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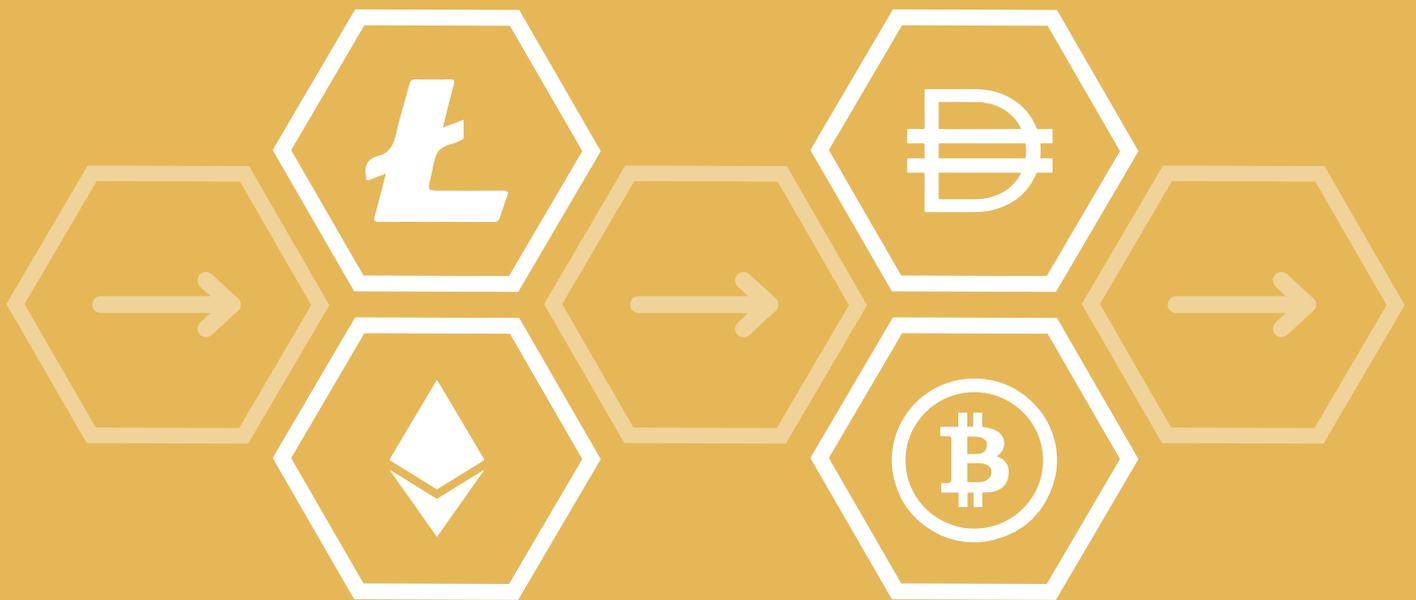
Drivers of Mainstream Cryptocurrency Adoption

Drivers of Mainstream Adoption

Apart from regulation, infrastructure, and growing number of use cases, there are several other drivers that will widen the adoption of blockchain technologies, namely user experience, interoperability, scalability, and education.

User experience

One of the most important drivers for blockchain adoption is better user experience. An average consumer does not know nor care about the technology and mechanism behind decentralised ledger technology. For example, the idea of private keys can confuse users about the security of their cryptocurrency account. As the crypto industry has thus far been led by technical and developer community, the interfaces of DeFi applications have been often clunky and unapproachable to users. To convince users to adopt which have been more customised to cards or digital wallets, the experience and benefit have to come in multiples.

Application providers need to remove these UX hurdles over conversion between fiat currencies and cryptocurrencies, e.g., integrating cryptocurrency into mainstream wallets. That would enable users to transact without needing to know how to apply private keys. Coinbase is the most popular crypto wallet that offers a simple and legitimate process where users can purchase cryptocurrencies using their checking account or with a credit card. The goal of a DeFi application should be that users can deposit money in an account and the bank/application provider would recommend users with simple investment products. Users may not need to fully understand the staking concept and the algorithm behind each protocol. We expect disruption will move from onchain crypto asset investing and transfers to more real life off-chain payments, as well as microloans or insurance in developing countries. This will over time go up to mainstream lending and other areas.

Internet giants and startups that have installed base and great UX are taking more interest in crypto and would accelerate consumer adoption. These fintech focused companies can also conduct the business at much lower cost than using public protocols across the global market. They work with card payment network incumbents like Mastercard or Visa and could improve interoperability of the business operations among the partners. At the current stage of blockchain industry, such interoperability with legacy infrastructure enables users to experience crypto as if they use traditional financial assets and currencies. Big Tech like Paypal, Square, Facebook or Asian internet giants (e.g. Kakao in Korea, Ant Financial in China) are leveraging their installed base and knowledge of fintech to push into the crypto space.

One of the incumbent leaders in this space is Square. Square launched Bitcoin trading with Cash App in 2018. In 2019, the company formed Square Crypto, a team focused on contributing to Bitcoin open-source work for the benefit of all. In late 2019, Square launched the Cryptocurrency Open Patent Alliance (COPA), a non-profit organisation encouraging crypto innovation and increasing access to crypto technology through the creation of a collaborative patent library. In late 2020, Square purchased 4,709 Bitcoins at an aggregate price of US$ 50M. Paypal also allows users to buy and sell Crypto via PayPal in the U.S. (excluding Hawaii). The company plans to expand this service to select global markets in the H1 2021. Paypal's CEO also mentioned that the firm is set to launch a new crypto business unit in Q1 2021.

A survey[1] indicated that 50% of the merchant respondents believed the cryptocurrencies payment feature would have no impact on their business. The risk of fraud would be the main reason why they would not accept Bitcoin for goods and services. However, the new crypto activities could accelerate the trend of payment using cryptocurrencies, as 70% of merchants would still accept Bitcoin for payment at checkout if PayPal or Square enabled it.

Mastercard has invested in the technology to enable CBDCs and stablecoins in partnership with banks, FinTech startups and governments. It is reported[2] that Mastercard has one of the payment industry's largest blockchain patent portfolios - 89 blockchain patents and another 285 blockchain applications pending worldwide. Mastercard's crypto card program helps its digital currency partners accelerate their development efforts, from design and market entry to growth and global expansion. Mastercard also enables consumers to spend their cryptocurrencies through partnerships with Wirex, Uphold, BitPay, and LVL. Such partnership could improve the efficiency of converting cryptocurrencies on/off ramp, thereby potentially increasing the ubiquity of digital asset usage.

In Q3 2020, Ant Financial announced the launch of OpenChain, a blockchain platform that enables SMEs and developers to get access to Ant's consortium of blockchain technologies and deploy SmartContracts and DApps. OpenChain provides developers with modules to be used in multi-party collaborations. Use cases include supply chain finance,

interactive games / mini programs, digital rights, and digital invoices. This could help SMEs and developers reduce development time and costs.

Interoperability

Currently, there is a lack of interoperability across various blockchain networks. Over 6,500[3] projects are leveraging a lot of standalone blockchain platforms and solutions with different protocols, coding languages, consensus mechanisms, and privacy measures. Just as important as the regulation clarity, a uniformed / industry-wide standards across blockchain protocols could improve the consistency of the basic process (such as security). A clear guidance could help enterprises among different blockchain networks to collaborate on application development and therefore make it easier to integrate with the partners' systems.

There are various projects working on such interoperability issues. For instance, Cosmos has launched a software development kit called Stargate, which enables different application-specific blockchains economies to operate outside silos and share data and tokens. Polkadot network connect private/consortium chains, public/permissionless networks and oracles. Its relay chain enables independent blockchains to exchange information and proceed trust-free transactions.

Education

Another key element for mainstream adoption of blockchain technology would be education. As DeFi technology and the industry advance, the education and technological knowledge barrier to start using crypto and DeFi is getting higher. But a wider education effort could make mainstream adoption of blockchain technology possible. For instance, the education about the computer technology and early internet over the last few decades has created a large, sophisticated workforce. Such workforce has further innovated and elevated the computer technology level and created blockchain technology today.

Although most existing blockchain developers and experts are self-taught, blockchain development courses are emerging in institutions. Some blockchain technology companies have launched initiatives to educate the public about blockchain and its potential use cases. Over time, there could be more blockchain developers who can refine the technology and widen of the scope of blockchain technology.

Infrastructure (Broadband Internet)

Blockchain technology represents public ledger of information collected through an internet network. The nodes within the network would receive and store the details of each valid transaction every second. High penetration and stable broadband internet will be crucial here. Some SmartContracts would require internet connection to validate some key information based on predefined set of codes.

However, the world average of subscriptions to high-speed access to the public Internet is still relatively low – 13.8% in 2017. As the mobile and broadband internet penetration increases, there will be more frequent blockchain technology use cases which would drive further mainstream adoption.

Scalability

Due to their distributed and encrypted nature (the more computers / nodes added to the blockchain network, the slower the process will become), blockchain could be slow and have scalability problem. For example, the number of transactions that Bitcoin can handle per second is far lower than that of payment method like Visa. For mainstream adoption, the network needs to process payment as fast as the current traditional payment system. The industry understands this and has been coming up with new scaling solutions -- Ethereum 1.0 has been upgraded to Ethereum 2.0 and Bitcoin has introduced Schnorr and Taproot.

Ethereum 2.0 introduces Proof of Stake and Shard Chains. Such new features would allow the network to overcome its scalability issues and high gas fees. Unlike the Proof of Work consensus mechanism which consumes a lot of computing power through miners and electricity, **Proof of Stake** (PoS) in Ethereum 2.0 relies on validators (virtual miners) and deposits of ether to improve security, scalability, and energy efficiency. **Sharding** is an on-chain scalability
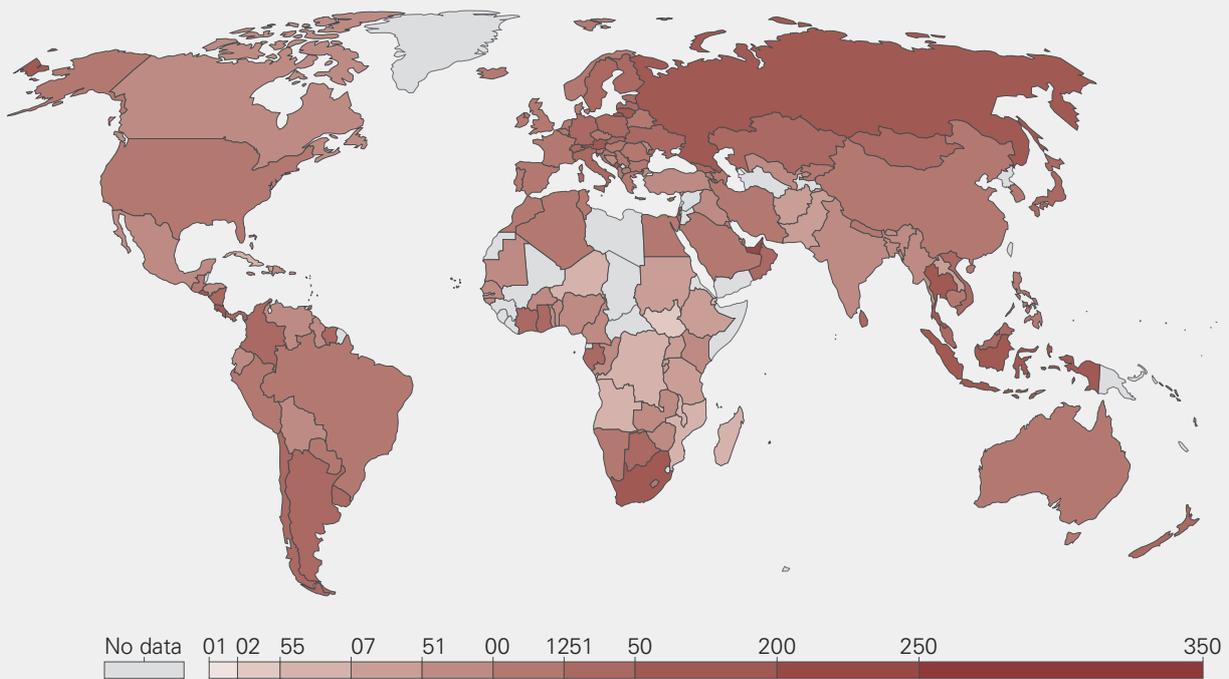
Broadband subscriptions per 100 people, 2017

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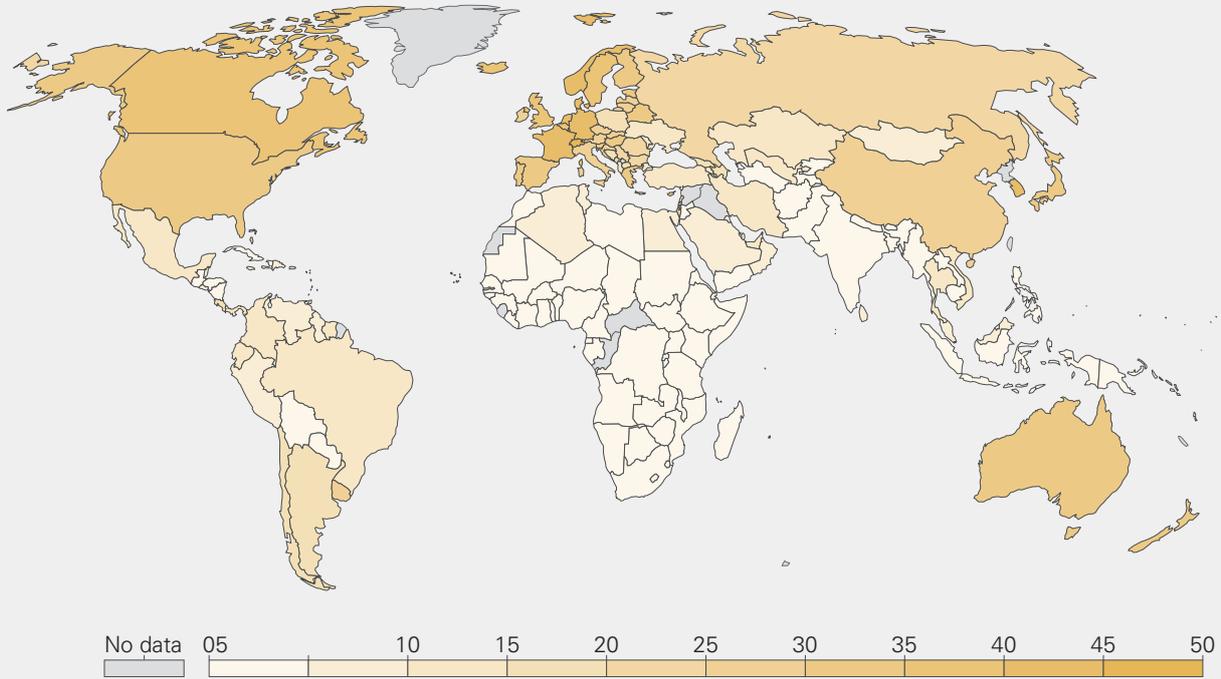
Mobile cellular subscriptions per 100 people, 2017

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Source: Ourworldindata

mechanism that improves the throughput of the Ethereum blockchain. Instead of processing with a single chain of consecutive blocks, sharding divides the data processing responsibility into many shards. Each shard handles the transactions on the network in parallel. We can use the highway analogy - adding a few more lanes to a single lane highway could lead to higher throughput. In addition to Ethereum 2.0, a few other projects are also designed based on sharding, e.g. Cardano and Algorand.

Sidechain is a separate blockchain attached to its main chain using a two-way peg to transfer any state. Sidechains have separate consensus mechanism and tokens and run in parallel with the main chain. We know both Ethereum and Bitcoin require every node to validate new transactions. However, in a sidechain, the sidechain network only periodically reports back to the parent chain to update its status. In such setup, while the mainchain maintains security and dispute resolution, the nodes on the sidechain could process transactions in an environment of trusted parties, thereby removing the bottlenecks on the main chain and increasing scalability of the whole network. Some crypto projects are founded on the concept of sidechains and relay chains, such as Polkadot and Cosmos.

Figure 2: Overview of How Sidechains Work
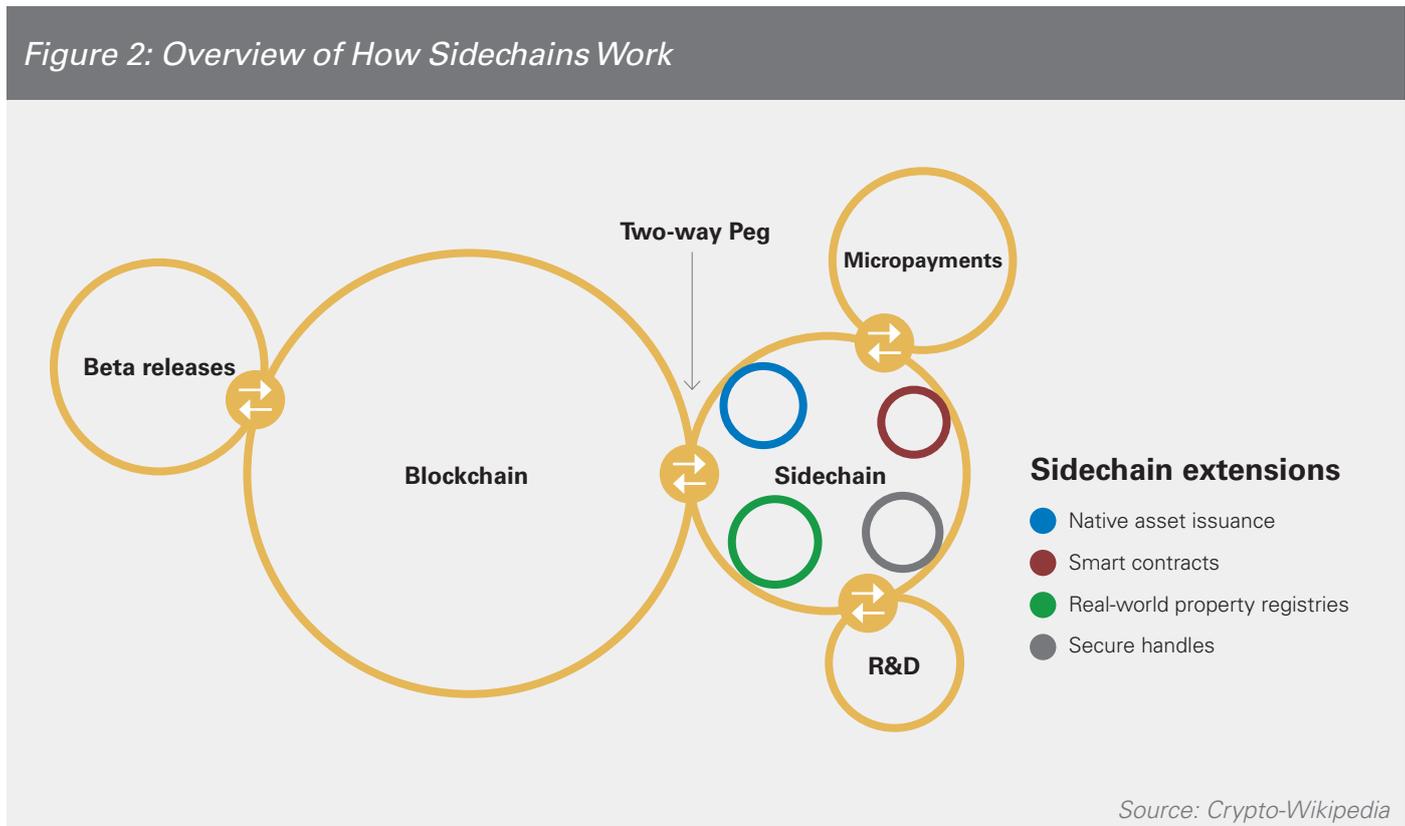
Source: Crypto-Wikipedia

State channels, like the sidechain, can keep transactions off the main chain to avoid the blockchain network getting too large. However, state channels do not require a separate blockchain to function. A state channel uses a SmartContract to enable users to transact within the channel without publishing their transactions to the blockchain. Only the opening and closing transactions would be registered on the main chain, i.e. when the time comes, the related parties involved in a series of transactions only need to share the final balance on the main chain. Popular SmartContracts platforms such as Lightning Network (Bitcoin) or Raiden Network (Ethereum) are creating an infrastructure layer on top of the blockchain, enabling low-fee and scalable payments.

Alternative cryptographic algorithms used in collective signatures such as multi-signatures and Schnorr signatures could reduce script size and information added to the blockchain. Schnorr allows all the signatures to be combined and stored as one signature, and could possibly bring 30-75% savings on multi-signatures and 2.5 faster block validation[4].

References

1. In December 2020, Susquehanna surveyed more than 120 small to medium-sized business owners to poll their interest in adopting bitcoin payments
2. FT.com
3. https://www.finextra.com/
4. Bitcoin Optech contributor Steve Lee

Apis Partners

Matteo Stefanel - Managing Partner & Co-Founder, Apis Partners

Matteo has a successful track record in private equity and investment banking spanning 25 years and focusing specifically on Growth Markets and Financial Services.

He is Managing Partner and Co-Founder of Apis Partners LLP, which manages Apis Growth Fund I and Apis Growth Fund II - two private equity funds focused on investing in financial services companies in Africa and Asia, as well as a number of smaller investment vehicles focused on Fintech investments more globally.

Formerly a partner at The Abraaj Group where he was responsible for a number of Abraaj's investee companies (10+), including Network International (payments), Saham Finance (insurance), and Jordan Ahli Bank (banking).

Matteo has been a board director of over 25 companies and completed over 110 transactions in Europe (including CEE), South Asia, the Middle East and Africa, throughout his career at Abraaj, at MIG ($7.4bn AUM) where he was briefly CIO, and at Deutsche Bank as MD and co-Head of Emerging Markets in the Financial Institutions Group.

Matteo has twice been a member of the World Economic Forum's Global Agenda Council on Financing and Capital (2012-14 and 2014-16).

Matteo graduated from Queens College, the University of Oxford, with an MA (Hons) in Philosophy, Politics and Economics.

He is married, with three children.

Udayan Goyal - Managing Partner & Co-Founder, Apis Partners

Udayan has been a keen proponent of the fast-changing landscape of Financial Services in the transition from an industrial era to the information age and now to the networked economy. He fell into the intersection of Financial Services and technology well before the term FinTech was coined and traversed the Growth Markets when they were called frontier markets. His global experience began as the son of a diplomat living across multiple continents with his working life commencing in traditional investment banking and transitioning through to investing and entrepreneurship.

Prior to co-founding Apis, Udayan co-founded and lead Anthemis Group, the first specialist global investor in FinTech based in London where he made 32 investments including well-known names such as Simple, Betterment and Trov. Prior to that he was Global Head of Financial Technology Advisory at Deutsche Bank.

Udayan lives in London, is married with two children, and enjoys trying out innovative spinning studios to work off his passion for food and wine wherever his Apis travels take him.

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