



Blockchain technologies matter in payments

In January, our Visa Consulting & Analytics (VCA) global advisors used VisaNet data, expert interviews, and in-house research to identify [ten trends that are set to shape the payments landscape over 2023](#).

Each month, the team delves into and expands upon each of the ten trends. This month, we deep-dive into how blockchain technologies are becoming increasingly relevant in payments, particularly for financial institutions (FIs), merchants and processors.

Taking stock of current technologies

Recent financial headlines on cryptocurrencies (i.e., "crypto") have not been optimistic and often spotlight the turmoil surrounding several notable crypto-related firms and protocols or the depreciation of crypto assets from their all-time highs.

When we stripped out recent industry turmoil and focused on the underlying technologies of advanced cryptography and public blockchain networks, however, we discovered an interesting phenomenon. Despite growing pains, momentum and interest remain steadfast. Public blockchain networks like Ethereum are establishing broader ecosystems around their networks to entice both users and developers to join their platforms.

A recent Visa survey conducted globally reveals the extent of interest in crypto among today's consumers. Fifty-seven percent of "crypto curious" consumers (i.e., those who have taken steps to learn about crypto and have positive

perceptions, but who have not yet purchased any assets) think they will be able to use crypto to pay for all their goods and services within the next five years. In consumer segments that include active and passive crypto owners, this belief is even more widespread.¹

In June 2023, there were more than

21,000

monthly active developers
working on blockchain
ecosystems.²



Across the space, fundamental innovations and solutions are being developed, commercialized and brought to market rapidly. At Visa, we strive to help our clients become more fluent in blockchain technologies and work with them to develop a blockchain strategy that aligns with their business needs and objectives.

These insights are primarily tailored to three parties: FIs, merchants and processors. For each type of institution, we look at how blockchain technologies are impacting the payments ecosystem and the strategies companies are deploying in the space.

1. Visa & LRW, The Crypto Phenomenon: Global Consumer Attitudes & Usage, October 2022

2. Realtime data received from the Electric Capital, Developer Report, data as of 8/10/23: <https://www.developerreport.com/>

Considerations for financial institutions

The tokenization of fiat currencies (a type of currency that is issued by the government, for example, the U.S. dollar) holds tremendous potential for FIs to engage in this space.

Major fiat currencies are being issued in a digital form as stablecoins, central bank digital currencies (CBDC) and tokenized deposits, and used for global money movement.

About tokenization in blockchain³

Tokenization is a term commonly used when discussing blockchain-based payments. While tokenization in the traditional payments space refers to a security technology used to enhance the privacy of sensitive information, tokenization in the context of blockchain refers to the process of transforming ownerships and rights of particular assets into digital tokens that are issued on a blockchain ledger. These digital tokens can represent existing assets or entirely new assets that can then be used within the blockchain financial system.

Stablecoins are digital currencies whose value is pegged to an external reference, such as a currency or commodity. Fiat-backed stablecoins have the potential to overcome many banking-related challenges. Often in-demand and regarded by some as the gold standard among fiat-backed stablecoins, USD

Coin (USDC) insulates holders from volatility, is issued across multiple public blockchains, and simplifies related product development. In early August 2023, PayPal also announced a fiat-backed stablecoin of their own, PYUSD.

Stablecoins can support cross-border payments by enabling **international money movement on a cheaper, faster basis** and facilitate corporate treasury management by offering a more cost-efficient means of managing cash and liquidity.^{4,5} Traditionally, stablecoin issuers utilize FIs to safeguard certain reserves backing fiat-backed stablecoins, but different forms of tokenized fiat warrant exploration.

As more regulations emerge e.g., the European Union's "Markets in Crypto-Assets (MiCA)", set to become law in 2024, new business opportunities will arise for FIs.

CBDCs — digital currencies issued by central banks — are also gaining traction globally.

Over the course of 2022, the share of Central Banks engaged in some form of CBDC work rose to 93 percent, with most central banks exploring both retail CBDCs (intended for use by the public) and wholesale CBDCs (targeting FIs) or strictly retail CBDCs.⁶ Central banks are exploring CBDC development for their potential impact on payment market efficiency and resilience. However, divergence across central banks is increasing: some central banks are hesitant to issue a retail CBDC, while others are actively experimenting with various CBDC projects.

In May 2023, for example, Visa and partners unveiled a CBDC project in Brazil — developing a programmable finance platform allowing farmers to securely fund and sell their crop harvests using blockchain technology and the Real Digital in different markets and networks.⁷

Moreover, in 2022 the Bank of International Settlements (BIS) Innovation Hub launched a new project on CBDCs and decentralized finance (DeFi) protocols involving the Bank of France, Monetary Authority of Singapore, and Swiss National Bank, exploring the potential **"to automate foreign exchange markets and settlement, potentially improving cross-border payments."**⁸ Moving forward, the key question is around how exactly FIs fit in regarding tokenized fiat and which roles they should play.

3. Visa, All you need to know about tokenization: <https://usa.visa.com/dam/VCOM/Media%20Kits/PDF/visa-security-tokenization-infographic.pdf>

4. Chain analysis, The 2022 geography of cryptocurrency report, page 52: <https://go.chainalysis.com/rs/503-FAP-074/images/2022-Geography-of-Cryptocurrency.pdf>

5. Circle, Corporate treasuries are going crypto: <https://www.circle.com/en/digital-dollar-solutions-for-treasury-management>

6. Bank of International Settlements, Making headway – Results of the 2022 BIS survey on central bank digital currencies and crypto, July 2023: <https://www.bis.org/publ/bppdf/bispap136.pdf>

7. Livecoins, Visa presents integration project with Real digital, April 2023: <https://livecoins.com.br/visa-apresenta-projeto-de-integracao-com-real-digital/>

8. BIS, BIS and central banks of France, Singapore and Switzerland to explore cross-border CBDC trading and settlement using DeFi protocols, November 2022: <https://www.bis.org/press/p221102.htm>

Tokenized deposits, which are linked to bank deposits and are virtual representations of existing bank liabilities recorded on distributed ledgers, may well be the answer to this question.

Tokenized deposits can support a variety of use cases, such as domestic and cross-border payments and the provision of cash collateral; they remain attractive to FIs because they potentially **require no change in the composition of assets on the balance sheet**.⁹ J.P. Morgan is one of many institutions to have embraced tokenized deposits through its JPM Coin, allowing corporate clients to make “programmable, real-time, multi-currency payments using multi-bank shared ledgers.”¹⁰

Meanwhile, in March 2023, the National Australia Bank (NAB) completed its first intra-bank cross-border transaction using AUDN, showcasing the ability of blockchain technology to expedite money movement, while reducing cost and complexity for customers.¹¹

As FIs continue to explore opportunities with blockchain, such as tokenized deposits, they should consider investing in creating an interoperable system connecting traditional financial networks with blockchain technologies.



Considerations for merchants

Non-fungible tokens (NFTs) — digital assets with proof of ownership that have been tokenized via a blockchain — represent a key opportunity for merchants to engage in the blockchain space. Over the past year, NFTs have not been immune to the depreciation in crypto-asset prices, though the rationale differs.

The original use case for NFTs was almost purely as a digital collectible and, as the public hype surrounding all things crypto began to fizzle in early 2022, so did mainstream interest in NFTs purely as collectibles. However, in recent months, two notable market trends emerged:

1

A niche affluent market remains for high-value collectible NFTs, such as CryptoPunks, which are NFT collections on the Ethereum blockchain. This demonstrates that young affluent consumers, a target demographic for many merchants, remain interested in these NFTs and view them as digital luxury goods.

2

The popular use cases for NFTs are shifting. Brands and consumers have pivoted their interests and there has been a resurgence in NFTs which have real-world utility (as opposed to acting purely as a collectible).

Businesses around the world, from multinational apparel companies and world-renowned luxury brands to small indie game developers, have developed and are continuing to experiment with the utilitarian aspects of NFTs.

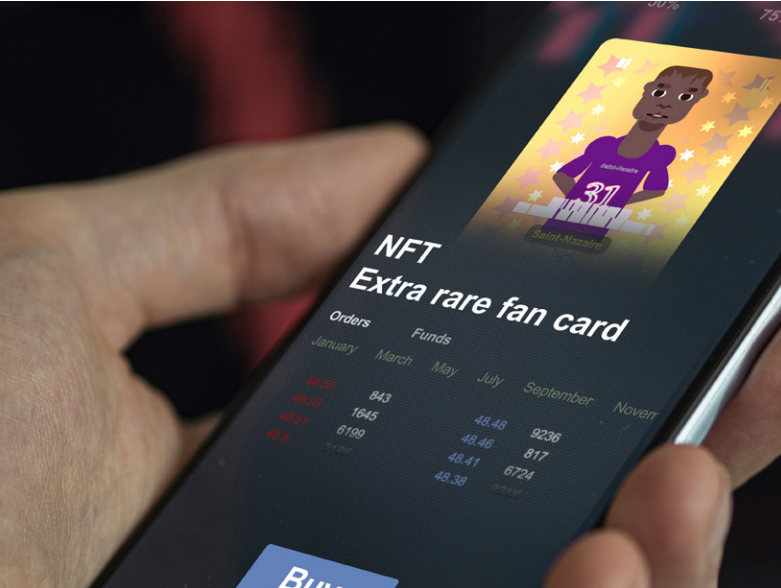
One emerging NFT use case is the ability to link physical and digital goods, commonly known as phygital commerce. For example, in 2022 Nike first released its collection of virtual sneakers that comprised 20,000 NFTs, one of which was purchased for more than US\$130,000. The company is now looking to make physical versions of the sneakers, available exclusively to NFT holders.¹²

9. Oliver Wyman, “How deposit tokens are changing the digital money ecosystem: <https://www.oliverwyman.com/our-expertise/insights/2023/feb/deposit-token-a-foundation-for-stable-digital-money.html>

10. J.P. Morgan, About coin systems: <https://www.jpmorgan.com/onyx/coin-system.htm>

11. NAB News, NAB completes world-first with cross-border stablecoin transaction, March 2023: <https://news.nab.com.au/news/nab-completes-world-first-with-cross-border-stablecoin-transaction/>

12. New York Times, Nike sold an NFT sneaker for \$134,000, May 2022: <https://www.nytimes.com/2022/05/26/style/nike-nft-sneaker.html>



Another utility-first NFT use case pursued by merchants involves their customer loyalty strategy. Starbucks Odyssey is a good example of how a brand can leverage NFTs to supplement their existing loyalty program. Powered by blockchain technologies, the program allows coffee drinkers to earn or purchase NFTs that unlock new features, rewards, benefits and immersive coffee experiences.

The gaming industry is another significant example of how businesses have incorporated NFTs. In recent years, blockchain-based games have gained popularity and allow players to earn characters, upgrades, skins, and more, all powered by NFTs. Many of these games also enable players to sell those assets on a market or exchange or auction them for cryptocurrencies, effectively creating a secondary market.

By early August 2023, the tokens associated with popular blockchain game developers (e.g., Axie Infinity, Decentraland, and The Sandbox) had a combined market capitalization of more than US\$2.2 billion.¹³

Millennials and Gen Z consumers represent approximately 64 percent of the crypto-gamer population, but users between the **ages of 45–54 and those aged 65+ are the groups that have seen the most growth in recent months**¹⁴—further highlighting that leveraging NFTs and public blockchains can be a lucrative way for businesses in the gaming industry to grow.

Considerations for processors

When reduced to their basic functions, blockchain networks like Ethereum and traditional card networks like VisaNet are quite similar. At their cores, both are value-exchange networks that process value transfers. The objective of both network types is to securely transfer this value from one party to another and to maintain a record of the transfer.

Blockchain networks offer processors two distinct opportunities to unlock incremental revenue and expand their total addressable markets:

1

At the application layer, by offering acceptance and settlement solutions for non-card payments

2

At the infrastructure layer, by participating in the value chain and processing onchain transactions

These enhancements to traditional processor business models can unlock new revenue streams but also must be evaluated against potential risks (e.g. legal framework and categorization of blockchain processing services).

As traditional card networks expand in scope, processors will play an instrumental role in making it easy for everyday people to interact with the blockchain. The potential adoption of tokenized fiat and new blockchain networks can create opportunities for revenue and growth, akin to the way roles are distributed in today's ecosystem.

13. Realtime data retrieved from Coin Gecko on 8/10/2023: <https://www.coingecko.com/>

14. Nasdaq, What Are Blockchain Games? July 2022: <https://www.nasdaq.com/articles/what-are-blockchain-games>

Opportunities at the application layer

To help deliver on consumer expectations, processors should look to follow in the footsteps of industry players like BitPay, Worldpay and PayPal. These players offer, or are currently developing, acceptance and settlement of crypto-to-fiat and fiat-to-crypto payments. These functionalities have the potential to unlock incremental revenue for merchants who have the appetite to accept crypto as a form of payment and for the processors enabling the transactions.

Opportunities at the infrastructure layer

Traditional processors have an opportunity to expand their total addressable market by bringing their expertise to these emerging networks and to become processors on public blockchains, like Ethereum. Blockchain processors receive fees for the transactions they process which are paid in a blockchain's native token (i.e., Ether on the Ethereum network) and can be held and compounded, withdrawn or converted. Of course, these considerations should be evaluated against the risks of volatility some tokens carry.

About Visa Consulting & Analytics (VCA)

We are a global team of hundreds of payments consultants, data scientists, digital marketers and economists across six continents.

- Our consultants are experts in strategy, product, portfolio management, risk, digital and more with decades of experience in the payments industry.
- Our data scientists are experts in statistics, advanced analytics, and machine learning, with exclusive access to insights from VisaNet, one of the largest payment networks in the world.
- Our economists understand economic conditions impacting consumer spending and provide unique and timely insights on global spending trends.

Our combined payments consulting expertise, economic intelligence and breadth of data allows us to identify actionable insights and recommendations to help clients make better business decisions.

For more information on blockchain technologies, and to learn about growth opportunities for your business, please contact your Visa account executive or email VCA@visa.com.

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