of the B2B

marketing process, marketers try to understand the structure of these prospect organizations, how their products and services appeal to various people, and, ultimately, who controls the purchase decisions. In most B2B scenarios, marketing plays an active role in the upfront portion of the buyer's journey to try to get the buyer into the sales funnel, perhaps by encouraging a proof of concept or a product trial before a sales rep reaches out to close the sale.

Sales reps, customer service reps, marketing professionals, technicians, and many other employees often get involved in these sales cycles, which necessitates storing company data in the CRM system *and* in financial systems, project management systems, customer support systems, scheduling systems, and elsewhere. All this data is important as marketers analyze the overall outlays and associated returns from each marketing initiative and each outreach effort.

Determining Where to Store Your Data

Disparate data is a pressing problem for most marketing organizations, especially at B2B companies with long sales cycles and multiple individuals associated with each account. If leads are not connected to accounts properly, achieving that much-celebrated *360-degree view* of the customer becomes difficult. To increase flexibility and simplify the process of pulling in data from many sources, some organizations use a data warehouse, data lake, or cloud data platform. Raw clickstream data and weblog data are typically stored in the data lake, whereas the data warehouse holds aggregated metrics.

Dealing with Streaming Data

In addition to bulk or batch uploads to your analytic systems, you may need to load and process data from event streams. For example, a marketing team may wish to analyze clickstream records from Internet browsing activities as customers respond to online ads. The team can then assess the impact of an offer within various channels and adjust marketing spend dynamically.

Streaming data often arrives at a rapid velocity, and the total volume can escalate quickly. This type of data is most commonly ingested and updated in "near real time," such as every five minutes. However, the data may be easier to analyze if you can aggregate it first. For example, rather than tracking millions of discrete responses to an email blast, analysts can roll up the data to reveal broader trends, such as the ratio of *sends* to *responses* for three different versions of the same email content.

Hotels, resorts, and theme parks utilize live Internet of Things (IoT) telemetry data from beacons to target customers with special offers while they are moving through the properties. These low-energy devices broadcast messages to customers via Bluetooth or Wi-Fi on radio-frequency identification (RFID)-enabled wristbands or previously downloaded smartphone apps. The location data can be combined with PoS transactions, room key activations, and input from other touchpoints to monitor and enhance customer journeys.

Leveraging the Power and Reach of the Cloud

Data from all these digital touchpoints builds up quickly. Multinational hotels or retailers can have billions of these location events every single day — and that's just one of many types of data that inform their knowledge of their customers' journeys. Fortunately, today's cloud services allow businesses to utilize low-cost computing and storage capabilities without the capital expense of maintaining a data center or purchasing, installing, and configuring hardware and software systems.

Cloud databases are especially valuable to marketing analytics because they allow organizations to store virtually all the data they need inexpensively — not just structured data from CRM systems and customer data platforms, but also many types of semi-structured and big data sources, including the clicks and browsing activities of millions of website visitors, IoT data from beacons and sensors, and unstructured data, such as audios, videos, pdfs, and images.

REMEMBER

As your marketing analytics practice matures, you will find it easier to scale and manage the effort if you maintain all your data in a centralized repository that becomes the hub for consolidating a diverse range of analytic activities.

Cloud-based systems are not only less expensive and easier to scale, but they're also virtually trouble-free. All necessary infrastructure and platform services are provisioned as needed, including installing security patches and software updates. Marketing teams can confidently explore new data sets and pursue promising avenues of inquiry without racking up excessive costs.

Look for a cloud-built repository or *cloud data platform* that makes it easy to load, store, transform, integrate, analyze, and even monetize virtually unlimited amounts of structured, semi-structured, and unstructured data (see Figure 2-1).

WHY USE A CLOUD DATA PLATFORM?

Marketing data is:		Ideal cloud data platform architecture:
High Volume	First-, second-, and third-party; data science; streaming	Separates storage and compute for near-limitless scalability
Varied Format	Clickstream, ad-impression email, product orders	Stores and queries structured, semi-structured, and unstructured data with SQL
Widely Used	Analytics, exec dashboards, recommendation engines, partner solutions	Easily and securely enables modern data sharing

FIGURE 2-1: With a properly architected cloud data platform, all your marketing analytic workloads can take advantage of the cloud's near-limitless resources.

Succeeding chapters of this book dive into the essential attributes of such a platform, including an architecture that separates storage and compute resources for maximum scalability, a service layer that allows you to both store and query structured, semi-structured, and unstructured data with Structured Query Language (SQL), and data sharing capabilities that make it easy to collect and exchange data from second- and third-party sources without having to copy or move the data.

Chapter **3**

Ascending the Marketing Analytics Maturity Curve

Analytics is a progressive, multi-phase cycle. The learnings from each phase drive the next phase, and each improvement amplifies the impact of overall marketing investments. This chapter provides an overview of the four primary phases of marketing analytics: developing 360-degree views of your customers, conducting return on investment (ROI) analyses, optimizing your marketing campaigns, and deploying advanced analytic approaches rooted in data science.

Starting the Journey: Customer 360

To create 360-degree profiles of your customers, you must record every interaction a customer has with your organization. Ideally, you draw these portraits from all enterprise touchpoints: every email, phone call, and chat exchanged with that customer; every website visit, every interaction with your app, and every point-of-sale (PoS) transaction the customer has completed; every social media post the customer has shared; every event the customer has attended; and every customer service interaction. As described in Chapter 2, the personal and demographic information you have

collected supplements these transactions and may be combined with second- and third-party data.

The objective is to create an end-to-end view of a customer's experience with your company. Monitor each customer's interaction history and map common events to likely outcomes. After defining key data elements and interaction points, you can start classifying each customer into a cohort of similar attributes and assign each cohort to a marketing segment. Simple segmentation enables you to deliver messaging and relevant offers via cross-channel marketing, from which you track outbound communications and responses by each individual. This initial phase and the subsequent phases are depicted in Figure 3-1.

MARKETING ANALYTICS MATURITY CURVE

CUSTOMER 360°	ROI ANALYSIS	CAMPAIGN OPTIMIZATION	DATA SCIENCE
Data linked together in a single queryable location	Clear picture of attribution and marketing spend ROI	Activating data in highly targeted campaigns	Machine learning powers 1:1 offers and experiences
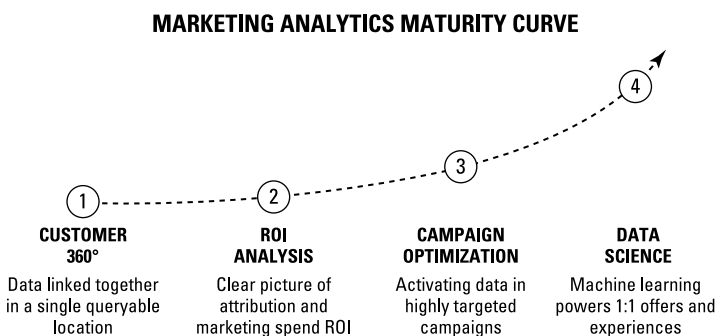
FIGURE 3-1: Today's marketers pursue many different analytic strategies, with the hope of progressing on an upward curve of marketing maturity.

Pursuing ROI Analysis

All companies analyze marketing spend to some degree, but many organizations are held back by their lack of analytical depth. To conduct a true ROI analysis, you must assess your campaigns at a deeper level. For example, within the scope of 10 different touchpoints, which actions drove customers to complete a purchase? Did they best respond to search ads on Google or to targeted email offers?

The starting point for consistent attribution is to bring together siloed data, as explained throughout this book. You must be able to view and analyze all the data you have about a customer from

one central location. If you don't have all your campaign data in one place or can't easily access it from a single solution, you can't complete the picture of what happened in the days or weeks lead–ing up to a purchase, let alone attribute the value of each purchase across the pertinent touchpoints. In short, you won't know which marketing spend is responsible for driving revenue.

DATA DRIVES PERSONALIZED, 360-DEGREE MARKETING

CASE STUDY

Rue La La is an ecommerce site that sells clothes and fashion accesso-ries to its approximately 18 million members. Previously, Rue La La's marketing department maintained clickstream data and email data in an Apache Hadoop data lake, and information about orders and log-ins in a traditional data warehouse. The organization could not simul-taneously view or analyze both types of data to achieve a 360-degree view of its customers.

To transform and simplify its marketing, merchandising, and plan-ning, Rue La La migrated to a cloud data platform that can store and manage structured and semi-structured data. All facets of the busi-ness are now reflected in the cloud data platform on a real-time basis, including structured first-party data derived from its ecommerce sys-tems and CRM system and third-party data from external feeds, such as marketing data, demographic data, census data, and geolocation data. The marketing department can access all customer data cohe-sively, conduct analysis rapidly, and send targeted promotions to members based on their personalized preferences — some explicitly stated, others inferred based on browsing and purchase activity. Additionally, the merchandise and planning department can see exactly which products are selling, accurately estimate quantities, and minimize residual inventory, reducing the number of items sold at markdown prices.

Productivity has improved dramatically now that Rue La La's IT team isn't maintaining a complex Hadoop infrastructure or integrating data from multiple sources. The organization has reduced administrative and infrastructure costs and no longer has to deal with partition keys, cluster keys, scaling databases, and other tedious technical tasks.

This knowledge is especially important for B2B companies due to the length and complexity of their sales cycles. A B2C sales cycle might stretch over a few days and include five or six touches. A B2B sales cycle often lasts 90 days or more and can include dozens of touches from many people. It's essential to have the results of those interactions in one place so you can figure out which of your marketing dollars are delivering useful returns. Then you can create ROI reports that drill deeper and help you understand the impact of various tactics across channels and touchpoints. The goal is to do this quickly, and better yet, automatically, so you can analyze spending and make adjustments while campaigns are actively running.

Optimizing Campaigns

The current state for many marketing teams is known as "batch and blast," which involves blasting out generalized messages to large batches of customers, no matter what signals they have given you about their individual experiences. Also known as *macro-segmentation,* the approach is a one-size-fits-all engagement model.

Many marketers don't progress beyond "last click" analysis, nor do they succeed at analyzing more than one channel at a time. Which campaign caused someone to buy? Which ads are driving the best conversions? Optimizing within a single channel isn't enough. Marketers want to understand how all the touchpoints lead to a purchase. According to research conducted by Forrester in a 2020 report titled "Customer-Obsessed Marketing Demands Unified Measurement," *cross-channel campaigns* can improve budget efficiencies by 15 to 20 percent — assuming you can properly attribute customer actions to your marketing campaigns and tactics.

Campaign optimization involves refining your targeting to improve conversion within specific customer segments and audiences. In this stage, marketing organizations dive deeper by using analytics to create *micro-segments* — more-granular slices of customer segments and personas — enabling greater personalization. In turn, *micro-segmentation* creates new data for deeper analysis, which directly affects budgeting and planning. For example, you might decide to put more dollars into search engine optimization (SEO) and email marketing because these

channels deliver demonstrably better results with your customers at a lower cost.

TIP

Watch for patterns that indicate a customer's likelihood to make a purchase. Be alert to actions that likely lead to purchases — such as when a customer views an item in different sizes, styles, and colors — and consider devoting more campaign dollars to retargeting those segments. Pay attention to low-hanging fruit, such as when web visitors add products to their online shopping carts but never check out. Consider retargeting these groups with follow-up incentives to bring in those sales.

REMEMBER

ROI analysis enables you to verify what you are doing is worthwhile, so you can continue that practice or even double down on it by emphasizing it in your campaigns. This type of analysis is *descriptive* or backward-looking: You determine what happened yesterday or last week by reviewing historical data, such as examining a business intelligence (BI) dashboard that displays the outcomes from a recent campaign. Campaign optimization is more *prescriptive* and forward-looking because it involves activating data for your next campaign — and ideally influencing the outcomes before the campaign has completed. To influence customer behavior in a meaningful way, you must acquire, merge, and analyze data continuously, perhaps via a cloud data platform.

Getting to "really" know customers

As described in Chapter 1, one-to-one marketing involves getting to know customers as *individuals*. This process is even more granular than micro-segmentation; because each customer becomes its own segment, very little batching occurs. To achieve this level of personalization, you must monitor individual choices and tailor your outreach based on those choices. The two basic ways to accomplish this are

» **Personalization:** Get to know each customer's personal preferences and customize your outreach to them. Think of how popular music subscription services, such as Pandora and Spotify, recommend songs and artists based on your listening history.

» **Customization:** Enable people to customize your offerings to match their unique needs. For example, Pandora and Spotify let you build playlists, tag favorite songs, and even create friend groups so your service is more relevant to them.

This is the next evolution of building customer loyalty and aggregating customer data to understand purchasing trends.

This hyper-segmented or "niche" marketing is based on the same principles as mass marketing, but the masses are a lot smaller. You are still treating the targeted segments as passive recipients for your outbound initiatives. *One-to-one marketing*, by contrast, is highly collaborative. Customers receive custom messages based on their unique behavior. In some instances, products, services, and experiences are fashioned dynamically for each individual.

REMEMBER

One of the primary benefits of one-to-one marketing is that it increases customer loyalty. Your products and services become more personalized over time, which boosts the "stickiness" factor. As customers invest effort in customization — such as building musical playlists, customizing news feeds, or saving fashion preferences — it becomes more convenient for them to remain loyal and less likely that they will take the trouble to customize a competitor's site with these same preferences. Nobody wants to repeat the same thing twice. Don't disappoint your customers. Make it easy for them to stay with you once they become invested.

As obvious as this sounds, many companies don't get it right. Shoppers who looked at men's sport coats likely don't want to see ads for women's shoes: it makes them question, "Does this brand *really* understand me?" Make obvious, common-sense optimizations to better serve customers by tailoring your outreach, such as targeting people who have looked at men's shirts with complementary blazers, so they think, "You're right, I should get a blazer to match my new shirt." Doing this right drives revenue and prevents churn.

For ecommerce shopping, where the interactions are 100 percent digital, you can follow the clickstream and define rules to serve up custom content based on past and present browsing behavior. Although these personalized marketing tactics once represented the cutting edge of ecommerce, they now are necessary to stay in the game. Tech-savvy companies, such as Amazon and Netflix, have set a high bar: many customers now *expect* personalization. In highly competitive markets, brands get punished for *not* meeting basic customer expectations or tailoring the customer experience.

TIP

Marketing succeeds via a series of incremental improvements. Having consistent data enables you to refine your segmentation and targeting continuously. For example, you might start by sorting customers into three segments. Next, deliver personalized content and custom experiences for those segments based on your analysis of common behavior. Finally, strive to create *markets of one* in which you can send personalized offers to each individual.

Getting personal without being creepy

When viewed in aggregate, customer data helps you detect broad tendencies and trends so you can gain a clearer picture of how customers are likely to behave. You should balance these generalized observations with the specific data that you gather about individual consumers. Keep in mind that a fine line exists between personalization and intrusion, especially with new customers.

Data brokers and marketplaces have amassed thousands of attributes on millions of people, including propensities, segments, and affinities — as well as data on their outright purchases. You can use this data to enrich your customer records, but be careful not to cross the line from being helpful to prying. How would you feel if an unknown vendor sent a message saying, "We love your new living room furniture! Take a look at these complementary draperies." Or worse, "We hear you are expecting a baby. Have you seen our new line of infant clothing?"

These cautions are especially germane to social media advertising. Social media companies generally don't sell user data, per se. They sell *predictions* about user behavior. Their recommendation engines and propensity models assess each user's likes, dislikes, posts, comments, friend groups, followers, and other implicit and explicit inferences. As these predictions become more refined, the ads become more targeted.

REMEMBER

Be aware of the limitations of the artificial intelligence (AI) engines that power social media platforms. These services can slice user data in a million different ways and target highly specific groups and subgroups with your ads and offers. However, the correlations are only as useful as the accuracy of the information upon which they are based. This type of automated segmentation can lead to better marketing results, but some of these correlations may be based on false assumptions that confuse, annoy, or even disturb your customers. You want consumers to see your ads

as suggestions of what they might want rather than assumptions about who they are. The last thing you want is for customers to wonder how you know so much about them.

Pursuing Advanced Analytics

Marketing teams pursue advanced analytics to distill engagement data into targeted, person-level insights. Once you have defined enough data points at scale, you can start to move forward with these advanced analytic initiatives. As with the other steps on the marketing analytics maturity curve, the motivation is the same: a desire to achieve better customer engagement, more efficient campaigns, and higher conversion rates. The difference with this phase is the degree of automation (speed and granularity).

Data scientists build machine learning models that predict how prospects will respond to various campaigns, offers, and channels based on the characteristics deduced about each opportunity from the available data. Data science models can make real-time recommendations by analyzing individual users' clicks and movements while those users are traversing your site. Typical data science use cases include churn and retention analysis, up-sell suggestions, next-best-offer recommendations, and customer sentiment analysis.

A data science model can address many simultaneous variables. For example, the model can determine the optimum terms to offer prospective gym members based on their gender, number of children, ZIP code, and income level. The model can recommend new services to members based on their day-to-day habits, powered by transaction data as members sign up for classes, sign on to various machines, or swipe their cards to access various gym services. Each day, the model refines its suggestions based on what happened yesterday, last week, or last month, optimizing revenue and building customer loyalty by suggesting a unique palette of services for each member.

TIP

Machine learning models help segment customers, predict churn, improve retention, and recommend products based on buyer behavior derived from social media data, email, clickstream data, and second- and third-party data sources. To optimize your data science practice, run your models using the latest data and maintain all data in one place for easy access, analysis, and collaboration.

Chapter **4**

Sizing Up Data Challenges

Marketers strive to keep all data in one place to better understand each customer's unique journey, including whom they contact, which channels they use, which offers interest them, and which content works best for each product, service, and marketing scenario. Unfortunately, many obstacles stand in the way of achieving this goal. Because different solutions handle different parts of the buyer's journey, consolidating data is an ongoing challenge. This chapter reviews these obstacles and describes how to overcome them.

Sizing Up the Problem

Previous chapters in this book emphasize the importance of maintaining a clean source of consolidated data for marketing analytics that is readily accessible to marketers, data scientists, business analysts, account managers, and anybody else who interacts with customers and prospects. Fragmented data naturally arises as companies acquire various types of applications for sales, marketing, advertising, ecommerce, fulfillment, predictive analytics, and other business functions. Each solution has its own repository of data and requires a unique set of skills.

Usually, a customer relationship management (CRM) system becomes the central hub for maintaining customer records. However, CRM systems are usually separate from many of the online transactional processing (OLTP) databases responsible for tracking orders as well as from the marketing automation systems that make up the MarTech stack, including demand-side platforms for advertising and promotion, customer data platforms for content and experience, and social listening platforms for gauging customer sentiment.

Data in your CRM system is likely sequestered from data generated by these other MarTech applications. Ending up with one application for ecommerce, another for email, a third for web banners, and a fourth for social ads, to name a few popular options, is not unusual. With no common schema to rationalize these disparate data elements, the only way to combine this data is through extract, transform, and load (ETL) procedures, database joins, and hand-coded scripts and queries.

As Chapter 6 explains, marketing automation platforms include core functionality to handle basic marketing tasks, but they also include an ecosystem of dozens or even hundreds of third-party solutions, most of which require some level of integration. Many of these applications have APIs technologists can use to simplify the process of merging data. Yet each API is different, and each application loads data in unique ways.

Some data is stored on premises, and other data is stored in the cloud, necessitating unique access paths, File Transfer Protocol (FTP) sites, and file transfers merely to keep it all in sync. Some data is transmitted in a continuous stream, such as Internet of Things (IoT) data from smart meters. Other data arrives in periodic increments, such as batch uploads from a third-party survey vendor.

The consolidation process becomes more complicated when organizations outsource marketing functions to third-party service providers that handle customer surveys, email responses, call-center interactions, and other essential functions. For example, a utility company that wants to recommend the best rate plans for its customers may need to combine IoT data from smart meters, billing data from an enterprise resource planning (ERP) system, and customer feedback data from a third-party surveying system. These three very different types of information don't naturally

cohabitate. The utility company needs to figure out how to tie these data sources together before making personalized recommendations for each household.

Refer to Chapter 6 for a deeper dive into the MarTech stack.

Dealing with rising data volumes

Consumers leave digital footprints as they click through websites, post comments, search for content, and initiate transactions. Marketers collect, combine, and analyze this data to discover patterns and develop campaigns that cater to each customers' needs, preferences, and tendencies. As the number of users, channels, and touchpoints increases, data builds up fast.

For many years, the solution was to store this data in a data lake, often created with open source technology, such as Apache Hadoop. Data lakes can handle huge volumes of raw data in any format, such as the JSON weblogs that represent the clickstream activities of millions of website visitors.

Although loading data into the data lake isn't particularly difficult, deriving insights from that data is another matter, often requiring specialized skills. IT professionals use Python, MapReduce, Hive, and other languages, along with custom ETL procedures, to extract and aggregate data into a data warehouse or data mart where it is more accessible for ad hoc analysis. Typically, ETL jobs are executed in a separate environment and consume lots of resources. Moreover, after the data is loaded into the warehouse, additional transformations are required, often during off-peak hours to limit the impact on analytics and reporting.

There is an inherent disconnect here. Customers interact with your sites all day long, and although marketers want to influence customer behavior, their analytics are only as fresh as the last nightly load. As a result, marketers usually look at outdated data, because aggregations and transformations across data lakes, data warehouses, and data marts take time. They lose the ability to interact with customers in real time based on current browsing activity. For example, they might target customers who have abandoned their shopping cart with an email encouraging them to check out when, in fact, some of those customers have already done so. Similarly, they might recommend a product that some customers have already purchased.

Marketers usually don't interact with the data lake because they don't have the requisite tools or skill sets. They are dependent on data scientists, who spend way too much time wrangling data to formulate a complete picture.

These delays impact back-office analytics as marketers try to assess outcomes, test campaigns, and iterate with various marketing scenarios — all of which may require new data from the data lake. This may not be a problem if you optimize one channel at a time, such as analyzing spending on Google Ads. Google updates its ad data continuously, so it is always up to date, making adjusting your bidding algorithms easy. However, suppose you want to analyze spending versus results for ad campaigns that span multiple channels. In that case, you may have to aggregate the data first, which introduces latency into the analytic process.

Data lakes are all about pushing data in, but getting insights out is often challenging, such as when a data scientist needs to extract scores for an analytic model, a marketer wants to adjust spending across ad channels, or an ecommerce manager wishes to target users based on current browsing activity. Even a simple request for aggregated data can be difficult to satisfy, such as wanting your product data sorted year-over-year to gauge how seasonality affects sales.

Uniting fragmented data

Imagine if all your applications stored data in the same place, and each type of data — including CRM data, call center data, email data, weblog data, and return on investment (ROI) campaign data — could be maintained in the correct format needed for instant analysis. Today's leading cloud data platforms can consolidate all your data in a central repository and also make it easy to acquire the insights from that data.

The best cloud data platforms allow you to use standard SQL for both data ingestion and query activities. Due to the cloud's near-limitless scalability and elasticity, your marketing applications can load customer data, product data, campaign data, and other information throughout the day, even while your analytic activities proceed in tandem.

These platforms give you one unified repository that scales to meet all your demands. Because you don't have to wait for nightly loads, your data is always current. You no longer have to rely on aggregated data extracts from a data lake. Additionally, combining data to glean timely insights is much easier with a single model for data security and data governance. You can slice and dice customer data to identify people with different behaviors, such as website visitors who have viewed a product multiple times in various styles and colors, and target them immediately with relevant offers.

By using a cloud data platform to anchor your marketing analytics, you are moving toward an open rather than a closed ecosystem, which is particularly advantageous when integrating first-party data from your software-as-a-service (SaaS) applications or if you choose to enrich your data with second- or third-party data from an Internet data service or data marketplace. In some cases, these data brokers form partnerships with the cloud data platform vendor to store weather data, demographic data, and hundreds of other industry-specific data sets directly in the platform. Customers who subscribe to the cloud data platform can easily tap into these data services without having to copy or move data.

This approach is much simpler than traditional data sharing methods, which require setting up File Transfer Protocol (FTP) sites, hand-coding application programming interfaces (APIs), and sending bulk uploads by email. These cumbersome, costly, and risky methods are based on sharing static data, which quickly becomes dated and must be continually refreshed with more-current versions.

A cloud data platform can handle massive amounts of data — structured, unstructured, and semi-structured — and store many types of data in the same location, such as semi-structured clickstream activity formatted as JSON records and email campaign outcomes maintained in a relational format.

To maximize your options, standardize on a platform that can accommodate an escalating volume of data of many types, including data from advertising clicks, mobile phones, search engines, and other sources critical to marketing. Doing so allows you to interact with customers and prospects at the *moment of decision.*

CLOUD DATA PLATFORM IMPROVES A/B TESTING

CASE STUDY

As one of the world's largest on-demand delivery services, DoorDash connects customers and businesses with food, groceries, and household essentials. Its large network of "dashers" in 4,000 cities worldwide deliver millions of items per month.

To provide insights to internal analysts and external merchants, DoorDash ingests immense quantities of data from its web servers and enterprise information systems, and from the mobile apps that customers use to order and monitor deliveries.

As business volume increased, data-ingestion activities began to slow down query and reporting jobs. DoorDash's marketing attribution model analyzes advertising data from Facebook, Google, and other ad platforms to optimize marketing campaigns and budgets based on these real-time activities. These resource-intensive endeavors competed for computing resources, negatively impacting their performance.

To enable a more scalable environment for marketing analytics, DoorDash switched to a cloud data platform that could simultaneously handle data ingestion and query workloads twice as fast as before. Out-of-the-box connectors and adapters simplified the process of migrating data from 600 ETL jobs.

Today, having a single source of truth makes it easier to interpret A/B test results to see which ad campaigns generate the most interactions and conversions within designated cohort groups. Machine learning algorithms store data in the cloud to make personalized product recommendations to customers. Daily reporting is more accurate, too: Market managers across the globe obtain merchant insights by 7 a.m. daily, enabling them to better manage orders, inventory, and staffing. And the business intelligence team spends less time on data administration, freeing up capacity for data exploration.

Enforcing Data Quality and Consistency

Loading data of all types and volume throughout the day is a game-changer for marketers striving to forge real-time connections with customers. The near-limitless capacity and near-infinite scalability of the cloud now makes that possible.

To reconcile data for marketing analytics, start by ensuring your sales system and your fulfillment system can talk to each other and consistently share data. Then add data from niche marketing applications and partners.

As you amass more data and use more applications, address data quality issues, such as when a customer is defined in two or more systems and the records are not consistent. Master data management (MDM) technology helps define "golden records" to rationalize discrepancies, such as ensuring that names properly match addresses and no variant spellings and usages exist for phone numbers, email addresses, and other personally identifiable information (PII). Some MDM systems include prebuilt data models and conceptual models to simplify the process of mastering marketing data, making it easier to create useful contact histories, response histories, campaigns, and programs.

Careful data synthesis can also enable data "householding," in which two people living in the same domicile may be combined or kept separate, depending on the circumstances. For example, a utility company may want one customer record for each billable location, whereas a hotel or retailer might wish to keep each customer record distinct to reflect unique visits and purchases.

Addressing Data Privacy and Regulatory Concerns

Data governance is a big part of any analytic discipline. Governance entails knowing precisely what data you have, where it resides, who is authorized to access it, and how they are permitted to use it. For marketers, data governance also involves adhering to regulations governing how PII is processed.

You can acquire PII about consumers in many ways, but you must ensure you have a legal basis (which may include consent) to use that data. All marketers must respect consumer privacy laws and be aware of the implications of collecting and analyzing consumer data. Chief among these regulations are the General Data Protection Regulation (GDPR) and Directive 2009/136/EC (ePrivacy Directive) in Europe, and the California Consumer Privacy Act (CCPA) in the United States.

Sometimes seen as the hallmark of privacy regulations, GDPR starts with the premise that individuals in the European Union own their data, and privacy is their fundamental right. Individuals can determine who uses their PII and how, they can opt out of communications from merchants or vendors, and they can ask to be forgotten, which means, in certain circumstances, all links to and copies of their PII must be erased from the Internet and information systems. The European Union determines a uniform framework for defining and enforcing these regulations, although each member state may adopt stricter local rules in some cases.

Marketers, often in conjunction with corporate legal and/or compliance teams, need to examine the regulations in each jurisdiction in which they operate and have a strategic plan for meeting the requirements. Companies that meet certain requirements must adhere to the CCPA, a state statute intended to enhance privacy rights and consumer protection for California residents. Other states have proposed similar legislation.

Both GDPR and CCPA focus on consumer privacy rights. As discussed in Chapter 2, marketers must place notices on forms, alert web visitors to cookie tracking, and allow people to opt out of receiving communications. You must sync primary systems of records and all additional locations where customer data may be copied and stored. These mandates also apply to data brokers, data marketplaces, and data exchanges.

REMEMBER

Although a consumer may have the right to be forgotten, not extending those wishes to all systems that contain the consumer's data could cause a problem down the road, such as the consumer receiving a targeted offer after he or she has opted out of your marketing campaigns.

Regulators can demand to see proof that you comply with pertinent regulations. This can take the form of an unexpected audit but is more likely to arise in response to complaints from consumers who feel their data has been misused. You must always be prepared to show evidence to demonstrate:

» What types of data you collect

» Your legal basis for processing such data

» How your company processes that data

» Where that data is stored

» How you use consumer data to market your products and
services

Simplifying Audits with Consistent Policies

Gathering all your data into one location simplifies compliance. Auditing one database is much easier than auditing several, and maintaining consistent identity- and access-management policies that control who can see customer data is easier, too. The fewer places you store customer data, the more easily you'll fulfill government regulations and comply with industry requirements. Centralizing the processes you use to authorize users, authenticate credentials, and grant access to customer data eases enforcing data privacy rules and tracking who views customer data within each marketing campaign.

ADVANTAGES OF A MODERN CLOUD DATA PLATFORM

Consolidating customer data, product data, campaign data, and other data sets in the cloud offers many benefits to marketers:

- A single source of truth for every person and application, so everyone obtains the same answers and uses the same data

- Limitless computing power, so large data-loading operations can take place any time without slowing the work of business analysts and data scientists

- Scaling elastically to meet spikes in demand, such as Black Friday, holidays, and seasonal fluctuations, without negatively impacting ongoing workloads

- The ability to deploy computing and storage resources independently from each other, and near-instantly, to operate a virtually unlimited number of concurrent data workloads

- Near-zero maintenance, which means your technologists can add value to the business instead of scheduling backups, tuning queries, and managing ETL operations

As mentioned previously, one way to gain consent from consumers is to enroll them in customer loyalty programs that encourage people to self-identify and volunteer their information — an important distinction that determines how you can use their data.

Some cloud data platforms let you use data masking and data de-identification techniques to store PII without making it visible to marketing personnel. A technology called *external tokenization* lets you discreetly store PII in conjunction with browser IDs. Doing so allows you to glean pertinent marketing information while also respecting data privacy laws. You can also merge that information with second- and third-party data sets.

Chapter **5**

Overcoming Challenges with Technology

Previous chapters in this book explain the importance of acquiring data from first-, second-, and third-party data sources. To put all this data to work, you must collect it *and* prepare it for analysis. This multistep process includes integrating disparate data sources and storing the results in a highly accessible repository so you can activate that data for various types of analytics.

Integrating Essential Data Sources

Most marketing teams discover lots of useful data centered on customers, products, and company information. The difficulty comes with combining it and making sense of it all. This is often a process that occurs hand in hand with the data or IT team. Where do you start?

Begin by identifying the essential data elements that will comprise a *basic data model* — an abstract categorization that organizes elements of data and standardizes how they relate to one another. For hints on what those elements should include, look

at your current analytic workloads, especially those that reflect the fundamental aspects of your business. For example, an insurance company might focus on policy, claim, and member data as a foundation for basic reporting and then gradually add metrics and key performance indicators (KPIs) as marketers expand these data domains.

TIP An agile data model should provide immediate value yet be flexible enough to support other types of data in the future. Focus on high-priority workloads, and create a basic data model to organize critical data sources. Lay a foundation for future iterations via continuous integration/continuous delivery (CI/CD) methods. Doing so will make it easier to add new data elements, test new features, conduct user-acceptance testing, and deploy new versions of the data model into production.

Engineering Data Pipelines

Data engineering involves ingesting, transforming, delivering, and sharing data for analysis. Data pipelines handle these tasks for batch data uploads as well as for streaming data sources. Data engineers figure out how to extract data from applications, devices, and event streams and determine where the data will land, such as in a data warehouse or cloud data platform. And they create the pipelines that orchestrate the continual movement of data.

In some cases, data engineering also involves *transformation,* in which the data is standardized, cleansed, mapped, or combined with data from other sources. For example, the source data may need to be modified to match the target format, especially if the target database has a predefined structure, such as relational tables. Data engineers often use data integration tools to automate these conversions and rationalize the differences between two or more types of data. These tools accommodate many types of data and perform all the necessary transformations automatically.

Legacy data integration solutions do a good job of ingesting highly structured data and batch data. Still, they are often too rigid to collect and ingest newer types of data, such as machine-generated data from Internet of Things (IoT) systems, streaming

data from social media posts, and weblog data from Internet and mobile apps. That's why today's data pipelines often *extract* and *load* the data first and then *transform* it (commonly known as ELT rather than ETL) after how it will be used becomes clear. Additionally, as mentioned in Chapter 4, first-party data from your software-as-a-service (SaaS) applications that is already on a cloud data platform becomes seamless to access, without requiring ETL or ELT processes.

Some companies set up message queues to send and receive streaming data. Examples include open source technologies, such as Apache Kafka and RabbitMQ, as well as commercial technologies, such as Amazon Kinesis, Microsoft Event Hubs, and Google Cloud Pub/Sub. These services allow destination applications to simply "subscribe" to data moving through the queue to access that data easily.

Bringing in First-, Second-, and Third-Party Data

As discussed in Chapter 2, organizations need to consolidate three sources of data:

» First-party data, or internal data produced through normal business interactions with customers and prospects.

» Second-party data, or data produced by or in collaboration with trusted partners, such as product inventory data shared with an ecommerce or retail sales channel.

» Third-party data that can be purchased to enrich customer profiles. Everything from identity graphs to weather data is available to improve the effectiveness of your marketing program.

REMEMBER

First-party and second-party data tell you who interacted with your business and how they responded. That's the basis for targeted marketing. Without this knowledge, you have no way of understanding the effectiveness of your campaigns. Third-party data can enrich customer records to increase your marketing efforts' quality, scope, and effectiveness (see Figure 5-1).
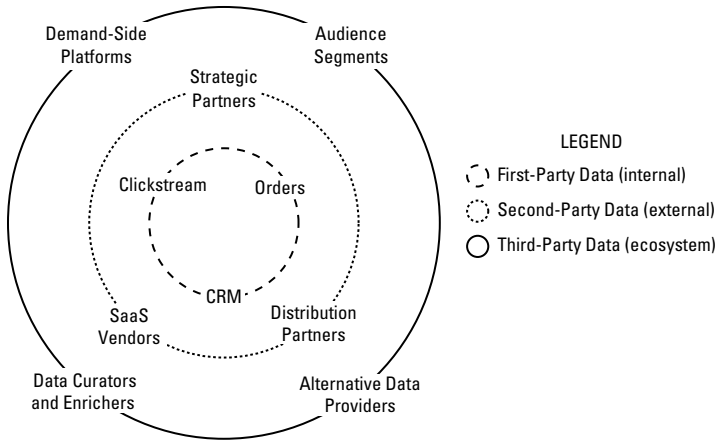
THE DATA INTEGRATION CHALLENGE

FIGURE 5-1: Marketers must identify pertinent data sources from applications, event streams, and many types of data providers, and then integrate them as a basis for modern analytics to best target customers with relevant messaging and offers.

Keying and Matching Data

Next, you need to *key* your data to establish relationships among elements. Every record in the database has a key that uniquely identifies that record. For example, for customer records, the key would likely include first name, last name, email address, and phone number. Defining these records and assigning keys allows you to standardize how data is stored and enforce data quality while creating and enriching your records.

In addition to customer IDs, your data model should include metadata, such as the record source (where the data originated) and the time stamp (when each record was created). The data model becomes richer and more refined as you match additional customer attributes to your customer IDs.

REMEMBER

To maximize your options, you want to create an agile model that allows you to change customer attributes easily as you add more data. The ability to conduct 360-degree marketing requires bringing together structured data, such as product orders and campaign responses, and semi-structured data, such as email and clickstream data. Your data platform must provide easy access to all relevant sources of data.

Centrally Storing Data

At many organizations, semi-structured data, such as XML or JSON files, may land in a data lake, whereas structured campaign data is stored in a customer relationship management (CRM) system. This setup causes a natural division when users attempt to extract and combine that data for analysis.

Consolidating data into a single source allows you to go much deeper with analytics. All your front-end marketing tools will be able to access the same curated data source. Your data science team and your analytics team will leverage the same customer records, the same product data, and the same ROI data and share the collective results of each successive campaign. You won't have to synchronize extracts from a data lake with data you have stored in a data warehouse or data mart. All users will obtain consistent answers, because they are all accessing the same data set. Sharing the data among multiple business lines and workstreams, both internally and externally, will be easy.

REMEMBER

To consolidate data effectively, you need a data platform that can accommodate raw, structured, semi-structured, and unstructured data to maximize options for marketing professionals, business analysts, and data scientists. Doing so allows all analytic tools to reference the same data, and the metadata that describes that data, ensuring more consistent results. You won't find yourself creating multiple copies of the same data or running data science models off a small sandbox or sample data set (see Figure 5-2).

WHAT A MODERN CLOUD DATA PLATFORM SHOULD DELIVER

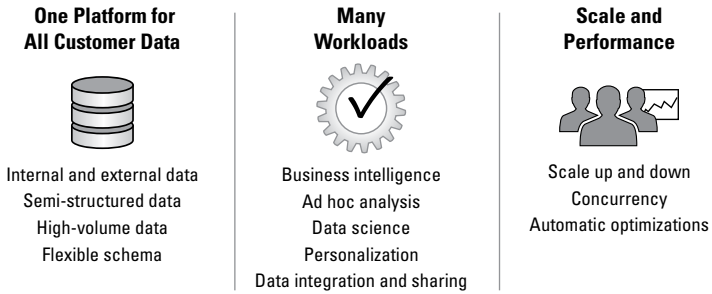| One Platform for All Customer Data	Many Workloads	Scale and Performance
Internal and external data	Business intelligence	Scale up and down
Semi-structured data	Ad hoc analysis	Concurrency
High-volume data	Data science	Automatic optimizations
Flexible schema	Personalization	
	Data integration and sharing	

FIGURE 5-2: To effortlessly scale your marketing initiatives, standardize on a platform that supports all types of data and many concurrent workloads.

REMEMBER

Having a common repository of data allows marketing analysts to leverage the results of data science initiatives and vice-versa. Rather than requiring a data warehouse for analytics and a data lake for data science initiatives, a cloud data platform serves both purposes and more, simplifying the entire lifecycle of data ingestion, reporting, analytics, and machine learning.

MODERN DATA SHARING ENABLES COLLABORATIVE ADVERTISING

CASE STUDY

Greenhouse is a Netherlands marketing agency focused on helping clients make effective digital advertising decisions. With data as the core of its creative, media, and consulting services, Greenhouse collects and analyzes billions of interactions from client websites, apps, and advertising campaigns to better understand customer journeys.

Previously, sharing insights with clients involved configuring cloud environments, connecting data buckets, copying data sets, spinning up clusters, and troubleshooting technical issues. To simplify this complex process, Greenhouse's data science team acquired a cloud data platform that can ingest each client's interaction data directly, without the upfront complexity of setting up a traditional data sharing environment. The platform's modern data sharing architecture enables "reader accounts" that allow clients to view, query, and analyze their own data via an easily accessible web interface.

Now, instead of managing complex technology interactions with clients, Greenhouse can forge *data intelligence partnerships* with them. It's easy to share data and insights as they work together to refine advertising budgets and placements. On-demand querying of raw interaction data empowers clients to anticipate behavioral trends, track KPIs, and achieve maximum return on advertising spend. Greenhouse's data scientists can easily analyze these data sets, collaborate with clients in real time, and share rich interaction insights. The platform enables immediate account-to-account sharing of data without ETL, and simplifies the joining of raw interactions with data from other sources, such as each client's CRM system. Real time data sharing helps clients continuously refine their advertising budgets and placements.

Activating Data for Analysis

Your data is keyed, matched, and cleansed and in a centralized repository. It's modeled correctly and loaded continuously throughout the day. That's the foundation for optimizing campaigns and enhancing segmentations for scoring customers in data science models to indicate their propensities. It's also the starting point for attributing customer conversions to particular offers and making real-time adjustments to marketing campaigns.

TIP

Be patient. Developing 360-degree views of your customers and leveraging customer insights to deliver customized offers takes time. When it comes to activating the data, focus on making headway in one channel, such as sending customized email content, and then move on to others, such as offering custom views of your website pages. The goal is to establish a multi-channel marketing strategy in which data and analytics influence customers at all touchpoints as you guide them toward your marketing goals, such as booking appointments for B2B companies and making purchases at B2C firms.

Tapping into Marketplaces and Exchanges

Chapter 4 explains how you can share data without setting up File Transfer Protocol (FTP) sites, hand-coding application programming interfaces (APIs), or sending bulk uploads by email. Having the right cloud data platform makes this possible by providing real-time access to live, governed data. Marketers can easily share data with data scientists, business analysts, marketing professionals, and external business partners.

The cloud has made it easy to access third-party data services without having to move, map, or manage the data. In some cases, a modern cloud data platform underpins data marketplaces and exchanges, simplifying access to those services for all organizations that use the platform. With advanced platforms, data is shared rather than copied and moved, so no additional cloud storage is required. Marketers can instantly tap into a vast array of data sets, including advertising occurrence and exposure data; audience targeting data; and profiles of hundreds of millions of consumers, including age, languages, hobbies, lifestyles, and more. B2C marketing professionals use these data services to round out their customer profiles and tailor their campaigns. B2B marketing teams collect and aggregate data about the organizations they sell to, allowing them to better qualify leads (see Figure 5-3).

TIP

Standardize on a cloud data platform with a thriving ecosystem of data marketplace offerings to enhance your analytics practice.

HOW A MODERN DATA PLATFORM ENABLES DATA SHARING

BUSINESS ECOSYSTEM

DATA MARKETPLACE

Your Company

Your Company → Data Marketplace

For data sharing at scale
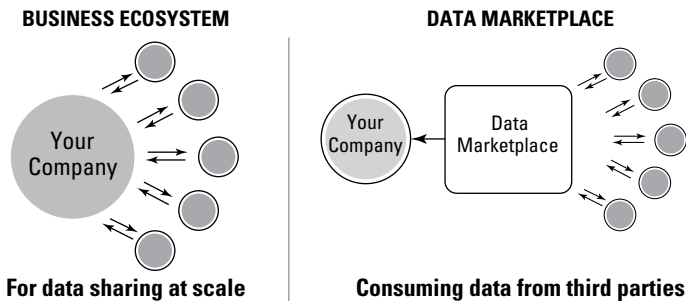
Consuming data from third parties

FIGURE 5-3: Share live, governed data across business units, suppliers, and partners. Access commercial data providers and data service providers in the same secure way via a data marketplace.

Chapter **6**

Mapping the Marketing Analytics Tech Stack

Today's marketing technology is accessible to people without a lot of technical experience. Many MarTech tools are fairly easy to use — assuming you have properly prepared your data. This chapter describes the primary software products to include in your MarTech stack and explains how to marshal your data as you progress from basic to advanced analytics.

Defining the MarTech Stack

Marketing technology encompasses a broad family of software solutions marketers use to plan, execute, and measure the effectiveness of their campaigns. MarTech tools automate basic marketing processes, such as creating content, staging email campaigns, placing ads, and facilitating engagement with your target audiences. When properly integrated, the stack helps unify your marketing efforts, making all marketing operations and processes more effective and efficient. The stack also helps sales and marketing teams collaborate more effectively by sharing data and insights.

A basic MarTech stack rests on four primary pillars:

>> **A marketing automation platform** manages the customer lifecycle. Marketing platforms orchestrate your marketing campaigns while also automating the movement of leads and customers through the pipeline. Marketing departments use these software applications to plan, coordinate, execute, manage, and measure their campaigns across multiple channels and automate repetitive tasks.

>> **A customer relationship management (CRM) system** maintains information about customers, prospects, and competitors. The CRM system is the single source of truth about customers, and for B2B companies, the system also maintains data about regions, employees, and types of accounts. Leads that come into the marketing automation platform are also logged in the CRM system, making it the main link between marketing and sales. CRM vendors have established large ecosystems of third-party tools to enhance their core CRM capabilities.

>> **A digital platform** can range from a simple website built on a content management system to more complex platforms built on a number of frameworks and technologies. Marketing-oriented websites use trackers, typically written using JavaScript and managed by tag-management platforms, to monitor visitors and track user activity such as clicks or page views as people navigate through the site. Marketing applications gather this data and flag the actions web visitors take.

>> **A customer data platform** serves as the main repository for marketing data, often supplemented by a cloud data platform containing additional data for advanced analytics.

MarTech applications help marketers monitor all customer engagements, including ads, website visits, social media content, point-of-sale transactions, and face-to-face interactions. These practices are similar for B2B and B2C companies, although B2C companies tend to have more channels and touchpoints, whereas B2B generally is higher touch and involves dedicated sales teams.

The MarTech industry has spawned thousands of specialized applications and tools to help automate common marketing tasks, from sending email and ranking keywords to engaging audiences

and monitoring social media sentiment. Some MarTech technologies fit into a subcategory known as AdTech technologies, which tie into the marketing automation platform and website, and which may be used by agency partners.

As discussed in Chapter 5, extract, transform, and load (ETL) and extract, load, and transform (ELT) tools also play an important role in marketing analytics as marketers work with data engineers to ingest and transform marketing data to provide one complete view of the customer (see Figure 6-1).

THE MARKETING ANALYTICS WORKFLOW

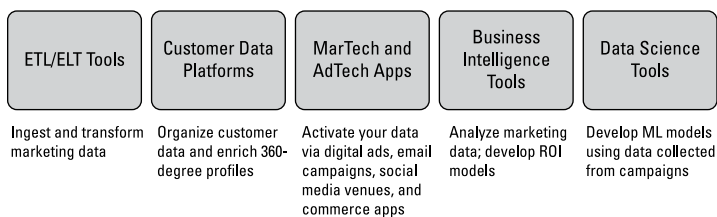| ETL/ELT Tools	Customer Data Platforms	MarTech and AdTech Apps	Business Intelligence Tools	Data Science Tools
Ingest and transform marketing data	Organize customer data and enrich 360-degree profiles	Activate your data via digital ads, email campaigns, social media venues, and commerce apps	Analyze marketing data; develop ROI models	Develop ML models using data collected from campaigns

FIGURE 6-1: Basic steps in the marketing analytics workflow include ingesting data, activating that data to drive productive campaigns, analyzing the outcomes, and automating marketing processes and campaigns.

Extending Your Analytic Horizons

MarTech apps and AdTech apps include basic reporting tools for monitoring campaigns, tracking leads, and assessing return on investment (ROI). However, these domain-specific reporting tools aren't designed for general-purpose analytics. You typically can't use a specialized app to answer broad questions, such as which channels are delivering the best results or what the marginal benefit is of every dollar spent on various ads. For complex queries that span multiple channels, touchpoints, and data types, business intelligence (BI) and data science tools are invaluable.

Using BI tools

BI tools encourage inquiry and exploration into marketing data via self-service dashboards, portals, scorecards, and reports. Most of these tools include data-visualization capabilities that allow people of all skill levels to interact with data via dynamic charts, graphs, maps, and animations — without writing queries.

BI tools also allow marketers to develop custom reports and share them with other members of their organizations.

BI tools mainly produce *descriptive analytics,* commonly used for historical reporting. For example, a sales dashboard might reveal total revenue, sorted by product, over the previous month or quarter. A campaign dashboard might compare advertising spend by channel, correlated with ROI outcomes.

BI platforms also include data mining tools that allow skilled analysts to spot correlations in the data by querying, filtering, and searching for associations and anomalies. These more advanced tools help marketers determine *why* certain techniques are more effective than others. For example, an electronics retailer might discover that banner ads work best for getting the attention of prospects and first-time buyers, whereas return shoppers are likely to fill out a form to obtain detailed product recommendations.

Graduating to data science

The trend for marketing departments now is to progress from basic reporting and historical analysis to using advanced mathematical models and machine learning (ML) algorithms to find patterns that help them predict future outcomes. These *predictive analytics* systems use ML models to segment customers, queue up custom content, and make recommendations based on buyer behavior — sometimes in real time.

For example, an ML model might monitor trends in social network sentiment to encourage satisfied customers to post reviews. Other ML models help segment customers, predict churn, improve retention, and recommend offers based on current or expected user behavior. A mature company might use a combination of models to achieve an outcome, with the results from one model feeding or influencing another.

The main ingredient in all these scenarios is data. Data scientists require massive amounts of data to build and train the ML models that power these predictive use cases. Figure 6-2 shows the basic steps in this data-intensive process.

Consolidating data for BI and ML activities in a central location makes it easier to use that data in a wide range of data science and ML scenarios. Data scientists can output the results of ML activities back into the data platform to power marketing analytics. All

front-end tools reference the same back-end data definitions, ensuring consistent results for queries, forecasts, dashboards, and reports. Additionally, a central location gives data scientists one place to see a model's influence on behavior to determine the model's efficacy and retrain it if necessary.
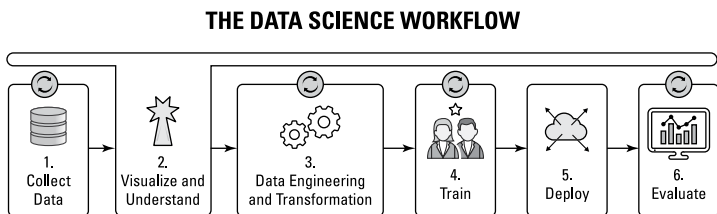
THE DATA SCIENCE WORKFLOW

FIGURE 6-2: The data science workflow for populating, training, and deploying ML models. Visualizing results can span the entire workflow.

Using CDPs and DMPs

You have loads of places to put your data. Marketers use customer data platforms (CDPs) to collect and combine personally identifiable information such as email addresses, IP addresses, and phone numbers as the basis for creating 360-degree views of customers. These special-purpose repositories capture customer data and track customer behavior over time. Most CDPs contain personal identifiers to target marketing messages and track campaign results.

CDPs allow you to create *persistent* customer profiles — individual records for your customers based on unique identifiers. Storing customer data in a CDP helps you develop audience segments and conduct more-sophisticated campaigns. Instead of blasting out one-to-many offers, you can develop micro-segments and then use that information to send out communications across all your channels in a coordinated manner.

Some marketing organizations augment a CDP with a data management platform (DMP), a repository designed to collect, organize, and activate anonymous third-party data for advertising to prospects. A DMP also contains non-personally identifiable information that can enrich first- and second-party data in your customer 360 profiles. CDPs focus on all aspects of marketing. DMPs are designed to improve ad targeting.

Extending Your Reach with a Cloud Data Platform

CDPs and DMPs typically are distinct resources. Thus, combining the data in these special-purpose repositories with first-party data from other sources to perform marketing analytics is challenging. Storing all your data in a cloud data platform solves this problem, making your data much more accessible and easier to use, especially as CDP and DMP vendors form partnerships with cloud data platform vendors to simplify the integration.

REMEMBER

Marketing is easier and more effective with a cloud data platform underpinning the MarTech stack (see Figure 6-3). Having more data sources at your disposal improves the quality of your segmentation and allows you to combine data from known customers and anonymous prospects. Targeting customers with unique offers becomes easier, optimizing campaigns becomes easier, and creating predictive analytics becomes easier. More data means better outcomes, even as the marketing team becomes less dependent on IT.
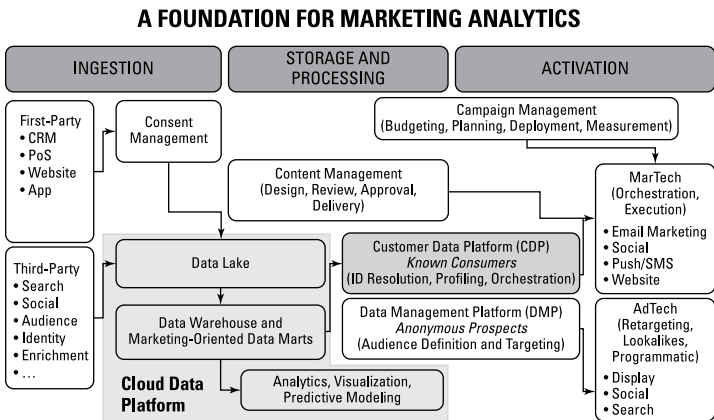
A FOUNDATION FOR MARKETING ANALYTICS

FIGURE 6-3: A cloud data platform unites data in data lakes, data warehouses, and data marts as a foundation for analytics, data visualization, and predictive modeling.

Summing Up the Value of a Cloud Data Platform

Putting marketing data in a cloud data platform doesn't just synthesize data from data warehouses and data lakes. You can also manipulate that data in myriad ways. When properly integrated, keyed, and matched, as described in Chapter 5, you can intelligently organize data points that define the entire customer journey, from the first click through to final revenue. For example, you can create one dashboard that shows advertising spend, website traffic, and how many leads your various offers are generating. This data may arise from multiple sources, but a cloud data platform pulls the data together and allows you to surface it through a common front-end display.

REMEMBER

So long as you are diligent about how you capture data, you can effectively combine it into a single source and then use BI and data science tools to make accurate connections and inferences.

Tracking and tagging the links in your ads and offers enables you to know exactly which campaigns users respond to. Your reporting and BI tools use those IDs to join data in meaningful ways. Multiple touches along the B2B path, such as attending a webinar, ordering a trial, and downloading an ebook, can be assigned different values based on the marketing model you choose to apply, such as a first-touch model or a multitouch model. This method helps determine which campaigns get credit for what revenue.

Maintaining data in a cloud data platform is also the foundation for comprehensive attribution studies. For example, users may click a Google ad that directs them to a landing page on your website where they have the option to perform whatever actions you define as conversions, such as fill out a form, register for a webinar, download free content, or request more information. Each action and outcome is tracked, logged, and recorded in the CRM system, where it may be assigned to a salesperson and converted to an opportunity. Each decision point along the way produces a record or event within these customer journeys.

TIP Having a common repository allows BI apps to leverage the results of data science initiatives and vice versa. B2C companies can develop data science models to perform what–if analyses on these rich data sets, such as how each action at each touchpoint affects revenue. Marketers can optimize campaigns and measure ROI based on what's working and what isn't. They can create multiple messages for multiple calls to action and monitor user activity to determine which messages deliver the best results.

A cloud data platform maintains all this data so you can make these determinations. How do offers on LinkedIn compare to offers on Facebook? How effective are your ads in each social media channel? What is the show rate for webinars based on email reminders sent out one day before an event versus three days before? Are email open rates better on certain days of the week? Which subject lines work best?

In B2C scenarios, real–time offers and updates can enrich customer journeys. For example, suppose a shopper purchases a vacuum cleaner online and later visits that merchant's physical store. The merchant might push an ad to that shopper's mobile phone offering a special on vacuum bags.

A FOUNDATION FOR MARKETING ANALYTICS

To create a *data foundation* that can power many different marketing workloads and make data accessible to all relevant tools and applications, marketers need a broad, general-purpose cloud data platform that can:

- Store all types of data in an easy-to-use, self-serve, flexible platform
- Power all types of workloads across the MarTech stack
- Scale to support a near-unlimited number of concurrent users performing ad hoc analysis, data science, and other forms of analysis, even while ingesting new data into the platform

AN APPETITE FOR DATA

Approximately 300,000 restaurants and foodservice operators across the United States rely on US Foods as their national distributor for food and supplies. US Foods also provides a comprehensive suite of ecommerce technology and business solutions that help restaurants manage their businesses.

Helping the turbulent restaurant industry stay solvent in the wake of the COVID-19 pandemic required US Foods to be strategic with data. US Foods adopted a cloud data platform to power its marketing analytics needs and better understand each dimension of the customer experience. In the short term, the organization seized the opportunity to speed up its report-delivery time beyond what its traditional technology stack could achieve. Over the long term, the data platform has allowed US Foods to make better use of big data and advanced analytics. For example, aggregating data from multiple restaurants has allowed customers to hone their curb-pickup strategies and identify the most cost-effective menus for takeout services.

The cloud data platform's inherent scalability allows US Foods to dedicate discrete compute and storage resources to each workload. Analysts and DBAs can work concurrently with a single copy of data without contention. The pay-as-you-go cloud service enables analysts to test new foodservice scenarios easily. Testing new scenarios with minimal investment and quickly validating hypotheses helps US Foods provide timely insights to its customers.

What to Look for in a Cloud Data Platform

While evaluating which cloud data platform should anchor your marketing efforts, pay attention to flexibility, scalability, manageability, and cost.

» **Flexibility:** Choose a platform that can dynamically bring together the optimal set of resources for each workload and each campaign, including the precise balance of compute power and storage capacity.

>> **Scalability:** A complete cloud data platform should scale to any number of concurrent workloads. Marketing professionals, data engineers, data scientists, and business analysts should be able to all interact with the same single source of data without resource contention or data delays.

>> **Manageability:** A cloud vendor dedicated to minimizing administrative chores for your marketing staff should manage your cloud data platform. All you should have to worry about is loading, querying, and working with your data.

>> **Cost:** Given the immense scale and inherent variability of today's digital marketing endeavors, your cloud data platform should be available as a usage-based service that you can turn on and off as needed.

Chapter **7**

Seven Steps to Get You Started

Whether you are just getting started with data analytics or wish to enhance an existing analytics practice, follow these steps to obtain quick results and ensure positive outcomes:

» **Step 1: Identify key touchpoints.** Make an inventory of the primary interaction points customers use to engage with your business, such as via your website, email, social, and mobile. Determine which of those interactions generate and consume data that defines audience segments for targeting customers and prospects.

» **Step 2: Collect and model data.** What do you know about your customers? Amass *first-party data* volunteered by customers, and then enrich it by adding *second-party data* from partners, as well as by purchasing *third-party data* to add more detail about your population.

» **Step 3: Unite fragmented data.** Pick essential data sources that will drive the majority of your marketing campaigns. Bring these disparate sources together in a central repository, preferably a cloud data platform that allows you to use standard SQL for data ingestion and query activities. Key

your data to establish relationships among data elements. Pay attention to data quality as you eliminate duplicates and variants. Consider a master data management (MDM) initiative to rationalize differences and produce consistent records.

» **Step 4: Set up strong governance.** Work with corporate compliance officers to review data privacy regulations and develop a strategic plan for fulfilling industry requirements. Obtain customers' consent for using their personally identifiable information (PII). Always abide by the "sunlight" test. As you target customers with offers and suggestions, strive to be helpful and relevant without being overbearing or intrusive.

» **Step 5: Plan integration methods.** Identify your primary data for marketing analytics: customer data, product data, and company data. Determine the best method of integration, either through sharing data or via more traditional methods. Where needed, create data pipelines to prepare batch and streaming data for analysis. Develop a template to specify the data source, the frequency of the updates, and the source-to-target mapping requirements.

» **Step 6: Build your MarTech stack.** Identify your marketing technology stack's primary components, such as a CRM system, marketing automation platform, website, customer data platform, business intelligence (BI) and data science tools, and special-purpose apps. Ensure seamless integrations with your cloud data platform. Build on existing investments and skills.

» **Step 7: Create the 360-degree customer view.** Enrich your customer profiles as you group customers into segments and develop personalized offers based on their unique needs. Focus on making headway in one channel, such as sending customized email content, and then move on to other channels, such as offering custom views of the pages on your websites.

Unify, analyze, and securely share data to best know and serve your customers

The customer journey is complex, with more channels to engage customers and many more apps to acquire data about their every move. This generates a multitude of data silos, preventing marketers from achieving their goal of seamless, holistic analytics. Leading marketers know the next software-as-a-service (SaaS) solution won't unite their data. Instead, they develop strategies, deploy core technology to unify their data, and easily integrate it with second- and third-party data to deliver timely, relevant, and consistent messaging and offers to their customers in real time. Read this book to learn how your organization can deliver modern cloud marketing analytics.

Inside…

- From mass marketing to personalization
- Why the power of the cloud makes sense
- Managing the customer journey and ROI
- Pursuing modern data science initiatives
- Sharing data across a broad ecosystem
- Building a modern technology stack
- Real-world data analytics case studies

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