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# Data Ingestion in Adobe Experience Platform

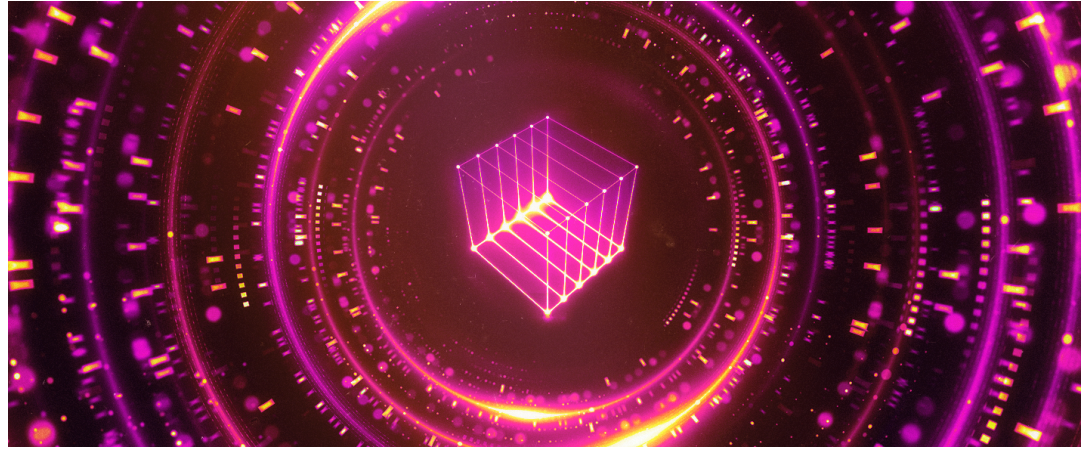
Adobe Experience Platform helps customers to centralize and standardize their customer data and content across the enterprise – powering 360° customer profiles, enabling data science, and data governance to drive real-time personalized experiences. Experience Platform provides services that includes capabilities for data ingestion, wrangling and analyzing data and building predictive models and next best action. Experience Platform makes the data, content, and insights available to experience-delivery systems to act upon in real time, yielding compelling experiences in the relevant moment. With Experience Platform, enterprises will be able to utilize completely coordinated marketing and analytics solutions for driving meaningful customer interactions, leading to positive business results.

An integral part of Experience Platform is leveraging data ingestion to improve experiences for our customers as they work to deliver real-time experiences through our open and extensible platform.

For brands striving to surpass their customer's most demanding expectations, and even go further by providing them with delightful and surprising experiences, brands must excel at mastering their data. Given that a typical customer uses as many as six different devices to communicate with a single brand or organization, brands are tasked with interpreting and understanding the substantial quantity of data they collect from multiple formats. Adobe calls this becoming an Experience Business — where brands adeptly manage a unified customer experience across all customer touchpoints, derive actionable insights from all those customer interactions, and use those insights to improve the customer experience in real time.

Data has the ability to transform a brand's relationship with its customers. This includes improving efficiencies in fulfilling an order, speedier and more personalized promotions, and optimizing customer interactions across all touchpoints (customer service, marketing, online engagement, and even point of sale). Furthermore, with the data-driven creation of highly personalized customer experiences, engaging with a business goes beyond completing a purchase. For the customer on the receiving end of tailored interactions, it becomes a compelling, immersive experience that enhances their time spent with the brand.

## The challenges with data



The value brands can derive from their data relies entirely upon their ability to centralize and standardize customer data and content from siloed systems. Marketing is driven by Data. And therein lies a significant challenge, data in its natural habitat is siloed and not integrated. Across most corporations, huge amounts of customer, product, and promotion data are housed in many databases, in different formats, in multiple locations, and often on separate systems. Even after gathering data from disparate sources, companies face integration problems—they often have to rely on separate systems to transform and run applications on top of the aggregated data. This significantly hurts the efficiency and velocity of the analysis process and becomes a barrier to deliver real-time customer experiences.

Adobe Experience Platform was built with these problems in mind. It is the next-generation experience platform that empowers marketers to run relevant marketing campaigns, drive personalized targeting, and orchestrate customer journeys in real time. Experience Platform is a holistic solution that provides tools and APIs to load, standardize, link identities, aggregate, analyze, and access customer data to improve the design and delivery of customer experiences.

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## Adobe Experience Platform

Adobe Experience Platform is the most powerful, flexible, and open system on the market for building and managing complete solutions for customer experience. It enables organizations to centralize and standardize customer data and content from any system and apply data science and machine learning to dramatically improve the design and delivery of rich personalized customer experiences. Beyond this, Experience Platform is built on open APIs, exposing the full functionality of the system to developers using familiar tools so that customers can integrate their enterprise solutions with Adobe Experience Platform, and partners can build their own products and technologies on it any way they wish.

This power and flexibility makes Experience Platform unique in the market and gives partners and customers an unparalleled foundation for the types of transformative innovations in customer experience that drive what we call the Experience Business. An Experience Business exceeds customers' expectations with continually improved experiences drawn from a 360-degree view of the customer and awareness of the user's context and preferences. These experiences surprise and delight the customer, cement customer loyalty, and drive business value. With Experience Platform, you get an open system that supports the experience innovations you want to create with a data foundation, machine intelligence, and value-added services that are all open to be controlled, customized, and integrated with as you see fit.

## Data Collection



CRM Data



Ad Impression  
Data



Campaign Data



POS &  
Commerce Data



3rd Party Data



Behavioral Data



Product Usage  
Data



Voice of  
Customer Data

## Data Governance



Data Modeling

Data Security

Data Profiling &  
Classification

Data  
Transformations

## Insights



Data Exploration  
& Prep

Model  
Authoring

Experimentation

Operationalization

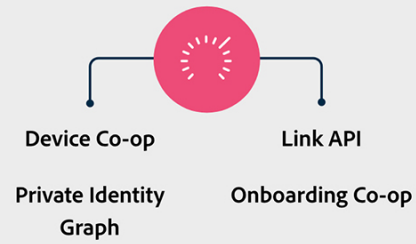
Profile  
Enrichment

Query &  
Analysis

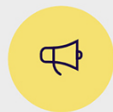
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# Enrichment



# Action



Marketing



Sales



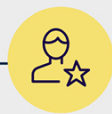
Support



Product



Eng & Ops



Profile Segmentation  
& Activation

Profile Access



## Data Ingestion Service

Data Ingestion Service within Experience Platform enables brands to onboard all relevant data from disparate sources in a simple and scalable manner. Data becomes available and actionable in near real time which empowers brands with 360-degree customer profiles for deep engagement. The power of Experience Platform's Data ingestion is twofold: flexibility and speed. Data ingestion offers tremendous flexibility by being able to ingest various types of data from multiple sources, and the ease and efficiency of the ingestion process means the data is available for deep engagement, data science analysis, and automation of work processes in near real time.



### The capabilities of data ingestion include the following:

**Automatic ingestion of Adobe Solution Data.** Brands using Adobe Solutions such as Adobe Experience Cloud have the benefit of ingesting their data into the Experience Platform and making it available for use in near real time. The data is automatically streamed and transformed into datasets in platform, structured in Adobe's Experience Data Model (XDM). XDM is composed of standardized, extensible schemas for representing all experience data to enable immediate semantic understanding of cross-channel data and foster an ecosystem of pre-built insights and services. Brands can fully utilize this data to realize predictive customer engagements — with better insight into their customers' activities across touchpoints. Experience Platform offers a big data persistent store and fully managed data analysis service that's fast and scalable for big data analytics. Brands can easily combine the Adobe Solutions data with non-Adobe customer data to perform omni-channel segmentation, attribution, and personalization.

**Effortless Data Ingestion.** Salesforce has one way of accessing the elements of their customer data, Microsoft Dynamics has another way, and DoubleClick Campaign Manager has still a different way. Data Ingestion enables brands to effortlessly ingest online and offline data with just a few clicks from selected SAAS applications on a scheduled and managed basis. Data Connectors provided by Experience Platform also support backfilling historical data and incremental data loads.

**Rapid Ingestion of data from any source.** As more and more business activity is digitized, new sources of digital information become available. Mobile phones, IOT devices, ecommerce, social networks, SAAS applications all produce torrents of data as a by-product of their ordinary operations. This data is captured in any number and format of databases. Data Ingestion Service allows for onboarding of structured, semi-structured, and unstructured data from these and other sources, by a variety of manners including Streaming, Bulk Ingestion API, native third-party

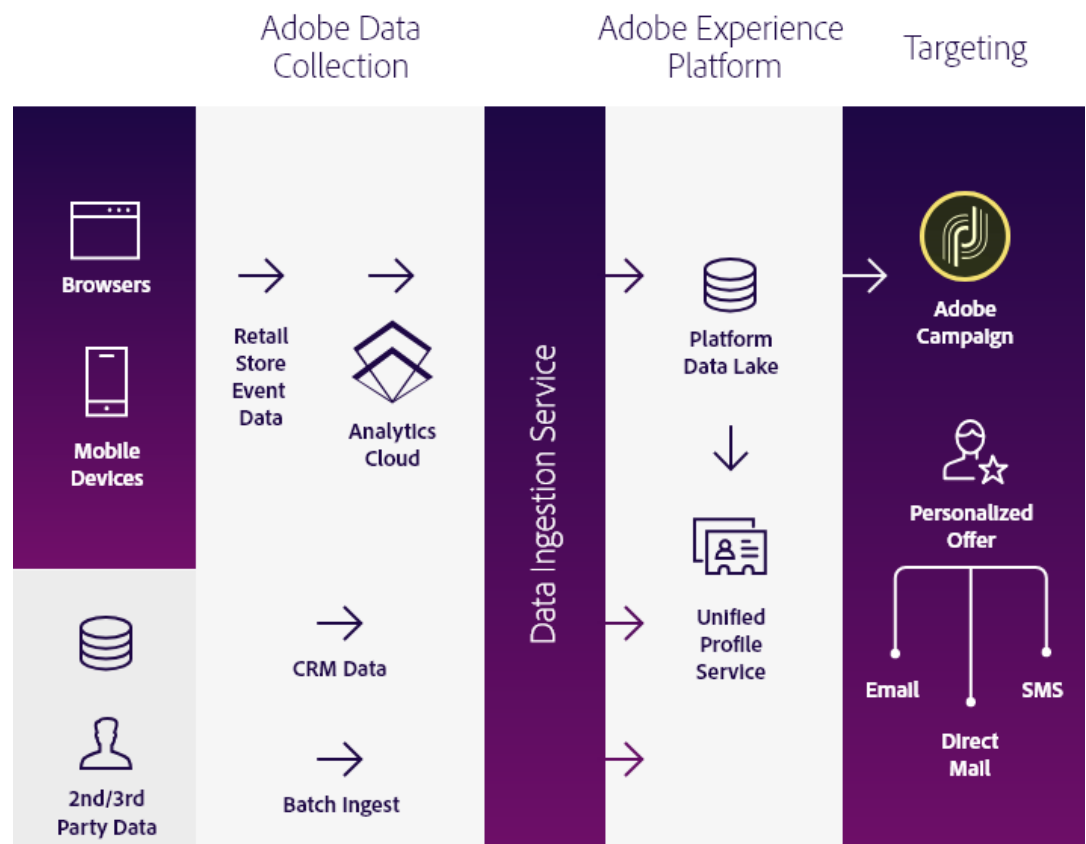
connectivity, Adobe Experience Platform Mobile SDK, and Adobe Experience Platform Launch. The ingestion service accepts Apache Parquet or CSV files. The data could be profile data from a client's CRM system, a call center system, or any number of other sources. Data can be converted to XDM format if it does not already fit that model.

Third-party data from over 200 sources can be ingested via certified integration with leading data integration tools such as Informatica, SnapLogic, and Unifi.

**Fast, reliable, and scalable onboarding.** By providing a single place for data ingestion, onboarding data of any type from any source, and mapping data to a standardized data model, Experience Platform's Data Ingestion provides a streamlined and efficient process for quickly accessing the power of brand's data. Data Ingestion Service automatically scales to handle ever growing data volume needs and onboards data in a reliable manner.

**Automatic validation and cataloging.** Data Ingestion Service validates all data before its ingested to help ensure onboarded data can be queried by the attributes and constraints specified in its related XDM Schema. During data ingestion information about datasets, its schema, sample data, lineage, and metrics—such as the number of rows of input/output and number of bytes input/output—are catalogued in Adobe's Catalog. This enables marketers and analysts to easily discover data to drive the experience business.

### Consider this scenario | A retail store and a consumer's online shopping cart:

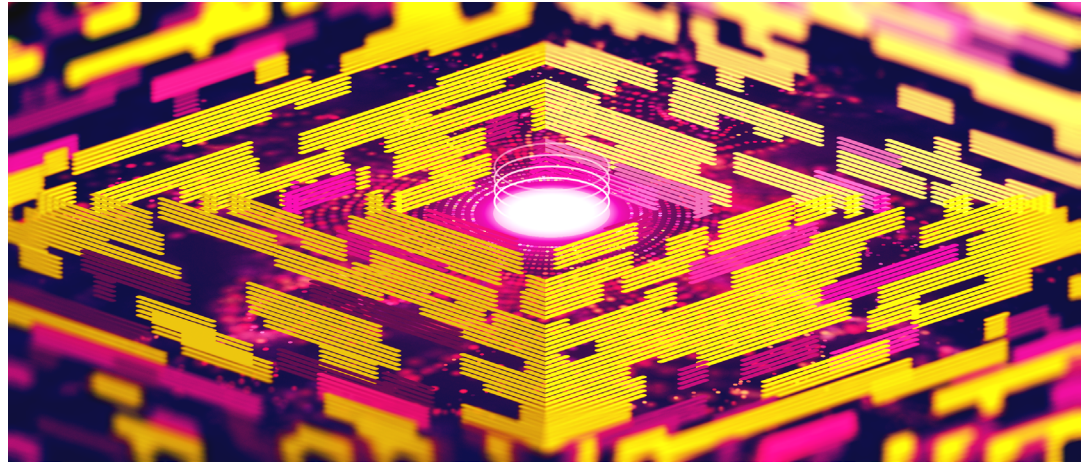


For a hardware store that is an Adobe customer, Adobe Analytics can be used to notice when a consumer abandons their online shopping cart. This information is then automatically onboarded to Experience Platform and paired with consumers contact information. Based on the hardware store's predetermined consumer engagement procedures and assuming the consumer has consented to or authorized email communication, an email is auto-generated to the consumer that provides additional information about the items in the abandoned online cart and provides a 10% off coupon. Experience Platform has provided the hardware store with the power to engage with their consumer in real-time with personalized and targeted information.

With Data Ingestion process successfully completed, the data is moved to the **Data Lake** in the Experience Platform, and it is ready to be acted upon. No matter what the types of data nor their sources, Experience Platform's Data Ingestion centralizes all digital information into a single, scalable platform so that brands can focus their efforts on deeper understanding of their customers, effective analysis of their processes, and unlocking valuable insights.

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## Data Lake



The Data Lake in Experience Platform is the single persistent reliable repository of Customer Experience Data. Brands have full access to their data in the Data Lake. It is from this centralized data lake that clients can query, configure, and manage their data in order to do the following:

- Gain a 360-degree profile of their consumer for personalized, targeted engagement.
- Employ data science analysis across their customer base, inventories, or business processes (to name just a few organization sectors)
- Implement machine learning to unlock valuable insights.

### The Data Lake provides clients with these safeguards:

**Petabyte Scale.** With the scalability of Experience Platform, clients' data processing, analyses, and storage needs are supported, no matter their size and scope. Data Lake can store trillions of files, and a single file can be larger than one petabyte in size.

**Secure Data.** Ensuring the security of data entrusted to Experience Platform is a responsibility Adobe takes very seriously. Experience Platform has several robust safeguards in place to guarantee that brands' digital information is protected and secure. In order to ensure the protection of the data, each brand's data is stored in a separate subscription. Role-based access control help ensure access to data is restricted to authorized users only. Data in Data Lake is governed by the rules defined by the brands. For more information about Experience Platform's data governance features, see the [Adobe Experience Platform Data Governance whitepaper](#).

**Optimal Partitioning.** Data is partitioned to improve scalability, reduce contention, and optimize performance of large datasets. The main goal of partitioning is to divide data to improve performance to enable users to query across a large amount of data and multiple datasets.

**Durability and High Availability.** Experience Platform provides data storage that is engineered to be resilient and stable, which ensures durability and high availability. Brands can have confidence that data stored in the Data Lake will maintain its integrity.



**Immutable and Encryption.** Utilizing an approach similar to versioning databases, such as HBase, potential destructive actions are eliminated by appending mutations and reconciling the latest view of the data at runtime. Platform protects your data by always encrypting your data at rest.

### Consider this scenario | The hospitality industry and machine learning:

An international hotel chain offers a customer loyalty program in order to generate more repeat business. As permitted under the program, data about each customers' stays in their hotels are stored in the hotel chain's loyalty program systems. This data might include how often a customer stays, how long each stay is, what kind of room they book, what facilities and amenities the customer uses, where they most frequently stay, how far in advance they book a stay, what times they check in, what airlines they flew, and much more. But siloed in the loyalty program database, there is only so much the hotel chain can do with that data because it's a manual effort to extract and join it back with the company's marketing, customer service, and transactional systems.

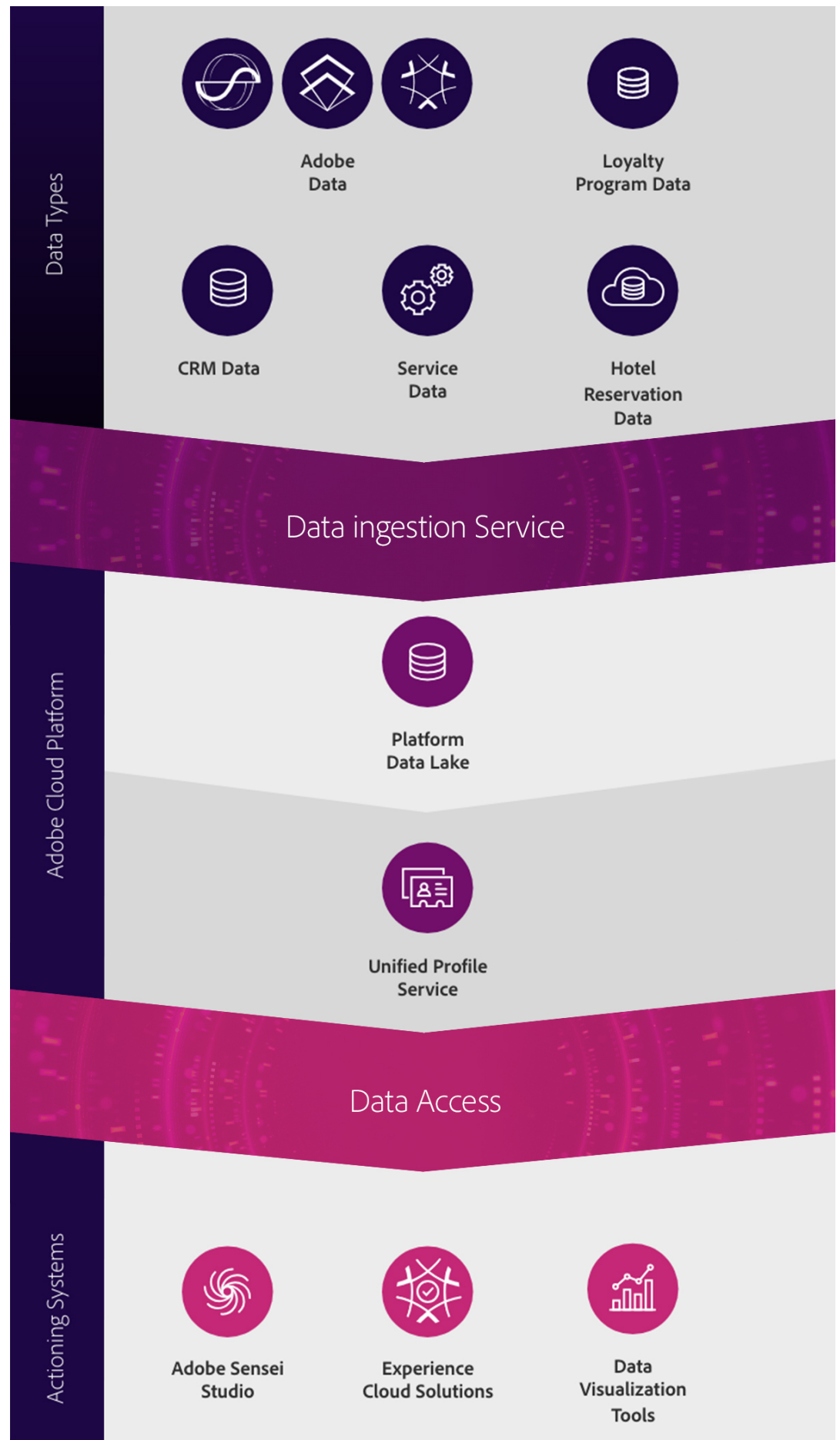
By ingesting all this data from these disparate systems into Experience Platform, the hotel chain can take advantage of Adobe Sensei technologies and apply data science analysis to their customer data within the scope of the consents granted by the customer for each source. Insights derived from this type of analysis could include the following:

- Which consented channel is best for remarketing to this customer: phone, email, text message, or direct mail?
- Do loyal customers rely on the website and mobile app experience more before or after making a successful reservation?
- If after, what features within the experience are they using the most?
- What is the right frequency of engagement for promotions sent to high-value customer?

By combining with the customer's booking history and preferences, this analysis enables the hotel chain to create a tailored promotion for the customer to receive relevant display ads while they're on the hotel's website or using the reservation app; an email before, during, or after their stay; and a text message on the day of their check-in to encourage them to use the new mobile app check-in feature.

These promotions and other interactions can be built using Creative Cloud applications, personalized based upon data in the platform. Furthermore, based on the comprehensive data profile of the customer developed by a brand, Adobe Experience Cloud can be used to manage when and where the customer sees the promotions, tailored to the customer's own preferences.

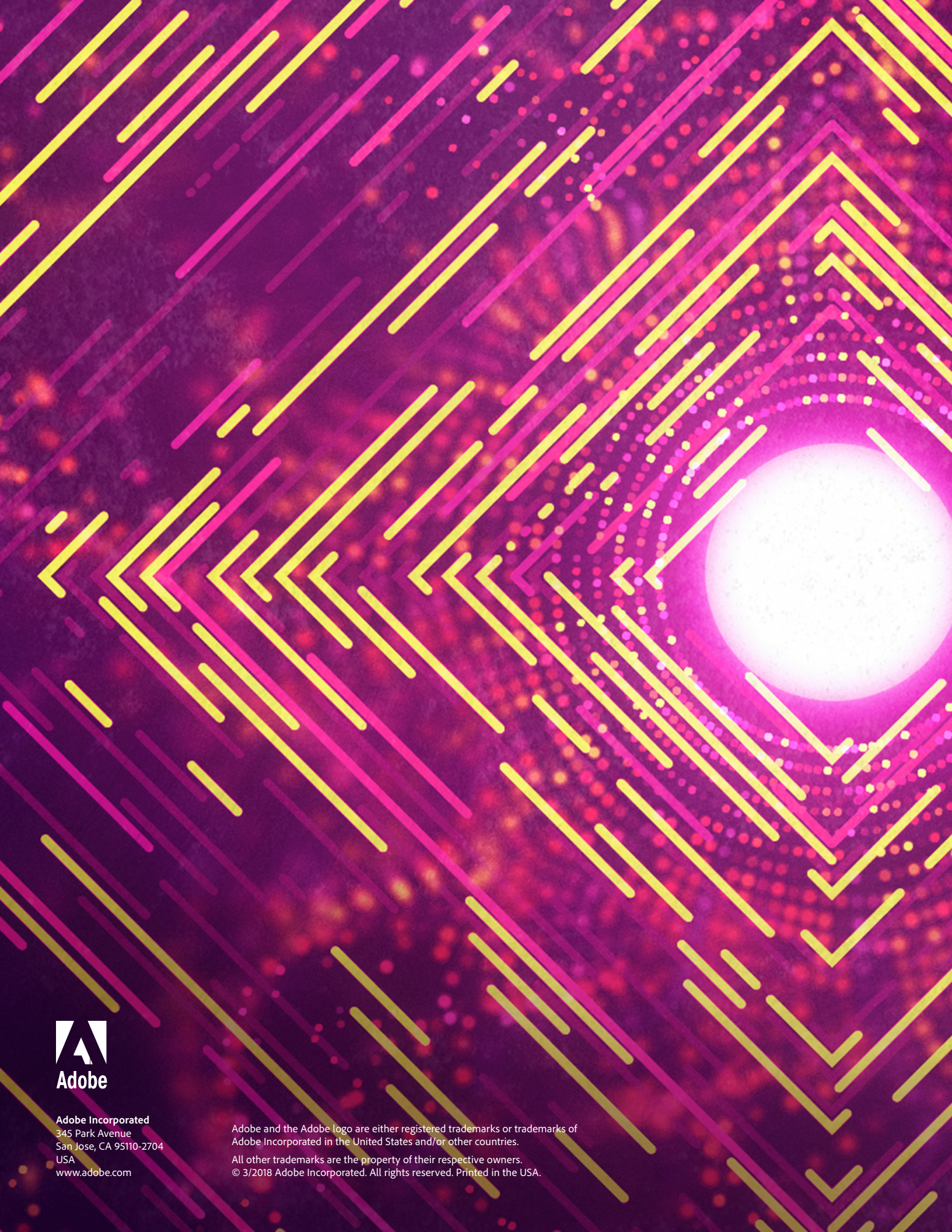
Being able to use analytics to derive insights and then deliver tailored customer experiences in real time is an unparalleled tool to drive customer satisfaction and loyalty. This type of customer experience is made possible by the integration and analysis capabilities of Adobe Experience Platform.



## Conclusion

Adobe Experience Platform has established a data foundation that enables brands to move information out of disparate silos and centralizes it into a scalable platform that can deliver data where it's needed instantaneously. At the core of Experience Platform is content and data. Data Ingestion provide the ability to quickly uploads numerous types of digital information from various sources and transform it into a common data language. The standardization of content and data is what enables Experience Platform to deliver 360-degree customer profiles and enable personalized and targeted customer experiences.





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