



How to build trust in a new digital world

Data sharing with blockchain and multiparty systems

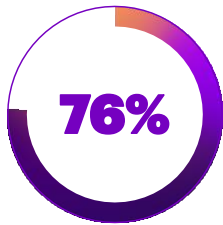
Great customer experiences start here

Today's disrupted world continually brings incredible challenges—and enormous opportunities. As we all navigate the uncertainties and complex circumstances of the pandemic, trust hangs in the balance. How do you instill confidence in your customer base? How do you restore business resilience? How do you deepen partner collaboration to operate with greater agility?

Organizations must embrace change and look ahead with urgency and optimism. For tomorrow's winning digital business will transform the way they share data to earn trust. By working together in multiparty systems that benefit all, it's possible to build more meaningful relationships with both customers and partners.

Intrigued? To start shifting your business model mindset, the first step is to understand the imperative of trust.

Trust: an imperative out of reach



Inaccurate data contributes to a growing lack of trust that cost U.S. organizations [\\$756 billion in 2017 alone](#). Today, [more than 76 percent of CEOs say citizen trust is critical to business competitiveness](#). Even world wide web co-creator Tim Berners-Lee regrets that it wasn't designed [with better privacy and data protocols in mind!](#)

In an increasingly virtual world, consumers are demanding better experiences and more agency over their information. To meet their expectations, enterprises must collaborate with a new level of confidence, nimbly sharing and acting on trusted data across ecosystems in real time. Today's antiquated data models, however, fail to provide the transparency, control and agility required to work in this way. Instead, they're encumbered by countless organizational silos and redundancies.

A new model that facilitates trust among everyone involved—businesses and consumers—is now a requirement for the new digital era.


Our outdated data model

The way we share data today is based on a 1950s message-and-response-based system, where we align and reconcile data across siloed stakeholders by sending messages and awaiting confirmations.

- Did you receive that?
- Is this correct?
- Where is X? How much is Y?

This back-and-forth creates exponential redundancies, inefficiencies and customer frustration as data volume and ecosystem complexity grow.



A woman with glasses and hoop earrings is sitting on a couch, looking towards a man whose back is to the camera. The man is wearing a blue shirt. The woman is wearing a light-colored t-shirt. The background shows a living room with a lamp and a framed picture on the wall.

A new data
model to
realign and
rebuild trust



Winning businesses of tomorrow will change the way they share data to earn trust among partners and customers. How? Through a mutually beneficial model that gives people more control, allowing them to grant direct access to high-quality data in exchange for improved, hyperpersonalized services with enhanced security and privacy.

In this model, an entity (a consumer or a partner business) would deliberately share their data with organizations they trust to use it, whether to improve offerings or to work with other trusted partners on a seamless, cross-touchpoint experience. (Think travel providers coming together to help consumers go from airport to hotel to restaurant without providing an ID and credit card at every step.) If they lose trust in the receiving organization, they can withdraw their data at any time.

On the business-to-consumer (B2C) side, it's a virtuous circle in which empowered consumers enable organizations: Direct data is more accurate than the [derivative second and third-hand data](#) they rely on today. Not having to sacrifice control or convenience, consumers are more willing to offer their data, along with their dollars and loyalty. With a clear line of sight and a complete customer view, corporations can reengage in a more meaningful, trusted way—building more personalized relationships and saving money as they go. (A survey in Gartner's 2020 Magic Quadrant for Data Quality Solutions that organizations estimate the average cost of poor data quality at \$12.8 million per year.²)

Business-to-business (B2B) relationships also stand to be transformed. When organizations within ecosystems have the power to toggle access on and off to direct data everyone can trust, it opens the door to entirely new processes and potential.

People are willing to play ball

- **Data:** Nearly [three out of four](#) customers will share more personal information if brands are transparent about how it is used
- **Dollars:** One in five are [willing to pay at least 41 percent more](#) in exchange for data security and more personalized exchanges
- **Loyalty:** Brands that put [user-level control of marketing data](#) in place will reduce customer churn by 40 percent and increase lifetime value by 25 percent by 2023.

See it in action

Some disruptors are already taking this symbiotic model to scale. Solid, an initiative from Tim Berners-Lee's company Inrupt, allows customers to store their data (personal information, subscriptions, financials and more) in "pods" akin to digital wallets, granting and revoking access a la carte, with the ability to delete data at will.



Customer data—it belongs to them. It's their data and they let us use it only if we can deliver a better guest experience. If you use their data in a way that really adds value to their lives—and we have the example of hotels—they will build trust.

[Stephanie Linnartz, CEO of Marriot International](#)

Multiparty systems for better data-sharing



In this new model, businesses will work together using what we call a multiparty system—a shared data infrastructure between individuals and organizations to enhance collaboration, build resilience and, ultimately, create new revenue streams.

For many leaders, the idea of direct data sharing beyond their walls raises questions from security to competitive advantage. But through a combination of blockchain, distributed ledger, tokenization and other technologies tailored to ecosystem needs, multiparty systems can alleviate many of these concerns around security, privacy and control.

Top Ecosystem Data-Sharing Concerns

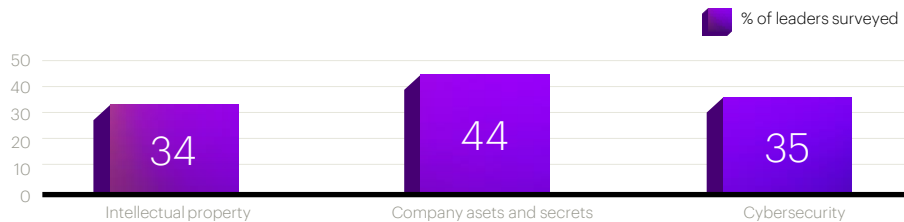


Figure 1. Leaders are uneasy about working outside their organizations, especially when it comes to security. Source: [Cornerstone of Future Growth: Ecosystems, Accenture](#)

Imagine ecosystem partners having access to the same data in near real time—not a copy of the data, but the actual data itself, including its activity history. A single source of truth in the data means validation no longer relies on a primitive system of back-and-forth checks and reconciliation. Instead, it could be as simple as, “I see what you see.”

“I see what you see”



Figure 2. Business and government entities

Now imagine what that level of data integrity could do for businesses and consumers alike.

Benefits of multiparty systems

Collaboration

- **Trust and coinnovation** – Thanks to enhanced privacy and security measures like revocation and collective accountability, organizations can collaborate more freely. Working with competitors without having to compromise intellectual property (IP) and enterprise secrets, companies can share the burden of investment and speed industry-wide innovation.
- **Greater efficiency and lower liability** – Because data isn't repeatedly collected and stored across multiple environments, corporations gain mission-critical clarity and auditability. The network effect of a shared data structure enables multiparty systems to eliminate back office costs and automatically settle transactions over a tamper-evident audit trail. According to [Gartner](#), "Through 2020, organizations adopting data hub strategies will achieve outcomes dependent on shared and governed data with at least 60 percent lower cost."³
- **Standardization across silos** – [In a 2018 survey](#) by the Harvard Business Review, three out of four companies say being able to access and combine data from a variety of sources is very important, but only 23 percent are very effective in doing so.⁴ Through digital wallets, trusted companies can tap into standardized data from other trusted organizations and authorities, which brings uniformity to business operations as well as the customer experience.

Resilience

- **Better agility** – No amount of efficiency can outmaneuver disruption and unprecedented events. Free from constant reconciliation, companies working in multiparty systems enjoy a new level of flexibility and control to streamline decision-making and pivot quickly when needed.
- **Improved value delivery** – A single line of sight into the data eliminates the guesswork and crosstalk, allowing businesses to focus on what matters. Based on Gartner's Data Management Strategy Survey, "close to 60 percent of surveyed organizations highlight that 'not being able to find relevant data that delivers value' is their biggest challenge in data management. Due to this challenge, many data and analytics (D&A) projects fail to deliver on their ROI promises, as up to 80 percent of data consumers' productive time is wasted finding data or making requests for data that were already made available to them."⁵

New revenue streams

- **Redefined processes and services** – Depending on the technologies used, you can encode data with functionality that allows it to be used in entirely new ways. This leads to the complete reinvention and discovery of new processes and services.
- **Faster time to market** - In the wake of COVID-19, brands have seen decreases in customer engagement and revenue from core business. A shared data infrastructure simplifies onboarding and integration, allowing new and existing partners to rapidly configure new offerings that keep customers spending while core offerings are slow. For example, Accenture's loyalty marketplace and clearinghouse provides a single integration point for brands to collaborate on novel earn-and-burn structures that leverage network effects across brands.

How do multiparty systems help us use data differently

Watch [“The Red String”](#) short film to experience how our circular supply chain capability connects both ends of the supply chain.



In a multiparty system, data isn't just "information" anymore—it can act as instructions, authentication and even enforcement, with the power to declare how it can be used and signal when those terms are violated. Let's take a closer look at how that works.

Uniqueness and ownership

Think about the last time you ate an apple. Even though it came from a tree full of similar ones, that particular apple in your hand was unique—there was never, nor will there ever be, more than one of that very same apple.

Certain multiparty system technologies, like blockchain, make it possible for everyone in the ecosystem to see that there is only one instance of a given piece of data or token (a token being any digital representation of value, assets or information). This transparency allows them to prove that it's unique—just like your apple—and that's a gamechanger in the digital world.

Like physical objects, unique digital objects can't be copied, moved, changed, tampered with or "spent" without the knowledge of the ecosystem by way of its collective gaze and mutual agreement. With this uniqueness also comes the ability to attach ownership to the object and authenticate it as it moves around the internet.

Picture a digital passport: The ecosystem of airlines, transit authorities, etc. can simultaneously attest to the fact that the owner, Joe Schmoe, is who they say they are, and that this digital item is indeed their passport. This concept has profound implications for identity management. Consider the impact on industries like travel and medicine if you could prove your digital information were unique and authentic to you, everywhere you went.



Intent, rights, obligations and revocation

Each unique piece of data can also be encoded with rules about how it can be used and by whom, along with the ability to revoke these permissions. Let's explore how this plays out through two examples: A man renting a car and a dairy supplier.

Intent

You can limit which aspects of your data that a given party or partner can see by cryptographically signing your intent for that data.

Consumer



Joe is looking to rent a car and wants to avoid young driver fees. He cryptographically signs intent that he would like the rental company to know he's over age 25. He then shares data proving he's over 25 without unintentionally (and unnecessarily) sharing his entire date of birth, which is a sensitive personal identifier.

Corporation



A dairy supplier needs to share data with a retail partner about storage conditions for a given milk product. The supplier cryptographically signs intent to share data proving the milk has been stored according to regulation without revealing the exact temperature to the retailer.

Rights


Individuals and entities can encode the data to declare what a given party can and cannot do with the data they share, whether it's providing a service in return or fulfilling a specified transaction.

The rental agency can only use Joe's data to verify that he's over 25, not to share with a third party or do anything else beyond the scope of his direct knowledge and permission.

The FDA can only use the data shared by the supplier to support import/export operations; intentionally or unintentionally sharing any aspect of the data with ecosystem partners for any other reason will trigger a violation.

Obligation

Data can also be programmed with smart contracts—automated tools that can stipulate, verify or enforce terms and agreements. They facilitate the receiving party’s obligation to fulfill a given transaction, service or outcome for the data owner.

Consumer 

Once the car rental agency uses Joe’s data to qualify his age, it must waive the young driver fee. At this point, a smart contract is triggered to automatically waive the fee.

Corporation 


Once the FDA agrees the product is certified and safe to export, automated events are triggered in the supply chain, stripping out messaging and manual effort.

Revocation

One of the most revolutionary aspects of this data model is the fact that an individual or entity can revoke the use of their data.

Joe can indicate that he no longer wants the rental agency to see and use the piece of data confirming he’s over 25. At that point, the agency’s use of that data will violate an audit—a legal liability no company wants to hold.

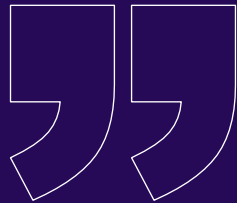
What if the dairy supplier shares data with a packaging vendor, only to find out later that the vendor acted unethically? It can immediately revoke access to that data to safeguard its brand in the event the vendor gets audited.



Multiparty systems at work: Examples and use cases



The new possibilities of multiparty systems data sharing allow us to rethink entire processes, products and services, with widespread applicability from self-managed identity to self-driving cars. Many organizations are already forming multiparty systems and developing initiatives that are moving from pilot to production.



It's more than just a buzzword. Those companies that can demonstrate trust are going to be able to develop better services, better experiences, get better information to then tailor things for consumers.

Paul Daugherty, Accenture Chief Technology Officer

Digital identity and trusted travel

The world needs to get moving again, but not in the same way it did before. 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.

The exchange of travel documents is a prime example of an archaic call-and-response system in which governments continually check traveler documents against internal systems and decentralized directories. The shared infrastructure of a multiparty system, however, eliminates the need for back-and-forth verification, as each party maintains access to the same trail of valid and current information.

Citizens could then share identity and health attestations with airports, airlines and other trusted organizations before they travel, needing only activate their personal devices along the journey go, minimizing risk and maximizing passenger flow.

► **In practice:** [Known Traveler Digital Identity \(KTDI\)](#) is a multiparty system of governments, authorities and travel companies working with the World Economic Forum (WEF) to improve security and experience in air travel. Proven and ready for deployment, the initiative leverages cryptography, blockchain and biometrics to allow cross-border travel without the need to present physical documents. Designed to adapt to change, KTDI can easily account for changing vaccine and quarantine rules while handling a range of non-pandemic issues such as visas and residency permits.

Imagine sharing your credentials ahead of time for a touchless travel experience that extends from the airport into personalized service for your rental car, hotel and banking needs abroad. From there, it's easy to see how the core concept of KTDI could expand beyond the travelsphere. Governments could use it as a backbone for other services to enhance security and bring the digital economy to life overnight. Banking, organizational onboarding, warranty fulfillment—any area that requires know-your-customer checks and costs stands to be transformed.



Watch the [KTDI project demo video](#) to discover the future of passportless cross-border travel.

CBDC and the revolution of money

A fast-paced, digital world needs fast-paced, digital money. In recent years, large commercial banks and social media companies have experimented with new ways of transferring value across ecosystems that aren't tied to traditional borders. Now, central banks are exploring ways to [modernize money](#) to meet new demands and create new possibilities with multiparty system data sharing.

A tokenized and fully tradeable central bank digital currency (CBDC)—endowed with uniqueness, ownership and smart contracts—would open a plethora of new functions and opportunities without sacrificing stability, security or privacy.

Right now, federal governments issue currency in two forms: coins and paper. A third, digital form of money could be made available through our traditional banking systems without adding to the existing money supply. Based on blockchain and multiparty system technologies, this new digital currency will lead to frictionless cross-border payments and capital market transactions as well as savings, liquidity and convenience for small businesses. Such benefits could be vital for restoring citizen trust in our systems, especially for the many who require more instantaneous and touchless access to funds as a result of the widespread negative economic and health impacts across the globe.

► **In practice:** Accenture is working with the central bank of Sweden to simulate how an [e-krona](#) could be used by the public. Users can hold e-krona in digital wallets and make payments, deposits and withdrawals via mobile apps and wearables. We've also launched the [Digital Dollar Project](#), a collaboration with the [Digital Dollar Foundation](#) to develop a framework for a US CBDC that would introduce greater functionality and utility into the world's reserve currency. Imagine the positive impact to individuals and the U.S. economy if the COVID-19 stimulus checks had been distributed automatically with CBDC

Tokenization – The act of representing an item of value or piece of data as a digital object—a “token” placeholder—that can transact in the digital world without exposing sensitive information (as outlined above vis-à-vis ownership, intent, obligation, etc.)



Watch the Digital Dollar Live II [webinar](#) where private and public sector thought leaders discuss CBDC opportunities or [read our CBDC blog series](#).

Digital twin and thread

The ability to create [“digital twins”](#) (i.e., tokenized versions of real-world objects, assets, operations, etc.) has massive implications. Think of it like bestowing a digital identity to something real and following it virtually across its supply network lifecycle. Along the way, a “digital thread” of data is created as conditions, parts, people and processes associated with the item change in the real world.

Blockchain and multiparty systems allow ecosystem partners to see and collaborate along that thread, uncovering hidden risks, adding digital interactions, managing access to components and [creating new models](#) of maintenance, ownership, monetization and more.

► **In practice:** Consider the digital twin of a car, generated as it rolls across the assembly line. Each wheel, each window, each system becomes tokenized, with the ability to store information about ownership, value, usage, driver behavior and more across the vehicle’s lifecycle. This will redefine how manufacturers, dealers, insurers, mechanics, civic entities and owners/drivers buy, sell and interact.

When you further integrate self-managed identity, payment and advanced networking into the digital twin, the car becomes much greater than the sum of its parts: It’s a single source of truth that brings dozens of disparate and redundant data stores into one, giving end users control over whom they share vehicle data with (insurers, auto shops, entertainment providers, etc.) and why. A new world takes shape, where we can do things like pay for parking without lifting a finger or settle insurance claims without a tedious investigation.

For all this to happen, [the playing field needs to be established](#). The Mobility Open Blockchain Initiative (MOBI) is a member-led consortium working with four major original equipment manufacturers (OEMs) to make transportation greener, more efficient and more affordable using blockchain and related technologies. By working together as a multiparty system, these businesses are recentering the value chain around the vehicle and increasing profitability of mobility services across its lifecycle.



Read our [blog series](#) on the future of automotive, powered by digital twin and multiparty systems.

From supply chains to supply networks

Today's supply chains are unable to flex and adapt to unforeseen events and changing customer expectations (e.g., same-day shipping, sustainability, etc.). To gain the [transparency](#) and agility they need to build resilience and consumer trust, supply chains must shed their silos and become supply networks, using multiparty system technologies to share and act on trusted data in real time with new and existing partners. This is especially crucial in times of disruption and uncertainty, when market forces are constantly in flux.

► **In practice:** Prior to COVID-19, up to [30 percent of pharmaceutical products](#) sold in emerging markets were estimated to be counterfeit. Factor in the volumes of [counterfeit masks, test kits and unauthorized antiviral medications](#)⁶ that continue to surface throughout the pandemic, and it's clear: Pharmaceutical and medical consumable supply chains need end-to-end data transparency now more than ever.

To combat counterfeiting, [Accenture worked with DHL](#) and its partners on a blockchain and multiparty system initiative that enhances track-and-trace for medication along its journey from plant to consumer.

By assigning a unique identity to each sealable unit, the [project](#) makes it possible to securely track a medication's origin, batch number and even its storage conditions at virtually any moment as it travels from unit to case to pallet and back down again for consumption.⁷ Not only could this help with counterfeiting, it could also greatly improve the delivery of essential medication during a viral outbreak, where precision and speed have life-or-death consequences.



[Watch this explainer video about the pharmaceutical track & trace supply chain solution Accenture and DHL developed.](#)

A photograph of two people walking on a beach at sunset. The sun is low on the horizon, creating a warm orange and yellow glow. The people are silhouetted against the bright sky. They are walking on a path of dark, smooth stones that are partially submerged in the shallow water of the beach. The water reflects the sky and the sun. The overall mood is peaceful and serene.

Getting started



Global spending on blockchain is forecasted to reach [\\$14.4 billion in 2023](#),⁸ as enterprises look to lower risk while working across organizations. Solely applying single-entity models to an ecosystem or merely using blockchain to digitize existing processes will limit [realized value](#), growth and ROI. Instead, companies must embrace an entirely new, multiparty-system approach to secure customer relationships. At the same time, it's not a rip-and-replace. So, how do you start?



While [90 percent](#) of business and IT executives believe ecosystem success depends on organizational technology, [less than a quarter](#) consider ecosystem alignment and governance to be their strong suit.

- 01** [Understand that blockchain is just one of many technologies that will guide your digital transformation.](#) Recognizing the variety of architectural patterns that can be applied in combination is an important first step.
- 02** [Develop a strategic point of view, based on your business objectives, for how you will harness multiparty system capabilities.](#) Now that you know what multiparty systems can do with data, brainstorm and prioritize relevant use cases, pursuing those that align to your overarching goals. Set desired outcomes and think about the partners and data streams you need to achieve them.
- 03** [Build your multiparty system to pilot and bring use cases to scale.](#) Multiparty systems are an organizational endeavor, not a technological one. The traditional approach of solo organizations applying innovation to automate processes is no longer enough and will be disrupted by the breakdown of boundaries between groups. To that end, defining [ecosystem governance](#) and accountability is essential.

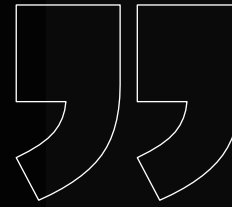
- 04** [Redefine your data culture.](#) As customers expect more and more, business leaders must work to build a responsive and responsible data culture. Slow movers may encounter drops in performance in addition to regulatory compliance hurdles. Rethink how you collect, store, share and utilize data, knowing what's good for consumers is good for business.
- 05** [Last but not least,](#) tap your C-suite. To move from proof-of-concept to scaled production value, top-level leaders must be engaged to effect operational change and bring in the right connections. Here's a [framework](#) to help you workshop those conversations.

Benefits of multiparty systems

The move to multiparty systems is no longer a choice. As control shifts to consumers, the era in which companies enjoyed relatively free and unfettered access to data is coming to a close. But with greater consumer control comes greater trust and opportunity. *The successful digital businesses of tomorrow are not those with the most data, but those with the most trust.*

The cost-savings alone are enticing, but the true value of multiparty systems is in what they create. Ecosystems have the potential to unlock [\\$100 trillion of value](#) over the next decade. As organizations come together with customers to make data more accessible and functional, they'll unleash a fount of new revenue streams and business models in addition to solving longstanding policy and operational challenges.

Leaders in this space will recognize that competitive advantage no longer stems from having data that others don't. Instead, it comes from razing the barriers that prevent organizations from delivering the best customer service across multiple fronts. No longer preoccupied with collecting, securing and leveraging vast loads of data, corporations can focus on building lifelong relationships by crafting stand out experiences—for the right reasons, not the wrong ones.



Trust is the ultimate currency in the digital age. Almost all leaders understand the value of the mountain of data they are sitting on. That mountain of data can be a gold mine or a minefield.

Ellyn Shook, Accenture Chief
Leadership & Human Resources Officer

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