



## Delivering value in moments that matter: Real-time insights, actions and decisions



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## Making the right moves in real time

### Imagine these scenarios:

- A disappointed visitor to your online shoe store can't find running shoes in the right size. Thanks to real-time insights, you can rescue the sale because the website automatically redirects the customer to a similar in-stock shoe in the right size and price range.
- Facial recognition software identifies high-value customers entering a bank branch so you can direct them to a special express teller line where they're greeted by name. That's an example of real-time action.
- A customer starts a process to transfer 80% of bank account funds to an investment brokerage firm. The size of the transaction might indicate that this customer is at risk. On the other hand, large transfers back and forth between financial institutions may be commonplace for other customers. Based on the customer's transaction history, a real-time decisioning engine may let the transaction go through untouched. Or it could launch a chatbot that invites the customer to learn about the bank's investment services.

**Currently, few organizations can execute real-time initiatives like these.** But with digital transformation now a top issue for most executives, it's safe to assume that many companies are looking to address the deficit. Organizations that act now to clean and integrate data, understand customer behaviors, and secure access to data that enables pinpoint decision making can gain a substantial advantage.

**SAS can help your organization achieve real-time insights, actions and decisioning - and understand the technology you need to get there.**

### What 'real time' means

#### Let's start by defining some key terms.

**Real-time analytics** enriches our knowledge about preferences and behaviors by capturing instant observations. The many digital tools we use today to interact with our customers and prospective customers let us capture these touch points with a high level of precision. Then we can translate this information into insights, decisions and actions that enhance the customer experience at moments that matter.

**Real-time insights** provide context for immediate decisions and actions. Real-time decisioning relies on the most current information, typically delivered with near-zero latency. Then you can instantly make programmatic decisions using a combination of observed actions and historical background. These decisions are contextual and often highly personalized.

**Real-time decisions** usually combine data from multiple sources, both internal and external, extracted and processed at high speed. While today's data processing systems are fast, few operate in real time. More commonly, systems group events and process them in batch to yield patterns as a foundation for real-time decision making.

The definition of "real time" varies. In some cases, it may be a steady feed of current information as soon as it becomes available, such as unusual activity on a bank account or instantaneous notification of a purchase with a customer's credit card.



## Achieving real-time insights

The importance of real-time insights isn't lost on business executives. But in most cases, their companies struggle to deliver on the promise, as research shows:

- Nearly three-quarters of executives surveyed by Futurum Research said the future of customer experience is in real-time data collection and analysis.
- More than 80% of executives surveyed by Harvard Business Review Analytic Services said they want to use analytics to generate real-time actions from customer data.
- However, only 22% of respondents in the same study said their organizations are effective at using analytics and data.

Organizations need real-time processing tools and data sources so they can act at the best time. Martech - such as marketing cloud solutions, customer data platforms and CRM applications - has helped companies make great strides in segmenting customer behavior in aggregate, creating personas, and understanding interactions and buying patterns at a high level. But these systems don't always perform analytics in real time, particularly when it comes to incorporating digital activity. As a result, decisions may be delayed and miss the moment of greatest impact.

Real-time insights come from behaviors as they happen. They trigger actions based on previously observed activity or algorithms that compute the likelihood of outcomes based on a sequence of events. Many types of real-time data can be useful in a marketing context, including:

- Pages viewed and time spent on pages by a website visitor.
- Contents of a shopping cart as customers add items.
- Customer service calls.
- The time between delivery of a marketing email and a customer action, such as a click.
- Contents of a live chat discussion between a website visitor and a human or automated agent.

Many organizations already capture or have the means to capture this information, but few have the tools to promptly act on it. They may store the data for batch analytical processing - or simply throw it away.



## Real-time tools

Taking advantage of real-time or streaming data requires tools customized for its unique characteristics. It's important to understand that streaming data is different from transactional data in significant ways.

The reality, however, is that most real-time data is underused or not used at all. Systems may capture it in log files, but insights only come weeks or months later – and in aggregate. Real-time analytics unlocks value without sacrificing the insights you can gain from analyzing aggregate data in batch. You can act instantly on streaming data and store it in back-end systems for inventory management, route optimization, website A/B testing and more.

You can also combine streaming data with aggregate data to create insights that predict behavior with a particularly powerful tool called predictive analytics. For example, historical observations of customer interactions with a website processed in batch can help predict actions such as a customer abandoning a shopping cart or canceling a subscription. When the system sees similar patterns during actual customer visits, real-time analytics engines can trigger application programming interface calls to produce a predefined response, such as a call, text message or offer.

## Develop a first-party data strategy

First-party data, in combination with real-time analytics, is invaluable as more privacy regulations take effect and website operators phase out the use of third-party cookies. Companies are responding to privacy pressures by reducing their reliance on syndicated data and taking steps to make better use of insights gleaned from their own first-party data. This enables them to tailor responses to moments that matter and learn from their own interactions with customers rather than depending on anonymized information collected by others.

There is plenty of evidence that customers are more than happy to share information if they believe it will be used to their benefit. A study published in Harvard Business Review found that when web merchants told customers they would see ads based on their on-site activity, click-through rates increased 11%, time spent viewing the advertised product rose by 34% and revenue from product sales grew by 38%.

## Start with a few high-value use cases

Hyperpersonalization using analytics, AI and automation for every interaction is here to stay. As McKinsey & Co. partner Jeff Jacobs told Harvard Business Review Analytic Services researchers, “The expectation of consumers today is that everything exists in the world of the now, and that their interactions will be personalized. Real-time analytics is absolutely core to enabling companies to deliver those kinds of experiences.”

However, achieving those results carries some cost. Real-time analytical processing requires specialized software. And you may need to manually integrate it with other systems in the martech stack, such as marketing clouds, customer data platforms and CRM applications. For this reason, marketers should focus on a few high-value use cases at the beginning of their real-time journey and work toward hyperpersonalization as they gain proficiency.



Choose projects where you can achieve significant returns with the least investment. For example, if shopping cart abandonment is a problem, an initial real-time insights project could monitor the contents of shopping carts as customers peruse a website, then use predictive analytics to identify behaviors that indicate an abandonment event. You can then match predictive and real-time data to trigger an appropriate response before a customer leaves the site.

An insurance company may want to monitor claims entered on its website to decide instantly which claims to automatically process and which to refer to a human adjuster.

## Real-time actions: Where analytics meets business value

There is no doubt that customer experience is the new business battlefield, and digital tools are the strategic weapon of choice. Spurred by the COVID-19 pandemic, consumers are using digital channels more frequently. Nearly 80% of US consumers have used a self-service portal, and 86% of business-to-business professionals prefer reordering with self-service rather than speaking to a sales representative, according to McKinsey.

The growing pace of digital interactions is a potential gold mine for marketers who can extract value on the spot. However, most companies still rely on backward-facing surveys that measure only a small percentage of their customer base and are limited to historical data. A recent McKinsey survey found that while 93% of the polled customer experience leaders use survey-based metrics, just 13% are confident that their organizations are equipped to act on issues in near-real time.


Real-time streaming data has value across the board. Real-time insights provide valuable perspective on customers' digital journeys, as documented by their interactions with your website and mobile apps. You can use these insights to create segments and personas that sharpen marketing messages. Real-time decisions use observed actions and historical background to enable the design of highly contextual and personalized programmatic interactions.

Real-time actions bring all these factors together to deliver customized experiences to the customer at the point of greatest impact, moving the marketer closer toward hyperpersonalization. It's about listening to signals from your customers, understanding what they mean in the context of their relationship with you, and identifying and executing the right actions to meet customer needs.

"The whole 'right offer, right time, right person' idea isn't new," says Monika Makuch, data science senior manager and lead at the Accenture Center of Excellence for SAS® Customer Intelligence. "We've all been pursuing that for years. But what is new is our ability to deliver on that promise, which makes this an important moment to keep up with advances in real-time analytics and decisioning."

"If you are a company that wants to use its own analytics and you have the challenge of developing a truly omnichannel and personalized experience for your customers, I invite you to explore the Customer Intelligence 360 suite from SAS."

– David Benabib,  
Head of CRM and  
Personalization,  
Coppel



## Turning decisions into actions

Many companies have built competencies in both real-time insights and real-time decision making but fail to translate decisions into actions. There are several reasons for this. One is that data silos make it difficult for the people in charge of customer-facing operations to tap into all the data they need to customize interactions. Silos can form when organizations acquire other companies, adopt multiple software applications that don't integrate well with one another or create standalone applications for individual projects.

Organizational silos have the same effect. Individuals who were appointed to lead initiatives years ago may be reluctant to give up or share responsibility when operations are combined or changes occur in the market. A Harvard Business Review Analytic Service report found that 36% of companies invest chief marketing officers with responsibility for customer experience, but just 12% put them in charge of the technology to deliver that experience. That responsibility is often assigned to the chief information officer, who may know little about the company's marketing initiatives. In many cases, this disconnect occurs because senior executives fail to understand how different areas of the organization interact.

## 8 critical elements of real-time actions

While organizations can incrementally implement real-time actions, the overarching strategy should cross multiple dimensions. Follow these suggestions to get up and running quickly and effectively.

### Unify responses across channels

Customer interactions today take place in physical spaces, as well as on websites, mobile apps, over the phone or even in a text chat. Real-time actions should seek to unify responses and messages across as many channels as possible.

If that seems like a lot, start with the high-value options. Integrate your website and mobile experiences for highly personalized interactions while continuing with more generic responses on other touch points. They can be added to the mix later.

### Create a central decisioning engine that communicates with all customer-facing systems

This may be an existing marketing cloud or customer data platform that you have outfitted with a stream processing engine and real-time analytics capability. What's important is that you use it to capture all interactions with customers, and that you integrate the engine with other customer-facing systems for consistency.

### Conduct model development in batch

This allows you to evaluate the greatest number of candidate variables. Then you can transition successful models into real-time testing and deployment.

### Start with high-value opportunities

Depending on your business, these could be real-time recommendations, streamlined approvals, personalized messages or contextual offers. Actions can target certain customer segments, individuals or types of interactions, and could be cross-platform or limited to specific touch points. The key is to start with projects that can yield the greatest returns for the least effort.





### Envision desired results

Map scenarios and likely real-time responses based on historical customer interaction data. This enables you to prepare stored processes that relate to the most common use cases.

### Inventory your data

Take measures to ensure data quality and relevance by identifying all sources of customer data inside your company and validating it for consistency, accuracy and timeliness. Now is a good time to purge your records of outdated information.

### Assess the role of real-time actions

Technology for real-time actions can be costly, so use it selectively where it adds value rather than overhead. You may continue to process many actions more economically in batch.

### Technology and human investments go hand in hand

One of the most common reasons IT initiatives fail is lack of training for nontechnical staff. Employees only use a small fraction of available features, people become disillusioned and the project falls by the wayside. Don't let your real-time toolset become shelfware.

## Real-time decisions deliver value to customers when it counts

As stated earlier, real-time decisions usually combine data from multiple sources, both internal and external, that is extracted and processed at high speed. Real-time decisioning may deliver contextual information once a specific threshold is reached, such as offering a coupon when the number of items in a shopping basket reaches a certain value, or triggering a call from customer support when failed login attempts exceed a defined limit. These instantaneous actions can rescue a sale or turn a negative customer experience into a positive one.

Real-time decisioning brings together data elements like current inventory status, historical booking demand, staffing capacity and traffic patterns at the store to recommend times when customers can pick up their purchases with minimum delay and frustration. This information is customized and delivered to customers at the moment they place their orders.

Organizations are increasingly using artificial intelligence tools like neural networks and advanced statistical models like regression models and decision tree classifiers to analyze a greater variety and sophistication of input variables during model training.

### Examples of real-time decisioning

Let's look at examples of real-time decisioning in action:

- A customer with an account on an e-commerce site places several items in a shopping cart and then goes silent for 20 minutes. If the person's phone number is known, the merchant automatically sends a text message that offers to help complete the transaction. Anonymous visitors receive a pop-up offering a 10% discount on the contents of the shopping cart.
- A visitor to a lending company's website navigates to the loan calculator page and experiments with different loan amounts and terms. Based on the person's activity, the web server initiates a chat process with a mortgage, auto or college loan officer. If the visitor starts an online application for a loan, the system decides whether to approve the application automatically or refer it to a loan officer for follow-up based on the information the customer enters in real time.

According to Forrester, real-time decisions are best used in these three contexts:

- Next-best experience is the ideal next interaction a customer or potential customer should have with your brand. The lending company scenario is an example of that. The system interprets a customer's likely objectives and seamlessly transitions into the next step in the process.
- The second context, called cross-channel marketing, unifies experience across customer-facing channels. For example, high-value retail customers who log onto your website receive the same set of premier services, individual attention, and offers or messaging that they would receive in one of your retail stores.
- Personalization delivers customized messages based on visitor profiles or observed behaviors. For example, when you visit a web retailer, you see promotions at the top of the page that reflect your likely preferences based on previous orders.

## Close the gap

Real-time architectures work best when computing services are close to the point of action. “For many of our clients, a lot of the action is happening at the edge, where IoT and other edge devices are generating data,” says Simone Bonatelli, former senior analytics manager at Accenture. “We’re working with them to move AI, analytics and other capabilities closer to where the data is, enabled by the cloud. It’s an important shift, and we’re just now starting to see and understand its real impact.” There is a temptation to sacrifice information quality for speed, but hasty solutions should be avoided since inappropriate interactions and recommendations can damage customer satisfaction.

### Organizational factors

Real-time decisioning works best when you combine multiple data sources to deliver the most holistic contextual response. An example of this is the “buy online, pick up in store” scenario outlined earlier. Unified customer data platforms bring together relevant data from across the organization, as well as from third-party sources.

However, most companies struggle with organizational issues. When Harvard Business Review Analytic Services asked executives about the ability to translate data into actionable insights at the optimal time, 83% said it was important to their business. But only 22% said their companies have been successful in doing so. Four out of five respondents said getting the right data to the right people at the right time is important, but only 21% are doing so now.

These are usually organizational and cultural issues that do not easily lend themselves to technology solutions. Organizations may split the responsibilities, with real-time customer experience residing in the hands of the CMO or CEO while custodianship of real-time customer technology is assigned to the CIO or CTO. Just 29% of respondents to the HBR Analytic Services survey said those stakeholders are currently well-aligned.



## The technology of real-time decisioning

The good news is that technology factors shouldn't inhibit your organization from adopting real-time decisioning. A comprehensive modern martech stack combined with tight integration between components should get you there.

Critical capabilities include:

- **An enterprise decision engine** capable of executing complex real-time decisions that rely on a combination of business rules, historical transaction information and model execution.
- **A CDP** that can, at minimum, ingest data and manage customer identities, define and detect significant digital activity and events, collect digital data at the customer level, combine the online and offline data into a single customer profile updated in real time, segment audiences and provision or activate the data.
- **A multichannel marketing cloud** that provides omnichannel journey orchestration, algorithmic attribution and A/B testing, as well as the ability to embed AI and analytics into the journeys. The line between CDP and multichannel marketing applications is blurring, with many vendors incorporating both sets of capabilities into a single solution.
- **A streaming data platform** that can capture and aggregate high volumes of transaction data, filter the high volumes of transactions to identify conditions that require action and execute analytics in the stream.

## Conclusion

Research has firmly established that customer experience is the most important brand differentiator, ahead of price and product. In the growing number of markets in which competitive differentiation is elusive, using real-time insights, actions and decisioning to delight customers creates a formidable competitive advantage. To realize the greatest value quickly, start small with projects that deliver clear ROI at relatively low risk.

The technology for real-time insights, decision making and actions is proven and ready for deployment. As interactions increasingly go digital, the advantage will go to those companies that are best prepared to engage in the moment no matter the channel.

Learn more at [sas.com/ci](https://sas.com/ci).

# SAS + Accenture + Intel

Successful analytics initiatives require tight alignment between hardware and software, in the hands of skilled technologists and strategists who can put them to work in support of organizational strategies. That's why the ongoing collaboration between SAS, Intel and Accenture is so important for clients. Together, we know how to connect all the dots on analytics strategies to deliver practical solutions that deliver real, measurable results – at any scale.

## About SAS

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