twilio
sendgrid

Real-time data, real cost-savings

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Chapter 01

Introduction

Introduction

Not long ago the term "yesterday's news" was the benchmark for information deemed to be irrelevant, outdated, or no longer worth hearing. In today's fast-paced society, the same might be said about information that's only a few hours old. Welcome to the world of real-time data.

Immediacy has never been more important. We expect our data to create instant intelligence and actions. Real-time data apps fuel innovation, automating decisions and delivering on-the-spot digital experiences. They're the new competitive advantage that increases as data grows. Unleashing the value of real-time data is today's enterprise superpower.

Real-time data impacts much of what we rely on for news, entertainment, business, and even our sense of security. It powers IoT sensors, weather updates, fraud detection, crisis response, and, most significantly for ecommerce, timely and personalized product recommendations.

Spanning industries and sectors, real-time data enables organizations to make informed decisions quickly. For financial markets, real-time data is crucial for traders and investors to make split-second decisions. Supply chain management uses real-time data to track inventory levels, monitor shipments, and manage logistics. And healthcare relies on real-time data from patient monitoring devices to help doctors and nurses respond to critical conditions immediately.

We're probably most familiar with transportation companies and how they use real-time data in navigation apps and other systems to provide up-to-date information on traffic, public transport schedules, and travel routes. And we can't forget about Amazon, which relies on real-time data to get that package to you within the 2-day or same-day delivery window they promised.

21%
of marketing
budgets are
wasted due
to bad data

Real-time data is good data because it's timely.

On the flip side of that coin is bad data – whether it's inaccurate, incomplete, or simply stale – it can cost your company a significant amount of money every year.

Forrester announced that **21% of marketing budgets are wasted due to bad data**. Revenue is also impacted, with Ko Marketing reporting that 27% of marketers say **'bad data' costs them 10% or more in lost revenue annually.**

Clearly, real-time data is vital to a healthy business and social ecosystem. In this guide, we explore the connection between real-time data and customer-centricity, and how merging the two can lead to real cost-savings for businesses. We also dive into powerful data-first customer engagement solutions, sharing actionable insights that can be applied to your company today.
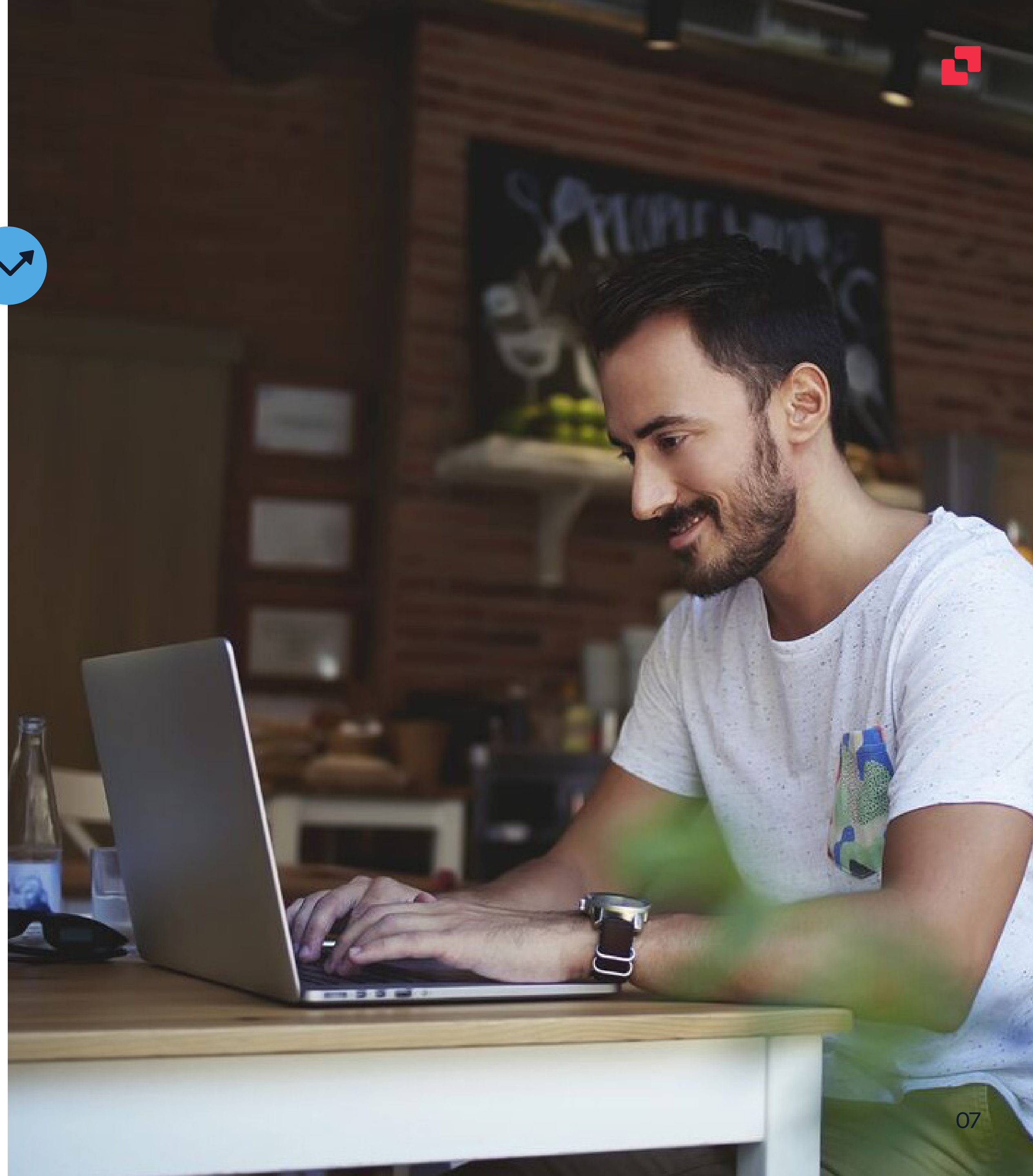
What is **real-time data?**

There are two common types of data processing systems used across organizations for efficiently managing their operations: real-time data and batch processing.

Real-time data

Refers to information that is made available for use as soon as it's generated. Rather than being stored, data is passed instantly between the source and the consuming application, which is crucial for supporting in-the-moment decision making.

Batch processing

Is a method of processing large amounts of data where a set of similar transactions are grouped together for a specific period. It's best suited for processing data collected automatically, such as transactions performed by a financial institution in a week.

Differences between real-time data and batch processing

Businesses use real-time data across the enterprise to improve customer service, manage products, and optimize operations. But one of the most valuable uses of real-time data is to help monitor and maintain IT infrastructure. Real-time data enables organizations to obtain more comprehensive visibility and insight into the performance of their complicated networks.

Yet, sometimes batch processing is the better data collection method for a business. Not every situation requires real-time data. Batch processing is most effective for frequent and monotonous tasks such as accounting processes. A good example is how credit card companies set up their billing. When customers receive their credit card bills, they don't receive a separate bill for each transaction; instead, they receive one bill for the monthly billing cycle.

Examples of batch processing and real-time data

Batch processing	Real-time data
Employee payroll	Product recommendations
Quarterly business reports	Customer communications
Credit card statements	Weather alerts
Subscription billing cycles	Crisis response
Inventory processing	Fraud detection

What is big data?

We can't talk about real-time data without touching on the importance of "Big Data" and the impact it has within an organization.

Big data is often characterized by **"the three Vs" – volume, velocity, & variety.**

True to its name, big data refers to huge, complex data sets that are not easily managed with traditional processing tools and techniques.

Structured, semi-structured, and unstructured data all fall under the umbrella of big data, and this data is often (at least in part) generated in real time (e.g., streaming data from an IoT device, like a smartwatch that tracks exercise activity and sleep patterns). As such, the volume of big data is often measured in terabytes and petabytes to exabytes. (As a frame of reference, the average company manages 162.9TB of data, a number that soars to 347.6 TB for enterprise businesses.)
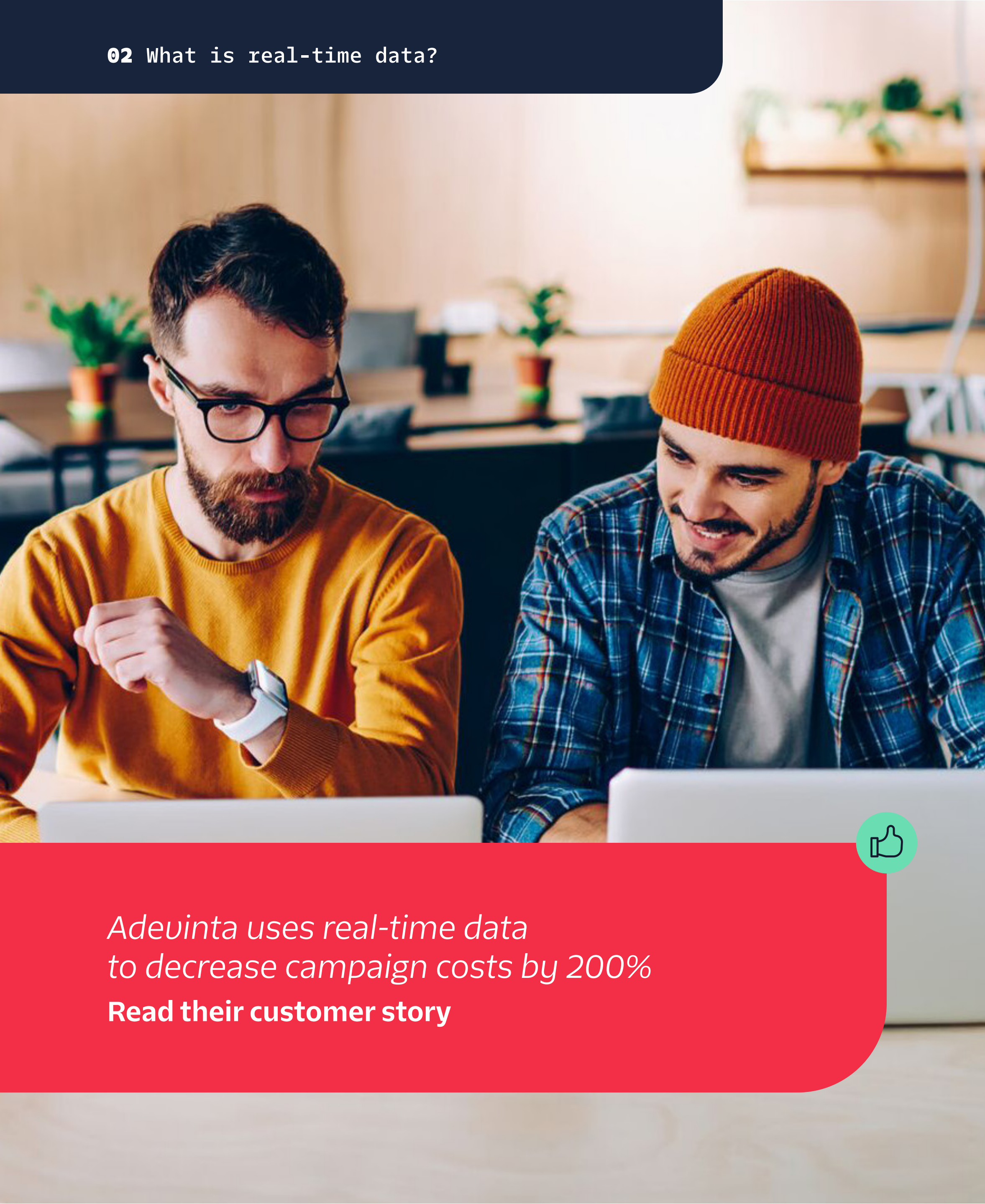
Big data infrastructure

There's a widespread misunderstanding that data automatically translates to razor-sharp insight. The truth is, the sheer amount of data being generated daily has left businesses with a gargantuan task.

One survey found that **78% of data analysts and engineers felt their company's data was "growing faster than their ability to derive value from it."**

We encourage you to **discover the power of big data** infrastructure and learn how Segment's customer data platform (CDP) helps businesses transform the way they collect, manage, and analyze data.

Streaming analytics

We've talked about real-time data and batch processing but streaming analytics also powers business decisions. Gartner calls this approach to business analytics "continuous intelligence," a design pattern in which real-time analytics are integrated into business operations, processing current and historical data to prescribe actions in response to business moments and other events."

Businesses can use streaming analytics to trigger automated actions or alerts in real time based on specific events or conditions. For example, marketers can analyze real-time data to enable personalization and fine-tune marketing campaigns on the fly. Businesses can also monitor and optimize operational processes in real time, leading to streamlined workflows, reduced delays, and improved overall efficiency.

Building on customer trust

Collecting, unifying, and sharing data in real time is just one of the advantages of using Twilio Segment's customer data platform. And it's one reason why **IDC has ranked Twilio the #1 CDP** in worldwide market shares for the fourth year in a row. And while some **companies may say** their products use real-time data, Segment delivers on that promise.

Adevinta uses real-time data to decrease campaign costs by 200%

Leading online classifieds provider Adevinta decreased marketing campaign costs by 200% with real-time customer data.

Read their customer story ➔

Adevinta uses real-time data to decrease campaign costs by 200%
Read their customer story

Chapter 03

# How real-time data + AI/ML **creates a competitive edge**

To thrive in the world of real-time artificial intelligence (AI) and machine learning (ML), data ecosystems must excel in managing rapid streams of events, operational data, and machine learning models to leverage insights and automate decision-making.

Combining real-time data with AI/ML capabilities can provide businesses with a significant competitive edge. Examples that we can all appreciate include increased operational efficiencies at airports, instant identification of fraudulent activities within banks, improved recommendations for online transactions, and better patient care at hospitals.

Investments in AI/ML are also helping businesses to reduce costs, better serve customers, and gain competitive advantage in rapidly evolving markets. Titanium Intelligent Solutions, a global SaaS IoT organization, **saved one customer over 15% in energy costs across 50 distribution centers**, thanks in large part to AI.
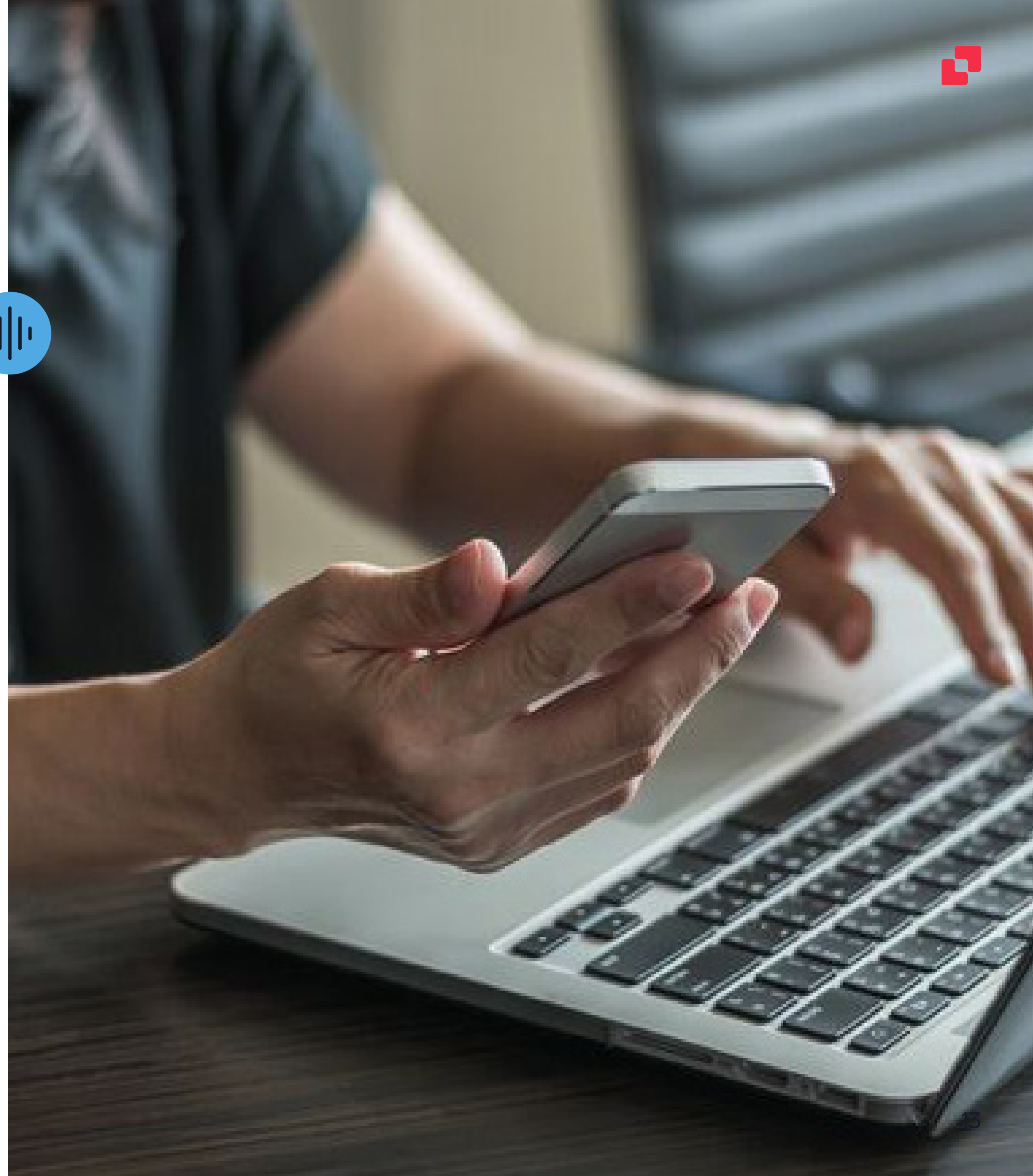
Real-time data combined with AI/ML can also be used in the following ways:

Increased personalization and marketing campaign optimization

AI/ML can analyze real-time data to understand customer preferences, behaviors, and buying patterns. This enables businesses to deliver highly personalized experiences, recommendations, and offers, enhancing customer satisfaction and loyalty. It can also analyze real-time data on marketing performance, so teams can tweak campaigns in real time for maximum effectiveness.

Faster decision-making

Real-time data, when processed by AI/ML algorithms, can extract valuable insights. Businesses can make informed decisions in real time, so they can respond swiftly to market changes, customer needs, and emerging trends. Airlines can optimize ticket prices using AI to analyze demand, competition, and other factors in real time, leading to more efficient pricing decisions.

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Predictive analytics

By analyzing historical and real-time data, AI/ML can predict future trends, demand patterns, and potential issues. Businesses can proactively adjust strategies and operations to capitalize on opportunities or mitigate risks. Segment's predictive AI/ML empowers **Instacart's ad platform to drive the right ad for the right user at the right time**.

Fraud detection

Real-time data analysis along with AI/ML helps detect unusual patterns and behaviors that could indicate fraud. Businesses can take immediate action to prevent or reduce such incidents. A well-known example of fraud prevention in blockchain transactions is Chainalysis. The company applies ML algorithms to **monitor and analyze the flow of cryptocurrency transactions across various blockchain networks**. By analyzing the patterns of these transactions, experts can identify suspicious activities and track the flow of funds across different addresses and accounts.

Ultimately, the synergy of real-time data and AI/ML empowers businesses to anticipate changes, automate processes, enhance customer experiences, and innovate faster. This combination allows brands to stay ahead of competitors by making agile, data-driven decisions that drive growth and efficiency.
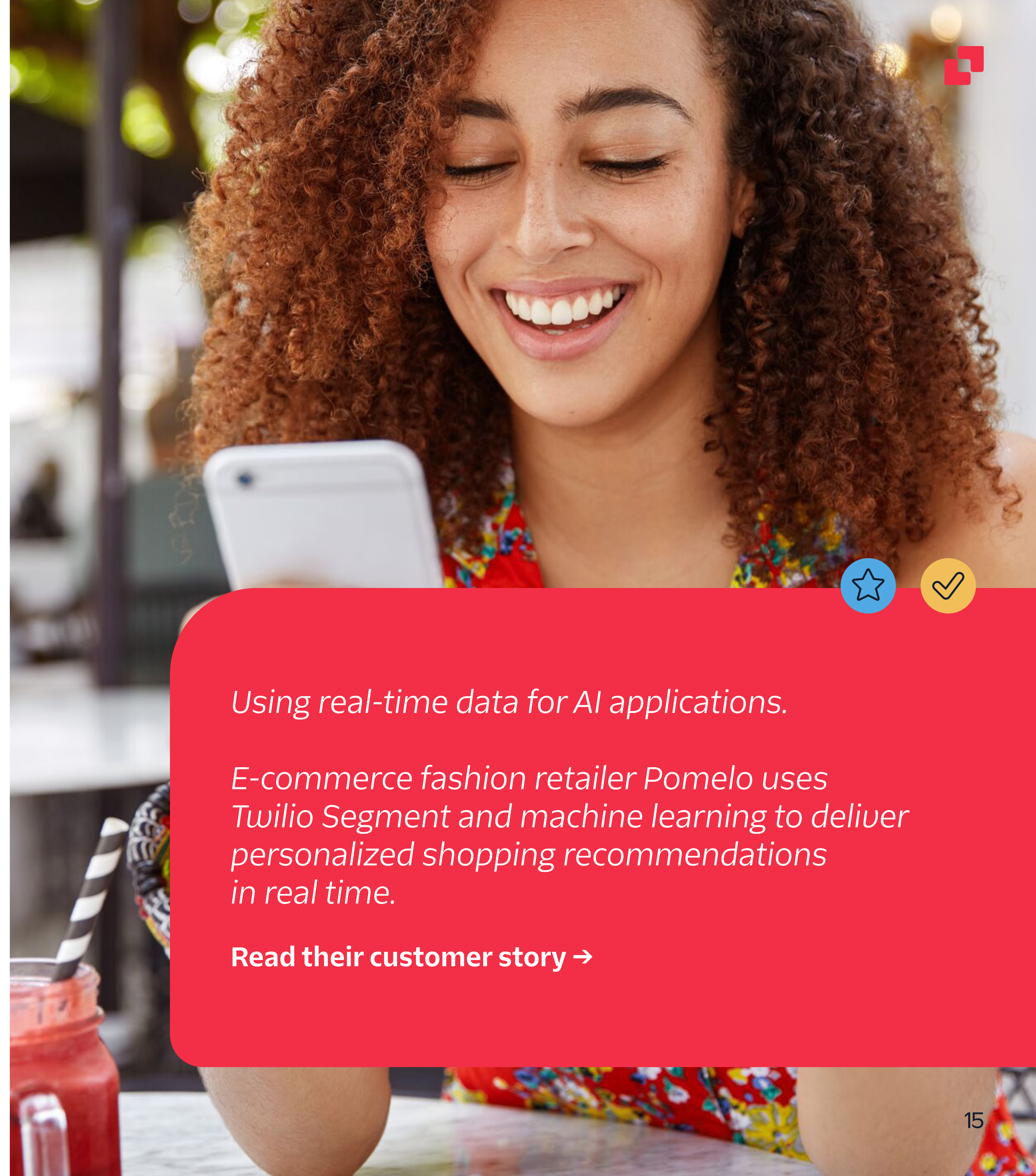
Using real-time data for AI applications.

E-commerce fashion retailer Pomelo uses Twilio Segment and machine learning to deliver personalized shopping recommendations in real time.

Read their customer story →

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Revolutionize how you work with **real-time identity resolution**

Identity resolution is the process of attributing customer behavior and interactions with your business –

Across all touchpoints, platforms, or channels – to a single unified customer profile. It allows any team across your organization to then access this profile and use it to better serve each individual customer.

With identity resolution, companies can update customer profiles in real time and activate data at scale to support immediate decision-making and interactions. However, it's important to remember that the quality of your customer profiles is only as good as the underlying data.

While other customer data platforms offer identity resolution, thousands of companies look to Segment's identity resolution features to update customer profiles in real time and activate customer data at scale, empowering every organization in the enterprise.

Real-time identity resolution at scale involves the process of accurately and rapidly identifying and connecting individuals' identities across multiple data sources and interactions to create a golden profile. This is particularly important for businesses looking to provide personalized experiences, optimize marketing efforts, enhance security, and comply with privacy regulations.

Historically, two areas have plagued data and marketing teams:

• Resolving identity at scale in real time; and

• Eliminating the tradeoff between streaming real-time architectures and data lake, or data warehouse-centric architecture
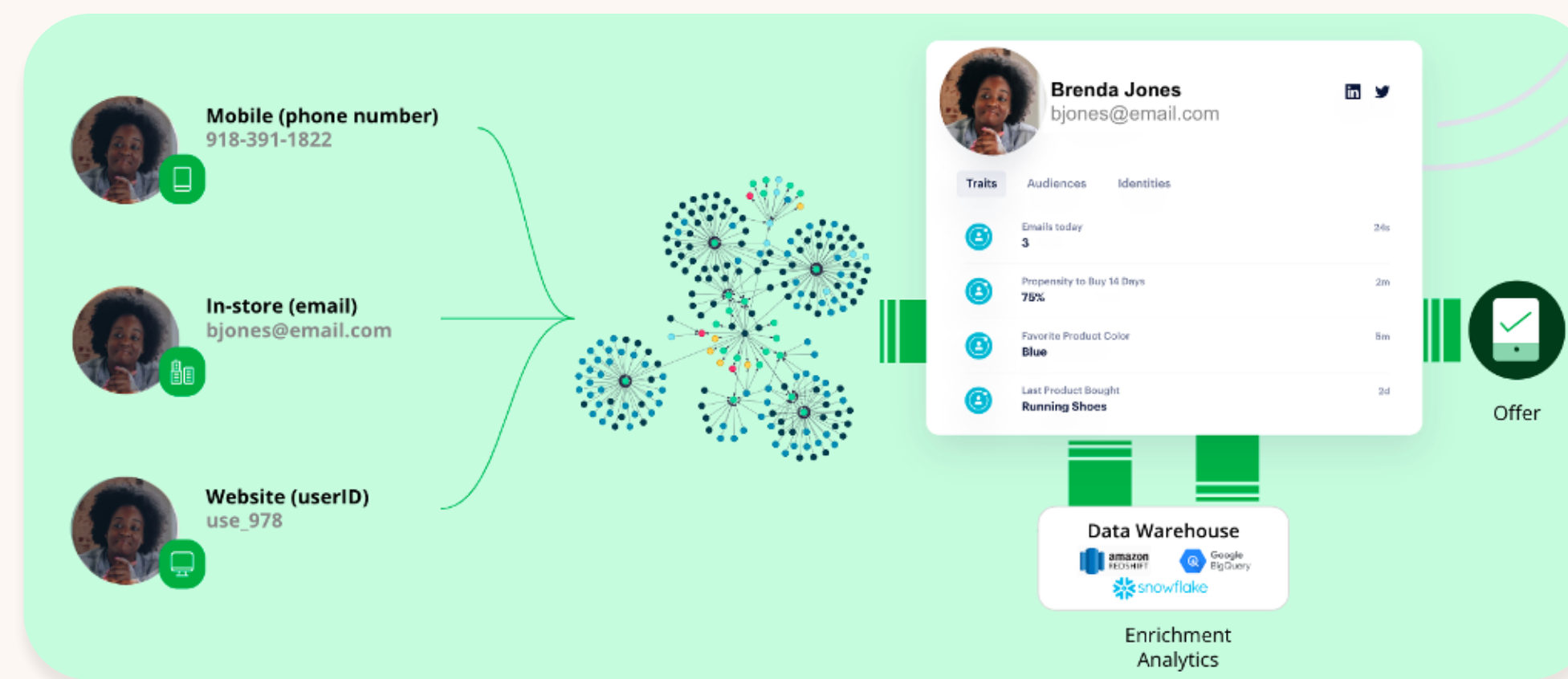
Real-time customer identity resolution
powered by Twilio Segment

Segment has found solutions to both problems

With the release of **Profiles Sync** and **Reverse ETL**, the CDP offers something no other company allows you to do; build a complete digital record of your customer and use it where and how you want.

For a deeper dive into this topic, download our comprehensive guide to **learn how using identity resolution can help you build a complete single view of the customer**.

Fender needed to better understand the customer journey for increased engagement –

Iconic guitar maker Fender uses identity resolution to merge the history of every user into a single profile to personalize the Fender Play® learning experience.

Read their customer story →

Chapter 05

The power of **real-time product recommendations**

Real-time data is essential for creating accurate and relevant product recommendations. When a user visits an e-commerce website, real-time data monitoring tools can analyze their browsing behavior, purchase history, cohort analysis, and other relevant data to suggest products they're most likely to buy at that moment.

Real-time data can also enhance product recommendations in the following ways:

Real-time events

Incorporate real-time events such as flash sales, limited-time offers, or trending products into the recommendation algorithm. This enables timely suggestions that align with current promotions.

Inventory availability

Ensure that recommended products are in stock and available for purchase. Real-time inventory data prevents recommending products that can't be fulfilled promptly.

User segmentation

Segment users based on real-time data attributes like location, demographics, and device type. This allows businesses to tailor recommendations to the unique characteristics of each segment.

Content-based filtering

Analyze real-time user interactions with product content, such as descriptions, images, and reviews, to create recommendations aligned with user preferences.

Social signals

Integrate social media data and real-time interactions to identify products that are trending or popular among a user's social connections.

A/B testing

Conduct real-time A/B testing to evaluate the performance of different recommendation strategies. This allows businesses to adapt and improve their algorithms quickly.

Machine learning models

Train AI/ML models using real-time data streams to adapt to evolving user preferences and market trends. Remember, the quality of your models is only as good as the underlying data.

Amazon Personalize + Segment CDP

Customers love the feeling of being important to your business. With Amazon Personalize + Segment you can deliver unique homepage experiences, help customers discover products faster, refine product recommendations, and boost up-sell and cross-sell products.

Amazon Personalize AI service can be deployed and integrated with Segment to deliver real-time events from the web user interface to Amazon Personalize. It enables developers to build applications with the same ML technology used by Amazon.com for real-time personalized recommendations – no ML expertise required.

Learn more →

Learn more about this story →
Amazon Personalize AI service

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Personalize
customer communications

The ROI of personalized communications

- Drive sales and increase revenue
- Increase efficiency of marketing spend
- Re-engage past customers
- Drive repeat purchases and increase customer lifetime value

66% of consumers say they will quit a brand if their experience isn't personalized.

Source: Twilio's The State of Customer Engagement Report 2023

One size fits-all messages

Sending a one-size-fits-all message just doesn't cut it anymore. Consumers crave personalization anytime they interact with a brand – even when receiving a text message or email. In fact, two-thirds of consumers say they will quit a brand if their experience isn't personalized, according to Twilio's **The State of Customer Engagement Report 2023**.

While adding a customer's first name to a message is a step in the right direction, today's customers expect businesses to go even further when personalizing their emails, push notifications, SMS and WhatsApp messages, and more. Luckily, access to real-time data makes hyper-personalizing communications that much easier.

You can use consumers':

- Past browsing data to recommend products
- Purchase behavior to reward loyal customers or try to upsell them
- Location to send them targeted messages about the weather or your nearby stores
- And more!

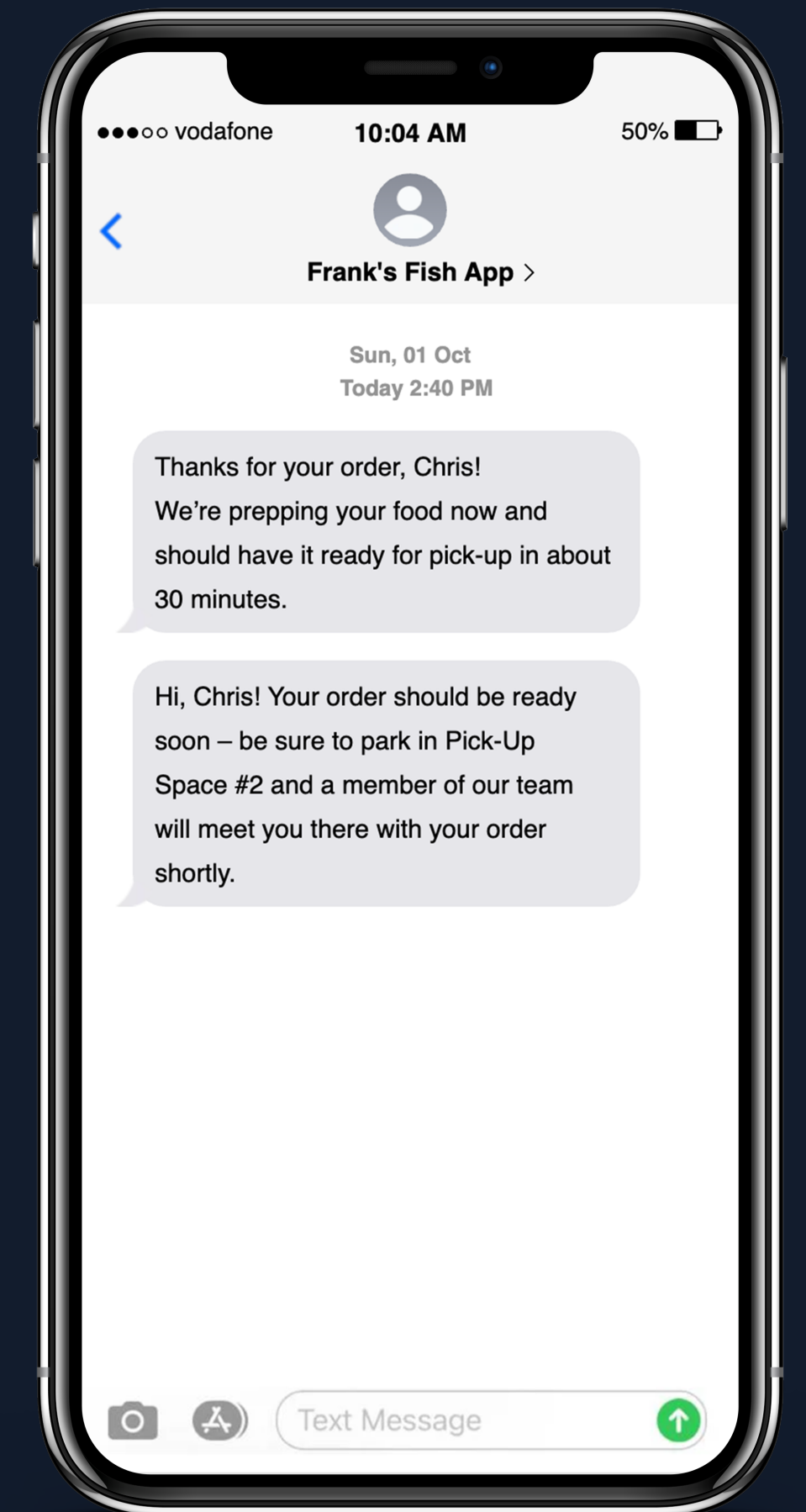# Using customers' real-time location data to personalize push notifications

Say you run Frank's Fish restaurant, a popular neighborhood seafood spot that just started offering takeout. To get fresh-out-of-the-fryer food to your customers' cars, you build an app that:

1. Tells customers where to park when they arrive.
2. Notifies your restaurant staff when customers arrive and where to deliver their food.

By establishing a virtual geographic boundary, or geofence, around your business, you can trigger a response anytime a mobile device enters or leaves a particular area, like when your customers are approximately six minutes away from your restaurant. Using real-time location, your brand can send your customers timely, personalized push notifications or emails explaining where to park and pick up their food. At the same time, your business can alert your staff when the customer is expected to arrive and what parking spot they'll be in, so your team can meet your customer curbside and ensure they receive their food right away.
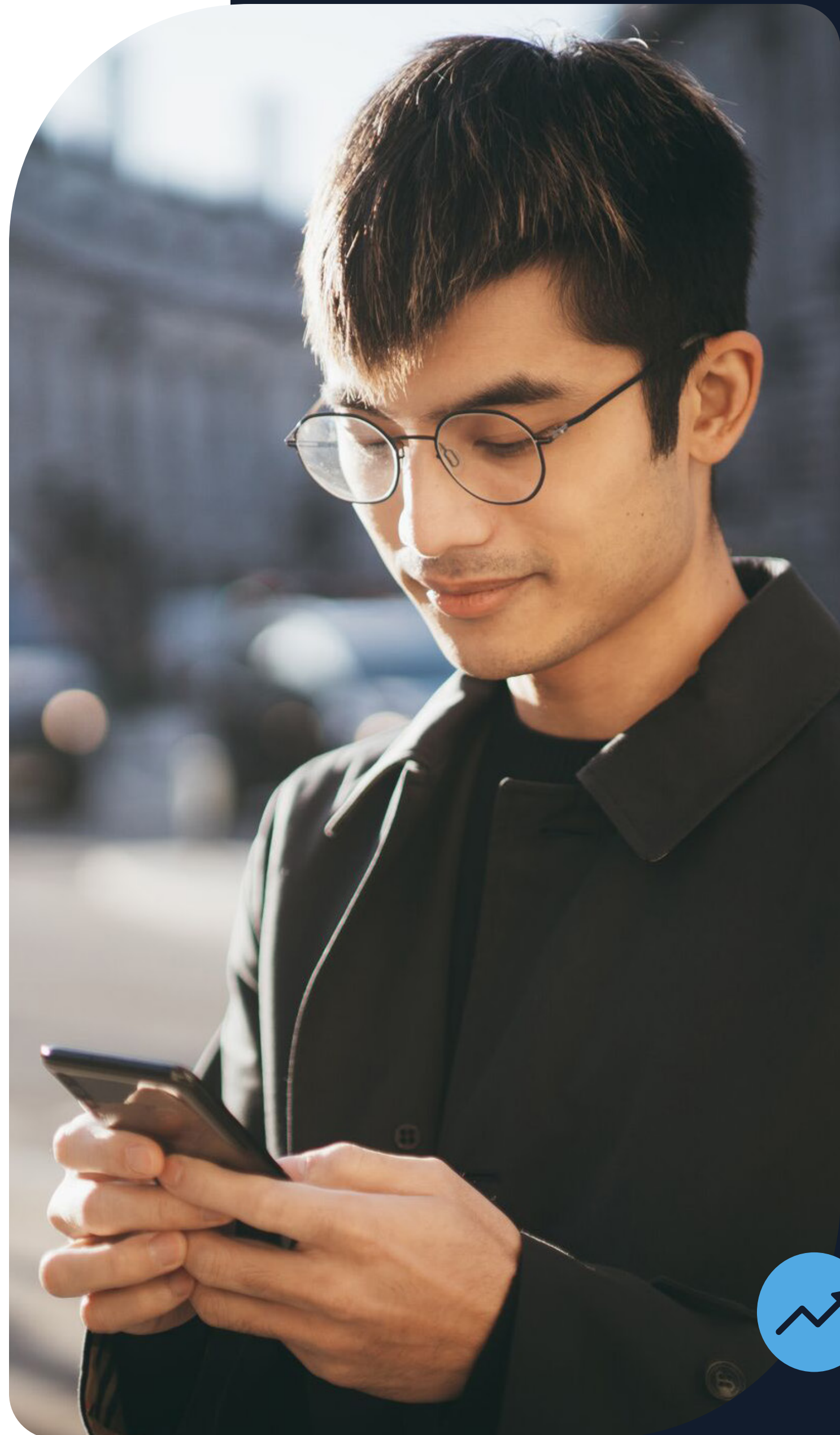
Together, these personalized messages ensure your customers have an easy and efficient pick-up process – one that encourages them to do business with your brand time and time again.

Frank's Fish App

Sun, 01 Oct
Today 2:40 PM

Thanks for your order, Chris! We're prepping your food now and should have it ready for pick-up in about 30 minutes.

Hi, Chris! Your order should be ready soon – be sure to park in Pick-Up Space #2 and a member of our team will meet you there with your order shortly.

Looking to personalize your own communications using real-time location data?

Check out our recipe with Customer.io and Radar to learn how!

Get the recipe →
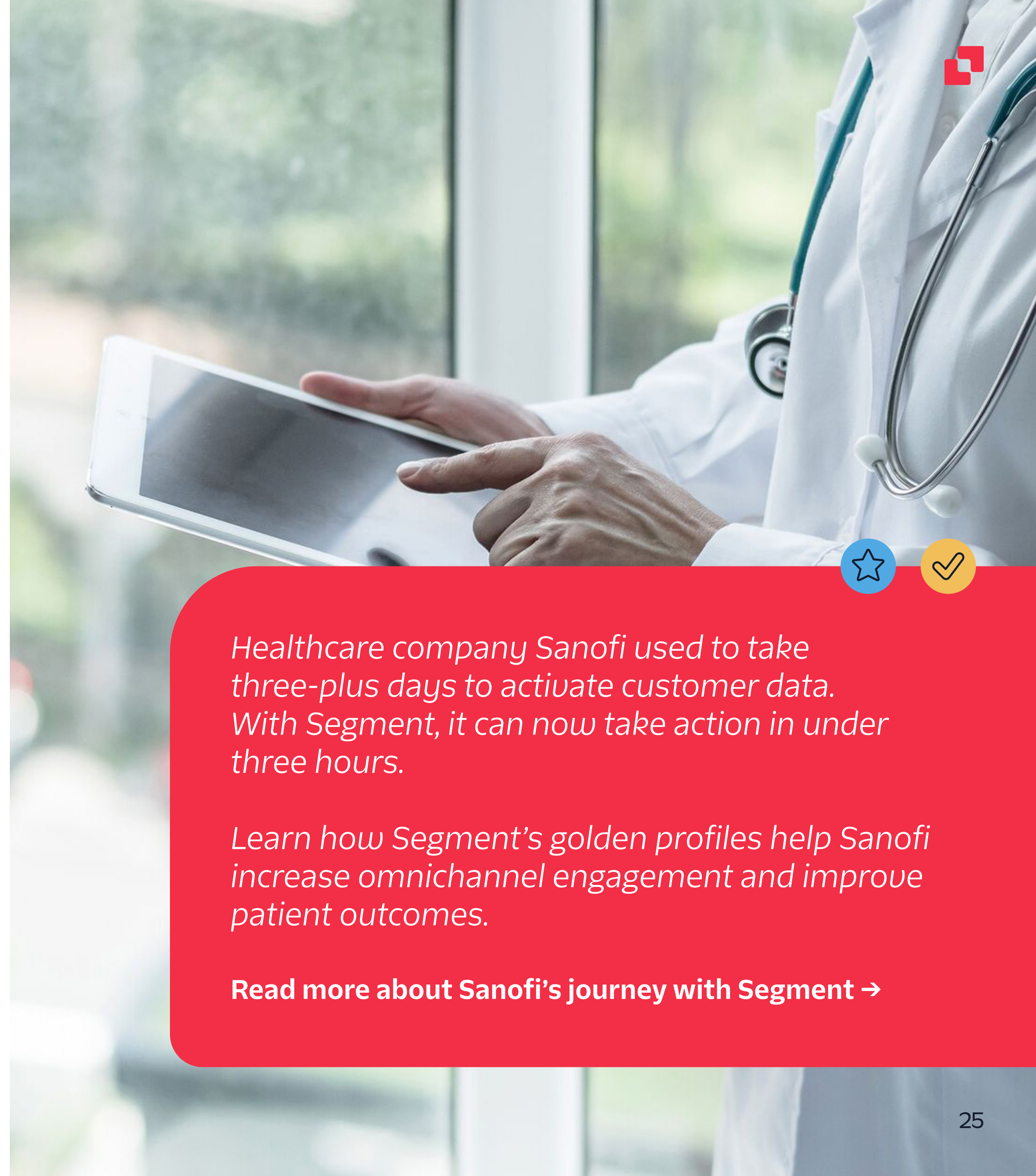
Healthcare company Sanofi used to take three-plus days to activate customer data. With Segment, it can now take action in under three hours.

Learn how Segment's golden profiles help Sanofi increase omnichannel engagement and improve patient outcomes.

Read more about Sanofi's journey with Segment →

Provide better and faster **customer service**

When your customers need help, they want to hear from your business and resolve their issues quickly. Asking customers to repeat themselves, failing to act with empathy, and taking up too much of your users' time can make a bad experience worse.

How can you avoid these common customer service pitfalls?
By giving your customer service agents access to real-time customer data.

Real-time data can help your agents understand a user's problem quickly, giving them the context they need to deliver better, faster, and more personalized service. By connecting your customer data with a digital engagement center like **Twilio Flex**, your customer-facing teams can get immediate access to the data they need to turn ordinary conversations into opportunities to drive loyalty and repeat sales.

The ROI of better and faster customer service

- Shorten customer service response times
- Drive sales via upsell/cross-sell
- Boost customer retention
- Improve customer loyalty and lifetime value

Using real-time data to quickly resolve customer issues with Twilio Flex

Say you're a customer service agent for an online athletic wear company and you receive a support message from a repeat customer asking when a currently out-of-stock item will return and if she can add herself to the product's waitlist. Instead of asking her which item she's referring to and what size she needs, you can view the customer's full profile on Twilio Flex to see her past purchasing behaviors and customer profile to learn her size and review her browsing history to see the product page she was viewing when she reached out to your team.

Armed with this information, you can present the customer with a contextual and empathetic solution that helps solve her problem:

Hi Alice! I see that you're interested in buying the Dri-Fit Running Jacket, which is unfortunately out of stock in your size and discontinued. I'm so sorry for the inconvenience!

However, I see that you're a VIP customer and we have some exclusive early-access items that you might be interested in. May I suggest the Winter Sports Beanie? It's a great accessory to keep you warm in the winter months and it's currently on sale for $30. Would you like me to send you a link to take a look?

The power of real-time data

Using real-time data, you can:

- Understand where the customer was in her journey when she reached out for assistance
- Quickly learn why she needs help and diagnose her problem
- Use past purchasing data to recommend products and sizes that fit her preferences
- Provide suitable alternatives that result in a positive outcome for your customer

The power of real-time data doesn't stop there. With Twilio Flex, agents can then craft a summary of the customer encounter and share it directly with Twilio Segment. In turn, Segment can use this data to serve the user a highly-tailored next step in their journey, whether that's sending an email to understand their satisfaction with the support they received, sharing a 10% off coupon for their trouble, or collecting a product review on their new purchase.

Together, these personalized touches can wow your customer and ensure they keep your business top of mind in the future.

Chapter 08

Win back
lost business

Every marketer aims to send the right message to the right person at the right time. While this is often easier said than done, real-time data can give you the complete visibility into the customer journey that you need to make this a reality.

With real-time customer data, your business can more easily understand a specific individual's wants and needs, allowing you to make better product recommendations and ultimately push them to convert with highly targeted offers and messaging. Get your timing just right and you can see how your messages move prospects further along the sales funnel and bring them one step closer to becoming customers.
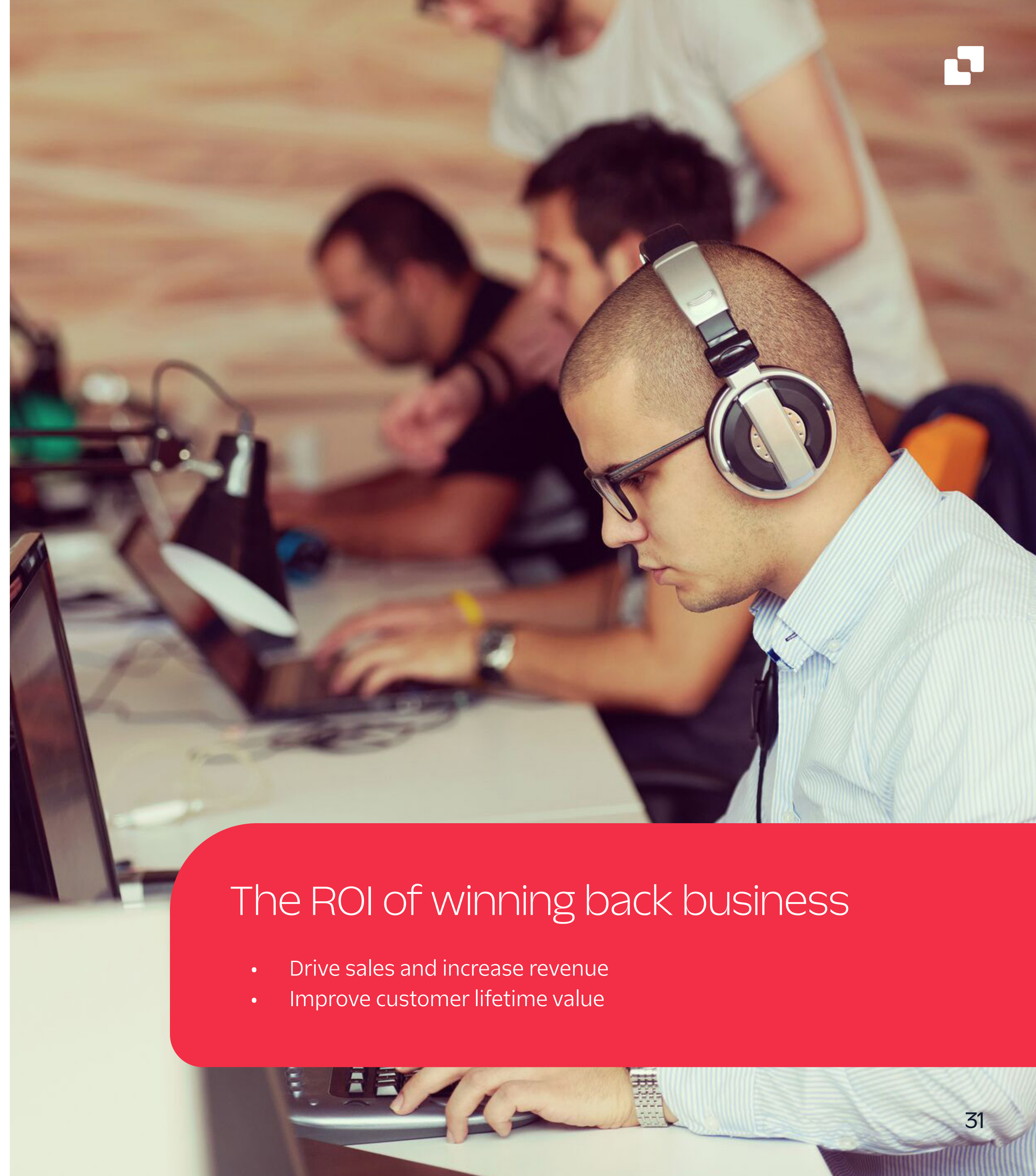
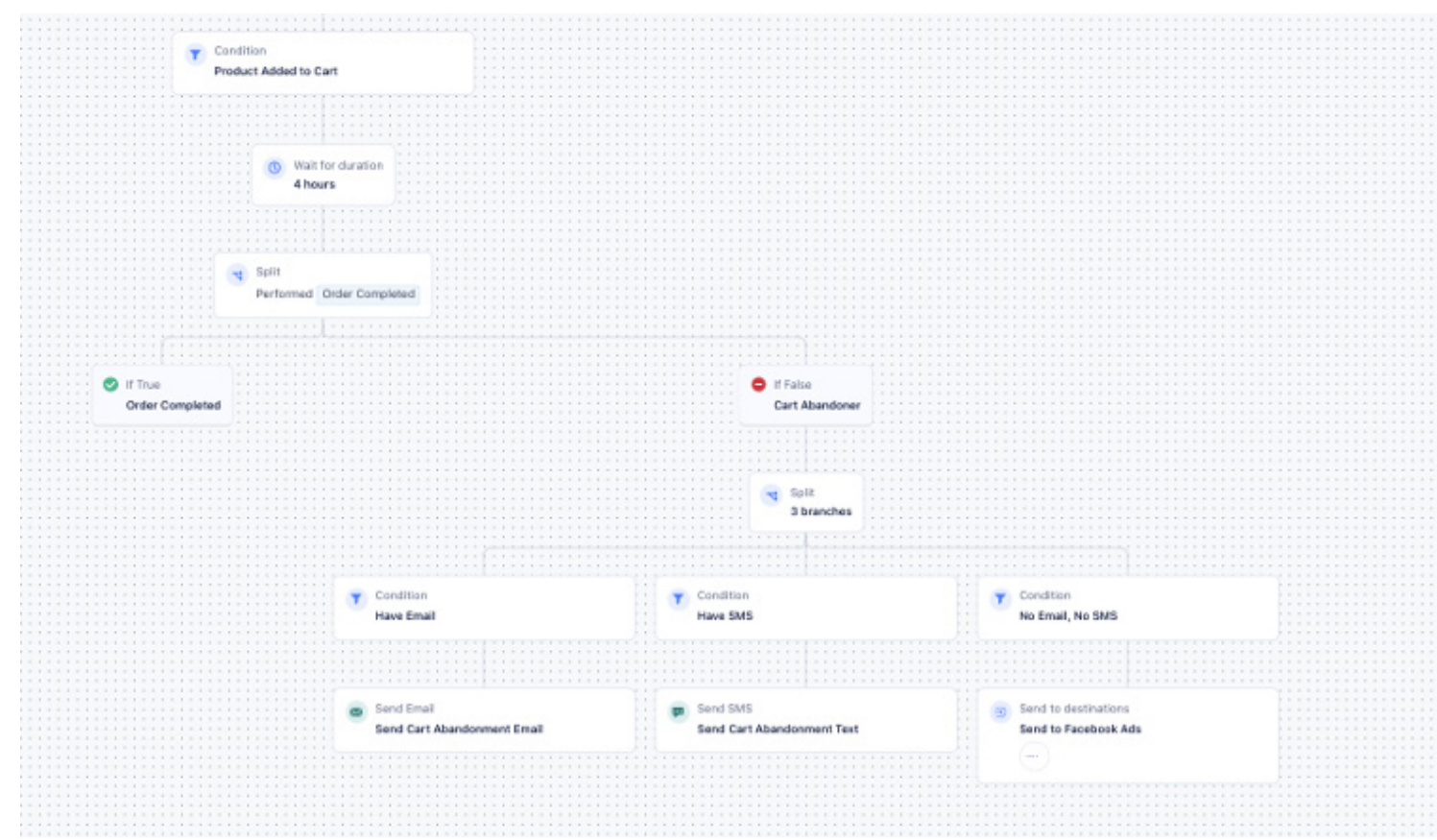## The ROI of winning back business

- Drive sales and increase revenue
- Improve customer lifetime value

Winning back cart abandoners with Twilio Engage

What might this look like in practice?
Consider the simple, yet effective **abandoned cart email.**

Abandoned cart email

We've all done it:

Added an item to our cart only to leave it behind, for one reason or another. Maybe we weren't looking to spend that much, had a change of heart, or went looking for a free shipping code only to never return. Regardless of the cause, abandoned carts exact a steep toll on businesses, resulting in an approximate **loss of $18 billion annually**. Even if your company could recapture a modest 5% of this potential business, think of the impact it could have on your overall sales and revenue.

On the left, you'll find a sample abandoned cart workflow for an online retailer using **Twilio Engage**, a growth platform for omnichannel engagement.

If a user fails to check out a few hours after adding an item to their cart, the company can send them an email or SMS (depending on the contact information your business has or the customer's preferred communication channel) containing the exact products they left behind and enticing them to return and complete their purchase.

The company can also choose to share this data with third-party advertising platforms, like Facebook or Instagram, allowing them to retarget the user using display ads. These messages and ads can remind your potential customers what they're missing out on and can drive additional sales and revenue for your business.

Twilio Engage

Create intelligent engagement on every channel

Learn how Twilio Engage can help your team collect, unify, and activate your customer data to build personalized customer experiences that grow lifetime value.

Learn more about Twilio Engage →

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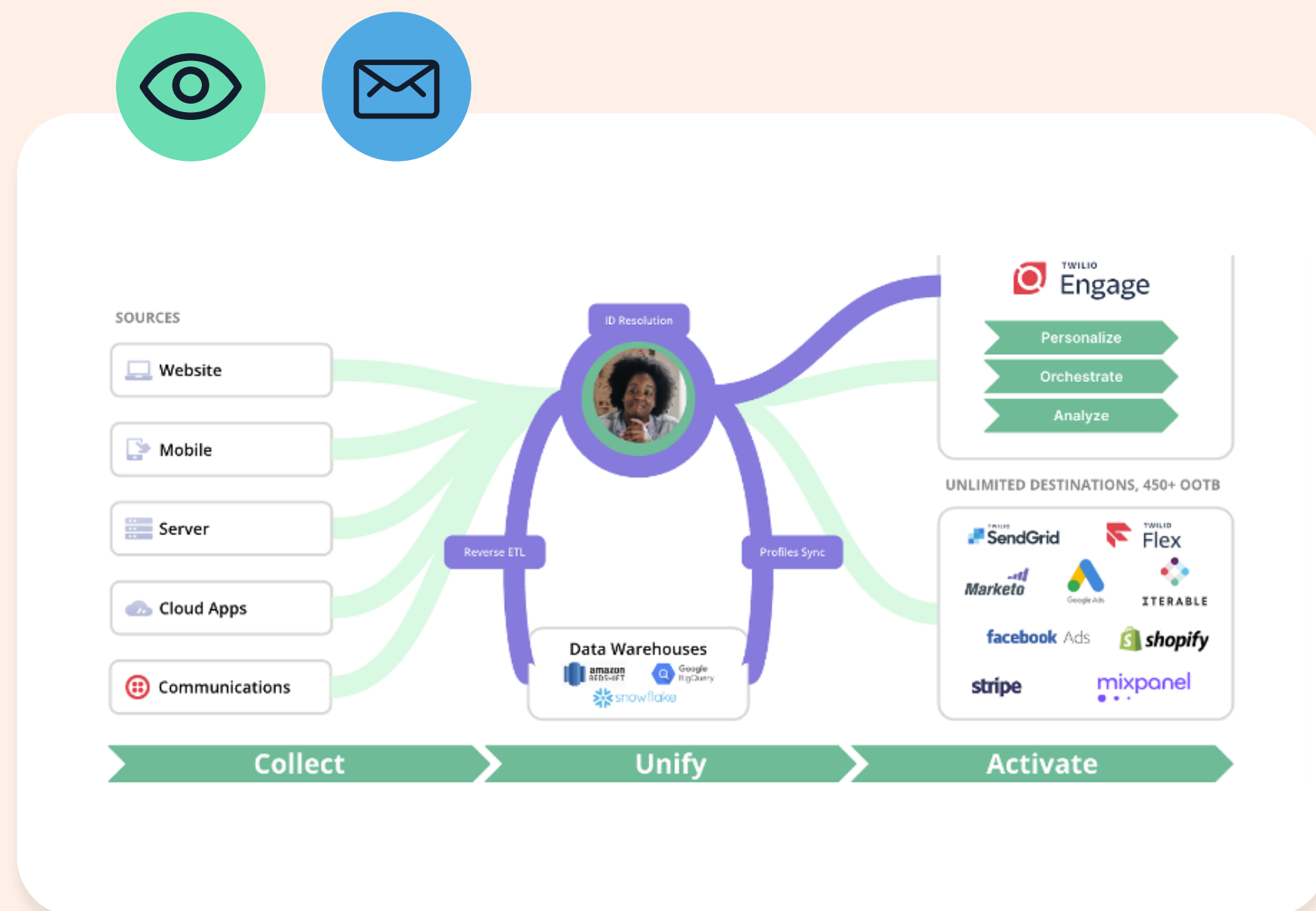
Conclusion:
Unlock real-time data with Twilio Segment

Unlock real-time data with Twilio Segment

The saying "information is power" still rings true, but simply having access to customer information is no longer enough. Today, speed to insight and action is what differentiates a good business from an industry leader.

Companies need to access and analyze data immediately so they can take action on it to drive better business outcomes. Delays of a few minutes, hours, or days can cost your business big and even be the difference between causing a user to churn and creating a lifelong customer.

To unlock the power of real-time data and its real cost-savings, your business needs a way to collect, consolidate, and activate data. Enter Twilio Segment.

Segment's CDP unifies your user touchpoints across all platforms and channels, giving you a complete 360-degree view of your customers. With these in-depth customer profiles, your business can then deliver personalized omnichannel communications and experiences in real time, all from one platform.

When it comes to customer experience, real-time data is the future. Businesses that can react immediately to user behaviors and serve the right message to the right person at the right time will stand apart from the crowd. By partnering with Segment, your business can unlock true digital agility, driving efficiency for your company and allowing you to put your customer first in every interaction they have with your brand. That means happier customers and a bigger bottom line for your business.

Start using real-time data to engage your customers with Twilio Segment.

Schedule a demo →

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About Twilio Segment

Schedule a demo with Twilio Segment

Twilio Segment is the leading CDP with more than 450 pre-built integrations to different data sources and destinations. It provides a complete solution that eliminates the need for manual data cleansing, complex data engineering processes, and analytics reporting functions.

By automating all of the backend customer data operations, Twilio Segment puts companies in a position to get the most out of their first-party data and retain customers at a higher rate.

As consumer sentiment, industry trends, and regulatory enforcement push companies away from depending on third-party data, the need for an alternative source of customer data cannot be understated. First-party data is the solution, bringing a competitive advantage as it fills the gaps where third-party data falls short: accuracy, relevance, and building customer trust.

Schedule a demo to learn how to get the most out of your customer data with Twilio Segment.

Chapter 10

Recommended reading

Recommended reading

7 Ways to use ai to superpower your marketing strategy

From automating manual tasks to optimizing ad campaigns, learn how marketers can use AI to work smarter, not harder.

Download now →

A data-driven guide to user onboarding

Explore the best practices for user onboarding, and how to leverage real-time customer data to drive success.

Download now →

7 Ways to prepare for a cookieless world

Learn how to pivot away from third-party cookies to higher quality, first-party data, which empowers businesses to offer more personalized customer experiences.

Download now →

twilio sendgrid

Thanks for reading
If you would like to learn more
about what Twilio can do for your business,
please contact the Segment sales team.

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.