

The Total Economic Impact™ Of Cloudera On Private Cloud

Cost Savings And Business Benefits Enabled By Cloudera On Private
Cloud

A Forrester Total Economic Impact™ Study
Commissioned By Cloudera, May 2024

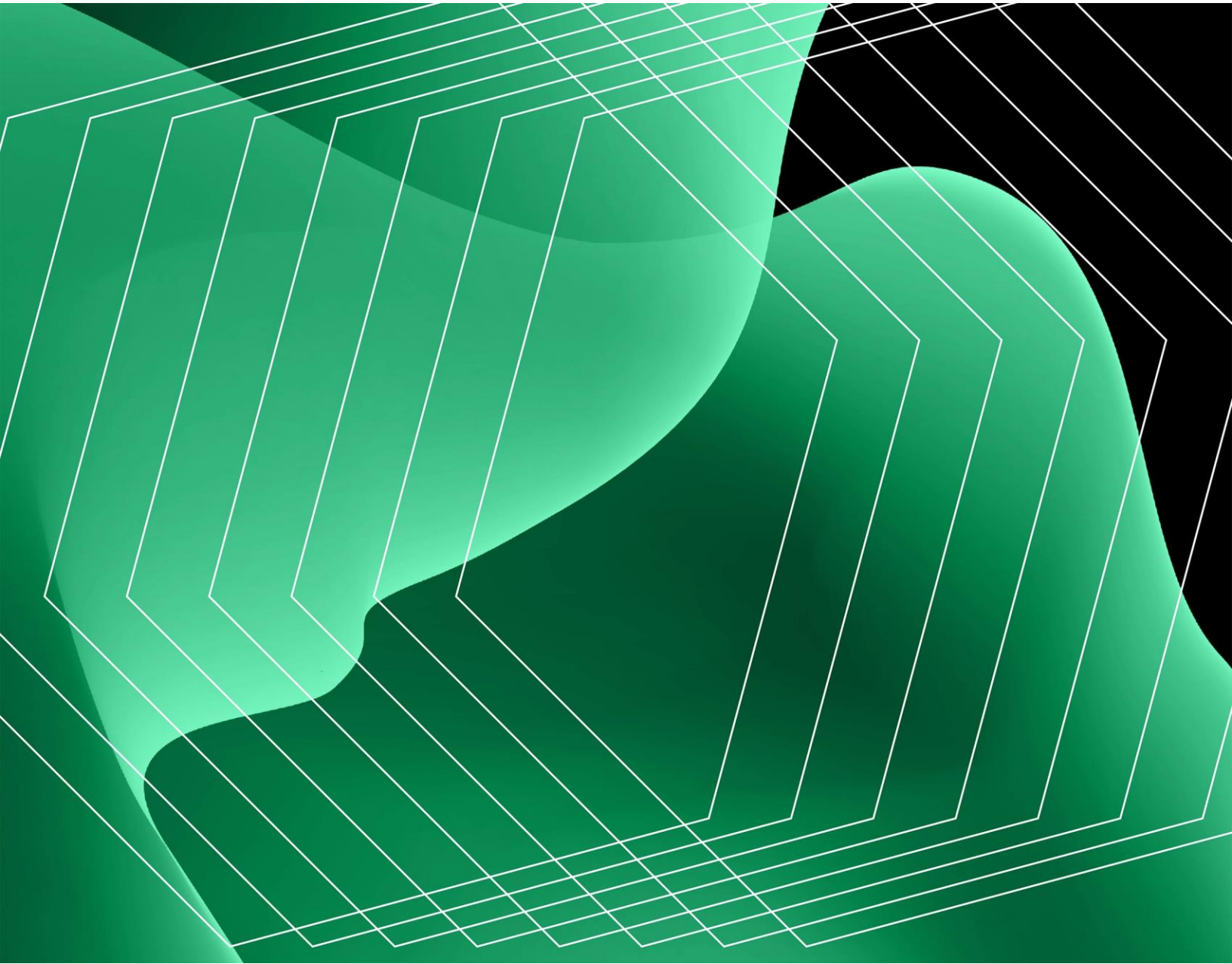


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Executive Summary

Cloudera on Private Cloud is an on-prem, cloud-native data platform that can deliver greater agility, flexibility, and cost efficiency for organizations across industries. With Cloudera, organizations may experience cost savings in relation to their infrastructure, faster time to value for their diverse use cases, and enhanced productivity for their data teams with a secure solution.



Return on investment (ROI):

254%



Net present value (NPV):

\$12.77 million

Cloudera commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying [Cloudera on Private Cloud](#).¹ The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Cloudera on Private Cloud on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed six representatives of five organizations with experience using Cloudera on Private Cloud (referred to in this study as “Cloudera”). For the purposes of this study, Forrester aggregated the interviewees’ experiences and combined the results into a single [composite organization](#) that is an organization with five petabytes of data managed in Cloudera.

“Cloudera delivers rich features, data management, and data analytics with guarantees around performance, scalability, and security.”

CTO ARCHITECT, FINANCIAL SERVICES

EXECUTIVE SUMMARY

Interviewees said that prior to using Cloudera, their organizations typically used an on-prem platform with multiple data warehouses and databases. But they explained that this approach lacked flexibility and agility and that over time, it proved to be cumbersome and difficult to manage. These limitations led to growing infrastructure costs and a backlog of unexecuted use cases.

After the investment in Cloudera, the interviewees' organizations saw cost savings, revenue generation, and greater flexibility. Key results from the investment include cost savings from modern architecture, faster time to value, enhanced productivity, furthered sustainability goals, hybrid flexibility, and enhanced security.

KEY FINDINGS

Quantified benefits. Three-year, risk-adjusted present value (PV) quantified benefits for the composite organization include:

- **Cost savings of 35% with modern architecture.** Cloudera substantially reduces the composite's infrastructure costs because features such as the decoupled scaling of storage and compute, the ability to shift workloads more easily, and higher density storage with Ozone allow it to see higher utilization rates and rely on far fewer nodes for both storage and compute. These cost savings total \$4.7 million over three years for the composite organization.
- **Faster time to value by 80%.** As a centralized, cloud-native platform with robust features and the ability to scale, Cloudera allows teams across business units at the composite organization to quickly develop and execute revenue-generating and cost-saving data use cases. With Cloudera, data is fresher, more accurate, and more actionable. The faster time to value enabled by Cloudera is worth \$11.5 million over three years for the composite organization.
- **Enhanced productivity by 20% for data teams.** Data administrators, architects, and analysts at the composite organization who are Cloudera users realize time savings due to the solution's features, including a user-friendly interface, rolling restart, workload portability, and greater alignment due to centralized data. The enhanced productivity that data teams experience translates into \$1.6 million over three years for the composite organization.

“Speed and accuracy are the two most important factors for any data-based organization. Cloudera definitely delivers both.”

CTO, TECHNOLOGY

Unquantified benefits. Benefits that provide value for the composite organization but are not quantified for this study include:

- **Furthering sustainability goals.** Cloudera enables the composite organization to rely on far less storage and compute infrastructure. This allows it to reduce its footprint and better meet its sustainability objectives.
- **Hybrid flexibility.** Cloudera provides the composite organization with a hybrid solution that has a high degree of flexibility. This allows it to manage data across multiple cloud environments and on-prem.

“With Cloudera, you have an open-source, hybrid-type data cloud solution, so you can have a multicloud situation. And that, of course, provides flexibility. It’s a tremendous benefit.”

CTO, TECHNOLOGY

- **Enhanced security.** Cloudera enhances security at the composite organization, which helps ensure data is accessible only on a need-to-know basis and reduces the probability of a data breach. Additionally, Cloudera provides a single location for consistent data governance and lineage.

- **Enabling AI initiatives.** Cloudera supports both predictive and genAI initiatives by improving the accessibility and efficiency of storage and computational power, both of which are in high demand to train bespoke machine learning models and/or to use large language models (LLMs) for retrieval augmented generation (RAG). This allows the composite organization to flex resources up and down to manage costs better. Cloudera helps enterprises create AI applications on a trusted enterprise data foundation. With Cloudera, the composite organization can also access on-prem proprietary data to tune, contextualize, and train its LLMs.
- **Improved exploratory work with data.** Exploratory work at the composite organization is easier and more affordable with Cloudera because data teams can connect to a unified data repository, process data, run queries, and create visualizations without worrying about provisioning additional costly compute/storage resources.

“Cloudera provides scalability across the different value chains within our organization. It pulls in data from different siloed environments and enables modeling and the ability to scale that up. It centralizes the data and workloads. That’s what makes it very scalable.”

SENIOR DIRECTOR OF IT OPERATIONS, HEALTHCARE

Costs. Three-year, risk-adjusted PV costs for the composite organization include:

- **Subscription costs.** The composite organization pays Cloudera subscription costs for the use of Cloudera Private Cloud. These costs are driven by factors such as the amount of data the composite organization has in Cloudera Private Cloud and total \$4.1 million over three years.

- **Internal labor dedicated to implementation and management.** The composite organization dedicates a small team of FTEs to the initial implementation and ongoing management of Cloudera Private Cloud. This costs \$921,000 for the composite organization over three years.

The representative interviews and financial analysis found that a composite organization experiences benefits of \$17.8 million over three years versus costs of \$5.0 million, adding up to a net present value (NPV) of \$12.8 million and an ROI of 254%.

“I can confidently say that Cloudera on Private Cloud is definitely more cost effective [than public cloud alternatives] and the return on investment is quite good. It’s delivering similar functionality, but at lower costs.”

CTO ARCHITECT, FINANCIAL SERVICES

EXECUTIVE SUMMARY



Return on investment (ROI):

254%



Benefits PV:

\$17.80M



Net present value (NPV):

\$12.77M



Payback:

<6 months

Benefits (Three-Year)

Cost savings with modern architecture

\$4.7M

Faster time to value

\$11.5M

Enhanced productivity for data teams

\$1.6M

TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in Cloudera on Private Cloud.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that Cloudera on Private Cloud can have on an organization.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Cloudera and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the study to determine the appropriateness of an investment in Cloudera on Private Cloud.

Cloudera reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

Cloudera provided the customer names for the interviews but did not participate in the interviews.

Due Diligence

Interviewed Cloudera stakeholders and Forrester analysts to gather data relative to Cloudera on Private Cloud.

Interviews

Interviewed six representatives at five organizations using Cloudera on Private Cloud to obtain data about costs, benefits, and risks.

Composite Organization

Designed a composite organization based on characteristics of the interviewees' organizations.

Financial Model Framework

Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewees.

Case Study

Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see [Appendix A](#) for additional information on the TEI methodology.

The Cloudera On Private Cloud Customer Journey

Drivers leading to the Cloudera on Private Cloud investment

Interviews					
Role	Industry	Region	Revenue	Employees	Data in Cloudera
CTO	Technology	Global	\$60B	250K	7 PB
CTO architect	Financial services	Global	\$12B	20K	10 PB
Senior director of IT operations	Healthcare	North America	\$8B	45K	<1 PB
Head of data platforms	Financial services	APAC	\$10B	30K	10 PB
Executive director of data	Financial services	APAC	\$10B	30K	10 PB
Vice president of platform engineering	Financial services	Global	\$25B	35K	25 PB

KEY CHALLENGES

Before deploying Cloudera, interviewees' organizations most often used an on-prem platform with multiple data warehouses and databases. Given that approach, the interviewees noted how their organizations struggled with common challenges, including:

- **Growing costs.** Interviewees highlighted that their organizations were trying to find ways to limit growing costs that stemmed from their increasing amounts and use of data. Both storage and compute were expensive yet necessary for continued success. The head of data platforms in financial services noted that these concerns led their organization to invest in Cloudera: "What Cloudera

offers from a pricing perspective is something that helps us to manage our costs even as we expand.”

- **Limitations around data use cases.** Interviewees’ organizations had backlogs of data-focused use cases that could generate revenue, cut costs, and mitigate risk, but they were stymied by the complexity of their legacy environments. They were curtailed by siloed data, subpar functionality, and, in some cases, costly data ingest with their legacy data warehouses. This led the organizations to be too limited in the use cases they pursued and too slow to get them off the ground.
- **Security concerns.** Interviewees explained that security was an ever-present concern and priority because their organizations needed to ensure that only the right users had access, data breaches were prevented, and regulatory requirements were met. The CTO architect in financial services said, “Given the proprietary nature of some of our data, it’s not easy to just go to a cloud player without a lot of our proprietary and confidential data being at risk.”
- **Desire for a more flexible and open solution.** Interviewees explained that their organizations wanted a more flexible, open, and modern solution. The CTO in technology remarked, “We’ve embraced the whole hybrid cloud concept: the idea that you can be on-prem but, at the same time, have managed services [with various vendors].” The head of data platforms in financial services added, “We needed a solution that was able to support different versions of existing GPUs (graphics processing units) so that it was agnostic.”

“Cloudera was the natural progression for us when we were selecting the next evolution of a big data, open-source-based solution.”

HEAD OF DATA PLATFORMS, FINANCIAL SERVICES

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an ROI analysis that illustrates the areas financially affected. The composite organization is representative of the six interviewees, and it is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

Description of composite. The composite organization is an enterprise with \$10 billion in annual revenue, 25,000 employees, and heightened compliance and regulation needs. Before implementing Cloudera on Private Cloud, the composite organization relied on a legacy on-prem platform with multiple data warehouses and databases, and it had 300 storage and compute nodes.

Deployment characteristics. The composite organization replaces its legacy approach by adopting Cloudera on Private Cloud as its enterprise data platform. The composite implements Cloudera over six months, and 1,500 employees, including data administrators, architects, and analysts directly use the platform. The composite uses Cloudera to manage 5 PB of data. However, it scales Cloudera as needed to support far less and far greater amounts of data.

Key Assumptions

\$10 billion annual revenue

25,000 employees

1,500 employees in technical and applied roles leverage the platform

5 PB of data managed in Cloudera

Analysis Of Benefits

Quantified benefit data as applied to the composite

Total Benefits						
Ref.	Benefit	Year 1	Year 2	Year 3	Total	Present Value
Atr	Cost savings with modern architecture	\$1,890,000	\$1,890,000	\$1,890,000	\$5,670,000	\$4,700,150
Btr	Faster time to value	\$3,360,000	\$4,704,000	\$6,048,000	\$14,112,000	\$11,468,101
Ctr	Enhanced productivity for data teams	\$648,000	\$648,000	\$648,000	\$1,944,000	\$1,611,480
	Total benefits (risk-adjusted)	\$5,898,000	\$7,242,000	\$8,586,000	\$21,726,000	\$17,797,731

COST SAVINGS WITH MODERN ARCHITECTURE

Evidence and data. Interviewees explained that because of Cloudera on Private Cloud, their organizations could plan for less capacity and ultimately saved significant infrastructure costs. The organizations ultimately needed far fewer compute and storage nodes, and interviewees pointed to several Cloudera capabilities that enabled this, including the decoupled scaling of storage and compute, the ability to more easily shift workloads, and the support of higher-density storage with Ozone. Most interviewees were able to quantify their organization’s infrastructure savings, which ranged from 25% to more than 50%.

- The CTO architect in financial services laid out their organization’s overall improved utilization rates due to Cloudera: “We definitely experience a lot more utilization of those clusters. Before, the most we could get was, like, 30% utilization. Now, we’re more at 60% to 70% utilization.”
- Interviewees explained that a significant driver of reduced infrastructure costs was the decoupling of compute and storage, which allowed their organizations to scale them separately and more optimally. This led to higher utilization rates for

both compute and storage nodes. As a result, the organizations required fewer nodes overall, which markedly reduced costs.

- The CTO in technology explained: “Decoupling is a really important aspect of digital transformation and digital architecture. Decoupling is critical because you want to mix and match and get the best technologies for different needs.”

“Decoupling is a big benefit of Cloudera. Before, we just saw too much underutilization. To get the most ROI, you really need to have that higher utilization.”

CTO ARCHITECT, FINANCIAL SERVICES

- The executive director of data in financial services also emphasized the significance of a decoupled environment and noted the increased flexibility and utilization it led to: “There’s definitely added value because the compute is segregated from storage, and both can be expanded independently. That’s how Cloudera gives you the flexibility. We continuously expand the compute. There’s definitely more utilization.”
- Interviewees noted that with Cloudera, their organizations could add CPUs and GPUs optimized for compute, for instance. They explained that they needed fewer nodes because the performance of the existing ones dramatically increased.
- Several interviewees highlighted the importance of the integration of Kubernetes with Cloudera. The executive director of data in financial services said, “Because of Kubernetes and Cloudera, there’s definitely less capacity we need to plan.” The CTO in technology added: “Kubernetes is the overall architecture that we embraced. [We] can move workloads from one stack within our ecosystem to

another because it's not being used or because we can consolidate that usage. That means we're lowering costs."

"Cloudera gives me a compact, simple, and separate and efficient way to do the compute for whichever product. ... I can really take advantage of shrinking down my server count."

VP OF PLATFORM ENGINEERING, FINANCIAL SERVICES

- Interviewees noted that their organization's storage density also improved with Cloudera, highlighting the benefit of Ozone object store in Cloudera. One interviewee reported that with improved storage density with Cloudera, their organization required 23% fewer storage nodes, which saved significant costs and also contributed to its sustainability goals.
- Multiple interviewees expressed that with Cloudera, their organization was generally able to bring the flexibility and cost efficiency of the public cloud on-prem.

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- Prior to using Cloudera, the composite's annual infrastructure costs resulting from storage and compute nodes were \$6 million.
- With Cloudera, the composite reduces these costs by 35%.

35%

Reduction in architecture costs

Risks. The benefits of cost savings with modern architecture will vary based on:

- The organization's total infrastructure costs associated with storage and compute nodes and the tools and approaches it used prior to Cloudera.
- The extent to which the organization leverages Cloudera features such as decoupled scaling of storage and compute and the ability to shift workloads in order to see higher utilization and the need for fewer nodes.
- Whether or not the organization strategically obtains CPUs and GPUs optimized for compute.
- The amount of stored data that is repeatable.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$4.7 million.

“Object storage is a crown jewel with Cloudera. If Ozone detects that this chunk is the same as the other chunk, it doesn't need to write it twice. This is where there's the magic of storage efficiency: [We've seen] probably a 30% improvement [on average].”

CTO ARCHITECT, FINANCIAL SERVICES

Cost Savings With Modern Architecture					
Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Architecture costs	Composite	\$6,000,000	\$6,000,000	\$6,000,000
A2	Reduction in architecture costs due to Cloudera	Interviews	35%	35%	35%
At	Cost savings with modern architecture	A1*A2	\$2,100,000	\$2,100,000	\$2,100,000
	Risk adjustment	↓10%			
Atr	Cost savings with modern architecture (risk-adjusted)		\$1,890,000	\$1,890,000	\$1,890,000
Three-year total: \$5,670,000			Three-year present value: \$4,700,150		

FASTER TIME TO VALUE

Evidence and data. Interviewees said that with Cloudera on Private Cloud, their organization could spin up and execute use cases more quickly in a centralized, cloud-native environment that provided the flexibility to scale as needed. Across interviewees' organizations, Cloudera led to a 50% to more than 100% faster time to value from use cases. These use cases varied depending on organizational goals, but they focused on revenue generation as well as cost savings from risk mitigation and more efficient operations. The impact of this benefit was substantial, with multiple interviewees reporting dozens of significant use cases and tens of millions of dollars in financial gain.

- Interviewees reported that with Cloudera, their organization experienced faster time to value for use cases across business units due to the data now being more accessible in a centralized, cloud-native environment that allowed for actionable and scalable utilization.
- Interviewees detailed the functionality in Cloudera that contributed to the faster time to value. The CTO in technology said: "Before Cloudera, it could take up to six to nine months to sort through the data tables, do schemas, and all sorts of things to actually write the data. It was just hit or miss many times. Now, with Cloudera, it's taking six to nine weeks. So, the difference is dramatic. Also, the scope and the breadth of the data you're getting is so much better because Cloudera has the functionality to look at unstructured data [and] big data, along with what people are calling hidden data."

ANALYSIS OF BENEFITS

- Interviewees frequently noted Cloudera's openness, and its ability to integrate with open-source components and contribute to open-source projects.
- The CTO in technology stated: "A value of Cloudera is the fact that it really is open source in the sense of that Apache Iceberg approach that they've added to the portfolio. There are 30 or more open-source components with Apache Impala, Hive, and Kafka. All of those and that open type of architecture makes it significantly better compared to competitors out there."
- The senior director of IT operations in healthcare explained that with Cloudera, employees at their organization quickly derived actionable insights from the data: "We've become more productive with turnaround times. [With Cloudera,] you can connect the dots around different siloed environments. We've become more efficient in taking big data and building solutions off of that."
- Interviewees' organizations commonly used Cloudera for revenue-generating use cases. For instance, one interviewee noted how their organization used Cloudera for a successful hyper-personalized campaign that relied on transaction history and delivered more than 1 million offers per day.
- The CTO in technology added: "The data is used with marketing and sales groups and others because Cloudera is just really so good at what it does and gets the information in a timely fashion. It can package and provide the information they really need to be able to close more sales and generate more revenue for the organization."

"Cloudera is a significant revenue generator in the long run given what we do with these models. ... [The financial impact] is easily tens of millions of dollars."

VP OF PLATFORM ENGINEERING, FINANCIAL SERVICES

- Interviewees also said Cloudera improved revenue by supporting their organizations' core R&D initiatives. The senior director of IT operations in healthcare explained: "Cloudera pulls in genomic data, patient data, and any other types. [Cloudera enables us to] mesh all of that data together, run quality analytics, and build predictive outcomes in a secure way. That's tangible to the business. We have return on investment."
- Interviewees repeatedly stated that technical users and end users could spin up the data use cases they needed faster. Many interviewees pointed to how Cloudera enabled quick action on their organization's generative AI use cases.
- The executive director of data at a financial services firm elaborated: "When genAI emerged, within about two weeks, we were able to host the first genAI model. The reason we were able to do it so quickly is because Cloudera allows custom images [and] the flexibility of deploying any open source on top of Cloudera. It allowed us to go live within two weeks. That was a game changer."

"You can leverage open source, and that's a game changer to fast track. It's why we chose Cloudera. Yes, it's a packaged solution, but it gives you the flexibility to deploy any type of open-source models on the platform."

EXECUTIVE DIRECTOR OF DATA, FINANCIAL SERVICES

- The same organization used Cloudera to develop and deploy specialized in-house chatbots with both traditional and genAI foundations. These helped with knowledge management, including complex regulatory matters and coding assistance.

- Interviewees in financial services said their organizations widely used Cloudera for fraud detection, risk mitigation, and decision management use cases. They described using Cloudera to ingest real-time payment data and, in turn, to build models that scanned millions of financial transactions in real time to identify anomalous behavior.
- Interviewees explained that the speed with which their organizations could access, analyze, and leverage data meant that the data was fresher. The CTO in technology elaborated: “Data gets old fast. By having Cloudera, we can access that data quickly when we really need it. That benefits the end user dramatically, and also the company.”
- The same interviewee noted how the speed with Cloudera also improved accuracy: “Cloudera allows models to be developed faster in real time. That means that data scientists and data architects can get the right information and improve accuracy. That benefit alone is substantial. It gets that [accurate] information into the right hands so that they can promote certain initiatives.”
- The head of data platforms in financial services concluded that the data has the added benefit of having a multiplier effect: “The wonderful thing about data is that it has a multiplier effect. You bring it in for a given use case that you think will lead to this amount of revenue or this amount of cost savings, but in actual fact, down the line, the same data can be reused for a different use case. And, therefore, the sky is the limit on being able to measure the ROI.”

“There are all sorts of ways to leverage Cloudera to make it valuable and integrated within an organization. But the reduced timeframes alone are astonishing, and that relates back to the overall cost savings.”

CTO, TECHNOLOGY

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- In the first year, the composite uses Cloudera on Private Cloud for 25 data use cases. This number increases to 35 use cases in the second year and to 45 use cases by the third year.
- Prior to using Cloudera, the composite's use cases took an average of three months for the time to value.
- With Cloudera, the composite's use cases see time to value an average of 80% faster.
- A use case at the composite organization has an average monthly financial benefit of \$70,000 due to benefits such as profit, cost savings, and risk mitigation.

80%

Faster time to value

Risks. The benefit of faster time to value will vary based on:

- The organization's amount of use cases, their average time to value, and the average financial benefits they deliver.
- The processes and tools the organization used to execute and implement use cases prior to using Cloudera.
- The strategy the organization has in place to identify feasible and high-value use cases.

Results. To account for these risks, Forrester adjusted this benefit downward by 20%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$11.5 million.

“A big piece of the ROI with Cloudera is the ability to have actionable insights. We’re pulling all this data in, running different types of modeling and querying, [and] looking at predictive analytics for early detection and efficacy of care. We have actionable insights because it’s centralized in Cloudera.”

SENIOR DIRECTOR OF IT OPERATIONS, HEALTHCARE

Faster Time To Value					
Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Use cases with faster time to value due to Cloudera	Composite	25	35	45
B2	Average time to value before using Cloudera (months)	Composite	3	3	3
B3	Faster time to value with Cloudera	Interviews	80%	80%	80%
B4	Faster time to value with Cloudera (months)	B2*B3	2.4	2.4	2.4
B5	Average monthly financial benefit (e.g., profit, cost savings, or risk mitigation) resulting from a use case	Composite	\$70,000	\$70,000	\$70,000
Bt	Faster time to value	B1*B4*B5	\$4,200,000	\$5,880,000	\$7,560,000
	Risk adjustment	↓20%			
Btr	Faster time to value (risk-adjusted)		\$3,360,000	\$4,704,000	\$6,048,000
Three-year total: \$14,112,000			Three-year present value: \$11,486,101		

ENHANCED PRODUCTIVITY FOR DATA TEAMS

Evidence and data. Interviewees said their organization’s Cloudera on Private Cloud users including data administrators, architects, analysts saw time savings due to the solution’s easy-to-use interface, rolling restart, workload portability, and centralized data access. Interviewees estimated an average of 20% time savings for those employees impacted.

- Interviewees reported that Cloudera’s interface is easy to use, which led data administrators to experience time savings. The CTO in technology said: “On the resource side of it, Cloudera is easy to use compared to [alternatives.] ... Because of that, we’re seeing, like, a 20% reduction in [the time they need to spend].”
- The same interviewee added that Cloudera’s efficient updating — including rolling upgrades in some instances — further saved employee time: “[Using] rolling upgrades instead of lockstep definitely saves time. Lockstep can delay things. It’s a process-side matter of how the data is pulled together and presented. It’s an advantage for sure.”
- Interviewees’ organizations also benefited from workload portability with Cloudera. Interviewees noted this could save significant time when they did not need to rearchitect applications for them to work with another platform.

“The savings that we have with Cloudera in the orchestration of queries and for my team being able to support the cluster and keep it running are huge. That alone was a good reason to move to Cloudera rather than trying to roll out something on our own.”

VP OF PLATFORM ENGINEERING, FINANCIAL SERVICES

- The CTO in technology discussed the significant time savings related to extract, transform, and load (ETL) work with Cloudera: “We’ve leveraged Cloudera to really create a native table format where you can build only one single data layer instead of multiple ones for any particular type of workload. And what’s really astonishing about it [is that] Cloudera dramatically reduces ETL overhead.”
- Interviewees also discussed the value and efficiency gains that stem from data being centralized with Cloudera, which resulted in more reuse of data and models instead of building those assets again. Additionally, interviewees spoke of the value of Cloudera driving alignment on queries and ensuring they run in the right order.
- The senior director of IT operations in healthcare emphasized the productivity gains realized by their organization’s data analysts: “Cloudera users are more productive with their time. Across our core laboratories, they’re connecting dots across previously siloed environments, and [they’re] able to take big data and build solutions off of it. So, they’ve become more efficient.”

“What we wanted was an open and scalable solution. ...
What we like about Cloudera is how open it is.”

HEAD OF DATA PLATFORMS, FINANCIAL SERVICES

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- Thirty FTEs including data administrators, architects, and analysts who are key users of Cloudera see enhanced productivity with Cloudera.

- Due to Cloudera, these FTEs realize an average productivity improvement of 20%.
- The average fully burdened annual salary for these employees is \$120,000.

20%

Productivity improvement for data teams

Risks. The benefit of enhanced productivity for data teams will vary based on:

- The number of FTEs who leverage the platform.
- The tools and processes the FTEs used prior to using Cloudera.
- The extent to which data models are strategically designed to experience the full productivity benefits associated with Cloudera.
- The average fully burdened salaries of employees.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$1.6 million.

“Cloudera helps to eliminate a lot of resources and hours needed to build on the data warehouse side of it. The data itself is in the cloud. That’s really one of the greatest strengths of Cloudera.”

CTO, TECHNOLOGY

Enhanced Productivity For Data Teams					
Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	FTEs who experience improved productivity with Cloudera	Composite	30	30	30
C2	Productivity improvement with Cloudera	Interviews	20%	20%	20%
C3	Average fully burdened annual salary for an FTE	TEI standard	\$120,000	\$120,000	\$120,000
Ct	Enhanced productivity for data teams	$C1 * C2 * C3$	\$720,000	\$720,000	\$720,000
	Risk adjustment	↓10%			
Ctr	Enhanced productivity for data teams (risk-adjusted)		\$648,000	\$648,000	\$648,000
Three-year total: \$1,944,000			Three-year present value: \$1,611,480		

UNQUANTIFIED BENEFITS

Interviewees mentioned the following additional benefits that their organizations experienced but were not able to quantify:

- Furthering sustainability goals.** Interviewees said investing in Cloudera on Private Cloud led their organizations to achieve their sustainability objectives. For instance, one interviewee said that with improved storage capacity with Cloudera, their organization avoided 500 additional servers. The interviewee described Cloudera as enabling the organization to limit infrastructure growth without negatively impacting business.

The VP of platform engineering in financial services added: “Our company is a very huge proponent of reducing our carbon and other environmental impact footprints. That is a big deal to us. And, so, anything we do that reduces even our internal data-center footprint is huge. With more dense object store with Cloudera, we’re able to reduce our overall server purchase.”

“Cloudera has an impact from a footprint perspective, a sustainability perspective, and a cost perspective.”

VP OF PLATFORM ENGINEERING, FINANCIAL SERVICES

- **Hybrid flexibility.** The CTO architect in financial services explained how Cloudera provided their organization with a hybrid solution that has a high degree of flexibility: “The world is hybrid. And, looking forward, it’s going to continue to be hybrid. [We use multiple cloud environments,] and the reason for that is [that we] follow [our] customers where they need [our] data. [We] need data to exist in five places. I can definitely tell you that Cloudera supports that and is competitive with the offerings that I see in the cloud.”

The senior director of IT operations in healthcare said Cloudera brings the flexibility and efficiency of the public cloud on-prem: “It’s a game changer. Public cloud on-prem: Why does it have to come on-prem? Because of the size of our data sets, we’ll see latency and computational challenges by keeping it in a public cloud environment. Pulling that on-prem and having what we call a hybrid environment is a game changer to build models off that data and successfully grow from there.”

“A top value of the Cloudera investment is that you then have open-source, hybrid data management.”

CTO, TECHNOLOGY

- **Enhanced security.** Multiple interviewees identified security as a top benefit of Cloudera. For instance, several said their organization had extremely stringent security requirements regarding external threats and which employees should be granted access. But the CTO in technology explained how Cloudera helped uphold those high standards: “[Cloudera supports] making sure that the data is only accessible on a need-to-know basis, which basically helps avoid a data breach.”

Interviewees also explained that Cloudera provided one location to manage data-processing and data-access workloads, which prevented overlapping policies that would become out of sync over time. The head of data platforms in financial services said: “Cloudera tends to be an all-in-one solution when it comes to data governance and data lineage, unlike a traditional data warehouse where I may need to buy a complementary solution. That is imbued with Cloudera, helping us with data security and governance. [It’s] a single place to enforce our security policies.”

- **Enabled AI initiatives.** Many interviewees noted their organizations were highly focused on AI initiatives, including genAI, and pointed to the particular ways that Cloudera supported those. For example, interviewees explained that with the rise of AI, storage has become more strategically important since AI relies heavily on large amounts of data that sits in their storage. Other interviewees highlighted the computational power needed for their organization’s current and future AI use cases. For both storage and compute, interviewees’ organizations saw improved accessibility and efficiency with Cloudera.
- **Improved exploratory work with data.** The executive director of data in financial services explained that Cloudera made explorative work more affordable: “Cloudera addresses our big data requirements. The cost to scale is more manageable. We don’t have to watch our wallet or be as picky when it comes to ingestion of data as much as we did with the data-warehouse solution.” Additionally, interviewees said Cloudera provided data scientists with a platform to work with exploratory workloads in a manner that did not impact operational or regulatory reporting.

“Our AI initiatives and managing those costs come largely from using Cloudera.”

HEAD OF DATA PLATFORMS, FINANCIAL SERVICES

FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Cloudera on Private Cloud and later realize additional uses and business opportunities, including:

- **Having a strong future roadmap.** Interviewees expressed confidence in the ability of Cloudera on Private Cloud to meet their organizations' needs going forward as the data landscape continues to evolve. The executive director of data in financial services said: “We always look at the capabilities of any product. But one of the criteria is always also ‘What is their roadmap?’ The roadmap of Cloudera is quite promising. They have a clear vision. They’re not stopping or stuck. Rather, they are finding ways to improve.”

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in [Appendix A](#)).

“A value of Cloudera is that it’s open source with 30 or more open-source components. That open type of architecture makes it significantly better and gives it benefits compared to competitors.”

CTO, TECHNOLOGY

Analysis Of Costs

Quantified cost data as applied to the composite

Total Costs							
Ref.	Cost	Initial	Year 1	Year 2	Year 3	Total	Present Value
Dtr	Subscription costs	\$0	\$1,650,000	\$1,650,000	\$1,650,000	\$4,950,000	\$4,103,306
Etr	Internal labor dedicated to implementation and management	\$264,000	\$264,000	\$264,000	\$264,000	\$1,056,000	\$920,529
	Total costs (risk-adjusted)	\$264,000	\$1,914,000	\$1,914,000	\$1,914,000	\$6,006,000	\$5,023,835

SUBSCRIPTION COSTS

Evidence and data. Interviewees' organizations paid subscription costs to Cloudera for the use of Cloudera on Private Cloud. The annual costs were tailored to each organization and depended on factors such as the amount of data used with Cloudera.

- Interviewees noted that product support comes with the subscription. Some interviewees' organizations added professional directional support, which led to additional costs.
- Interviewees noted that while their organizations needed infrastructure such as storage and compute nodes to meaningfully leverage Cloudera on Private Cloud, this was also part of their legacy approaches and was needed regardless. Therefore, this was not an incremental cost. The benefit related to reducing this infrastructure cost with Cloudera is reflected in the calculation of cost savings with modern architecture.
- Cloudera partners with organizations such as Hewlett Packard Enterprises and Intel for optimized hardware infrastructure to efficiently store, manage, and process dense data at scale.

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- The composite pays \$1.5 million per year for the Cloudera on Private Cloud subscription.
- Pricing may vary. Contact Cloudera for additional details.

Risks. The subscription cost will vary based on:

- The scope of the implementation, including the amount of data and any added professional services.
- Customer-specific pricing.

Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$4.1 million.

Subscription Costs						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
D1	Subscription costs	D1	\$0	\$1,500,000	\$1,500,000	\$1,500,000
Dt	Subscription costs	D1	\$0	\$1,500,000	\$1,500,000	\$1,500,000
	Risk adjustment	↑10%				
Dtr	Subscription costs (risk-adjusted)		\$0	\$1,650,000	\$1,650,000	\$1,650,000
Three-year total: \$4,950,000			Three-year present value: \$4,103,306			

INTERNAL LABOR DEDICATED TO IMPLEMENTATION AND MANAGEMENT

Evidence and data. The implementation of Cloudera on Private Cloud varied at interviewees' organizations, but it usually took place over multiple months. A small number of internal FTEs were directly involved in the implementation and conduct ongoing management of the platform.

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

ANALYSIS OF COSTS

- Four FTEs dedicate six months to the implementation of Cloudera.
- Two FTEs are dedicated to the ongoing management of Cloudera.
- The fully burdened annual salary for these FTEs is \$120,000.

Risks. The cost of internal labor dedicated to implementation and management will vary based on:

- The scope of the implementation.
- The skill sets of the organization's employees.
- The average fully burdened salary of FTEs dedicated to implementation and ongoing management.

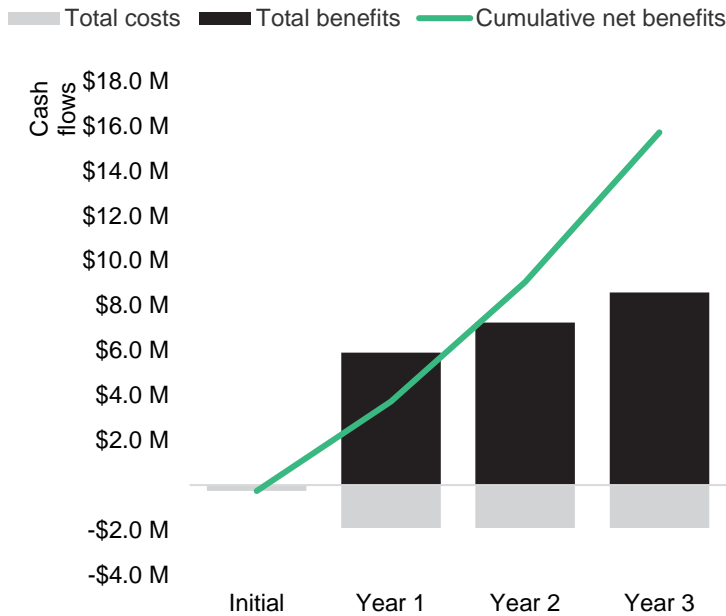
Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of \$921,000.

Internal Labor Dedicated To Implementation And Management						
Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
E1	FTEs dedicated to implementation and management	Interviews	4	2	2	2
E2	Fully burdened salary for an FTE dedicated to implementation and management	Composite	\$120,000	\$120,000	\$120,000	\$120,000
E3	Implementation time (months)	Interviews	6	0	0	0
Et	Internal labor dedicated to implementation and management	$(E1 \cdot E2 \cdot E3 / 12) + (E1 \cdot E2)$	\$240,000	\$240,000	\$240,000	\$240,000
	Risk adjustment	↑10%				
Etr	Internal labor dedicated to implementation and management (risk-adjusted)		\$264,000	\$264,000	\$264,000	\$264,000
Three-year total: \$1,056,000			Three-year present value: \$920,529			

Financial Summary

Consolidated Three-Year Risk-Adjusted Metrics

Cash Flow Chart (Risk-Adjusted)



The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Analysis (Risk-Adjusted Estimates)						
	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	(\$264,000)	(\$1,914,000)	(\$1,914,000)	(\$1,914,000)	(\$6,006,000)	(\$5,023,835)
Total benefits	\$0	\$5,898,000	\$7,242,000	\$8,586,000	\$21,726,000	\$17,797,731
Net benefits	(\$264,000)	\$3,984,000	\$5,328,000	\$6,672,000	\$15,720,000	\$12,773,896
ROI						254%
Payback						<6 months

APPENDIX A: TOTAL ECONOMIC IMPACT

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

Total Economic Impact Approach

Benefits represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

PRESENT VALUE (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.

NET PRESENT VALUE (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made unless other projects have higher NPVs.

RETURN ON INVESTMENT (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.

DISCOUNT RATE

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.

PAYBACK PERIOD

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

The initial investment column contains costs incurred at “time 0” or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

APPENDIX B: ENDNOTES

¹ Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

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