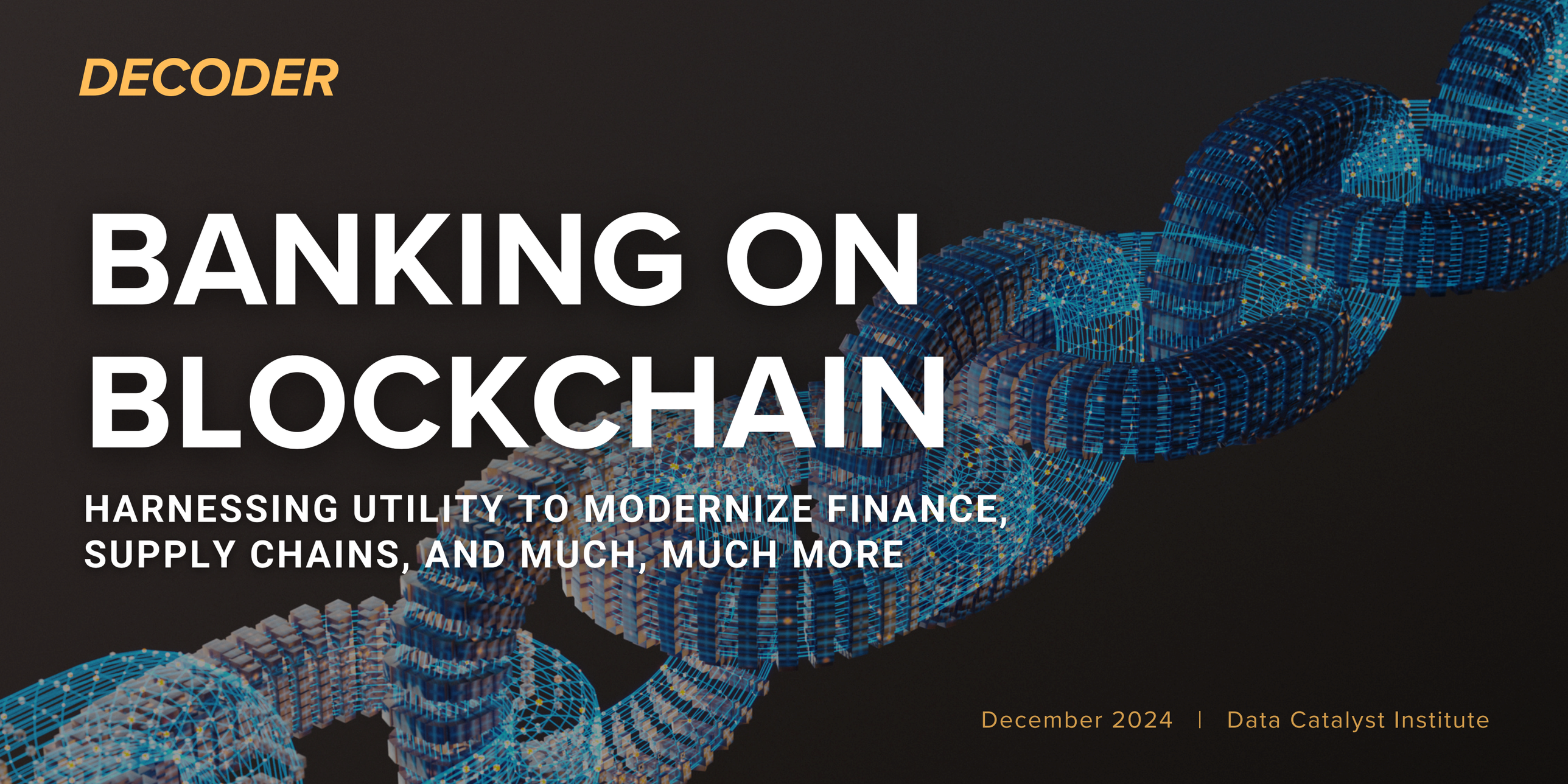
DECODER

BANKING ON BLOCKCHAIN

HARNESSING UTILITY TO MODERNIZE FINANCE, SUPPLY CHAINS, AND MUCH, MUCH MORE



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INTRODUCTION

BANKING ON BLOCKCHAIN

As the digital economy evolves, blockchain technology and digital assets (i.e., “crypto”) have become important discussion topics in finance and politics. A survey conducted by HarrisX in September 2024 revealed that 69% of voters believe the U.S. should be the global leader in digital asset and cryptocurrency innovation, and 49% say it’s important for political candidates to support “pro-crypto” policies. This growing public demand for a forward-looking approach to digital assets makes it crucial that lawmakers understand and engage with these technologies.

You may have heard of “the blockchain” without knowing what it is. Blockchains are secure digital ledgers that record and verify transactions across a network of computers, as opposed to on a centralized server. They are secure because stored data is encrypted, hence the moniker “crypto.” It's a shared, unchangeable list that everyone on the network can see and trust, making it nearly impossible to alter or hack. Blockchains and digital tools built on their foundations are powering a new age of faster, cheaper, and more transparent financial services.

This matters because banking in America is a complex and uneven landscape. “Tier 1” U.S. banks with large customer bases, high capital requirements, diverse offerings, and extensive cross-border relationships use their global networks to send money directly to foreign banks, relying on a system of "correspondent banking." In contrast, roughly 4,500 smaller U.S. banks and credit unions lack international ties and typically rely on these larger banks to facilitate overseas transfers. As a result, cross-border transactions for millions of U.S.-based individual and business customers of these smaller banks often involve multiple intermediaries, leading to longer processing times, higher fees, and less transparency.

Blockchain technology and the digital financial infrastructure built on it offer solutions to bridge these gaps because they bypass traditional correspondent banking and directly connect sender and receiver. This innovative approach allows for near-instant, low-cost transfers with greater transparency, as all transactions are recorded on a public ledger. For individuals and small businesses, this means faster access to funds, reduced fees, and a clearer view of each step in the transaction process.

INTRODUCTION

BANKING ON BLOCKCHAIN

Blockchain-based financial solutions can significantly reduce traditional banking services' costs, delays, and complexities that disproportionately affect people in rural or remote areas, cost-conscious small businesses, and the underbanked. Blockchain technology offers a way to bypass these barriers, providing faster, cheaper, and more accessible alternatives to those often underserved by the traditional financial system.

Beyond its impact on finance, blockchain technology can potentially transform many other industries and use cases by enhancing transparency, security, efficiency, and cost-effectiveness. For example, many companies already use blockchain-based services to track supply chains of everything from food to pharmaceuticals to high-value items like paintings and diamonds, ensuring authenticity and reducing fraud.

Beyond supply chains, private companies and federal agencies, including the FDA, USDA, DOD, USAID, and NASA, are adopting blockchain to manage records, improve data security, streamline processes, reduce costs, boost efficiency, and more.

Humanitarian organizations have begun employing blockchain to distribute domestic and foreign aid more effectively, providing fast, secure, traceable transactions that ensure assistance reaches those in need, whether an emergency is within the United States or far away. According to Precedence Research, as the implementation of these innovations expands in popularity worldwide, the global market size of blockchain technology is poised to explode from about $27 billion to roughly $1.9 trillion by 2034.

Maintaining and expanding America's global leadership in banking and financial services, not to mention the technology sector, is vital for its long-term economic and national security. However, several other nations, including Dubai, Singapore, and Brazil, have more regulatory clarity than the U.S. For the U.S. to maintain its dominant position in global financial markets and infrastructure, it must lead in blockchain and digital asset innovation, ensuring that America not only stays agile regarding these technological shifts but also sets the standards for the modernization of the global economy that is already underway.

BUSTING MYTHS ABOUT BLOCKCHAIN

MYTH: *"Crypto is illegal in the U.S."*

Cryptocurrencies are legal in the U.S. and operate under existing regulatory frameworks, including oversight by the SEC, CFTC, and FinCEN.

Major financial institutions have **integrated digital asset services**, while American companies explore and develop blockchain innovations within regulatory bounds.

MYTH: *"Digital assets are untraceable."*

Most blockchain transactions create permanent, public records that can be monitored in real-time.

Law enforcement agencies have **successfully used blockchain analysis to investigate financial crimes**, demonstrating that digital assets often provide better transaction tracking than traditional financial systems.

MYTH: *"Blockchain has security flaws."*

While all digital technologies face security challenges, **blockchain's cryptographic design and distributed nature can enhance security for practical applications** beyond crypto, including secure supply chain management, identity verification, and financial services.

However, implementation quality and user security practices remain crucial factors in overall system security.

MYTH: *"Crypto is purely for illicit activities."*

While bad actors operate in both traditional and cryptocurrency markets, **blockchain records transactions on a ledger visible to everyone in the network**, making illicit transactions easier to trace than cash.

According to Chainalysis, such transactions **represent less than 1% of crypto activity** in recent years, while financial crime through traditional means remains more prevalent.

PART I. BLOCKCHAIN FOR FINANCE

DECODER

BLOCKCHAIN FOR FINANCE

Blockchain technology, a highly secure digital ledger, powers innovative financial services through specialized software and tools built on its foundation. It offers faster, cheaper, more transparent, and, in many ways, more straightforward financial services, such as cross-border payments, by directly connecting people or firms on each side of a transaction and cutting out traditional intermediaries, simplifying the process and reducing fees. Broadly speaking, these blockchain-based innovations benefit diverse financial services firms and customers, including global banks, multinational corporations, and even large NGOs and local, state, and federal government agencies, not to mention individual and institutional customers.

That said, such blockchain-based financial innovations benefit some Americans more than others. They could be significant for rural and remote communities, small businesses, lower-income people, and the unbanked (people who don't have traditional bank accounts because they don't meet minimum deposit requirements, lack trust in banks, or other reasons - many of which have an income of less than $25,000 a year) and underbanked (those with a checking and savings account that also use services from nonbank providers such as check cashing, rent-to-own services, payday loans, and tax refund anticipation loans) households, who often feel the pinch of higher fees and slower services in the traditional banking system. In many circumstances, blockchain-based financial solutions for domestic and cross-border money transfers and other applications can provide a more accessible and affordable alternative for many people (according to the FDIC, about 20% of the U.S. is unbanked or underbanked).

BLOCKCHAIN

A secure, digital system that records information in "blocks" linked together in a chain. These blocks are spread across many computers, making it nearly impossible to change past records.

DIGITAL FINANCE

Financial services that are delivered through digital platforms, such as online banking, mobile payments, and cryptocurrencies, making transactions faster and more accessible.

DIGITAL ASSETS

Financial assets like cryptocurrencies or tokens that only exist electronically, represent things of value, and can be traded or used online.

SMART CONTRACTS

Computer programs on a blockchain that automatically execute an agreement when pre-set conditions are met without intermediaries.

STABLECOINS

Digital assets that are designed to keep their value steady, usually tied to a stable, well-known asset like the U.S. dollar or gold.

TOKENIZATION

The process of representing ownership of an asset, like real estate or stocks, with a digital token that can be stored or traded securely on a blockchain.

WALLET

Digital tools, often in the form of apps or physical devices, used to store, send, and receive digital assets like cryptocurrencies, securely managing private keys needed for access.

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BLOCKCHAIN FOR FINANCE

Various organizations, including traditional banks, fintech companies, neobanks, payment service providers, and crypto-native businesses support the modern, “hybrid” financial services ecosystem. This graphic shows what some of the best blockchain-based companies do in compared to “traditional” U.S. financial services brands.

	TRADITIONAL FINANCE AND FINTECH		BLOCKCHAIN FINANCE	
CURRENCY	U.S. dollar ($)	Euro (€)	CIRCLE (USDC)	ripple (RLUSD)
DEPOSITS AND CUSTODY	CHASE	citibank	Fireblocks	anchorage digital
DOMESTIC PAYMENTS	venmo	Zelle	AIRTM	bitpay
CROSS-BORDER PAYMENTS	Swift	WISE	ripple	Stellar
INVESTING	charles SCHWAB	Fidelity INVESTMENTS	coinbase	kraken

Organizations do not need to make a binary choice between traditional financial services and blockchain technology. Indeed, integrating blockchain technology into the banking sector bridges traditional and blockchain-based financial services, gradually making financial products more accessible globally. Naturally, blockchain-based companies are leading the charge, offering solutions that allow people and businesses to borrow, lend, trade, and move assets, often without intermediaries.

At the same time, established financial institutions recognize blockchain's potential and explore its applications. Major financial firms are investing in blockchain projects, developing infrastructure for digital assets, and creating blockchain-based payment systems. JPMorgan Chase's Onyx (a blockchain platform for the exchange of value and digital assets), the SWIFT system's plans to allow banks to conduct digital currency and asset transactions, and a new VISA-BBVA partnership to help banks issue fiat-backed tokens on the blockchain in 2025 all signal a significant reimagination of established financial systems.

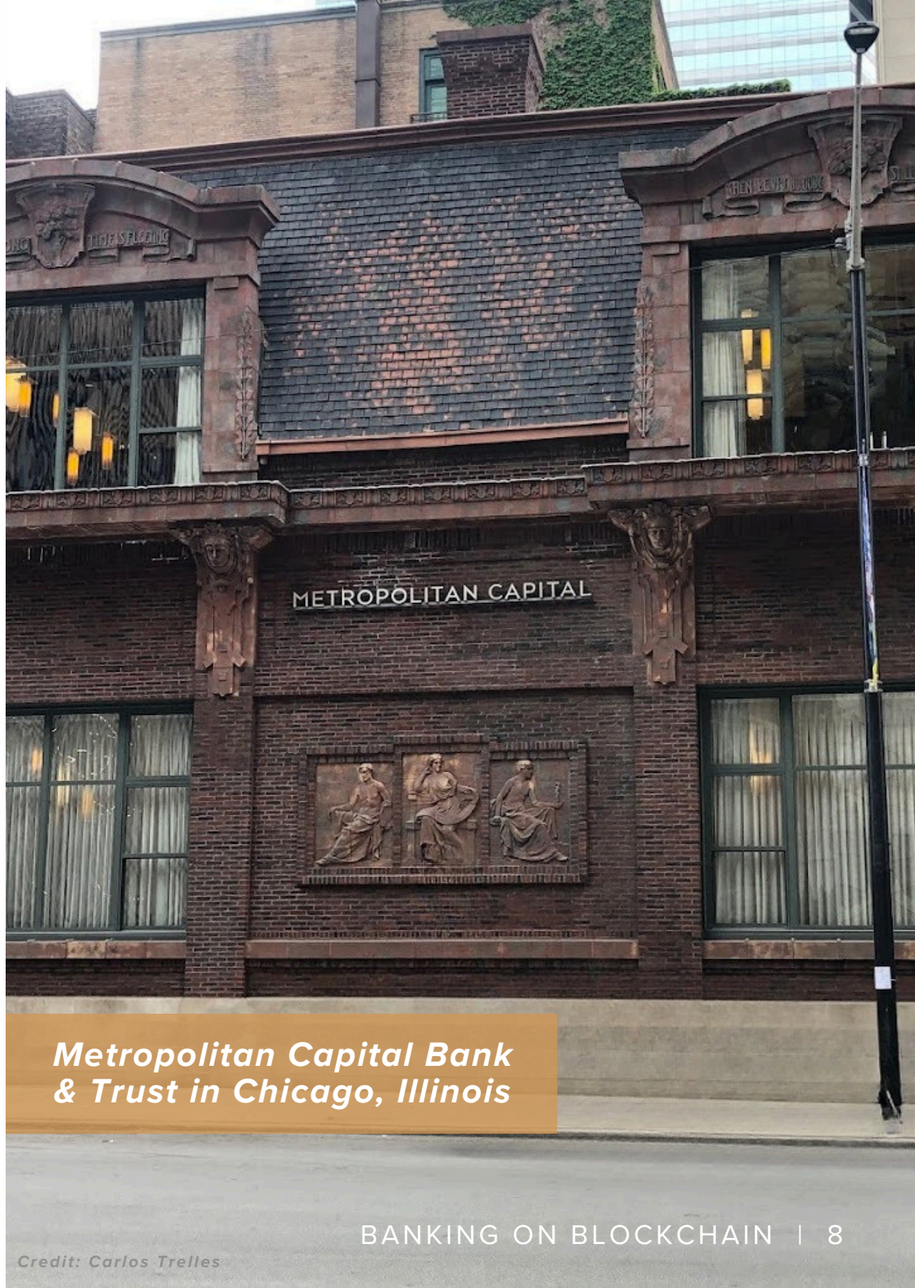
As collaborations and convergence between traditional and blockchain-based finance increasingly combine blockchain's innovative capabilities with established security and regulatory frameworks, this suggests a future where these different financial services coexist in a hybrid ecosystem, evolving to meet the changing needs of the global digital economy.

BLOCKCHAIN FOR FINANCE

In the U.S., that means the evolution of a uniquely diverse banking sector with over 4,500 financial institutions serving the needs of diverse personal and commercial customers - urban and rural, rich and poor. Many small, regional, or community banks and credit unions, despite their tremendous innovation potential, are behind the curve when it comes to innovations for services like custody of digital assets or fast, cheap cross-border payments. Nevertheless, despite national regulatory uncertainty, several forward-thinking small U.S. banks have begun to lean into blockchain technology to varying degrees to serve their particular customer bases.

For example, Metropolitan Capital Bank, founded in 2005 and based in Chicago, IL, offers commercial, private, and investment banking, wealth consulting, and trust services for clients that include small and medium-sized businesses, family-owned businesses, family offices, and tech startup founders. For well-financed, globally-focused customers, transferring funds to other parts of the world, conducting foreign exchange (FX), and even paying far-away gig workers in local currency are all challenges they might encounter. For some use cases, such as frequently transferring relatively small amounts of money or sending funds to countries that lack global banks or have volatile local currencies, Metropolitan Capital can use blockchain-based solutions that save on fees, allow funds to move and settle faster, or provide greater transparency for their customers. Such solutions live alongside traditional ones that include ACH and SWIFT, which may be better for other use cases.

As a more blockchain-forward example, Anchorage Digital is the only federally chartered “crypto bank” in the U.S., founded in 2017 with headquarters in San Francisco, CA, and additional offices in New York City and Sioux Falls, SD. Its investors include leading institutions such as Andreessen Horowitz, Goldman Sachs, KKR, and Visa. Its diverse customers with a wide range of digital asset-related services include venture capital firms, registered investment advisors (RIA), and asset managers. Other U.S.-based banks with a range of business models, customers, and blockchain-based offerings include Custodia Bank (Cheyenne, WY), Lead Bank (Kansas City, MO), and Nave Bank (San Juan, PR), collectively offering a view of a convergent, hybrid future of financial services in the U.S.

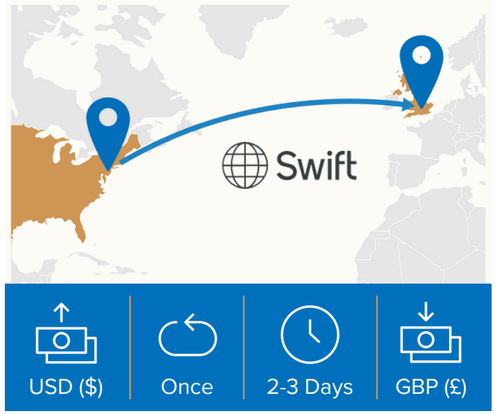


Metropolitan Capital Bank & Trust in Chicago, Illinois

Credit: Carlos Trelles

DEMYSTIFYING THE GLOBAL FLOW OF CAPITAL

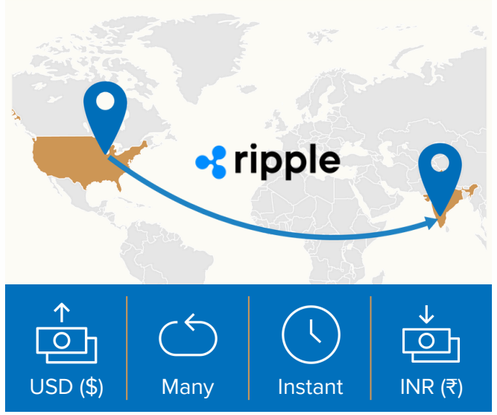
Businesses and individuals transfer capital across national borders for many reasons. Depending on the amount, frequency, time frame, and the nations involved, using blockchain-based methods is often a better, cheaper, faster, and more transparent choice than traditional financial services options.



SCENARIO 1: Occasional B2B large fund transfers between major financial centers

EXAMPLE: Fortune 100 biotech company headquartered in New York, NY sends a one-time transfer to their London, UK office in anticipation of an M&A deal.

When sending funds between two major financial centers, particularly in a one-time transaction where speed is not critical, a traditional banking approach such as SWIFT would work well.



SCENARIO 2: Regularly scheduled B2B transfers from the U.S. to emerging markets

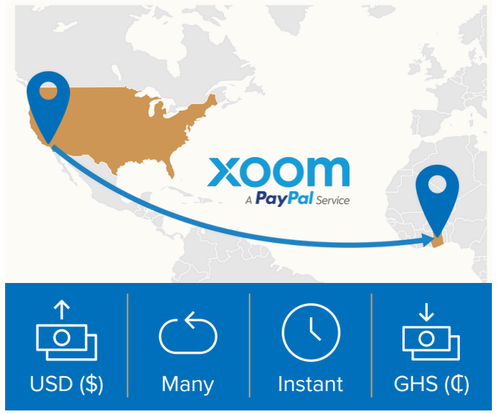
EXAMPLE: Renewable energy company in Chicago, IL has opened a new office in Gujarat, India and pays vendors and employees there biweekly in local currency.

Blockchain finance solutions like Ripple allow companies to store funds in the U.S. and send frequent transfers on a dependable timetable to nations with relatively unstable local currencies.

SCENARIO 3: Convenient access to personal funds in local currencies

EXAMPLE: Doctor from Little Rock, AR, lands in Manaus, Brazil, as the first stop in a year-long sabbatical for medical mission work in Brazil, Colombia, Honduras, and Cuba.

MoneyGram Access, built on the blockchain-based Stellar Network and using the USDC stablecoin, allows users to deposit funds, convert and hold funds in USDC, and withdraw funds in local currencies at MoneyGram locations.



SCENARIO 4: Frequent high-volume, low-value transactions across borders

EXAMPLE: Celebrity-led Los Angeles, CA fashion label sources fabrics from Ghana. Their social impact initiative sends a portion of every sale back to Ghanaian non-profits.

Yellow Card facilitates cross-border money transfers for PayPal's Xoom service using the PYUSD stablecoin, enabling fast and low-cost transactions. This creates a seamless and efficient transfer experience for senders and receivers.

PART II. BLOCKCHAIN BEYOND FINANCE

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BLOCKCHAIN BEYOND FINANCE

Blockchain technology's utility extends beyond financial services, potentially revolutionizing areas as disparate as philanthropy, healthcare, real estate, and supply chain management. Experimentation and adoption across different sectors highlight blockchain's potential to modernize traditional systems across society, creating new opportunities for efficiency, security, and transparency.

Blockchain's decentralized, transparent nature facilitates rapid, effective crisis responses, increasing donor and recipient trust and potentially revolutionizing philanthropy and foreign aid delivery with improved speed, transparency, and security. Philanthropy and emergency or humanitarian giving are special cases of blockchain for finance. In urgent scenarios, the sender and receiver can transfer value without intermediaries slowing the process or charging fees at every stage—the opposite of what is needed in an emergency.

One noteworthy instance of blockchain's utility for aid was during the 2022 Russian invasion of Ukraine. In the aftermath, Mykhailo Fedorov, Ukraine's Minister of Digital Transformation, directly solicited digital asset donations on X (Twitter). Blockchain-based contributions amounted to $225 million in the first year of the conflict ($134 million for humanitarian aid and $91 million for military support). Perhaps even more surprisingly, however, blockchain has been used not just for foreign aid in faraway lands but in the aftermath of natural disasters on American soil.

For example, The Giving Block is a Miami, FL-based company created in 2018 that facilitates the donation of digital assets and their conversion to dollars to help people in crisis. It has partnered with charitable organizations like All Hands and Hearts (Mattapoisett, MA), notably raising over $125 million for victims of the 2023 Maui wildfires. The Giving Block also facilitates donations for high-profile groups like United Way and the Kennedy Center for the Performing Arts in Washington, DC. In a similar initiative, Disaster Services Corporation – Society of St. Vincent de Paul USA, a Catholic lay organization and nonprofit based in Irving, TX, is piloting "digital wallets" - a specialized smartphone app - with the Algorand Foundation and FEMA. Their Kare Survivor Wallet (in collaboration with other partners) has reduced aid delivery time by 70% in Tennessee (tornadoes) and Florida (hurricanes), with expansion into recent FEMA-declared disaster areas in Kentucky, Louisiana, Arkansas, and Mississippi.

Aid distribution efforts after the 2023 Maui Wildfires

Credit: FEMA

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BLOCKCHAIN BEYOND FINANCE

Blockchain's secure and transparent properties make it a natural tool for sensitive communication and data management scenarios. For example, Avaneer Health of Oak Brook, IL, is a healthcare ecosystem launched in 2021 with founding members that included CVS Aetna, Cleveland Clinic, IBM Watson Health (now Merative), and PNC Bank. Avaneer leverages the security and transparency of blockchain (and other technologies) to empower payers, providers, patients, and partners to seamlessly share healthcare information while maintaining patient confidentiality and data integrity.

Blockchain redefines asset ownership and investing in the multi-trillion dollar U.S. real estate sector. RealT, a small company based in Boca Raton, FL, utilizes blockchain technology to enable more Americans to participate in real estate investment compliantly through fractional, tokenized ownership.

To promote sustainability and conservation, Intrinsic Methods (Huntsville, AL) tracks carbon credits on blockchain. The company builds on the carbon-neutral XRP Ledger (XRPL), a decentralized public blockchain, to record and verify tree planting, growth, and survival on an easy-to-access, user-friendly interface. With blockchain's transparency, users—from corporations to individuals—can reliably trace each tree and its impact on biodiversity restoration.

Supply chains are becoming more transparent and sustainable through blockchain technology. Organizations can now securely track items from origin to endpoint, ensuring authenticity and reducing fraud, unethical sourcing, and inefficiency. Notably, Walmart - a major grocer with about 25% U.S. market share - and IBM created a food traceability system that traced mangos sold in its U.S. stores and, separately, traced pork sold in its China stores to determine where they originated and where they had been before ending up in the supermarket. They also use tracking to manage food safety and conduct more efficient recalls. Walmart does this with many other products, and they are far from alone; food giants such as Nestlé, Tyson Foods, and Kroger also utilize blockchain to manage their massive supply chains.

Walmart (Bentonville, AR) tracks produce on the blockchain

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BLOCKCHAIN BEYOND FINANCE

Many companies worldwide use blockchain technology to track their supply chains. This allows them to detect unethical sourcing more quickly and accurately, ensure authenticity, reduce fraud, and increase efficiency.

RARE MINERALS

In the critical minerals, battery, and precious metals sectors, companies leverage blockchain to ethically source materials like cobalt and lithium, which are essential for batteries and electronics. Qenta of Houston, TX, tracks responsible gold from mine to market and tokenizes gold ownership with blockchain technology.

TEXTILES/MATERIALS

The global and complex fashion and textiles industry uses blockchain to trace products from raw materials to finished garments, verifying ethical sourcing and production. Sourcemap of New York, NY, in partnership with Provenance of London, combine supply chain mapping and blockchain tracking, offering end-to-end traceability for consumer goods in the fashion industry.

FOOD

For food items and consumer packaged goods (CPG), blockchain enhances transparency in sourcing, sustainability, and product safety. Small companies like Raw Seafoods of Fall River, MA, and larger companies like Lavazza use blockchain tech to track items like seafood and coffee beans, respectively, and to reduce food fraud and boost consumer confidence.

LUXURY GOODS

In the luxury goods sector, companies like Everledger, with offices in Seattle, San Francisco, Chicago, and around the world, and the Aura Blockchain Consortium (a collaboration among luxury goods companies like LVMH, Richemont, and Prada) use blockchain technology to verify authenticity and provenance of high-value items such as diamonds, rare wine, and fine art, preventing counterfeiting and ensuring consumer trust.

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BLOCKCHAIN BEYOND FINANCE

Finally, U.S. government agencies are actively integrating blockchain innovations into their operations, recognizing its potential to deliver significant benefits across many of its diverse and far-reaching missions and areas of interest to the country. This engagement demonstrates the government's focus on leveraging blockchain to innovate and improve productivity across its operations beyond securities and commodities regulation.

For example, the Food and Drug Administration (FDA) has been exploring using blockchain to enhance product tracking, verify authenticity, monitor expiration dates, and streamline drug recalls. The Department of Agriculture (USDA) similarly uses it to boost food safety, ensure the authenticity of high-value agricultural products, and verify certification compliance. At the Department of Defense (DOD), the U.S. Air Force (USAF) implements blockchain for secure communications, cash flow management, predictive maintenance, and supply chain security. Globally, the U.S. Agency for International Development (USAID) is adopting blockchain to improve payment systems, enhance supply chain transparency, and streamline aid distribution in developing countries.

Looking to the skies, the National Aeronautics and Space Administration (NASA) and Lonestar Data Holdings (St. Petersburg, FL) are pioneering blockchain's utility beyond Earth, integrating blockchain-enabled data storage cubes into NASA's Artemis missions whose aim is to establish a long-term presence on the Moon. These decentralized, solar-powered data centers will create immutable records and tamper-proof evidence of lunar activities in a situation where Earth-based solutions like gigantic cloud data centers aren't feasible. (In addition, such lunar data storage offers a secure, off-world backup location for critical Earth information, protecting it from natural disasters, cyberattacks, and other terrestrial disruptions.) The project with Lonestar supports NASA's broader vision of establishing a permanent lunar base by 2030. This innovative application demonstrates blockchain's potential to bridge terrestrial technology with space exploration challenges, simultaneously advancing digital security and lunar operations.

NASA on the Moon's surface (again) as part of the Artemis program

Credit: NASA

CONCLUSION

As blockchain technology evolves, the U.S. faces a critical moment that demands thoughtful policy action. U.S. financial regulations must adapt to incorporate blockchain alongside traditional systems to modernize our financial infrastructure and maintain America's competitive edge in the global economy. This is particularly crucial as China develops alternatives to the SWIFT system through initiatives like mBridge, and countries such as Switzerland, Singapore, United Arab Emirates, and Brazil have already established themselves as blockchain hubs through supportive regulations.

Small and medium-sized businesses, which represent 99.9% of U.S. businesses, stand to benefit significantly from blockchain integration with the financial system. With 97% of U.S. exporters being SMBs, the ability of blockchain finance to streamline cross-border transactions and improve cash flow management could address key challenges facing American businesses. And while it may take longer in some cases, these blockchain-based innovations could eventually benefit domestic underbanked populations, rural and remote populations, “global nomads,” part-time or “gig” workers who are U.S. citizens, and Americans mostly living overseas, including military and government employees. Federal government agencies have already begun leveraging blockchain to enhance operational efficiency, reduce fraud, and improve transparency in their services and transactions.

Through smart contracts and distributed ledger technology, blockchain offers unprecedented transparency, security, and efficiency in financial transactions and other areas such as healthcare and food supply chains. But important regulatory challenges for blockchain and digital assets, particularly in financial services, include classifying blockchain-based assets, addressing privacy concerns, and adapting financial regulations to decentralized models. To secure America's leadership position in global finance and enhance U.S. economic security, the White House or a branch of the incoming 2025-26 Congress should consider establishing a dedicated “blockchain and crypto task force” to study cross-sector implications and propose tailored regulations that balance innovation with consumer protection.

By investing in blockchain education and research while creating clear regulatory frameworks, the U.S. can foster domestic innovation, maintain the dollar's status as the world's premier reserve currency, and ensure American technological superiority in the coming decades. With greater regulatory clarity from Congress and the Administration, American entrepreneurs and businesses will be empowered to develop new blockchain applications, create high-skilled jobs, and drive economic growth through technological innovation.

DECODER

About ***DECODER*** by DCI

The exponential age we are living in is defined by rapid innovations that break down barriers across society, business, and government. Technological advancements—such as artificial intelligence, blockchain, quantum computing, and cybersecurity—redefine our lives faster than they have for any previous generations.

DECODER by DCI brings clear explanations of how these technologies work, their potential applications, and associated policy implications to lawmakers and decision-makers. DECODER helps lawmakers make informed decisions that foster innovation while addressing regulatory, ethical, and societal concerns. This knowledge empowers policymakers to stay ahead of the curve and craft forward-thinking legislation in a rapidly evolving tech landscape. For more information, send an email to editor@datacatalyst.org.

About the **Data Catalyst Institute** (DCI)

You operate in a world in which data is the most important commodity, in which the digital realm has become more important than the physical one, in which disruption is the rule and not the exception. A world in which influencers must be understood, opinions and perceptions are being shaped, and innovation, market, and regulatory landscapes are constantly shifting. A world in which risks and opportunities seem obvious...until they aren't. And you have zero room for error.

In an era of global turbulence and uncertainty, professionals need access to multidisciplinary intelligence and expertise that helps them navigate significant technological, economic, political, and societal change. DCI analyses complex battles at the intersection of innovation, business, the law, and public opinion by synthesizing insights from original research and our unique community of academics, analysts, and practitioners. Leaders use DCI's intelligence and experts to "see around corners" when they need novel solutions to complex situations involving minimizing risk and maximizing opportunities.

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