CLOUDERA

Powering cloud possibilities.

How to ensure current actions support future innovations.

Suffering from opportunity overload?

In the exciting age of cloud migration and digital transformation, the sad fact is that only 30% of digital transformation initiatives succeed. It turns out that the "faster, easier, cheaper" tools too often hurt business outcomes rather than boost productivity, insight, and revenues. So what's holding them back? Four basic areas of limitation that should really be opportunities:

1. Too much complexity leads to too little visibility

Nearly 25% of IT professionals don't feel they have the promised ability to ingest data from diverse sources fast enough to make decisions in real time. On top of that, 41% don't feel they have a clear strategy for managing data across multiple clouds. And although 51% of IT pros we surveyed plan to leverage multiple cloud providers, only 34% have actually created a plan to do so.[1]

2. A cacophony of potential functionality

With so much to choose from in theory, IT pros struggle to focus efforts on what will be priority functions. Over 60% don't know what data they'll need to support emerging functions. Almost 50% plan to add or enhance ML and AI capabilities over the next three years for the purposes of:

- Streaming – one function

- Storing and driving huge amounts of insights

- Manipulating data

- Engineering

Naturally, they want to do a lot with their data, but they struggle with how to think about the function in the cloud and how to ensure that decisions made today won't limit them when technologies change in the future.

[1] "Harvard Business Review Survey: Critical Success Factors to Achieve a Better Enterprise Data Strategy in a Multi-Cloud Environment," sponsored by Cloudera.

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3. Security and compliance

While 77% of IT pros are required to secure data within a regulatory framework, 11% don't know which data regulations impact their organization, and 57% expect to face new data privacy regulations in the near future. Given all this, how will they assure leadership that the solutions they select will remain compliant with the plethora of regulations demanded per industry on an ongoing basis? They need subject matter experts to identify threats in security, risk management, and mitigation, and they need time to maintain basic security so that an audit, should there be one, would not result in fines. In short, today's security lock could be tomorrow's fatal loophole.

4. Increased value requires improved access

IT organizations are often faced with an out-of-the-frying-pan situation of going from on-premises vendor lock-in to vendor lock-in on the cloud. Currently, 54% of IT pros cite data silos as an obstacle to gaining maximum value from data. Today, that's proprietary applications or data warehouses. But tomorrow? You need the flexibility to shift quickly while staying compliant with your future needs. This is one reason an open source solution makes so much sense. As Michael Franklin, the Liew Family Chair of Computer Science and chairman of the department of computer science at the University of Chicago told the Harvard Business Review, "There is a conflict of interest where cloud providers want you to set up shop in their cloud and not leave. This adds huge risk to customers because they can find themselves at the mercy of a particular cloud vendor. The ability to move across vendors or to use multiple vendors at the same time is absolutely crucial."[2]

However, one in eight organizations said that the risk of vendor lock-in has prevented them from making greater use of the public cloud. It's not today's limitations that are holding back cloud innovations, it's tomorrow's.

[2] "Harvard Business Review Survey: Critical Success Factors to Achieve a Better Enterprise Data Strategy in a Multi-Cloud Environment," sponsored by Cloudera.

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So, how do you say "yes" to future possibilities (and changes)?

For many organizations, the goal is to be cloud agnostic as to where data comes from or is stored. To build a platform that can draw on the deepest well of information requires access to the right data in the right operating environment, through open compute architectures, open data stores, and open partner ecosystems. The ideal would be to be able to select the type of workload, choose the capacity, run the job, and meet all your security requirements. The use case should be the thing that matters, whether the platform is on-premises or in a public or private cloud infrastructure. But that's not the case today.

The goal should be an integrated data platform that allows the user to focus on the use case, the workflow type, and the security requirements rather than worry about how to translate the data from one location and format to another.

This enterprise data cloud approach allows you to:

• Control cost with no vendor lock-in. It lays the foundation with a purely open-source, big data distribution.

• Reduce infrastructure cost up to 30%. You get more control over "cluster sprawl" with more efficient infrastructure.

• Reduce DW cost up to 70%. You can optimize data warehouses by shifting the right workloads to an appropriate platform.

• Reduce risk by establishing and enforcing the enterprise data governance and security policies.

• Gain new revenue and explore new business models with machine learning at scale with data science projects.

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What an enterprise data cloud looks like

Any cloud	Multi-function	Secure and governed	Open
Multiple public clouds	Streaming	Data and metadata	100% open source
Hybrid cloud	Data engineering	Fine-grained security	Open data formats
Private cloud	Data warehousing	Lineage and provenance	Open storage and compute
Datacenter edge	Machine learning and AI	Data and workload migration	Open APIs

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An enterprise data cloud manages data in any environment, including multiple public clouds, bare metal, private cloud, and hybrid cloud. With a solution like Cloudera Data Platform (CDP), IT can confidently deliver secure analytics running against any form of data anywhere. It's a new approach to enterprise data, anywhere from the edge to AI, that enables you to:

Manage, control, and analyze data anywhere

- **Multi-cloud:** Organizations have the flexibility to use their cloud provider of choice.

- **On-premises:** Where on-premises is used AI can improve performance, cost, and security.

- **Hybrid cloud:** Consistent management and control across combinations of public clouds and on-premises for ultimate choice.

Ensure an enterprise data cloud is secure by design

- **Consistent:** Security and governance policies are set once and applied across all data and workloads.

- **Portable:** Policies stay with the data even as it moves across all supported infrastructures.

- **Self-service:** Users can efficiently find, curate, and share data, enabling access to trusted data and analytics.

Depend on easy-to-use analytics that work better together to support the most demanding use cases

- **Complete:** All functions needed to ingest, transform, query, optimize, and make predictions from data are available, eliminating the need for point products.

- **Integrated:** Unified analytic functions simplify the creation of big data applications and pipelines.

- **Consistent:** Standardized user experience across functions makes it faster and easier to analyze data.

The right environment to drive data power

Cloudera Data Platform (CDP), the world's best enterprise data cloud, works in the world-leading Microsoft Azure environment to exploit the power of your data to provide:

- Flexibility and infinite scalability wherever your data lives, from hybrid or private cloud to datacenters to edge computing.

- Powerful multi-function capabilities to support technologies such as streaming, data engineering, and data warehousing.

- Secure data and metadata as well as workload migration running in the Azure cloud that's trusted by 95% of Fortune 500 companies.

- A future-ready solution that's 100% open source, with open data formats, storage, and compute, as well as APIs for customization.

Oh the possibilities!

What to look for in an enterprise data cloud

An enterprise data cloud can be designed specifically to solve the challenges you face in digital transformation. With a hybrid cloud, multi-function data platform with security and governance that is 100% open source, you can do more with your data and be ready for any possible advances in technology and business. There are a number of major advantages to a flexible, secure, and open data platform that scales with Microsoft Azure.

Save time with a 100% open, simplified migration that adapts to business needs

The simple operations make an EDC easier to deploy, manage, maintain, and use. It reduces the time to onboard new use cases across the organization. Then, with self-service, users can find, curate, and share data with incredible ease (it's almost a drag-and-drop process from anywhere with any accessible data). This enables almost instant access to trusted data and analytics. Users get a consistent and standardized experience across functions, which makes it faster and easier to analyze data—no more functionality overload!

And because it uses 100% open source, you avoid vendor lock-in with open data formats, open storage and compute, and open APIs.

Easily harness data from anywhere for faster breakthroughs

With edge to AI analytics, data is complete, integrated, and consistent, with a set of capabilities to collect, ingest, transform, analyze, optimize, and make predictions. Any authorized user can instantly capture and analyze data anywhere, including on-premises, on the public cloud, or any combination. This takes silos out of the picture and centralizes control of customer and operational data across multi-cloud and hybrid environments. And the user can see it all through a single-pane-of-glass interface for big-picture insights and fast drill-downs.

Sleep better with confidence in ground-up security and governance

With an EDC solution like Cloudera Data Platform, you get a consistent data framework and governance built onto data that carries through to on-premises, hybrid cloud, and cloud infrastructures. Security and governance policies are set once, then applied across all data and workloads. In addition to this, Azure's proactive approach to security, compliance, and privacy leads the industry in establishing and consistently meeting clear security and privacy requirements.

Control costs with adaptive scaling

Control cloud costs by automatically spinning up workloads when needed and suspending their operation when complete, with machine learning for intelligent auto-scale.

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Precision safety at petabyte scale

Company: Lufthansa Technik

More than the familiar airline, Lufthansa Technik is one of the leading providers of technical aircraft services in the world. They provide over 800 customers with 5,000 aircraft the entire range of digital fleet support, maintenance, repair, overhaul, modification, completion, and conversion. Thousands of flights a day rely on Lufthansa Technik for critical safety and efficiency data that must be accurate and real-time.

Challenge: Securing and accessing data on thousands of flights a day

Today's aircraft, such as the Airbus A350 or Boeing 787, produce 50 times more data—generating more than a terabyte per flight. With tens of thousands of commercial flights daily and worldwide, data volumes annually can quickly add up to petabytes. Lufthansa Technik needed a secure infrastructure that would allow operators, who owned the operational data, to store and maintain full transparency, access, and control of their data while building an open-source data technology.

Solution: Real-time visibility to go beyond prediction

With Cloudera, Lufthansa Technik can bring together and analyze the millions of data points, including snapshots of key parameters streaming in real time from equipment sensors in flight along with comprehensive sensor data captured when the aircraft is on the ground. And they can apply machine learning models to rapidly detect anomalies and predict component failures before they occur. Aircraft sensor data is combined with different data sources like maintenance events, flight schedules, and more, in order to go beyond prediction and move to prescriptive maintenance by automating tech-ops and flight-ops processes.

Results: A data powered present—and future

Using technology powered by Cloudera, Lufthansa Technik is moving from traditional maintenance to more predictive maintenance, which is resulting in lower costs. By leveraging this technology, Lufthansa has reduced removals for predicted components by 40%.

Moving into the future, Lufthansa Technik is fast developing the ability to deliver real-time insights using the Internet of Things (IoT) data. Gathering information from temperature data and pressure data to vibration data, which is then all analyzed with the help of Cloudera and Microsoft Azure, Lufthansa is moving to a safer, faster, more efficient future.

Maximize the value of your data

Cloudera and Microsoft Azure combine for a uniquely powerful, adaptable, enterprise-grade data platform. Together they give you unmatched flexibility, speed, and future-readiness for whatever your business needs are now or whatever they may become. Find out how a hybrid cloud, multi-function, securely governed, and open solution can expand what's possible for your enterprise.