

Accelerating Small Business with Blockchain Technology

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INTRODUCTION

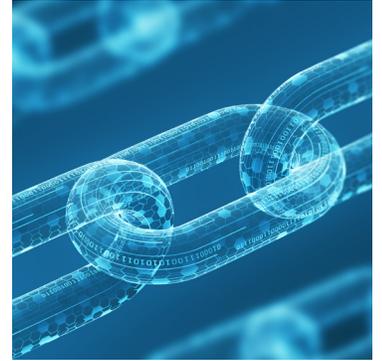
Entrepreneurs and business owners in the United States face many obstacles to securing capital to start, operate, and grow their small businesses. As forced shutdowns, limited capacities, and stricter regulations continue to place strain on businesses, business owners are seeking financial assistance at greater rates; however, even during times of economic prosperity, acquiring capital for a business has been fraught with complications. The emerging use of blockchain technology in financial services has the potential to transform small business lending and improve capital access for businesses excluded by conventional lending processes. Additional applications of blockchain technology can also enhance business operations and create more opportunities for growth.

THE ACCESS TO CAPITAL PROBLEM

By and large, small businesses and entrepreneurs in the United States do not have the financial resources necessary to thrive, or in some cases survive, without borrowing. Government-funded loans provide some assistance, but current programs have considerable room to improve. In 2019, a survey of 1,000 businesses found that only 51% of small businesses reported receiving their requested loan amount, while one in 10 received no funding at all.¹

The application process is a significant complication. Applicants spend an average of 33 hours on applications, and errors are often reported, such as the omission of important supporting documents or input of the wrong industry classification code.² A reported 47% of small business owners consider obtaining financing to be a difficult or frustrating process, and 37% report that financing does not feel accessible.³

Even if the application is completed successfully, funding can still be out of reach. Traditional banks overgeneralize risk determinations to manage compliance costs and, as a result, they do not provide secure, cost-effective access to capital to businesses that do not meet traditional lending criteria but may be worthy credit risks.⁴ Among the most frequent reasons for the denial of a loan application are lack of history with the bank, low or nonexistent personal or business credit scores, and insufficient cash or other collateral.⁵ These barriers are disproportionately stacked against people of color and immigrants, despite immigrant entrepreneurs comprising nearly 25% of businesses in the U.S. and up to 40% of businesses in states that boast large immigrant populations.⁶ Before the onset of the pandemic, 31% of African American, 28% of Asian American and Pacific Islander, and 26% of Latino small business owners did not have a business banking relationship with a bank or credit union.⁷



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**FIGURE 1 — SUMMARY OF ALL PPP-APPROVED LENDING
(AS OF MAY 31, 2021)**

Approval Summary		
Loans Approved	Total Net Dollars	Total Lenders
11,823,594	\$799,832,866,520	5,467

SOURCE U.S. Small Business Administration.⁸

When looking for a solution to a problem in the digital age, technology usually provides an answer.

Consequently, business owners and entrepreneurs often must find other sources of funding. In 2016, only 18% of employer businesses used a loan from a financial institution as startup capital or initial acquisition capital.⁹ By contrast, 64% reported using personal or family savings.¹⁰

Many businesses secure venture capital (VC) from private investors, but this route can be costly. The average VC-backed entrepreneur ends up owning less than 20% of the business upon exit.¹¹ The process of acquiring VC funding also detracts significantly from participating in the business itself. Entrepreneur and serial business owner Dawn Dickson, testifying before Congress, remarked that “spending 85% of [her] time acquiring debt and only 15% of [her] time acquiring customers was not fiscally viable.”¹² Dickson also reported having raised over \$1 million through a security token offering but being “blocked by regulatory hurdles and federal red tape that have impeded [her] plans.”¹³

The economic impact of the COVID-19 pandemic created a staggering need for financial assistance for businesses, with the number of small business loans skyrocketing to an unprecedented number. The dramatic rise was mostly attributable to the Paycheck Protection Program (PPP) of March 2020. The goal of the PPP was to provide aid to small businesses adversely affected by the pandemic.¹⁴

However, the PPP also served to highlight cracks in the small business loan system. Some banks prioritized existing customers, and others did not accept applications unless the business had a checking account, a credit card, and a previous loan.¹⁵ Fraud was also a problem, as exemplified by one Florida business owner who spent his \$4 million PPP

loan on a Lamborghini, shopping sprees, and stays at high-end hotels.¹⁶ Chains like Shake Shack and Potbelly received approval for PPP loans, while many legitimate and deserving small businesses received no assistance.¹⁷

When looking for a solution to a problem in the digital age, technology usually provides an answer. Blockchain technology has the capacity to address many of the issues that contribute to the access to capital problem in the United States.

WHAT IS BLOCKCHAIN?

Blockchain has been referred to as one of the 25 trends in new technologies for the future.¹⁸ Since its inception in 2009, blockchain has developed the potential to impact every industry. In the simplest terms, a blockchain is a database of transactions, essentially a digital ledger. The technology’s promise stems from its security, public accessibility, and immutability. The platform is a composition of digital blocks of transaction information that connect to form a chain. Information from a new transaction is uploaded into a new block, which is linked to the previous block through what is called a hash, which is basically a fingerprint for each block. The new block contains the information of its own hash and the hash of the previous block.¹⁹ As such, it is incredibly difficult to modify the information of the block because any change will invalidate the hash, thereby affecting the rest of the chain.

A blockchain can be available for anyone to view, or this can be restricted to the participants of an organization, depending on the implementation model. Most commonly, a blockchain is fully decentralized and publicly accessible to all. Other blockchain implementation models have been created, including consortium (also called partially decentralized) and fully private blockchains that are centralized within one organization.²⁰ Different models serve different purposes, and the model of the network will also affect the governance framework. Anyone can interact in a public blockchain; however, this feature also hinders government regulatory efforts. A

fully private blockchain will have a single organization as the internal decision-maker. A partially decentralized model is useful for larger organizations that would like to coordinate their various branches across a shared ledger accessible to only those within their organization.

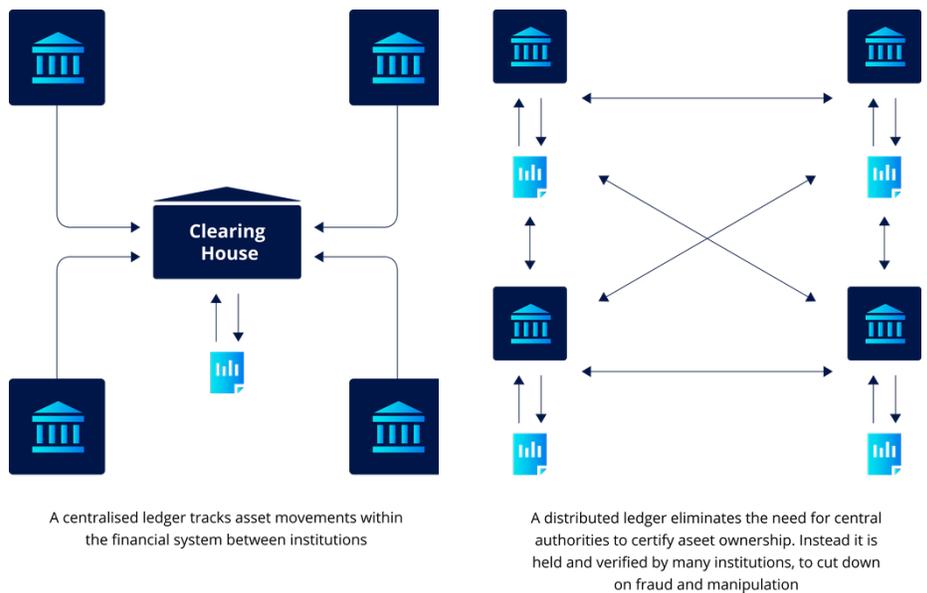
USES OF BLOCKCHAIN

Cryptocurrency transactions are currently the most popular use of blockchain. Cryptocurrency platforms rely on a technology called decentralized finance (DeFi) and on software applications called dApps, or decentralized applications. dApps use DeFi technology, meaning the transactions within the apps are made without traditional intermediaries like banks. With a traditional intermediary, if a man uses a credit card to buy a pizza in a pizzeria, the credit card company (i.e., Mastercard or Visa) facilitates the transfer of money from the man to the pizzeria. With DeFi, the man could pay the pizzeria without an intermediary, using cryptocurrency on a so-called “peer to peer” or “person to person” internet platform.

Ethereum is a platform that uses a coin called Ether and allows people to create and run dApps.²¹ Examples of dApps include Gitcoin Grants, a crowdfunding app for Ethereum community projects; Augur, an app in which users bet on the outcomes of sports, economics, and other events; and Compound, which allows users to lend tokens to earn interest, with the ability to withdraw at any time.²²

Smart contracts are a promising application of blockchain technology. A smart contract is a computer code that carries out the processes of an agreement made between parties utilizing blockchain technology.²³ With little or no human intervention, the code of the smart contract carries out the necessary steps for a transaction once the criteria for the transaction are met. For example, a car loan made with a smart contract could issue ownership rights to the borrower as long as payments are made, and a missed payment could trigger automatic repossession of the

FIGURE 2 —BLOCKCHAIN TECHNOLOGY



SOURCE Oak-Tree, <https://www.oak-tree.tech/blog/blockchain-overview>.

car and transference of ownership to the lender without an intermediary such as a repo agent or collection agency.²⁴ Currently, smart contracts fulfill mostly basic functions: moving funds for payment after a triggering event and imposing financial penalties if objective conditions are not met. However, as blockchain use becomes more widespread, the capabilities of smart contracts are sure to improve. For example, smart contract code may soon be able to determine subjective legal criteria such as the quality of the product or service involved in a contract.²⁵

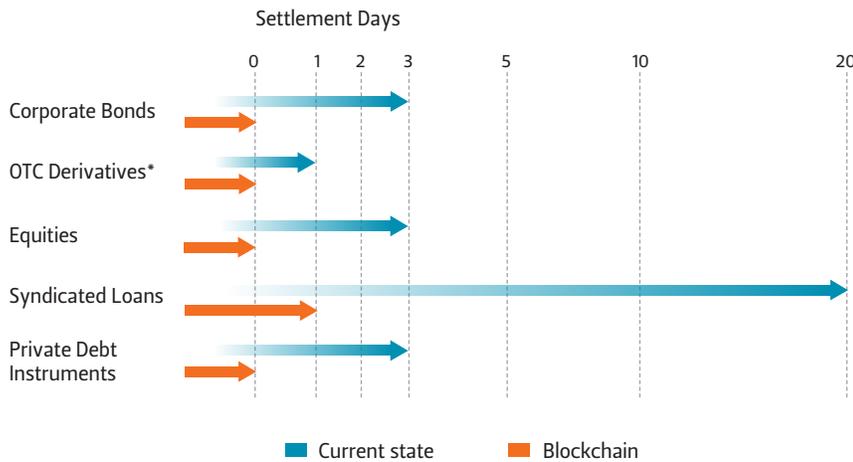
Cryptocurrencies and smart contracts mark only the beginning of blockchain technology’s potential. Businesses and entrepreneurs can look to blockchain for a variety of functions to support and enhance their operations.

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APPLICATIONS OF BLOCKCHAIN

How Can Blockchain Help?

The current reality is that small businesses must navigate a frustrating, time-consuming administrative process to apply for a business loan and ultimately receive a decision. Blockchain holds the promise

FIGURE 3 — FINANCIAL TRANSACTION SETTLEMENT TIME (DAYS)

SOURCE Accenture.

NOTE *ISDA best practice guidelines.

Blockchain technology could be implemented to facilitate the application and loan process through the U.S. Small Business Administration.

of swiftly processed transactions without intermediaries, with each transaction protected through encryption. Blockchain could also reduce costs by eliminating intermediaries and increase traceability, since every interaction is recorded.²⁶

Blockchain technology could be implemented to facilitate the application and loan process through the U.S. Small Business Administration (SBA). Credit scores, banking history, and high-quality collateral are all used by banks to determine risk. Businesses without such attributes face greatly reduced chances of loan approval. Since all of a business's blockchain transactions are visible, SBA lenders could decide credit worthiness without a lengthy application process.

The National Policy Network of Women of Color in Blockchain has presented to the SBA a proposal for a federally backed loan for entrepreneurs and small businesses that would make use of blockchain technology.²⁷ The organization asserts that by using blockchain, the proposed loan program would simplify the process of securing capital and would eliminate the obstacles faced by minority business owners.

One key benefit of the use of blockchain technology by the SBA would be increased transparency. Citizens' trust in government is near the lowest it has been in the past century.²⁸ Through its use of decentralized, publicly accessible ledgers, blockchain

provides transparency that is much needed.²⁹ If cryptocurrency becomes legal tender, intermediaries such as banks would no longer be necessary in the distribution of loans. Lenders could provide cryptocurrency loans through blockchain and significantly streamline the lending process.

Current Applications in Financial Services

Businesses and entrepreneurs in the U.S. have already turned to blockchain to address the capital access problem. Private companies, including Figure, SALT, and Finclusive, are providing alternative financial services with blockchain and cryptocurrencies. Figure is a platform which records, shares, and exchanges loan data using blockchain.³⁰ SALT members can receive a loan with digital assets or cryptocurrencies used as collateral.³¹ Finclusive provides secure banking to the financially excluded through its hybrid regulatory and financial technology platform, which provides both traditional and blockchain-enabled access to accounts.³²

An Initial Coin Offering (ICO) is a relatively new and popular form of crowdfunding used to finance the development and launch of blockchain-based products and services. A clear example of the success of ICOs is Ethereum, which was originally funded through an ICO and has since become one of the most prominent names in the blockchain and cryptocurrency market.³³ Entrepreneurs are able to utilize ICOs to raise capital through a process that combines crowdfunding and Initial Public Offerings (IPOs), but instead of offering equity in the company, buyers receive a token that will have future utility on the project that they fund. ICOs have thus proven to be effective tools for entrepreneurs, with over \$10 billion raised cumulatively from more than 2,000 unique token sales in 2017 and 2018.³⁴

Perhaps one of the best examples of an entity harnessing blockchain technology for small business lending is BlockFi. BlockFi is a centralized platform founded by Zac Prince and Flori Marquez in 2017 that provides different financial services, such as interest payments on cryptocurrency

holdings, credit card services, and a coin-trading service.³⁵ BlockFi also offers an interesting option to access capital called a “collateralized crypto business loan” or CCBL. This type of loan is for businesses that already have crypto assets, such as those that accept cryptocurrency as payment or that have used Initial Coin Offerings (ICOs) for fundraising. When borrowing with BlockFi, businesses can use crypto assets as collateral for loans in U.S. dollars or stablecoins, which are cryptocurrencies that are pegged to an external reference or currency—such as U.S. dollars—to maintain market stability.³⁶ The amount of a CCBL depends on the amount of collateral and loan-to-value ratio, and interest rates can be as low as 4.5%. Borrowing against crypto assets has the potential to yield tax savings for a business. The business likely can deduct interest payments on the loan,³⁷ and by pledging cryptocurrencies such as bitcoins (BTC) or Ether (ETH) as collateral, it can acquire capital without the need to sell assets and generate taxable income. Finally, the application process for a CCBL would likely be easier for business owners compared to traditional loan applications with banks. BlockFi boasts that “collateralized loans do not put as much weight on profitability,” and that the company “does not require business clients to provide tax documents when applying for a loan under \$250k. This makes it significantly easier for growing companies to access capital.”³⁸ Credit scores, which BlockFi claims are inherently exclusionary, are also not necessary for the loan, allowing for greater access by demographics normally excluded from financial services.³⁹

Current Applications for Business Growth and Expansion

Besides blockchain-based loans, small businesses have many other options for using blockchain technology to improve business operations. Opportunities for blockchain use by entrepreneurs and small businesses include fully automated legal agreements through smart contracts, more efficient fundraising, increased transparency and

accountability in shipping logistics, and the elimination of background checks.⁴⁰ Even large corporations are currently exploring blockchain’s potential. Walmart, for example, has been developing a food traceability system that capitalizes on the public ledger technology of blockchain. A new block is uploaded to the chain for each entity that handles the products on their way to the store, thereby making the process transparent and traceable. Though the benefits are numerous, one prime advantage is the ability to trace an infected, recalled batch with greater ease and speed than before. On average, it would take a retailer 6.5 days to find out which farm an infected batch came from; however, by using blockchain, Walmart reduced the time to a mere 2.2 seconds.⁴¹ Small businesses could look to implement a similar process of verifying their supply chains with blockchain.

The decentralized applications market is growing each day. For example, there are a considerable number of apps running on the Ethereum network that use blockchain in different areas of daily life. Below is a list of methods of engagement with Ethereum that can be advantageous for small businesses, including browsers, wallets, and must-have utilities:⁴²

- MetaMask is a web browser that connects devices with the Ethereum network and offers users the option to make transfers through peer-to-peer sharing and swap tokens.
- Brave is an increasingly popular software that allows individuals to earn money by simply watching content.
- Ethereum Name Service creates a personalized and straightforward Ethereum wallet address by mapping human-readable names to machine-readable identifiers such as Ethereum addresses, other cryptocurrency addresses, content hashes, and metadata.
- 3Box is a cloud storage platform that uses Ethereum.
- Civic is an app used to manage an organization’s information to prevent data breaches and scams.

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- MyEtherWallet is a free, open-source, client-side interface that can create Ethereum wallets and interact with smart contracts.
- MyCryptoWallet is a wallet with the ability to swap and send cryptocurrency between different platforms.
- SelfKey provides users with their own digital identity to provide secure access to investments, smart contracts, fintech (financial technology) products, financial services, company incorporation, coin exchanges, token sales, and other services.

All of these applications are only the beginning. DeFi is already being applied to virtual worlds and games and has great potential; the demand will only increase in the next few years. When they were introduced, decentralized games were slow, expensive, and rudimentary. They have since evolved to be immersive and complex. One of the most popular games utilizing blockchain technology is Axie Infinity, which uses Ethereum-based cryptocurrency.⁴³ This game is continually earning followers and has more than 250,000-plus daily active players, which means that its own economy is increasing by a considerable amount.⁴⁴ Axie Infinity has important partners like Ubisoft, Aave, Binance, Samsung, Delphi Digital, Kyber Network, MM Maker, and UPbit.

DeFi applications are playing an increasingly important role as the global system looks toward accelerating and improving legal and lending processes, ID verification, crowdfunding, derivatives, gambling, insurance, and other activities. By utilizing DeFi, the need for intermediaries will diminish, reducing administrative costs. Each transaction will also require less time, leading to instant transfers and a reduction in costs and fees. Moreover, by utilizing the internet, individuals can transact and trade from anywhere in the world at any time.

One of the virtual worlds likely to use DeFi is the metaverse. The metaverse is a network of worlds and simulations rendered as a virtual and augmented reality.⁴⁵

Explained simply, it is the internet, but in 3D. Though still in development, this is an increasingly popular concept within the video game sphere, with a world of possibilities beyond gaming. Blockchain technology can be used in the metaverse to facilitate cryptocurrency transactions and create a functioning economy.⁴⁶ Though it does not directly impact access to capital at this time, entrepreneurs should be mindful of the metaverse's potential and increasing presence, for it is likely to affect the future of business operations as the market continues to shift toward digital services. Mark Zuckerberg declared to investors that the metaverse will be the "successor to the internet."⁴⁷

How a Business Can Implement Blockchain

As there are various ways a business can apply blockchain to its daily processes, the difficulty and duration of implementation can vary. Among the simplest ways to adopt blockchain technology is to accept cryptocurrency as payment. In order to do so, business owners must utilize an online payment processor that supports cryptocurrencies, such as BitPay, Coinbase Commerce, or even PayPal.⁴⁸ A business wanting to implement blockchain in a more sophisticated manner does not have to reinvent the wheel, but rather can use a customizable, predesigned blockchain. In this way, time and resources are saved in the implementation process, as entrepreneurs and business owners do not have to develop infrastructure and instead can focus on adjusting the blockchain to fit the business's needs. Such predesigned blockchains are offered by Amazon Web Services (AWS), Microsoft's Azure, and Oracle. For example, AWS offers various templates that businesses can use to fit their needs, with the option to choose between the Ethereum and Hyperledger Fabric platforms.⁴⁹

However, it is possible that an entrepreneur would rather be more innovative and develop a blockchain entirely from scratch. For a small business owner or entrepreneur, developing and implementing a blockchain ecosystem from

the beginning can be a lengthy process in comparison to using platforms or templates already created. According to software development company LeewayHertz, a project begins with a proof of concept (PoC), or design prototype, that typically takes two to three weeks, depending on the application's requirements.^{50,51} After the PoC process is done, it takes four to five weeks to create a minimum applicable product with the necessary minimum features. Starting an application on the network takes approximately two to three months, depending on the requirements of a client. If a small business owner or entrepreneur is interested in developing their own blockchain ecosystem, there are various blockchain development companies willing to assist. LeewayHertz, Somish Blockchain Labs, SoluLab, Venture Aviator, and SoftwareMill are just a few.

CONCLUSION

Blockchain technology is giving rise to a new global system that offers great potential for entrepreneurs and small businesses. Beyond improving small business lending, its accessible and efficient applications for entrepreneurs are seemingly endless, from customer loyalty programs to crypto exchanges, crypto payments, crypto gambling platforms, bitcoin vending machines, digital wallet platforms, crypto crowdfunding, crypto fundraising, decentralized cloud storage, and non-fungible tokens (NFTs). The promise of blockchain and cryptocurrencies will be stymied, however, if government regulation hinders rather than embraces the potential for transparency and democratization that the technology offers. Public policy should carefully balance any public benefits of regulation against the burden on innovation and entrepreneurship that government regulations often present.

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