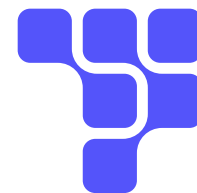


Drive Better Health Outcomes with Cloudera and IQVIA

Accelerate data science for pharma and biotech organizations



Leverage an Enterprise Cloud Strategy without the Enterprise Implementation

Pharma and BioTech organizations are under immense pressure to develop novel disease treatments while ensuring they are safe, effective, and affordable. Rapidly-changing technologies, increased clinical study complexities, together with escalating regulatory scrutiny are driving higher development costs, and prolonging treatment delivery. Successful organizations realize they must re-examine business, research, and clinical operations — and the technology that supports them — if they are to thrive in a dynamic environment. And, they must quickly, easily, and securely turn data insights into actions that accelerate time to market and shorten time to value on their investments.

The exponential growth of new data types, and internal and external data sources are also propelling Pharma and BioTech to rethink their approach to data and analytics. Pharma and BioTech organizations receive data from various sources — clinical trials, real-world evidence (RWE), electronic health records (EHR), insurance claims, patient monitors and wearables — which enter the data ecosystem from disparate providers, facilities, and organizations. These diverse data sets help researchers better understand how diseases develop, uncover patterns and risk factors based on demographics and genetics, and reveal potential new uses for existing drugs. If not strategically managed, however, the same data can create inefficiencies that cause clinical, operational, and market access delays.

IQVIA and Cloudera have partnered to help Pharma and BioTech organizations better manage the breadth of data assets and facilitate adoption of a cloud technology framework to achieve their desired business outcomes. Smaller BioTech organizations in particular struggle with the resources needed to deploy and manage environments that have the privacy, security and governance controls needed for healthcare data as well as to maintain operations and support important initiatives such as digital transformation and AI/ML projects.

How Cloudera and IQVIA Help Pharma and Biotech Organizations

IQVIA's Platform-as-a-Service (PaaS) offering, built on Cloudera technology, offers clients the ability to deploy data lake environments on-demand. Clients can leverage the environment that IQVIA has built to power their business when they do not have the time or resources for an enterprise-level implementation. IQVIA builds and deploys the environments in days as opposed to weeks or months with all the same privacy, security and governance controls that were implemented to manage IQVIA's healthcare data business at petabyte scale. IQVIA's implementation of the Cloudera enables complex machine learning (ML) and artificial intelligence (AI) on petabytes of data to deliver actionable intelligence back to the point of care.



Industry

Pharma and Biotech

Website

<https://www.iqvia.com/>

Company Overview

IQVIA (NYSE:IQV) is a leading global provider of advanced analytics, technology solutions and clinical research services to the life sciences industry. Powered by the IQVIA CORE™, IQVIA delivers unique and actionable insights at the intersection of large-scale analytics, transformative technology and extensive domain expertise, as well as execution capabilities. Formed through the merger of IMS Health and Quintiles, IQVIA has approximately 67,000 employees worldwide.



Early on in our journey with Cloudera, we realized that our clients were looking to solve the same security and governance challenges we faced in making health data accessible and usable to support our internal stakeholders' critical decision-making efforts. Cloudera is the foundation for IQVIA's secure technology ecosystem, and our data scientists rely on Cloudera Data Science Workbench for AI/ML applications in R&D."

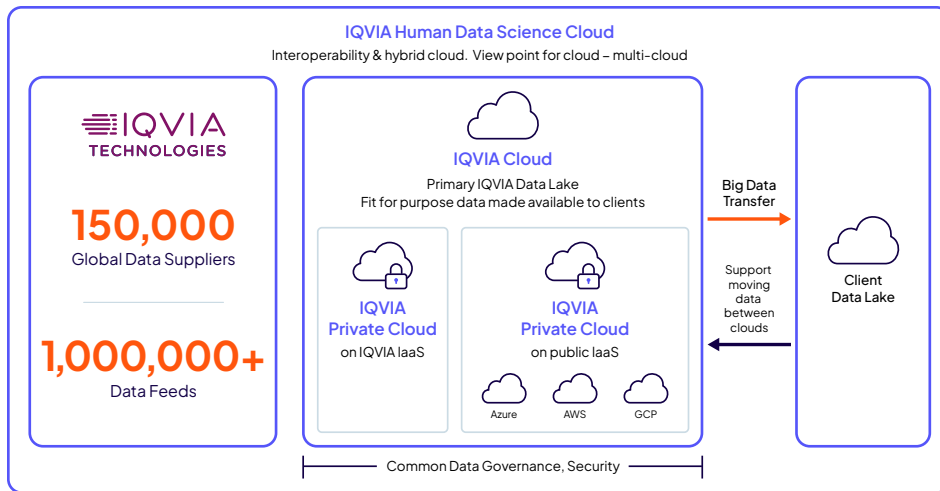
LUKE DUNLAP
Global Head, Human Data
Science Cloud, IQVIA

With IQVIA's PaaS environment built on Cloudera, Pharma and Biotech organizations can link clinical and business knowledge with data and analytics expertise to drive patient-level insights and operational decision making in a dynamic environment.

The key use cases below demonstrate how IQVIA builds on strengths in data engineering, batch and stream processing, data warehousing, BI/Data visualization and AI/ML combined with IQVIA's PaaS ecosystem with security and governance to enable innovation for clients.

USE CASE	DETAILS AND CUSTOMER EXAMPLES
Outsourced Data Lake	Customers have data that they want to make more accessible and usable to their internal stakeholders, but struggle with making data uniform or creating-fit-for-purpose assets their data science teams can use to drive innovation and research. Building data lake environments can be large, expensive, multi-year initiatives, and smaller companies do not have the resources, budget or time for large-scale implementations. IQVIA can help with data engineering to create custom clusters for specific services, data warehousing with dynamic scaling options, machine learning to run data science and ML workloads, as well as privacy and security.
Data Hub and Engineering	Create custom clusters with specific services for transient and long-running clusters.
COVID-19 Research Platform with IQVIA Longitudinal Patient Data	One government healthcare agency wanted to make IQVIA longitudinal patient prescription and claims data available to researchers for COVID-19 studies in a secure environment. Requirements were no data egress or downloading of data by researchers, and the environment needed to be taken down when the research project was complete. IQVIA allows the researchers to run cohorts and create extracts on the IQVIA longitudinal patient data, move it into a private, IQVIA-managed cloud environment, access and run models on the data utilizing available data science tools, and when the project is complete the environment would be taken down and all information was destroyed. This allowed the agency to leverage the protected environment, data privacy, governance, security controls, and data science tools IQVIA has already built instead of starting from scratch or managing the environment themselves.
R&D Data Science Collaboration on Clinical Trial Site Capacity	IQVIA's R&D data science team is partnering with a top five pharma organization on ML algorithms to predict site capacity for supporting clinical trials. The teams are working with highly protected data from both organizations in the private cloud managed by IQVIA. This ensures a confidential, secure environment for the data science teams while new intellectual property is generated on the algorithms that can be used by both organizations, which can collaborate on the same data in a protected, IQVIA-managed environment.
Understanding Consumer Patterns of Behavior	An online publisher of news and information pertaining to human health and well-being wanted to better understand the profiles and characteristics of their audience, plus the actions they were taking before and after visiting the publisher's websites. IQVIA hosts the company's site traffic data and has a solution to bridge data between claims and the site to look for patterns in consumer behavior. The customer wanted to know if they are influencing prescription fills and refills, doctor's visits and more, and the success of their campaigns modeled in the follow-on prescription activity. The customer has gained a secure environment and leverages IQVIA's ability to anonymize and link data without risk of reidentification.
PHI/PII Environment	Some clients have a short-term need for a PHI-secure environment to host data so they can run analytics, but their internal IT team cannot provide the environment to protect sensitive data. IQVIA can deploy the data science platform environment and ensure that protected data remains secure in the public cloud while giving the customer access through data science tools available in the platform.
ML on Granular Data to Increase Sales Effectiveness	To increase sales rep effectiveness, one customer wanted to utilize AI/ML to suggest a "next best visit" that leverages granular data. IQVIA utilized a cloud platform to generate anonymized/synthetic data for the client to train their models on, then ran the models on an internal cloud and provided the results back to the customer. The client's data science team now accesses granular Rx data at 4 billion data points for its therapy team instead of under 200,000 without the IQVIA-delivered data. Sales rep performance has improved with the AI/ML recommendations loaded into the customer's CRM.
Data-As-A-Service	Customers often need to gain consistent global insights with a common structure to manage national and sub-national sales assets (and other IQVIA assets). They also need centralized, usable data across their business delivered in the cloud. IQVIA Data-as-a-Service (DaaS) centralizes and harmonizes data structure across production data assets in the IQVIA Global Data Model (GDM) — the enterprise data model covering IQVIA's R&D, real-world and commercial data assets. DaaS also provides cloud hosting and delivery solutions tailored to customers' cloud maturity. IQVIA can connect to customer's internal BI solution, host on the IQVIA cloud, and push to the clients' private clouds, or deliver through IQVIA traditional analytic solutions. Customers see reduced delivery time with quicker access to standardized data, a single data repository across user groups, and reduced costs and overhead with centralized global data assets.

IQVIA supports the above client use cases through its managed PaaS offering by deploying cloud environments that mirror IQVIA's global private cloud. The technology in the IQVIA PaaS offering supports IQVIA's 2500 data scientists and staff to run advanced analytics and AI/ML applications across R&D, real world and commercial business lines.



We have 70 different teams, with about 2,500 people, using the platform to do some unique things with the data, from identifying next-generation clinical development strategies to building new algorithms to advance Alzheimer's research. Now we've figured out how to make these same capabilities available to our customers through our PaaS deployments."

NAVDEEP ALAM
Senior Director, Global Data Warehouse, IQVIA

What IQVIA and Cloudera Offer Pharma and Biotech Organizations

IQVIA's PaaS deployment on Cloudera offers an end-to-end data management, analytics, and machine learning platform that helps scientists and researchers drive insights and action from any data, anywhere, in real-time.

- Pre-Configured — Data lake is 80% out of the box pre-configured
- Privacy and Security Built-in — Security, privacy, governance and encryption are built-in to the cloud tenant environment
- Time to Value — Healthcare-grade cloud environment can be deployed in days as opposed to months
- Flexible Cloud Configurations — Clients can extend cloud capability for sensitive data (PII, PHI, HIPAA-compliant)
- No Vendor Lock-In — Built on open source, big data technology standards so clients can leverage the environment for as long as they need, short or long-term

IQVIA's PaaS offering empowers Pharma and BioTech companies with a modern data platform to turn data insights quickly, easily, and securely into actions, accelerating the time to bring new drugs to market, reduce costs and improve patient outcomes.

To learn more contact us at HCLS@cloudera.com.

To learn more about IQVIA, visit <https://www.iqvia.com/>.

CLouDERA

Cloudera, Inc. | 5470 Great America Pkwy, Santa Clara, CA 95054 USA | cloudera.com

Cloudera is the only true hybrid platform for data, analytics, and AI. With 100x more data under management than other cloud-only vendors, Cloudera empowers global enterprises to transform data of all types, on any public or private cloud, into valuable, trusted insights. Our open data lakehouse delivers scalable and secure data management with portable cloud-native analytics, enabling customers to bring GenAI models to their data while maintaining privacy and ensuring responsible, reliable AI deployments. The world's largest brands in financial services, insurance, media, manufacturing, and government rely on Cloudera to be able to use their data to solve the impossible—today and in the future.

To learn more, visit [Cloudera.com](https://cloudera.com) and follow us on [LinkedIn](#) and [X](#).