Microsoft

Putting blockchain into action

How the financial services industry can turn DLT theory into business results

The power of trust

Even in its earliest days, distributed ledger technology's potential for financial services has been powerful.

The reason why is trust. At its core, the financial services industry facilitates the trusted exchange of value across multiple untrusting parties. Brokering that exchange carries enormous responsibility and risk, setting a high demand on platforms or partners that can help alleviate such issues. Ironclad trust, in other words, has the power to remake the industry.

Distributed ledger technology (DLT), offering a combination of advanced cryptography and distributed systems, provides exactly that by enabling the near-immediate transfer of value between counterparties through an immutable record written to a shared ledger. This ledger provides firms with a transformative platform to manage the trade and settlement of the digital assets they finance, transfer, securitize, and insure.

This powerful and foundational use case has been maturing in the marketplace, and firms are now looking to DLT to streamline cross-organizational collaboration, remove the need for error-prone audits, and create transformative business models using real-time customer insights. Certain subsets of DLT have taken firms' use cases a step further through "smart contracts", which enable users to set the terms under which value would be transferred at a future point in time.

So powerful is DLT's core applicability to the industry that nearly half of telecom, food, and automotive senior executives—and more than 60% of oil and gas executives—look at blockchain, a subset technology of the DLT family, as purely a monetary framework or financial services application.[1] While that belief is misguided, it remains true that blockchain's ability to supply trust to untrusting parties has the power to fundamentally remake the financial services industry.

In order for firms to put such theory into practice, however, they need to understand DLT's core strengths, as well as the use cases in which it can be most impactful.

1 "Breaking blockchain open: Deloitte's 2018 global blockchain survey"

Understanding blockchain

Distributed ledger technology (DLT)
Consensus-based frameworks of digital data that are simultaneously shared and synchronized across multiple institutions without having to rely on a centralized authority.

Blockchain
A subset technology of DLT that structures data into "blocks", linked together by cryptographic methodology.

Corda:
Created by technology company R3, along with a large consortium of financial firms, as an open-source platform for permissioned DLT applications. Varies slightly from other ledgers; for example, data is passed point-to-point (versus globally) to limit viewability and ensure transaction privacy.

Quorum:
Developed by J.P. Morgan as an Ethereal fork. Like Corda, was built with the needs of the financial services industry in mind. Permissioned, but introduces "public" and "private" transactions, where private transactions are still verified by all nodes without exposing transaction details.

Hyperledger Fabric:
Originally started by the Linux Foundation and now backed by IBM and other companies. A permissioned blockchain built around flexibility and modularity. Privacy is managed through "channels"—chains where only select participants can share and see a distributed ledger.

The strength of an immutable asset

Though there are numerous subsets of the DLT family, all with unique strength and use cases, their benefits fall into three broad camps: reduced risk, reduced cost, and an enhanced customer experience.

1. Reduced risk
With legacy technology and siloed processes causing friction against intricate and

evolving industry regulations, today's firms are constantly battling both error and fraud. Outdated solutions frequently involve manual processing of at-risk tasks, like validating and auditing trade information. Siloed data is just as dangerous, as it can create conflicting versions of truth.

Distributed ledger technology can alleviate such issues. Its consensus method of data reconciliation ensures an agreed-upon truth across multiple organizations, and the conditional formatting of digital smart contracts can validate key data sets more quickly and efficiently than manual processing. Secure, real-time access to accurate data can allow regulatory bodies to verify compliance with a high degree of confidence..

2. Reduced cost
Eliminating key risk factors for financial service institutions is a cost-saver in its own right; the cost of fraud and regulatory fines is a heavy burden for firms to bear.

But firms can also cut costs by eliminating third-party intermediaries tasked with multi-party business processes and value exchange: the condition-based construction of smart contracts can securely and correctly execute asset transference automatically, as opposed to through middle-man monitoring. DLT's accuracy can also expedite payment reconciliation while still improving the quality of risk assessment, an efficiency-boosting executional trade-off.

3. Enhanced customer experience
DLT-based operations can also drive a more positive customer experience. With a single, verified version of truth, claims can be processed more quickly and efficiently, reducing customer involvement time and ensuring correct disbursement.

And banks aren't the only ones to benefit from a reduced level of fraud. DLT's secure data collection and storage helps keep key customer data safe, an increasingly important need in today's digital environment.

Concepts like a digital locker—which can store crucial documentation while keeping it jointly available to necessary parties—enable customers to communicate with a firm securely without having to make multiple in-person trips.

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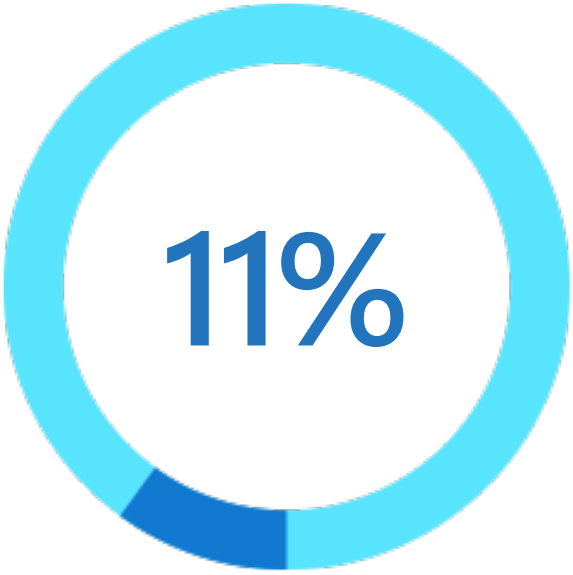
The benefits of DLT applications are clear. What's proven more difficult for financial institutions, however, is identifying the right opportunities to put such technology into practice. Just 11% of financial services organizations are in a blockchain technology production phase, while 49% are still experimenting with proofs of concept. 38% are just getting educated.[2]

64% of financial services organizations say that blockchain will disrupt the industry.



But only 11% of them are in a blockchain technology production phase.

Production phase by industry:

Consumer Products & Manufacturing	**29%**
Life Sciences	**23%**
Tech & Telecomm	**20%**
Food	**17%**
Oil & Gas	**15%**
Automotive	**12%**
Healthcare	**11%**
Financial Services	**11%**
Public Sector	**10%**

2 "Breaking blockchain open: Deloitte's 2018 global blockchain survey"

What many enterprise digital executives are still struggling to see, however, is that **blockchain represents a fundamental change to their business…** Because blockchain, when properly implemented, should fundamentally change how a business operates.[3]

3 Breaking blockchain open: Deloitte's 2018 global blockchain survey (Deloitte)

Putting theory into practice

Even though financial institutions have been cautious in adopting the full spectrum of blockchain's inherent strengths, they are starting to show increasing interest in one of its foremost use cases: digital asset transfer scenarios.

Depending on its role, a firm may have several touchpoints along the custodial chain of a digital asset. This provides a wide range of applicabilities through the asset transfer process.

1. Digital asset creation and issuance
Retail and commercial banks are using blockchain to track everything from the provenance and performance of underlying debt for collateralized debt obligations (CDOs), to the flows of physical commodities that make up their securities.

2. Financing
Commercial banks responsible for extending credit for asset purchases are looking to streamline cumbersome trade finance processes by exchanging data between corporate customers, KYC and credit data providers on a common data structure.

3. Trade and post-trade settlement
Exchanges and clearinghouses are translating trade logic into smart contracts to efficiently transfer digital asset across parties. Smart contracts confirm ownership and trade terms as part of an immutable audit log on the blockchain.

4. Asset insurance and claims processing
Insurers are working with banks and corporate customers to codify the terms of their policies and more accurately collect and attest the data pertinent to the premium setting process. Immutably sharing this information on the ledger allows insurers to adjust premiums in light of new information. This frees up capital for corporate customers, while reducing the burden of claims processing and reconciliations for insurers.

5. Regulatory compliance
Banks are securing and automating compliance processes that draw from indisputable data sources, reducing both the cost and risk of error when auditing compliance with regulations such as Dodd Frank, Basel III, and MiFID II.

The future of competition

Even with the financial services industry's growing interest in digital asset transfer use cases, various pressures—like regulatory concerns, lack of trained personnel, and the complexity of replacing existing digital infrastructure—have at times limited industry adoption to an extended proof-of-concept period. Concrete progress has largely depended on consortiums—with R3's 2016 rollout of Corda as a primary example—and nearly half of all firms say they are planning to join a consortium to reap blockchain's benefits.[4]

It's an unreasonable expectation for DLT's end potential to be realized overnight, and some industry-wide changes will continue to rely on the consortium approach. But that reality does not allow firms to take a backseat in DLT's development: more than 60 percent of financial services executives view blockchain as a significant disruptor[5], and 78% of enterprise-level executives view its implementation as necessary to stay competitive.[6]

That's why firms should also explore their own use cases through smaller, more focused DLT implementations that might provide immediate gains and allow them to simultaneously build the pool of internal expertise needed to progressively tackle more complicated issues. These narrow and more agile rollouts can help firms stay competitive against start-ups and mid-size companies that are capitalizing on their own inherent malleability.

The success of such an approach, however, depends on a firm's ability to identify low-cost, high-impact, and strategically relevant utilizations. A key part of that process is finding an experienced and flexible developmental partner and platform that can help translate these use cases into reality.

"78% of enterprise-level executives say implementing blockchain is necessary to stay competitive."

4-6 "Breaking blockchain open: Deloitte's 2018 global blockchain survey"

> More than 80 percent of the world's largest bank and 75% of global systemically important finacial institutions utilize the Microsoft Azure platform

A strategic partner

In this way, Microsoft offers a unique advantage—regardless of how large an implementation is needed. Microsoft has been consistently involved in a number of major DLT consortiums, both as a consultative partner and, through Azure, as a cloud host for blockchain data. **More than 80 percent of the world's largest banks utilize the Azure platform**; more than 75 percent of the global systemically important financial institutions do, as well.

But Microsoft also has decades of experience working in more direct enterprise-level relationships, and the resulting in-depth knowledge of the financial services industry, distributed ledger technologies, and how they intersect can help firms focus on areas where they can see value.

Regardless of where your firm is in its DLT journey, Microsoft provides both the secure infrastructure and strategic support you need to turn a proof-of-concept into a business-oriented application. With the right use case, that application can mitigate risk, cut costs, and enhance your customers' experience.

The Microsoft advantage

Simplify development through pre-built templates and experimental environments

Accelerate time to value by cutting development time, integrating with existing tools, and utilizing a large partner ecosystem

Innovate confidently on a secure Azure environment with more security and compliance certifications than any other hyperscale cloud provider

Scale seamlessly with Azure's global availability and reliability, all useable within a hybrid environment

Microsoft is a key innovator in the blockchain space—especially in the financial services industry.

Learn more

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