

Beyond Bitcoin: Eight Essential Blockchain Insights

How the blockchain could completely transform transaction systems.

Blockchain technology has potentially vast implications for countless aspects of the economy and society. Bitcoin and other cryptocurrencies are just one of many possible applications of this technology. Technological developments in this area could completely transform transaction systems as we know them today. After all, the existing financial infrastructure fails to move money and information at the same speed, leading to complexity and inefficiency. The failure points in many financial-transaction systems are broadly relevant across industries. The potential benefits of progress here are enormous as transaction fees represent an estimated 6% of global GDP.¹

In this paper, we outline eight exciting impacts and opportunities from blockchain technology.

1. Blockchain Tech May Simplify a Wide Range of Transaction Systems

Complex systems such as global supply chains have three separate workflows for money, goods, and information. Each of these is handled by different parties. Within each of the flows, there are multiple handlers. For instance, a straightforward transaction can involve up to five banks to simply move funds.

There are a variety of pain points through these value chains, namely settlement time, inefficiency costs, and friction. The most frequent issues lie in error resolution. The current infrastructure defaults to a host of manual processes involving scores of people across different entities. These friction points exist across a wide range of industries that are ripe for disruption, both from blockchain technology and broader software proliferation.

However, blockchain technology comes with trade-offs. On the plus side, it increases trust, reduces friction costs, and automates manual processes. But on the other hand, it requires a large up-front investment in innovation and is challenging as inertia is widespread. Moving to a decentralized system is a paradigm and technology shift for most parties involved that will require new skill sets to handle these changes.

Given the sheer scale of the opportunity, the systems with the highest transaction fees are, therefore, likely to be early adopters of blockchain technology. For example, we see early signs of this in Asia where a large cement company has implemented a blockchain-based procurement platform that connects 240 suppliers throughout their value chain. This has reduced the processing time for invoices from 30 days down to two days because it took 28 days to reconcile and verify invoices prior to implementation.² We believe progress like this is just beginning to be realized.

Insight from sub-adviser, Wellington Management



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What is a blockchain?

A blockchain is a peer-to-peer electronic network that relies on computational proof instead of a central authority to authenticate transactions. Verification is decentralized across the network and doesn't reside in any single location or authority. In other words, software replaces a central authority as the source of trusted validation. A less technical way to describe a blockchain is as a database or ledger that maintains a continuously growing list of data records or transactions. Advocates cite transparency, security, and efficiency as the key advantages.

Key Points

We believe:

- Blockchain has many compelling applications—far beyond bitcoin—that could transform transaction systems, driving efficiency and opportunity.
- These opportunities include smart contracts, consortiums, and neobanks, among many others.
- Blockchain innovation is fueling rapid change with some key industries benefiting as others face disruption.

¹ McKinsey, 2020

² Company meetings, January 2021

2. Value Capture May Move to the Software Layer

Crypto, software, and blockchain are all fundamentally rewiring transaction systems for the modern digital age to reduce complexity and more effectively solve problems. In our view, there are two key approaches to resolving the complexity of both financial and nonfinancial business processes (FIGURE 1).

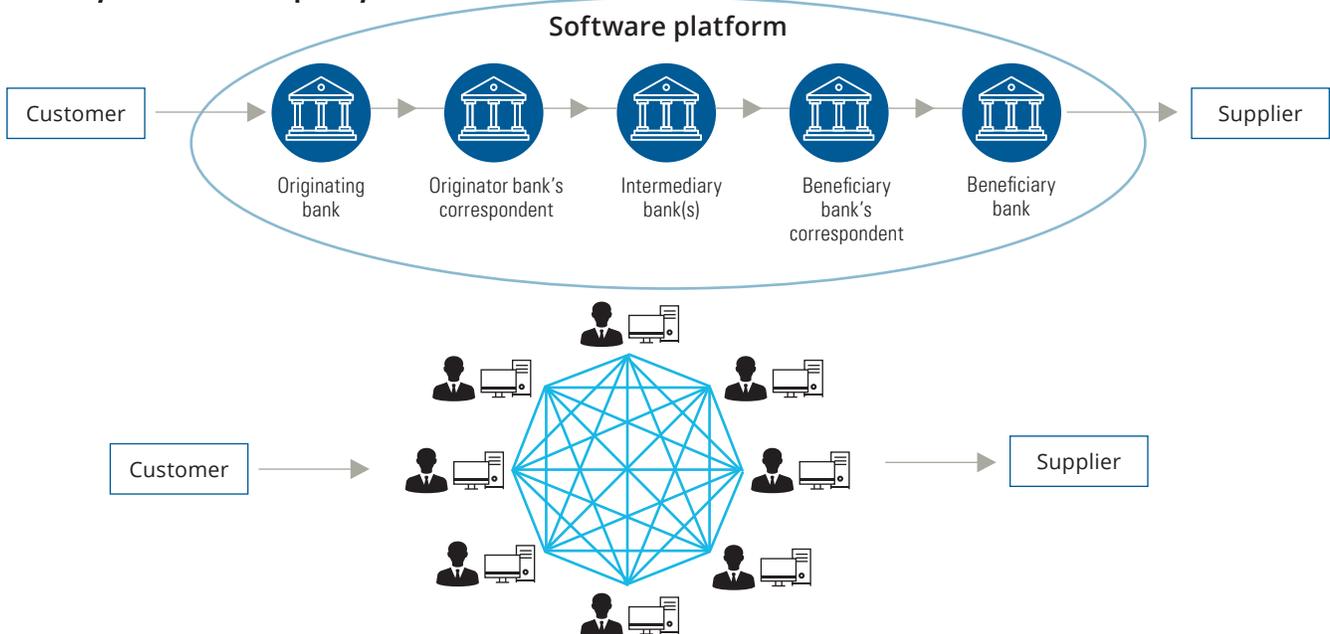
One approach (the top graphic) builds on existing infrastructure. These are software platforms that absorb complexity, remove manual processes, and abstract intermediary layers in transaction chains. For instance, within financial services, companies are managing enormous complexity on behalf of their customers and making difficult transaction processes easy. One promising company, for example, manages transaction-system complexity on behalf of restaurants who need help managing digital orders. These software companies are not trying to disrupt the existing financial infrastructure. Rather, they are creating a new layer that sits on top of it, owns the customer relationship, and protects the customer from all the pain points embedded in the underlying infrastructure.

The other solution (the bottom graphic) requires a full redesign of the infrastructure layer through blockchain implementation. Many of the players trying to address transaction-infrastructure problems this way say that the existing infrastructure is irredeemably broken and not fit for purpose in modern digital technology, so it needs to be rebuilt from the ground up.

There are certainly viable paths forward for both solution sets, and we think we'll see successes and failures in both. However, we believe the most likely path is the software abstraction route. In either case, the ownership of customer relationships will be increasingly important to how value is captured in industry value chains. In a digital world, owning demand is critical to capturing value. These software-oriented companies all have an overarching strategy of owning customer demand and commoditizing supply. We think this will pressure returns across the legacy pieces of the value chain and transfer considerable value to software platforms that own the end-customer relationship.

In a digital world, owning demand is critical to capturing value.

FIGURE 1
Two Ways to Resolve Complexity



Source: Wellington Management. For illustrative purposes only.

3. Banks Will Not Go Extinct

Though we do anticipate significant disruption and progress, we don't think traditional banks will go extinct. In our view, regulators do not want to lose control of the payment system. By housing "know your customer" (KYC) data, we believe banks will benefit from maintaining a regulatory moat that protects their status within the financial infrastructure. We expect banks with the greatest scale and willingness to disrupt themselves to be the ultimate survivors. In our view, to succeed going forward, banks will need to find ways to transform their core competency from the movement of money into an information layer of value-added services.

For instance, one large bank has set up a division to bring blockchain technology to B2B payments. By leveraging their network for information and their transfer service to move funds efficiently, they can remove the inefficiencies involved in error resolution and help to enhance their core competencies.

4. Smart Contracts May Reduce the Cost of Trust

Smart contracts harness technology to create a shared truth, and shared truth may reduce the cost of trust. As software, smart contracts, and blockchain proliferate, transactions' significant GDP cost should come down. As a result, we think intermediaries should see a reduction in the value they deliver and capture.

We see a few key avenues for cost reductions throughout the system:

- Smart contracts may automate a wide range of processes ranging from payments to air-quality clauses in rental agreements.
- As blockchain is implemented through supply-chain finance, we think the information asymmetry will fade, which should reduce the cost of capital throughout a supply chain.
- And, finally, one of the key pain points for the payments infrastructure is error resolution because it requires many manual processes. With smart contracts, we think errors will resolve themselves.

We believe companies that function as a contract infrastructure layer across many different agreements and transaction systems could be a winner in these trends.

These efforts should reduce the role of intermediaries for a whole host of transaction types, which may have broad knock-on effects for many industries. For example, how much money do law firms make litigating contract adjudications today? What would happen if every contract became automated and independently monitored so that there was no dispute?

For almost any kind of contract, technology is increasingly able to predetermine the parameters around a dispute and automatically verify the outcome via an independent source. We believe this could potentially pressure legacy law firms and other beneficiaries of the current landscape.

5. Smart Contracts May Also Play a Role in the Creator Economy

Smart contracts also offer another instance of diminishing the role of gatekeepers. We expect increasingly more artists to go directly to fans to monetize their art. Smart contracts, through nonfungible tokens (NFTs), may play a key role in facilitating this monetization shift.

For example, the recent acquisition of a music service by a payments company has the potential to be enormously important for how artists and musicians make a living without needing to rely on intermediaries like record labels. Kings of Leon will be the first music group to release a new album in the form of an NFT. Each purchase will come with different perks for different tokens, including front-row seats to their shows for life. We believe this is just the beginning.

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NFTs create scarcity in a digital form that was never possible before and that has many potential applications.

Consumers are going to be able to “bet” on their favorite artists and musicians in unprecedented ways as NFTs and smart-contract technology evolve. The market is likely in a mania right now around NFTs, but this piece of the smart-contract universe has the potential to really transform how artists, musicians, and other creators interact with their fan bases.

NFTs create scarcity in a digital form that was never possible before and that has many potential applications. This is just one implementation of the smart-contract infrastructure that we believe will significantly impact the art-transaction system.

6. Consortiums Are the New Way of Doing Business

Decentralized technology enables major improvements in efficiency but leads to replicas of the same information sitting in storage. A new industry structure, the consortium, may emerge to enable shared data solutions across industry participants. As industries agree to a record-keeper of a shared truth, the data will sit in one place and members of the consortium will have permissioned access to it.

Notably, consortium business models require new methods of governance for data security and access. We expect this structure to emerge in sectors with a trusted monopolistic central figure (and IT system), which already dictates the technology requirements for partners.

For example, in the US, the Depository Trust Company is prototyping a blockchain system that will enable shared record-keeping and settlement. If the prototype is successful, we expect this to roll out to private markets. In practice, the placement agents (i.e., investment banks) will be responsible for the KYC functionality of the private companies. On the other side, the custodians will be responsible for the KYC and digital-wallet custody functions of the potential investors. Once the infrastructure is in place, we expect to see a new exchange for private company shares, which will be made into tokens and sold through the blockchain in exchange for stablecoins.³ Over time, we think this could create meaningful market changes because the IPO market would theoretically become less relevant.

7. Consortiums Will Make Us Rethink Data Ownership

Consortium business models may also challenge how we think about data ownership going forward. Moving to a shared source of truth could lead to digital data “wallets” whereby companies and individuals will have the power to choose how and when their data is shared.

One of our tech experts recently said, “Artificial intelligence is the mortal adversary of the blockchain.” Today, machine learning is applied to large pools of data, which allows brands to infer insights about their customer base. As actual data are available and permissioned, brands would instead have individual data points to create bespoke marketing and advertising solutions. The key challenge for brands will be maintaining the trust of customers and earning ongoing permission to use their data.

For example, consider an insurance-technology company that targets low-mileage auto insurance customers. Part of their distribution strategy is partnering with original equipment manufacturers (OEMs). OEMs share mileage data with the company so they can better allocate their marketing dollars. Could this expand into home insurance? Who owns the information that digital-assistant devices hear every day? If the device knows a homeowner’s basement floods with every rainstorm, will that information end up on their home report for future buyers to consider? Will underwriters have access to that information over time?

As consortium business models become more widely adopted, we believe digital infrastructure and permissioned data should allow for significant growth in smart contract adoption.

³ A stablecoin is a new class of cryptocurrencies that attempts to offer price stability and are backed by a reserve asset.

As consortium business models become more widely adopted, we believe digital infrastructure and permissioned data should allow for significant growth in smart-contract adoption because all of the data will be digital and viewable by the participants involved in the transaction.

8. The Market Likely Underestimates the Neobanking TAM

Our original analysis suggested that the total available market (TAM) for neobanks⁴ in the US was approximately 100 million US adults. This assumed 15 million unbanked adults, 55 million underbanked adults, and 35 million digitally native adults.

More recently, we've come to believe the opportunity is a lot bigger. Neobanks claim the TAM is closer to 180 million adults, or approximately 75% of all US adults. This assumes everyone with less than US\$400 in their bank accounts will be better served by a neobank than a traditional bank because of the cost-structure advantage for both the bank and the consumer.

As we marry all our findings, we believe neobanks can play a much larger role. As we move into a consortium-based, blockchain-enabled world, financial wallets can transform into information wallets. Notably, the acceleration in e-commerce driven by COVID-19 has led to multiple passwords across a variety of shopping sites. This can all condense into a "super app" for finances, shopping, brand loyalty, and data permissioning. Furthermore, rather than using emails for promotions, we believe the large neobanks will have messenger platforms allowing merchants to communicate directly with consumers.

Another potential use for super apps is in payments and identity verification. For instance, when a person travels internationally, the departure country has all their personal information. If the arrival country was able to share the data, the concept of a passport line would vanish. Instead, facial-recognition technology would allow travelers to simply walk across the border upon arrival. We think similar functionality could arise for all events requiring ticketing—with payments and data collection happening digitally prior to the event.

In our view, global brands and global shopping trends mean a global wallet likely makes sense. We think this makes large payments firms the natural beneficiaries of this trend given their scale, compliance functionality, and global/local reach.

Investment Implications

Technologies such as software, crypto, and blockchain are all at the beginning of their impacts on transaction systems throughout the economy. In our view, some of the key beneficiaries of these changes will be companies that remove complexity for their customers, firms that earn customer trust and own the customer relationship, scaled providers of financial plumbing who are willing to disrupt themselves, owners of smart-contract infrastructure, and individual creators.

On the other hand, some areas are likely to be disrupted, such as intermediaries that add little value in a transaction system (such as white-collar labor whose main value-add is manually dealing with complexity), companies that lack an ecosystem solution, and firms that lack the end-customer relationship.

These innovations are driving rapid change. Some of the blockchain examples in this paper may make sense while others may seem less likely or far off. In our view, we're just starting to see what transaction systems may look like in a future where digital technology is embedded across a wide range of industry value chains.

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⁴ A neobank is a tech company that provides banking services via mobile app or website.

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