

Data sharing and cloud: How to spark new business models

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The journey to cloud can take many paths across a [continuum of capabilities](#), from public to edge and everything in between. But without a target, it's easy to wander.

Those that lead to innovation are not the product of chance but the outcome of focused creativity and strategic collaboration. To navigate the right opportunities, **you can't go at it alone:** The leaders gathered at this frontier are seeking ecosystem partnerships to scale their newfound capabilities and maximize value from their investments.

Some have a head start, but the abundance of opportunity exists for all.





01.
**Collaborative
innovation**



Pixar's turning point: architecting collaboration

When the original building plans for [Pixar's new campus](#) debuted to Steve Jobs, you could say they were a flop.

The design was traditionally siloed, with separate structures for scientists, animators and executives to ensure everyone stayed in their lane.

Jobs, however, saw things differently: **What if cross-collaboration were the key to success, not an obstacle to it?**

Greater collaboration, he believed, would encourage the sharing of ideas and information that could lead to innovation.

His new design centered around a large atrium, with everything from mailboxes to restrooms repositioned around interaction.

This design change ultimately cultivated what we know today as the magic of Pixar.

As collaboration moves from physical to cloud environments, companies must rethink how they share ideas and information, breaking down siloes and building new data sharing architectures across organizations to spur innovation.



The future is built together

Organizations must optimize for today while building for the future.

Cloud Continuum strategies are often sold for this very reason—they create value both today and tomorrow, enabling businesses to reimagine their market offerings.

But as Jobs recognized at Pixar, you leave value on the table when you overlook opportunities to build ecosystems alongside your digital investments.

Rather than simply translating their business models to cloud-based systems, leaders must seek out collaborative innovation to reinvent their models and unlock value across the value chain as they move to the cloud.

Those that embrace a **multiparty system approach** are carrying this lesson forward.



Multiparty systems: the complement to cloud

Multiparty systems elevate your Cloud Continuum by transforming how you share data across the ecosystem.

The name of the game has changed. It's no longer about collecting and owning as much data as possible. Instead, leaders use multiparty systems to [change the way they collect, store and use data](#) throughout the Cloud Continuum with more transparency and confidence.

Multiparty systems

A group of technologies that enable a shared data infrastructure between individuals and organizations to help build new business and revenue models, creating mutual value across an ecosystem. These include distributed systems such as blockchain as well as privacy-preserving techniques like confidential computing.

The Cloud Continuum

A spectrum of capabilities and services from public through edge, seamlessly connected by cloud-first 5G and software-defined networks that allow access from virtually anywhere, removing silos among private, public, hybrid, edge or multiclouds. Ownership and location vary, from close to the enterprise to completely off-premise.



02. Acceleration to the cloud

2020: A year of rapid technology adoption

COVID-19 drove companies to find remote work solutions almost overnight. The new strategic imperative? Getting applications and infrastructure to the cloud to meet pandemic challenges and build resilience for future uncertainty.

According to Accenture's research on the [Cloud Continuum](#), over the next three to five years, more than two-thirds of workloads will shift to the cloud, with about a third of organizations moving more than 75 percent into the cloud across most regions of the world.



Accenture has undergone a **\$3 billion investment** aimed to support, accelerate and grow the value that clients achieve by moving to the cloud.

Global cloud spending across cloud services, physical data centers and associated professional services is expected to reach **\$1.3 trillion by 2025.**¹

A journey in common is common sense

Most businesses are making significant investments in digital infrastructure. Chances are your partners are, too.

The question is: If you're all moving your applications and data to the cloud, why not do it together?

Why maintain a structure in which one side sends its view of the world and the other sends theirs, with each one reconciling and confirming the state of play just to get anything done?

90%

of executives agree that multiparty systems will enable their ecosystems to forge a **more resilient and adaptable foundation to create new value** with partner organizations.

That's why multiparty system data sharing works in tandem with the cloud journey.

To take advantage of the full [Cloud Continuum](#), from serverless computing to Internet of Things, you need to share data and insights with others—think large, unsiloed data lakes and cooperatives. You'll also need to choose the right cloud-based services to address their needs in addition to your own.



Transparent data management, data integrity and **enhanced identity management** are considered the top three key benefits of multiparty systems.

With a collaborative data infrastructure and single source of truth, the opportunities are vast.

Immediate value includes decreased cumulative computing and storage costs as well as the ability to augment your new cloud capabilities with those of your partners. In the long-term, multiparty systems allow you to collectively reimagine processes, products, services and revenue streams and better position your organization to lead in the future.

89%

of executives think that multiparty systems **are poised to become the center of commerce, supply chain and all other transactions** among their partners and customers.

Source: [Technology Vision 2021](#) and [survey data](#)



This is not about technology so much as a business mindset shift.

Leaders will have to break from the belief that maintaining their own data is key to competitive advantage. It isn't—and it will prevent them from applying cloud services and technologies across their businesses and ecosystems.



03. The mindshift from “me” to “we”

A collective response to disruption

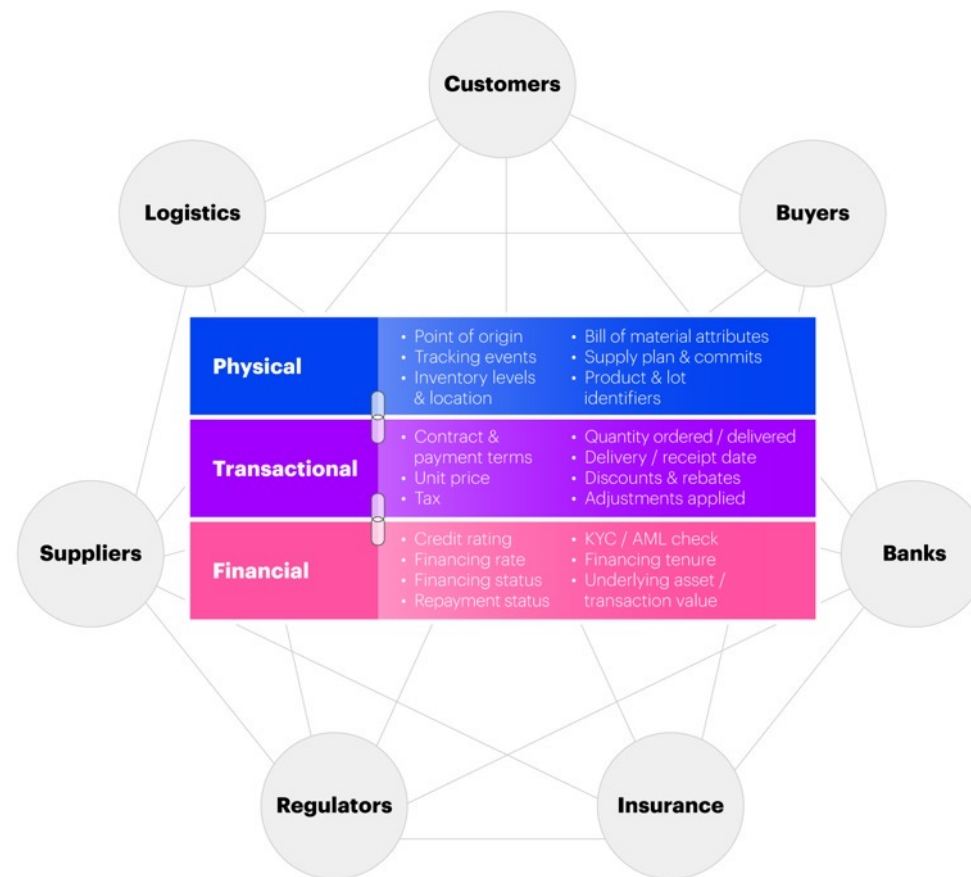
During the pandemic, [78 percent of organizations faced moderate to complete supply chain disruption](#). With a multiparty system mindset, things could be very different.

Key challenges:

- Weak links in the chain halted distribution
- Poor demand forecasting prevented stores in need from receiving goods
- Lack of visibility into data meant supply chain leaders couldn't quickly and clearly communicate to redirect goods when necessary

Why does this happen? Numerous parties, each with its own set of data, share information by messaging and reconciling back and forth over disparate legacy systems at every point in the process.

With multiparty system data sharing, key supply chain participants benefit from access to a consistent data set—with the appropriate controls, security and business logic as to “who” could see “what” and “when”. With this improved visibility, everyone can see disruptions when they happen and act to minimize impact, while unearthing trapped value along the chain.



Multiparty systems create profound levels of transparency in complex ecosystems. From physical product interactions to accounting transactions and trade financing, multiparty solutions provide new ways to resolve process friction and opacity throughout the value chain. Learn more in our [One Connected Supply Chain](#) report.

The connected opportunity

For decades, maintaining your own data within your four walls was considered a key competitive advantage. Major investments in centralized, internal platforms amplified that belief. However, success today is driven by highly connected ecosystems. Isolationist tendencies will preclude you from unlocking trapped value and realizing the combinatorial benefits of cloud and multiparty systems.

Current challenges and constraints



Companies often **lack a clear and cohesive cloud strategy**, which limits their ability to capture complete value.



According to Gartner®, “Many organizations compromise the effectiveness of their cloud strategy by **assuming that it concerns only IT.**” Involving broader ecosystem partners is likely even more seldom despite maturing technology enablers, such as distributed systems and privacy preserving computation (PPC) technologies.²



As an effect, the lack of a [collaborative business model](#) limits the benefits of leveraging public cloud. Even though companies broadly introduce efficient, cloud-based digital infrastructure, the **friction and bottlenecks** among them remain unchanged.

Cloud-enabled multiparty systems

With the technology and business sides working together on a cloud-enabled multiparty strategy, organizations can reach the full potential of moving to the cloud.

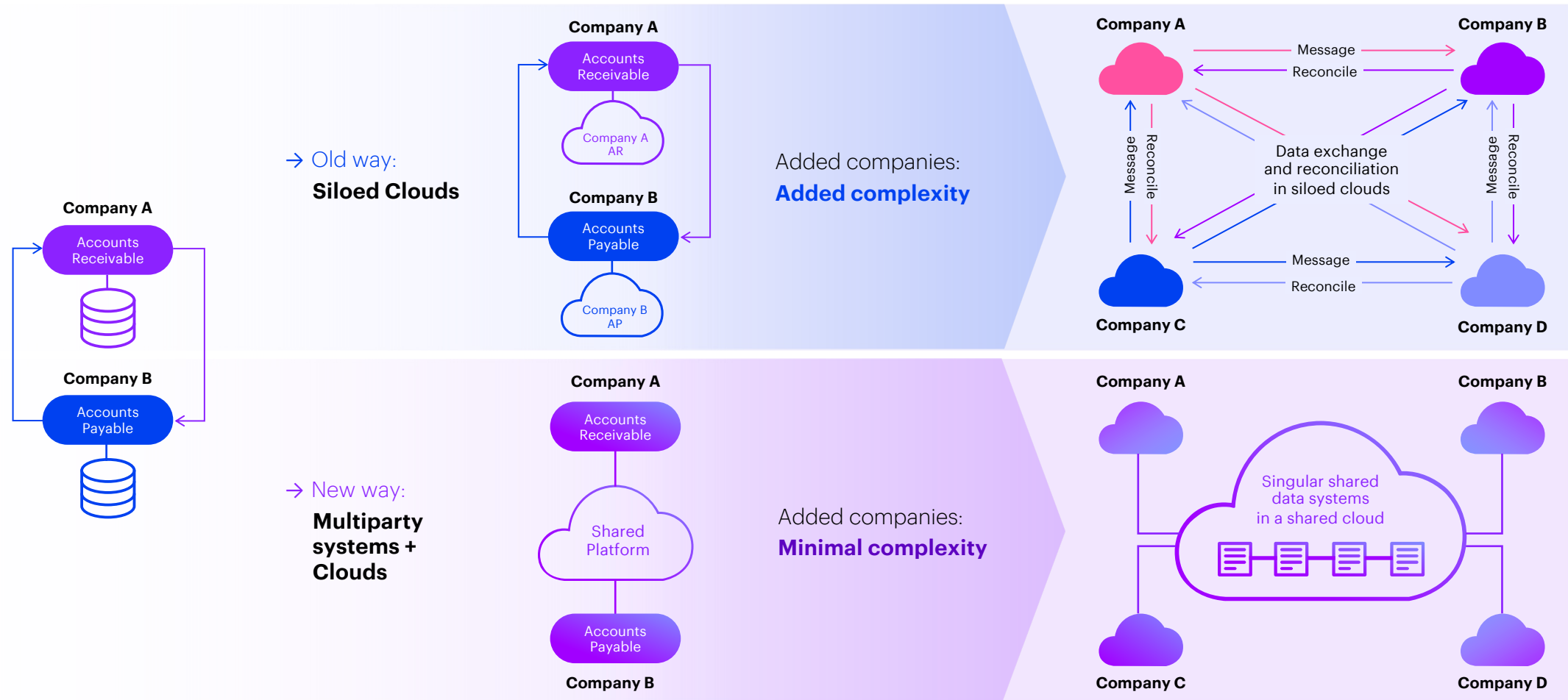
Rather than collecting data from siloes across myriad stakeholders, including manufacturers, distributors, wholesalers and retailers, [relevant parties seamlessly share access](#) to a single record.

Imagine how this shift could improve your supply chain:

- Real-time trade settlements
- Cleaner, simpler and more cost-effective processes
- More confidence and trust in your consumer base via newfound transparency

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What it looks like





04. What's possible

Areas of opportunity for multiparty systems



Return to work

As the world reopens, decentralized digital credentials present a new solution for businesses in need of verifiable employee health records. They offer ways to connect employees with verified work and health records without having to interact with multiple systems, centralized databases or non-trusted parties.

These solutions allow individuals to complete any necessary return-to-work processes in a manner that's quick, secure and remote.



Seamless supply chains

For decades, supply chains have been hampered by siloed management of data, one-to-one and often repetitive communication, and minimal transparency into the full lifecycle.

Multiparty strategies and tools help to address these challenges, breaking down data siloes across supply chain actors and offering a shared view of data to enhance transparency, provenance and visibility.



Revolution of money

Our [view of money is rapidly changing](#), and technology is driving these expectations. Multiparty systems enable digital currencies that:

- Lighten the dependency on paper money
- Open access of money to more people
- And provide more ownership over what you can do with your money

Multiparty system solutions remove friction from financial processes and allow financial institutions to interact with customers, regulators, and governments with ease.



MULTIPARTY SYSTEMS IN ACTION: Good Health Pass

A secure, intelligent and touchless travel experience is now a necessity for public health and confidence in the age of COVID-19, both in the short and long term.

But how do you share crucial travel and health information across the travel ecosystem while maintaining individual privacy?

The **Good Health Pass Collaborative** is a cross-sector initiative establishing one such interoperable digital health pass. The group has released an [Interoperability Blueprint](#) to help governments and airlines verify COVID-19 vaccinations, tests and treatment history using privacy-preserving techniques to share the minimal essential amount of personally identifiable information with verifiers.

Open standards like this ensure data is shared on a strictly as-needed basis, in a safe and secure manner, while simultaneously giving relevant parties access to the same trail of tamper-evident information.

Supercharging AI

Multiparty systems improve cloud-based AI models by expanding the volume of end-to-end data they can use for testing and training—without revealing private information.

How? Multiparty system data protections allow all parties, from developers to data owners, to define **who** can see **what** information and **when**.

This ability to [securely expand AI access to data across parties](#) will drive a whole new set of insights and value. When you throw in access to larger amounts of high-quality direct data through shared cloud ecosystems, the value grows exponentially.

Wider access to a single source of ecosystem data,

along with advances in automated business logic through smart contracts, can help AI better traverse ecosystems to create immediate value, such as decreased computing storage costs.

In the long-term, **multiparty system data sharing allows for the reimagination of business processes:** Legacy processes designed for individual organizations can be reshaped into more nimble and effective ones, enabling ecosystems to deliver more comprehensive solutions to customers.





Reinventing legacy processes through AI



New beginnings made simple

A family relocating to a new home must contact countless organizations: banks, insurers, realtors, inspectors, movers, school systems, utility companies, postal systems, tax authorities and more.

Because these organizations don't share access to the same information, any [AI implementation](#) they undertake will be constrained by their own internal data sets.

Imagine instead a cloud environment with multiparty system data sharing, where the family provides permissioned access to their information as needed. With accurate relocation data straight from the source(s), organizations can deliver more personalized products and services, such as a pain-free moving experience.



Better outcomes for all

In healthcare, patient data privacy is essential. If we can share data between health institutions while maintaining privacy, AI and other tools can help expand knowledge by analyzing data from multiple sources.

Take the sepsis detection [data cooperative](#) proof of concept that Accenture has developed: Each party trains AI models on its end while outcomes are aggregated inside a secure enclave, allowing the resulting insights to be shared without compromising the privacy of the data.

This creates a single, global and "more knowledgeable" AI model without any one hospital directly sharing its data with another.



05.
**Tools for a
strong foundation**

Putting it into perspective

Multiparty systems connect and create value for multiple organizations within an ecosystem through shared data platforms. Here's how various multiparty system technologies align to the existing systems you might be familiar with:

| Stateful Enterprise systems | | | | | Data Processing Systems |
|---|--|--|---|------------------|--|
| Transactional Systems (OLTP) | | Analytical & Reporting Systems | | | <ul style="list-style-type: none"> • ETL • Messaging Systems • CEP • Big Data Movement |
| Traditional (centralized) Database | Distributed Database Systems | Analytical Databases (OLAP) | Data Warehouses | Big Data Storage | |
| Multiparty Systems <ul style="list-style-type: none"> • SaaS Platforms • Open API Systems • Centralized Ledgers | <ul style="list-style-type: none"> • Distributed Databases • Tamper-Evident Distributed Database • Blockchain & DLT | <ul style="list-style-type: none"> • Federated Learning • Data Virtualization | <ul style="list-style-type: none"> • Data Clouds | | |
| | | Privacy Preserving Technologies <ul style="list-style-type: none"> • Data Collaboratives • Confidential Computing • Secure MPC | | | <ul style="list-style-type: none"> • Homomorphic Encryption • Zero-Knowledge Proofs (ZKPs) |

Preserving privacy with data cooperatives

Advances in privacy preservation techniques (PPT) and data cooperative arrangements are improving how organizations share and manage data across multiple entities. Forming or joining a data cooperative allows you to expand access to information, gain insights from larger volumes of data and collaborate without decrypting assets.



Trusted Execution Environment (Secure Enclave):

An [environment](#) with special hardware modules that allow for data processing within hardware-provided, encrypted private memory areas directly on the microprocessor chip, only accessible to the running process.



Homomorphic Encryption:

A [technology](#) that enables computation on encrypted data without the need to decrypt it first (or at all). Sensitive data is encrypted and protected at all stages of transport and processing.



Secure Multiparty Computation (MPC):

A [technology](#) that provides a mechanism allowing a group of parties to share the benefits of combining their data to create useful outputs while keeping their actual source data private from one another.



Collaborative Learning:

Machine learning techniques that do not require centralized training data and can enable remote AI systems to learn a shared prediction model



06. Keys to shared success

The shift is already happening

Multiparty system-enabled business models are gaining traction.

Leading organizations are already using cloud-based multiparty systems to transform their supply chains from isolated data islands to advanced, secure data networks powered by blockchain.



[Microsoft®](#), for example, is implementing a cloud-and-blockchain-based multiparty system for its cloud hardware supply chain, delivering component-to-data center traceability and end-of-life disposition while achieving transparency on the sourcing of critical or raw materials.

Envisioning a solution that would benefit its partners and the industry as much as its own supply chain, Microsoft closely collaborated with eight key supply partners on this initiative. Expected outcomes include:

- Improved traceability, reduced risk and lower credit costs
- Foundation for digital transformation capabilities such as tokenized payment settlements
- Improved cashflow for a more sustainable and resilient supplier base



Ecosystem priorities

Success requires business and technology leaders to focus the cloud journey on the broader ecosystem instead of the singular business.

The result? The true value of their move to cloud surpasses cost-cutting and internal opportunities. Companies within the ecosystem can rethink and reimagine their own processes, businesses and even entire industries.

Additionally, the shift from a data accumulation structure—where as little as 1 percent is ever analyzed—to one where shared learnings are uncovered from substantially more data is invaluable. These insights and learnings can be applied for the greater good.



Establish a collaborative data infrastructure to streamline reconciliation.

Shared data access and a single source of truth allow ecosystem partners to root out inefficiencies caused by silos, document exchange and reconciliation, and cumulative computing and storage expenditures.



Transform your value chain through ecosystem collaboration.

Cloud and distributed ledger technologies (DLT) bring holistic visibility and traceability to value chains. The underlying algorithms and cryptography of DLT solutions enable connected supply chains with the resilient infrastructure and business logic controls they need. This eliminates friction, improves business efficiency and helps you to pursue your sustainability goals.



Reimagine processes and coinnovate around new opportunities created by shared data.

Privacy-preserving data cooperatives allow you to wring more valuable insights from existing data by working over shared data pools. They also help obtain better results from AI efforts by orchestrating analysis and building better models and algorithms without sharing sensitive data. This can help you identify redundancies and unlock combined value among partners while opening opportunities in other areas such as regulatory compliance.

How to build a successful ecosystem

Collaboration and coinnovation begin with a joint cloud and multiparty system strategy.

- 01 Embrace the Continuum** Envision a cloud journey that includes a spectrum of new capabilities and supports continuous innovation.
- 02 Identify** Assess your partner landscape. Who do you share data with? Would a multiparty system be mutually beneficial?
- 03 Convene** Gather your minimum viable ecosystem. Establish a value proposition, motivations to participate and governing roles and responsibilities.
- 04 Thrive** Build, operate and grow the ecosystem, products and value.



The time to evolve is now

Organizations collaborating with partners over shared data are gaining the advantage in coinnovation—those going it alone are [missing out](#).

Working this way allows them to:

- Identify areas of redundancy
- Streamline data reconciliation
- Improve the continuum of new cloud capabilities for all ecosystem partners
- Unearth opportunities once thought impossible due to technology barriers or siloed information

Leaders in the next phase of cloud adoption will shed the orthodoxies of the old physical data center world and embrace working in blockchain-based multiparty systems to activate the Cloud Continuum across their ecosystems.

Collaborating across an integrated business lifecycle and ecosystem—working with partners, peers and customers—opens massive frontiers not only for efficiency but for new innovation, products and services to help organizations thrive, regardless of what the future holds.



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