

# Tokenizing Banking

Tokenization of traditional assets  
holds potential to transform banking



# Executive Summary

Banks are increasingly adopting blockchain technology to bring the technological benefits of tokenization without the volatility, speculation, and risk associated with crypto currencies.

Most early blockchain innovation was focused outside of the regulated banking sector in novel cryptocurrency markets. These markets provided testing grounds that have demonstrated the efficiency and stability blockchain technology can deliver but have yet to deliver real-world value.

More recently, banks and other regulated financial institutions are leveraging blockchain infrastructure to facilitate real-world activity such as helping small businesses invest and grow or helping families purchase homes. These projects have demonstrated that blockchain has the potential to:



Create more efficient infrastructure, driving down costs,



Facilitate the creation of new markets that bring new funding models to lower the cost of credit,



Empower banks to offer new products to better serve customers, and



Allow customers to embed banking services into their product creating seamless experiences that deepen relationships.

While investment has primarily been at the largest institutions, it is critical that community banks understand how blockchain will impact the future of banking. This report is designed to provide an overview of the areas where blockchain adds unique value (and where it does not), the most promising bank applications of blockchain, and practical advice for banks on the path forward.



# Why Blockchain

At its core, blockchain is a shared database that is constantly updated by the participants in the network. Unlike existing databases in banking, which are proprietary and siloed, all participants in a blockchain network see the same updates in real-time. This allows multiple parties to collaborate in real-time. This creates a number of advantages over traditional database technologies.

## **Faster, cheaper, safer payments.**

As a shared system of record, blockchain can facilitate the near real-time transfer of value. This allows for rapid transactions at minimal cost. Today, many frictions in payments are not due to technological limitations, but the need to coordinate between separate systems. Blockchain can break down the silos between these systems by allowing both the asset and the payment to be recorded in the same system of record. This real-time reconciliation between systems can reduce the time needed to complete a transaction and reduce the risk of fraudulent transactions by providing a clear line of sight into all aspects of a transaction.

## **Programmable payments.**

Blockchain can integrate smart contracts, enabling banks to automate the execution of complex payments based on real-world conditions. For example, smart contracts could be used to automate the payments process associated with buying a home. Today, a buyer sends money to escrow, and an escrow agent calls individual banks and confirms wires to all of the various parties that participated in the transaction. With a smart contract, we can deliver each payment to the right party the minute a contract is signed.

## **Atomic Settlement.**

Blockchain adds additional value when used as a system of record for other traditional banking assets (like loans). Today, banking infrastructure is a system of siloed proprietary databases. These silos create friction when a transaction requires moving assets in multiple systems at the same time. A buyer will not release funds until they are sure the asset has moved in a separate system of record.

Blockchain allows for both payments and assets to be recorded on the same system of record. This allows a buyer to trade their dollars for an asset in real time without settlement risk because the transfer of money and the purchased asset move in the same transaction.

### **Distributed Ledger Technology (DLT)**


A decentralized database managed collectively by a group of network participants housed across the network participants.

### **Blockchain**

A subset of DLT where transactions are grouped into a linear series of blocks that record transactions by applying a cryptographic signature that connects a block of transactions to the previous block.

### **Tokenization**

The creation of a digital token representing ownership in an underlying real-world asset or liability.



Incorporating atomic settlement into traditional banking assets makes it easier to buy and sell those assets. By making these assets more liquid, we add new funding options that lower the cost of credit, expanding access to affordable financial products.

### **Collaboration among community banks.**

Blockchain also has potential to ensure the continued competitiveness of community banks. A key force driving industry consolidation is the large, fixed cost of technology investments. Large institutions have better ability to spread these investments over a large customer base. As shared infrastructure, blockchain changes this equation, promoting a focus on the value of individual customer relationships. This is similar to cloud technology, which helped level the playing field for small businesses by offering flexible and scalable infrastructure.

# Industry Adoption

In recent years, banks have ramped up investment in blockchain projects with many launching tests and some bringing final products to market. Unlike crypto products, these services closely resemble traditional financial services offerings. In many cases customers may never know that a blockchain is being used to power the experience.

Too often blockchain is sold as a silver-bullet that can solve any problem. Like any technology, it has strengths and weaknesses. It is a tool, that when used correctly can have a huge impact. However, there is a tendency to see every problem as a nail when you are holding a hammer.

The most successful projects in this space maintain a laser focus on where blockchain adds unique value. We have found that programs with the following needs are most likely to benefit from the application of blockchain:



**Collaboration:** break down the barriers between institutions and asset classes, allowing for real-time collaboration.



**Programmability:** Automate payments or asset movement based on certain real-world conditions.



**Atomic Settlement:** facilitate the purchase and sale of assets without incurring counterparty risk.

# Current Projects

## Payments

**Regulated Settlement Network:** ([USDF alongside 11 large banks](#)) Eleven large financial institutions came together to test interoperable tokenized deposits on a shared ledger. They found that the use of a shared ledger added operational efficiencies, particularly in cross-border transactions allowing for the creation of a dollar payment rail that is available globally 24/7/365. The second phase of testing is exploring the use of a tokenized deposit to facilitate the purchase of tokenized assets such as treasuries or securities.



**Citi Token Services:** ([Citi](#)) Citi's has tested live transactions for tokenized deposits. Their platform is designed for institutional clients and initially targets trade finance applications and global payments.



**J.P. Morgan Onyx:** ([J.P. Morgan](#)) Onyx is a blockchain platform designed to facilitate a wide array of traditional banking activity. One area it has focused is on its [deposit token](#) product, which aims to bring speed, efficiency, and programmability to customer payments.



**Mastercard Multi-Token Network:** ([Mastercard](#)) Mastercard has piloted its Multi Token Network (MTN) as a way to create interoperable network rules that facilitate transactions within the digital asset ecosystem. Their early focus has been on enabling tokenized deposit products.



**Fnality:** ([Fnality](#)) A UK-based payments network enabling tokenized deposits. Fnality recently raised \$95 million from Goldman Sachs, BNP Paribas, DTCC, Nomura, and Euroclear. It has received approval from the Bank of England to operate a dedicated master account to facilitate final settlement for transactions.

## Assets

### Digital Asset

**Canton Network:** ([Goldman, BNY, Cboe, and others](#)) Participants from 15 asset managers, 13 banks, four custodians, three exchanges gathered to test the interoperability of transactions for tokenized assets, fund registry, digital cash, repo, securities lending, and margin management.



**Broadridge Distributed Ledger Repo:** ([Broadridge](#)) Broadridge's DLR platform leverages blockchain to facilitate repo transactions. The application of blockchain allows for automation that can speed up transactions, allowing for quicker access to funds and shorter intraday borrowing windows. They recently added HSBC to their platform and are settling \$70 billion in repo transactions per day.

# Current Projects

## Assets



**Goldman GS DAP:** ([Goldman](#)) Goldman Sachs has launched a platform to facilitate the tokenization of bonds. Its inaugural transaction was the creation of a €100 million digital bond for the European Investment Bank. Key drivers of the platform are real-time settlement, operational efficiencies, and increased transparency.



**HSBC Orion:** ([HSBC](#)) HSBC has launched an asset tokenization platform. Their inaugural transaction was the issuance of a HKD 6 billion green bond issued for the Hong Kong Monetary Authority. They have also launched a product offering tokenized gold. Key drivers of the platform are opening up new funding sources, faster settlement times, and operational efficiencies from the automation of ongoing servicing of the bond.



**HQLAx:** (HQLAx) A platform allowing for the tokenization of securities that integrates with existing triparty and custody infrastructure. Owned by BNY Mellon, Citi, BNP Paribas, Euroclear, Clearstream, and JP Morgan.

## Central Bank Initiatives

As central banks continue to explore DLT and tokenization, they are increasingly looking at models that leverage tokenized deposits as opposed to retail CBDC models.



Bank for International Settlements - ([Project Agora](#))



Brazil Central Bank - Digital Brazilian Real ([Drex](#))



Bank of Korea - CBDC experiment ([BoK](#))



German Banking Industry Committee - ([Tokenized Commercial Bank Money](#))



Swiss National Bank / SDX - ([Project Helvetia 3](#))

# Community Bank

USDF is working closely with its network of midsize, regional, and community banks to apply blockchain to the challenges that are unique to smaller institutions. We have developed a broad set of promising applications across payments, lending, and funding. Below are some of the applications we are exploring in the near-term.

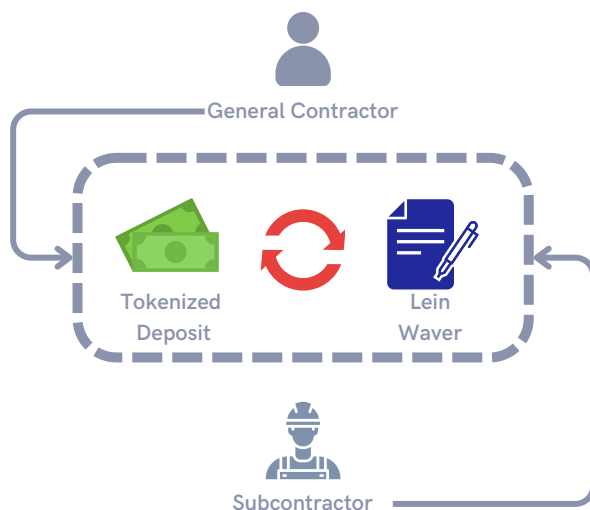
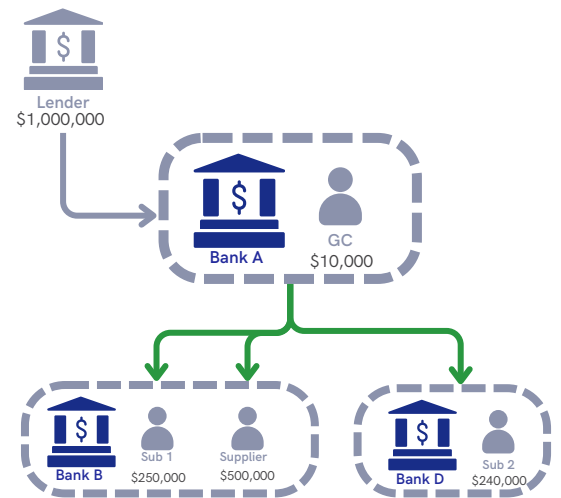
## Construction Lending

By tokenizing the tracking and payments associated with construction loans we can speed up delivery of delivery of payments associated with a draw on a construction loan and better track lein wavers. This will help contractors get paid more quickly for thier work and reduce risks in the lending process.

### Automate Draw Distributions.

Programmable payments can be leveraged to automate the delivery of draw distributions when a loan is funded.

- **Faster and Cheaper:** Real time availability of funds for subcontractors, employees, and suppliers.
- **Fully Transparent:** All parties have real-time insight into same record of payments, approval, etc.
- **Automated:** Payments execute automatically once all conditions have been met.
- **Reduce Risk:** Payments are tied to underlying record and validation of work performed.
- **Eliminate Reconciliation:** Payments, draw request, documentation all tied to same digital record.



### Streamline Lein Waivers.

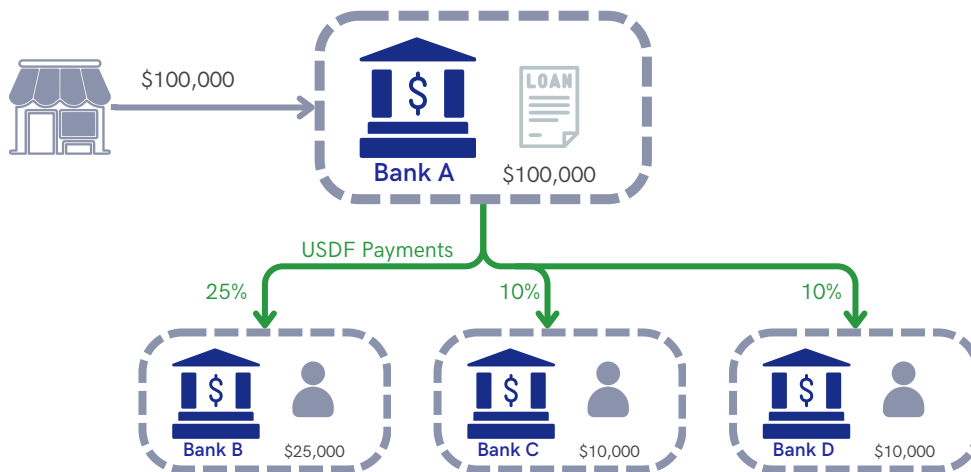
Leverage atomic settlement to trade a lein waiver for payment in real-time,

- **Trusted Record:** When a contractor is paid for completion of a project they sign a document certifying that they are paid and waiving their right to place a lein on the completed building.
- **Atomic Settlement:** A lein waiver can be exchanged for a digital check (tokenized deposit), in real-time. Blockchain ensures that the lein waiver cannot be transferred without an irrevocable payment being delivered at the same time.
- **Eliminate Reconciliation:** When a payment is made it is recorded in the same system of record as the lein waiver and documentation of underlying work.

# Loan Participations

Programmable payments can be leveraged to automate the payments flows associated when multiple banks participate in a single loan. Today, most banks rely on informal methods of tracking loan participations and distributing payments to banks that participate.

- Programmable payments: Through smart contracts, banks can automatically calculate and disburse funds in accordance to participation interest and monthly remittance performance. This reduces the cost associated with these loans and reduces the risk that payments are not applied appropriately.
- Consistent record: All banks participating in a loan have real-time insight into the performance of the underlying asset and a clear record of payments associated with the loan.
- Lower cost of funding: By lowering the barrier for banks to participate a loan, it is easier for banks to access a diverse set of funding sources that can help lower the cost of credit allowing a bank to offer more competitive pricing.







# Why Tokenized Deposits?

To leverage blockchain for real-world transactions, you first need a trusted form of digital money that exists natively on blockchain. The core value proposition of blockchain is the ability to break down silos and bring multiple assets onto the same system of record. Without money that exists natively on the same platform, you cannot buy or sell these assets. Sure, you could record a transaction on-chain and wait for a check to arrive by mail, but there are few efficiencies to be gained. This need is what led to the rise of stablecoins and has driven the policy discussion around the creation of a central bank digital currency (CBDC).

Both stablecoins and CBDC have serious drawbacks as a form of digital money and widespread adoption of either would undermine the role that banks play in the economy. We believe there is a third option that leverages the way money already exists in our economy. While we tend to think of paper money, the reality is that most money in the U.S. is already digital and exists primarily in the form of bank deposits. Today, bank deposits represent 73% of money in our economy.

Tokenized bank deposits. Bank deposits are a cornerstone of our monetary and financial systems that support the dominance of the U.S. Dollar around the world. They play a critical role in supporting banks' ability to lend into the communities that they serve. Today these loans are an important funding source powering \$2.5 trillion in residential mortgages, \$2.5 trillion in business lending, and \$2 trillion in consumer lending. These loans are a critical driver of economic growth and social mobility.

Banks are subject to stringent regulation and proactive oversight. This includes bank capital and liquidity requirements as well as technology risk management regulation designed to control for the prudential and operational risks associated with deposit taking.

By bringing bank deposits onto blockchain, we can maintain the numerous benefits and protections that make our banking system the envy of the world while adopting the latest technology.

## **Central Bank Digital Currencies (CBDC).**

An alternative approach being proposed by policymakers is for the Federal Reserve to issue its own digital dollar to the public in the form of a retail CBDC. The issuance of a CBDC would fundamentally change our monetary and financial systems, thrusting the Fed into a new role at the center of consumers' financial life. Any such change would raise serious concerns around privacy, financial stability, and U.S. competitiveness.

Moreover, a retail CBDC would serve as a competitor with banks for deposits. Every dollar held in a CBDC would move off of banks balance sheets to the Federal Reserve's, where it cannot be used to lend back into the communities that rely on their local bank.



### **Stablecoins.**

Today stablecoins are the primary form of money in the non-bank crypto ecosystem. Although stablecoin issuers claim to focus on real-world transactions, these remain limited today. Despite legislative efforts, there is no consistent regulatory framework for stablecoins, leaving consumers subject to risks.

### **FedNow/RTP.**

Recent years have seen the launch of several real-time gross settlement systems. We believe that tokenized deposits complement these systems creating a path to extend their functionality onto DLT platforms to power tokenized payments.

## **About USDF Consortium**

The USDF Consortium is a membership-based association of insured depository institutions. We are the banking industry's answer to the need for a digital dollar.

USDF is a "tokenized deposit" that represents an existing commercial bank deposit on a blockchain ledger. By extending the existing banking model onto blockchain we can deliver modern payments infrastructure while maintaining the numerous protections and benefits that our two-tier banking system provides today.

Our mission is to build a network of banks to further the adoption and interoperability of a bank-minted tokenized deposit (USDF™). We believe that blockchain technology can make payments more efficient and improve traditional banking, expanding access to safe and affordable financial services