



The State of **Customer Data Architecture 2024**





Table of Contents

Introduction	3	Real-time customer profiles = Better business outcomes	11
Methodology	4	The best of both worlds	12
Key Findings	5	Self-serve access: Empowering marketing teams	14
Data Warehouses: A strong foundation, but not the whole picture	6	Real-time personalization: A competitive advantage	16
The magic of interoperability and real-time flexibility	8	Better together: The future of hybrid data architecture	17
How are businesses utilizing data in the Warehouse?	9		
The full stack: A look at third-party tool integrations	10		



Introduction

When building out customer data architecture in 2024, many businesses find themselves faced with a dilemma: do we need a Customer Data Platform (CDP) or a Data Warehouse?

This question is often framed as an either-or question, drawing an invisible line between dyed-in-the-wool CDP evangelists in one camp, and DW fanatics on the other. But here's the thing—framing the choice as binary misses the big picture. The reality is that **they are better together.**

CDPs and Data Warehouses serve different purposes, but they complement each other perfectly in a modern tech stack. Together, they create a data powerhouse: CDPs excel at real-time event processing, while warehouses serve as an excellent repository for rich historical data.

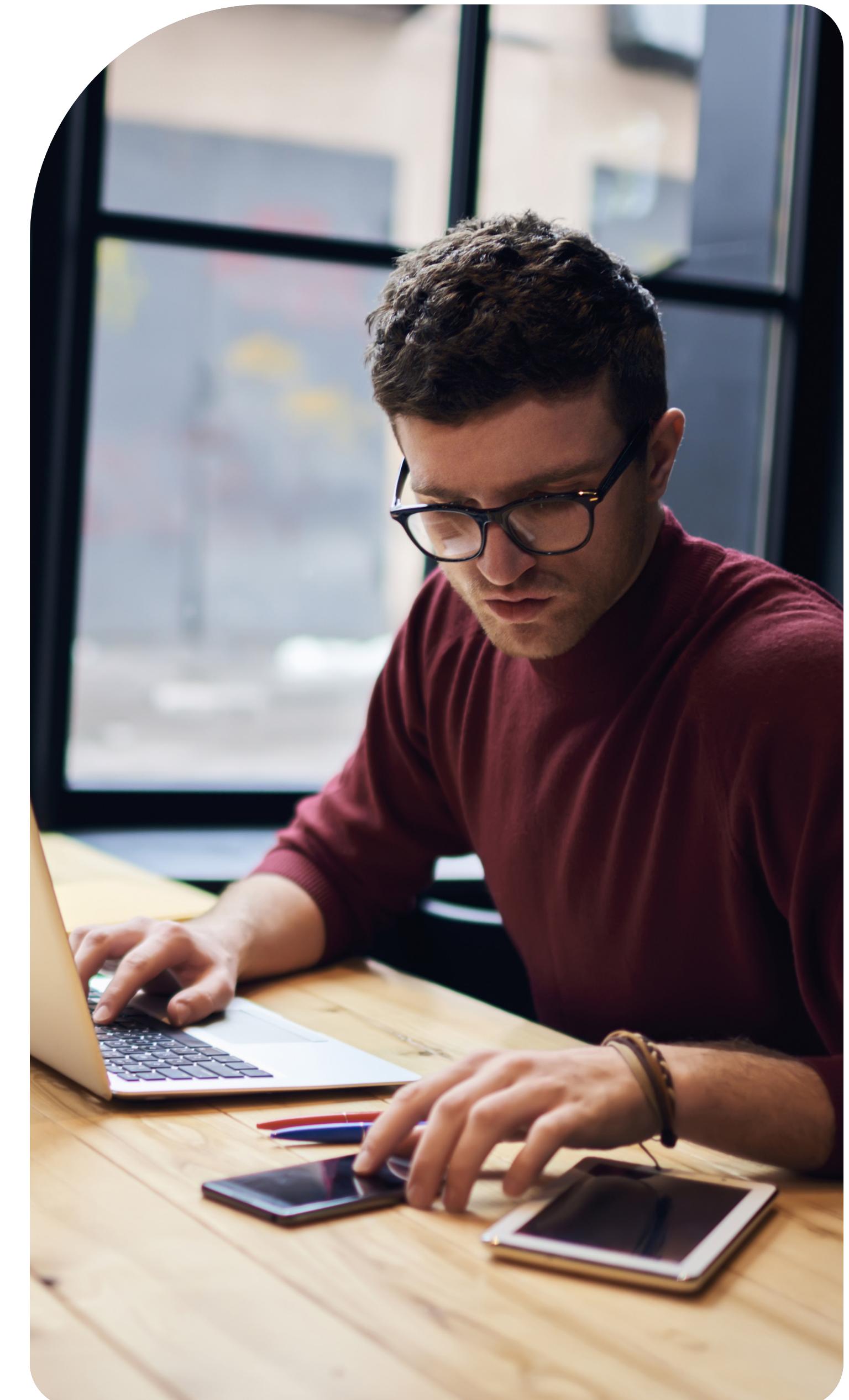
By using both, you give technical teams the structure and scalability they need while providing non-technical teams with access to real-time insights and no-code audience building, making sure everyone in the organization is on the same page.

In fact, more companies are waking up to the value of integrating CDPs with their data warehouses. Twilio Segment has seen this trend firsthand—syncing up to

1 trillion rows of data to cloud warehouses every month. This explosive growth mirrors a broader trend: businesses are dealing with more data than ever and are investing in solutions that can scale and keep pace with unprecedented digital complexity.

This report explores the rising importance of the CDP-warehouse connection. It highlights how linking real-time events with historical data (such as transactional records or customer support logs) from your warehouse can make this full view of the customer readily available for immediate activation in downstream tools. This integration is key to unlocking advanced tactics like predictive AI and hyper-personalized customer communication.

Drawing insights gathered from hundreds of data experts at conferences hosted by two leading Data Warehouse vendors we offer a comprehensive look at how businesses are navigating the state of customer data architecture in 2024.





Methodology

- Twilio Segment conducted this research using an in-person survey prepared by n=495 adults (age 18+) who are employed full-time at B2B and B2C companies.
- All respondents are familiar with a company's customer experience, marketing tech, or customer data strategies.
- This data sample was collected from two Data Warehouse-centric events between June 3 to June 10, 2024.



Key Findings

1. 62% of respondents view the Data Warehouse as a key component of their organization's tech stack

- This signals the growing reliance on centralized data systems, but it's only part of the story. Without real-time capabilities from a CDP, businesses risk missing opportunities to act on live data.

2. 46% of organizations that connect a CDP to their warehouse are leveraging data for real-time personalization

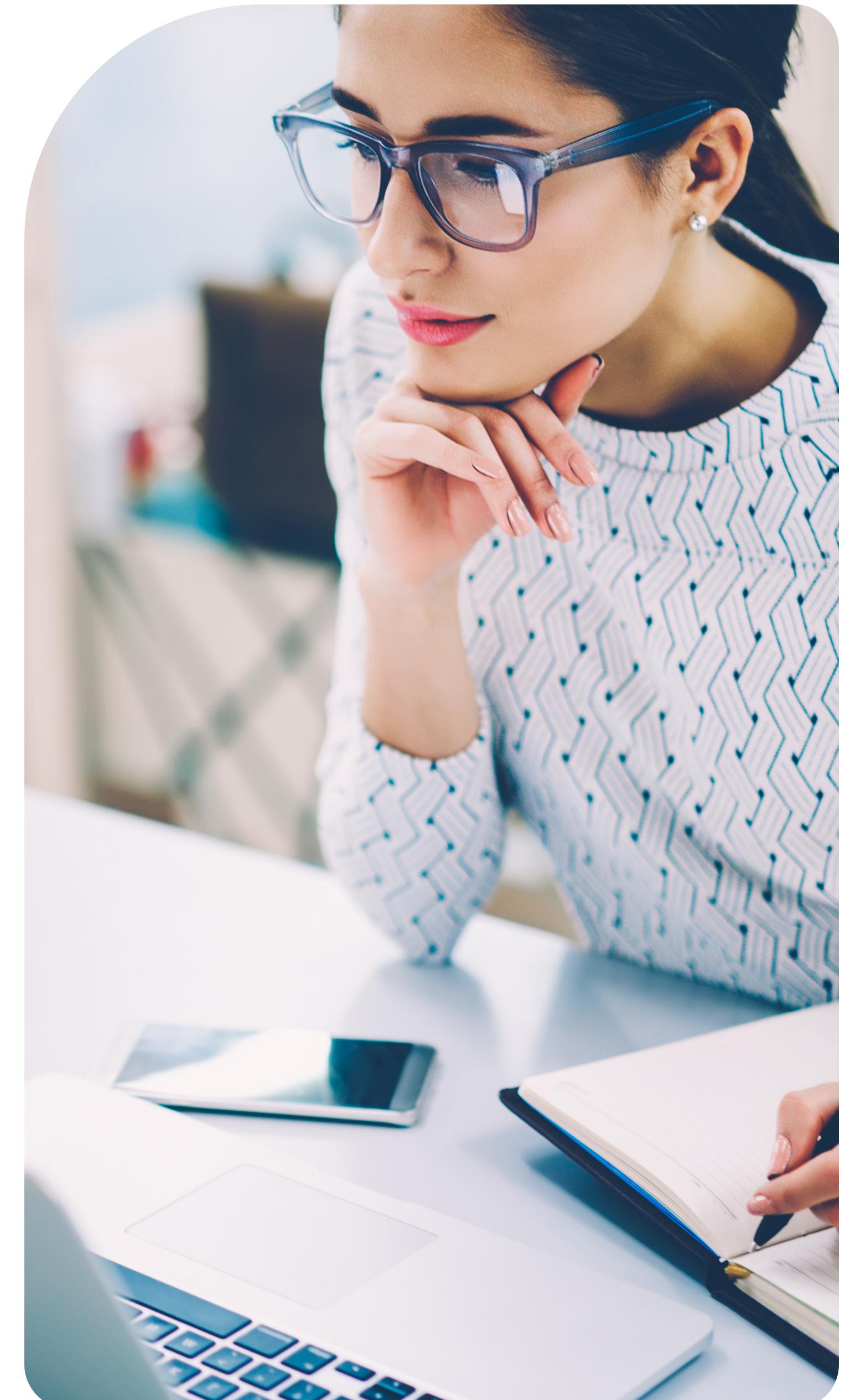
- The ability to personalize customer experiences in real time is a huge competitive advantage. By integrating both systems, businesses can move beyond simple segmentation and start delivering tailored interactions at the right moment—whether it's a personalized email, an in-app message, or a special offer.

3. 70% of businesses that connect a CDP to their data warehouse spend less than 20 hours a week managing ingestion pipelines

- Pairing these two technologies together illustrates a major efficiency gain. With less time spent on wrangling data pipelines, teams can shift their focus to more impactful tasks—like analyzing the data and making real-time decisions that drive the business forward.

4. Nearly 1 in 4 (23.6%) respondents are spending 20+ hours per week managing profiles in the warehouse – profiles that could be enriched with real-time data sets from the CDP

- By integrating a CDP, businesses can enrich these profiles with dynamic, live data, reducing manual upkeep and freeing up valuable resources for more strategic initiatives.





Data Warehouses: A strong foundation, but not the whole picture

For many organizations, the Data Warehouse (DW) has become a key source of truth. It's where businesses centralize their data to ensure accuracy, consistency, and accessibility. Having a trusted source of truth is essential for making informed business decisions. However, here's where things get tricky: while the DW is great for storing vast amounts of historical data, it often falls short in terms of real-time data activation.

Think of a data warehouse as a library. It's meticulously organized, holds a treasure trove of information, and allows you to check out books on demand. But when you need an answer immediately, walking through the aisles hoping to find the right book just won't cut it.

CDPs, on the other hand, are the librarian—real-time and interactive, giving you immediate access to what you need, when you need it. Together, these systems let you tap into the library's deep resources and provide the answers you need with speed and precision.

For example, a retailer using a CDP with their warehouse can react to a customer's real-time behavior—like browsing for shoes on their app—while also tapping into SKU information and inventory data stored in the warehouse. This combination helps the business deliver a perfectly timed, personalized offer, converting a casual shopper into a loyal customer.



of organizations view the Data Warehouse as a key component of their organization's tech stack.



“Rather than build a completely bespoke toolset to unlock and unify data scattered across the stack, companies can stitch together a set of existing tools to accomplish their goals and meet their data needs. But not all “composable” tools are created equal, offering different levels of out-of-the-box capabilities, technical features, and user experiences (e.g. some tools are able to merge event and static data, while others make it easier for marketers to create audiences). The choice of which tools to stitch together often affects time to value, total cost, and user accessibility”

Dio Favatas

Head of Identity Solutions and Marketing Clouds, Tredence

TREDENCE
— Beyond Possible —

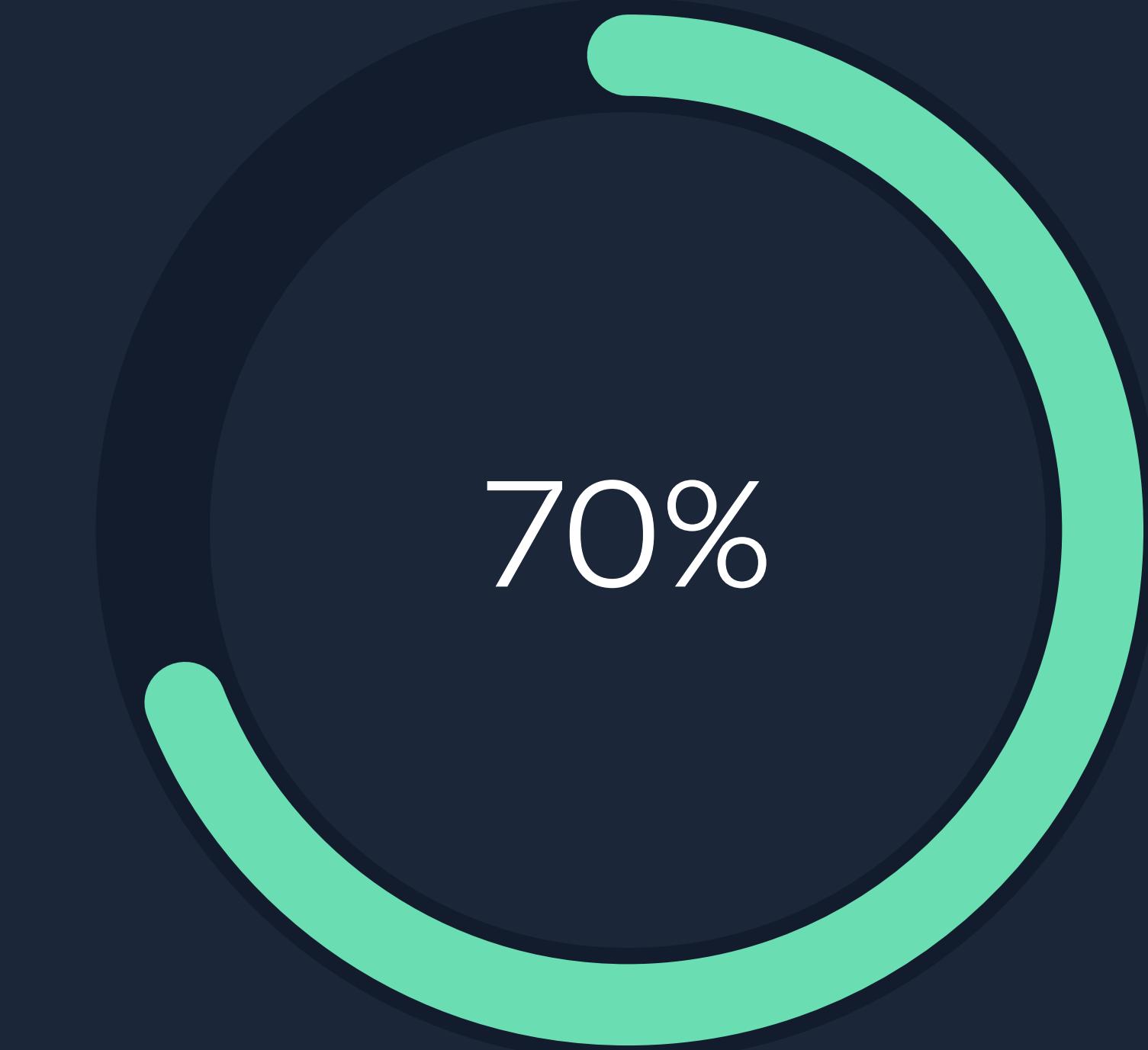


The magic of interoperability and real-time flexibility

The efficiency gains achieved by integrating CDPs with Data Warehouses cannot be understated. When 70% of companies are spending less than 20 hours a week managing ingestion pipelines, the focus shifts from data wrangling to putting it in action. Instead of burning time managing pipelines, teams can invest those hours into driving the business forward.

When the interoperability between various tools and platforms is seamless, data flows effortlessly across systems, reducing bottlenecks and manual tasks, so teams can work smarter, not harder.

With less time spent troubleshooting data pipelines, businesses can shift their focus to high-impact initiatives—whether it's optimizing marketing campaigns, refining product strategies, or uncovering new growth opportunities.



of companies that connect a CDP to their data warehouse spend less than 20 hours a week managing ingestion pipelines.



How are businesses utilizing data in the Warehouse?

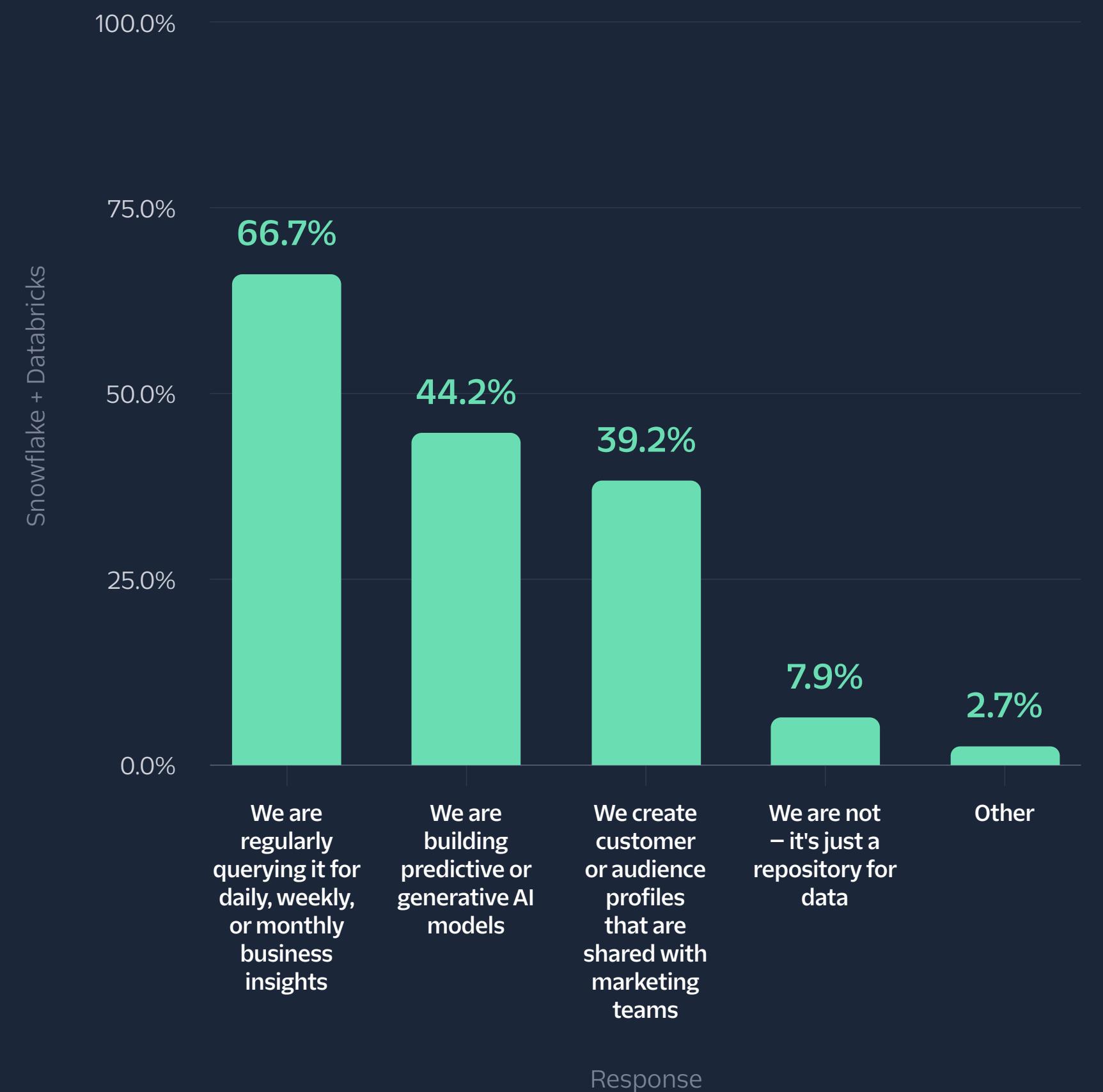
Understanding how businesses utilize their data warehouses provides valuable insight into the evolving applications of customer data. According to our survey, how organizations leverage their warehouses varies significantly, highlighting different priorities and capabilities across the board.

Among our respondents, the most common use (66.7%) of Data Warehouses is for regularly querying data to generate daily, weekly, or monthly business insights. This practice is fundamental for data-driven decision-making, enabling businesses to track performance metrics, identify trends, and make informed strategic decisions (albeit not in real time).

Nearly half (44.2%) of the respondents are leveraging their data warehouses to build predictive or generative AI models. This application represents a more advanced use of data, where historical context stored in the warehouse is used to train machine learning models. While these models can predict future outcomes, and automate decision-making processes, the inclusion of real-time data and accurate customer profiles (federated by a CDP) can strongly improve the efficacy of these models.

Finally, a considerable portion of businesses (39.2%) are using their data warehouses to create customer or audience profiles that are then shared with marketing teams. This integration is crucial for personalized marketing efforts, allowing businesses to segment their audience and tailor their messaging based on detailed customer profiles. The ability to share these profiles across teams ensures that marketing campaigns are data-driven and aligned with overall business objectives.

How are businesses utilizing data in the warehouse?





The full stack: A look at third-party tool integrations

Business Intelligence (BI) tools, Customer Relationship Management (CRM) software, Machine Learning (ML) platforms, and marketing automation tools all play a critical role in leveraging data for customer engagement.

A key aspect of these integrations is the need for a unified customer profile that can be federated across these tools. When each system—be it a CRM or a marketing automation tool—has a different definition of the customer, it results in a disjointed and inconsistent customer experience. This fragmentation can hinder the effectiveness of personalization efforts and can often lead to missed opportunities.

With a CDP like Twilio Segment layered on top of a data warehouse, businesses can ensure that data is centralized, standardized, and compliant before it's distributed to various tools. This unified approach enhances the accuracy of AI and ML models and ensures that every customer interaction is informed by the same high-quality data, leading to seamless and personalized customer experiences.

Which tools or platforms do businesses integrate with their data warehouses?





Real-time customer profiles = Better business outcomes

Managing customer profiles in a data warehouse is often a labor-intensive process, with nearly a quarter of respondents dedicating over 20 hours a week to the task. This time investment highlights a significant challenge: building profiles in the warehouse requires constant maintenance and updates to stay relevant. However, by integrating a CDP, businesses can save time by automating the creation of these profiles, reducing manual effort and improving the accuracy of their customer records.

Twilio Segment's **Profiles Sync**, keeps profiles in the warehouse up to date - allowing data teams to focus on value added work like building custom traits (e.g. high-propensity customer scores based on models built in the DW). This ensures that profiles stay up-to-date with minimal intervention by automating the entire profile generation process.

Ultimately, combining the CDP's real-time behavioral data with the warehouse's rich historical data results in more accurate customer profiles that drive better business outcomes.



Nearly 1 in 4 (23.6%) respondents are spending 20+ hours per week managing profiles in the warehouse – profiles that could be enriched with additional data sets from the CDP.



The best of both worlds

Despite the clear benefits, just **1 in 5 businesses** we surveyed have integrated a CDP with their data warehouse. This represents a massive untapped opportunity as the challenges marketing and data teams face often stem from a disconnect between the systems they use and the data they rely on.

Maybe your data engineers have a clear plan for structuring the data warehouse, but they're stuck waiting on the marketing team to define the relevant queries. On the flip side, your marketing team might be ready to launch a new campaign, but they can't move forward because the technical team hasn't finished connecting all the relevant data sources to the warehouse.

These blockers can bring huge setbacks to your business, bogging down data teams and making them less efficient.

At Twilio Segment, we have been heads down on the "best of both worlds approach", offering a CDP solution that can be integrated with any part of your data warehouse, offering your data teams flexibility and scalability from the get-go.

Meanwhile, your marketing team will get real-time data in an easy-to-use interface, allowing them to build highly-targeted audiences that can be activated in hundreds of pre-built integrations.



Just 1 in 5 businesses we surveyed connect a CDP to their data warehouse – potentially missing a significant opportunity to unify marketing & data teams.



“The argument of CDP vs Warehouse was always a marketing play by vendors to help them stand out. It’s like creating a category to have the mirage of no competitors and being number one. Over time the marketing plays die, the truth comes out, and we fall back into a paradigm not based on reality. CDP + warehouse has always been the path to success.”

Dan McGaw
CEO & Founder, McGaw

McGaw.io



Self-serve access: Empowering marketing teams

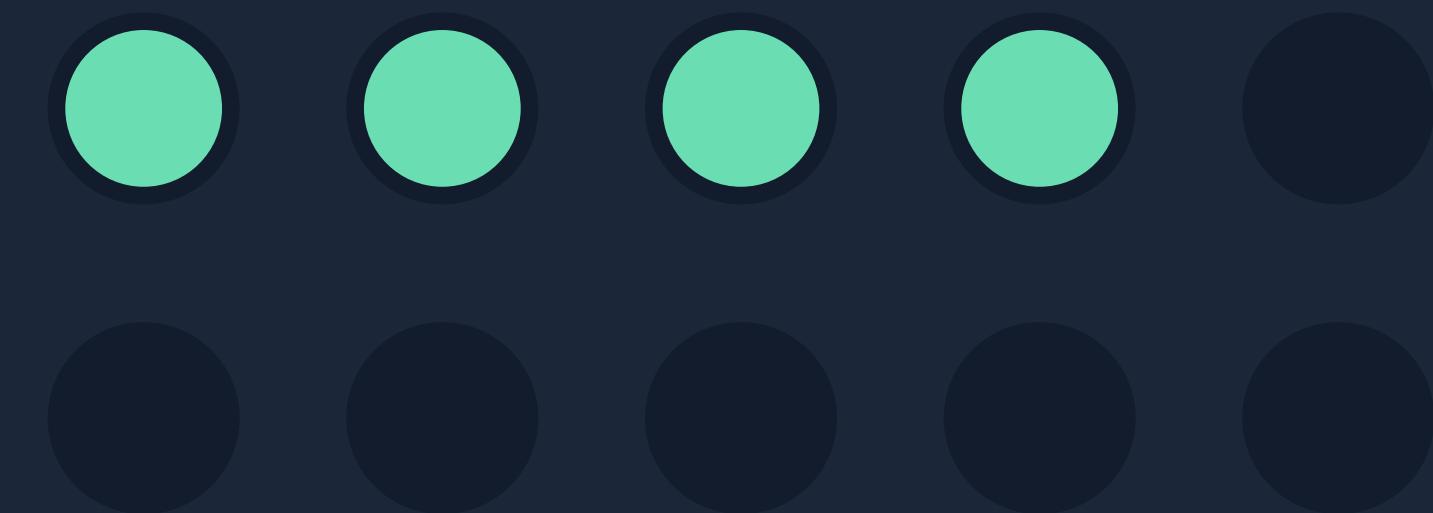
We alluded to this in the previous section but let's dive deeper into something critical for marketing teams: self-serve access to customer data.

Just under **40% of companies** report that their marketing teams have direct access to the relevant customer profile data in the warehouse. This bottleneck means marketing teams are stuck waiting on technical teams for data, slowing down campaigns and preventing quick pivots.

When marketing has direct access, they're free to act on data without the delays.

Integrating a CDP with a data warehouse unlocks this self-serve power.

Imagine a marketing team launching a campaign for a new product line. Instead of waiting weeks for data, they can instantly pull the right customer segments based on both historical and real-time data, allowing for faster, more effective campaign execution.



4 in 10 businesses (39.6%) indicate that their marketing team has self-serve access to all relevant customer profile data in the warehouse.



“Twilio Segment has enabled us to implement a data warehousing solution almost effortlessly. It’s been a real game changer for us as we suddenly have access to a wealth of historical, trackable data. We can go back and look at trends, such as revenue and retention, over a long period and this is having a huge impact on the way we approach our customer communications.”

Robert Lacok
Product Manager, Deepnote





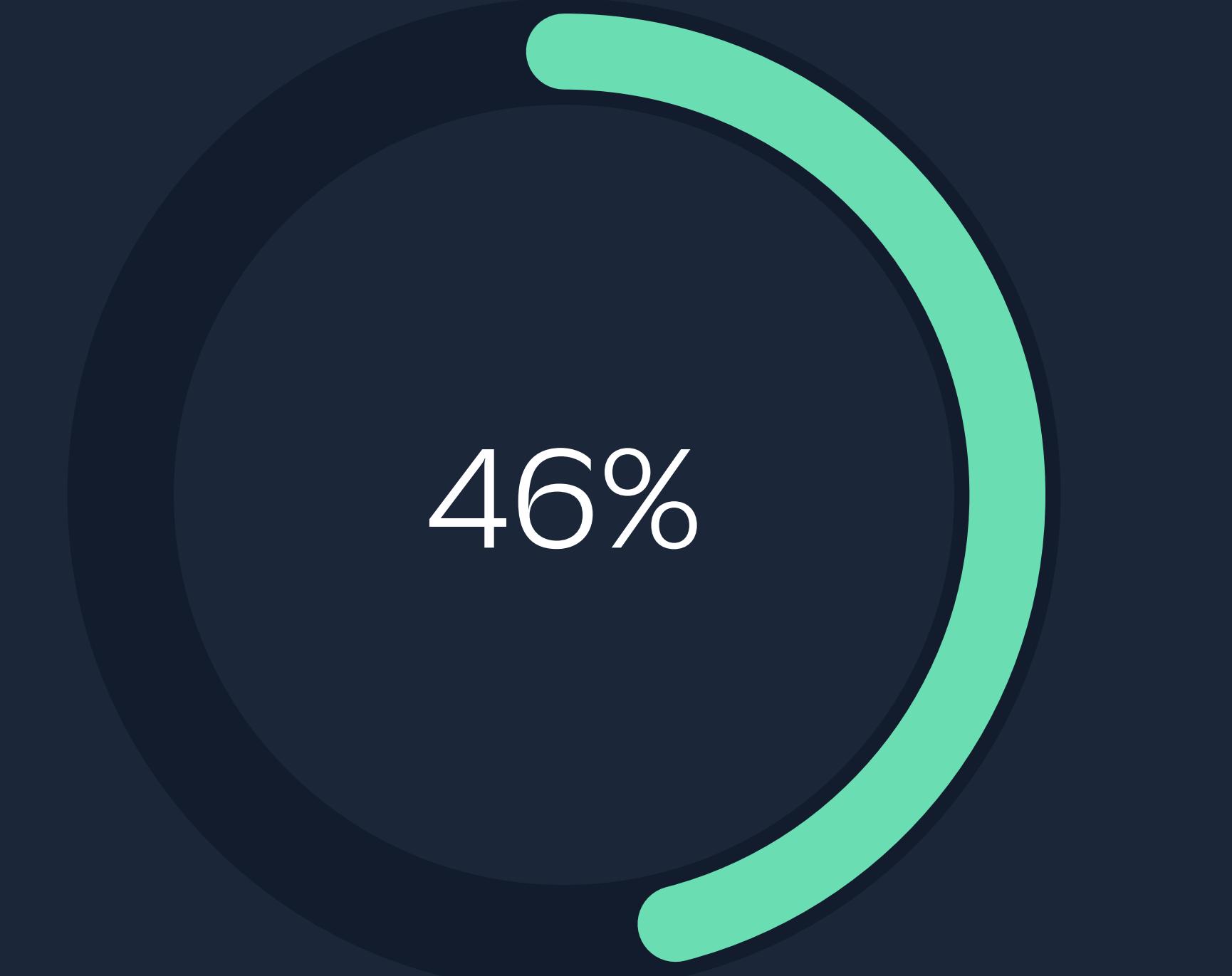
Real-time personalization: A competitive advantage

Nearly half of the businesses integrating a CDP with their data warehouse are tapping into real-time personalization. The ability to tailor experiences as they happen gives businesses a competitive edge, allowing them to respond dynamically to customer behaviors and preferences.

Whether it's sending personalized product recommendations, targeted offers, or adjusting marketing messaging on the fly - personalization across channels can significantly enhance customer engagement and drive conversions.

However, this also means more than half of these businesses are missing out on the opportunity to leverage real-time data to create highly relevant, in-the-moment customer interactions.

By integrating a CDP, businesses can connect their warehouse's historical data with real-time behavioral data, enabling them to engage customers in a way that feels personalized, timely, and meaningful. As customer expectations balloon higher than ever, this kind of agility can be the difference between retaining loyal customers and losing them to competitors.



of respondents who connect a CDP to their warehouse are leveraging data for real-time personalization.



Better together: The future of hybrid data architecture

As customer expectations grow, businesses need tools that can keep up with the fast pace of change. The combination of a CDP and a data warehouse represents the future of customer data architecture—a future where businesses can move beyond simple data management to real-time, data-driven decision making.

By integrating both systems, you’re improving efficiency, unlocking new possibilities for hyper-personalized customer experiences, AI-driven insights, and cross-functional collaboration. So whether you’re building a better marketing campaign, streamlining customer support, or experimenting with recent trends like AI, remember: it’s not CDP versus warehouse—it’s CDP **plus** warehouse.



Today's leading companies trust Twilio's Customer Engagement Platform (CEP) to build direct, personalized relationships with their customers everywhere in the world. Twilio enables companies to use their communications and data to add intelligence and security to every step of the customer journey, from sales to marketing to growth, customer service and many more engagement use cases in a flexible, programmatic way. Across 180 countries, millions of developers and hundreds of thousands of businesses use Twilio to create magical experiences for their customers.

For more information about Twilio (NYSE: TWLO), visit: www.twilio.com.