A Look At Factors Driving Cryptocurrency Adoption In The World Today

The cryptocurrency Bitcoin is now over a decade old. During that time blockchain technology has extended into areas way beyond cryptocurrencies. In this article VoltDB examines the current state of innovation in the blockchain industry and the factors driving development and take-up.

While Bitcoin still occupies number one position as the cryptocurrency that comes to mind for most people, the number of cryptocurrencies (known as altcoins) now runs into the thousands. Prominent examples of better known altcoins are Monero, Litecoin, Dash and Zclassic.

Such altcoins in turn generate further demand for Bitcoin as a gateway currency, since most altcoins are denominated in and traded as Bitcoin pairs.

Interest in Bitcoin and other cryptos from large institutional investors has grown. Fidelity Investments became the first Wall Street investment fund to enter the sector with the launch of Fidelity Digital Assets in 2018.

The e-commerce sector is a potentially strong growth area for crypto. Yet in practice take-up has so far been modest. A report conducted by Bloomberg in 2018 found e-commerce cryptocurrency transaction volumes have actually been falling. Some larger merchants such as travel service provider Expedia and payment processor Stripe have even ceased accepting Bitcoin, citing the problem of its strong price volatility.

Usage of cryptocurrencies for international transactions is

another area with strong potential. The existing banking payments infrastructure is slow, cumbersome and costly to use.

One blockchain application being implemented at the inter-banking level is XRP from Ripple Labs. As of 2019 over 200 banks and other financial service providers now use XRP or its parallel products xCurrent and xRapid for processing inter-bank transactions.

The migrant worker remittance sector is another growth area for cryptocurrency adoption. This sector is currently dominated by banks and mostly retail-based money transfer agents. Yet bank transfers are slow and expensive, while money transfer agents usually require a personal visit to an agent outlet and a physical payment in cash.

Younger Africans have shown themselves to be particularly open to using cryptocurrencies. Digital currency wallets are being implemented with mobile app interfaces which helps adoption. Internet connectivity in Africa has improved enormously in recent years and mobile cellphone usage has become widespread.

All these factors are driving take-up of cryptocurrencies on the African subcontinent. Humaniq is one example of a project which focuses on providing access to mobile cellphone-based cryptocurrency banking in third-world countries.

It’s been noted that Bitcoin usage increases in situations of economic uncertainty. This has been the case in countries such as Zimbabwe and Venezuela where Bitcoin serves as a refuge from political and economic turmoil - hyperinflation in particular.

Problems Affecting Cryptocurrency Adoption

However, a number of problems with cryptocurrencies need to be resolved before mainstream acceptance as a payment medium can occur.

Many cryptocurrencies still have scalability issues which restrict the volume of users and transactions their networks can support. Workaround solutions are in the pipeline, such as the Lightning Network, but so far these have not been wholly satisfactory.

Cryptocurrency usage is still too complicated for most people. This is partly due to technical factors, such as public/private key complexity and wallet operation.

These technical drawbacks are capable of resolution. User-friendly minimal wallets which do not require the overhead of constant blockchain synchronization and trusted secure key vault systems are currently under development.

Some banks have taken an obstructive approach toward cryptocurrency transactions. The tendency has been to regard cryptocurrencies as a potential threat to their dominant position as financial services providers. Partly this is also due to lack of clarity from regulators and a concern to avoid the risk of violating AML/KYC requirements.

A more serious problem impacting the cryptocurrency industry are exchange break-ins. Outright fraud has also been an issue in some cases. This has an adverse effect on the reputation of the sector.

Another major factor with most cryptocurrencies is extreme price volatility and this puts Bitcoin and other cryptocurrencies at a disadvantage as a means of payment.

To counter this drawback, a new form of cryptocurrency has developed known as stablecoins. These are digital currencies whose value is pegged to fiat currencies. In practice, market price fluctuations still occur but are usually confined within a much smaller range. One example of a stablecoin is Tether

(USDT) which currently has a total market cap of around $2bn.

Blockchain Applications Now Extend Way Beyond Cryptocurrency

Recent years have seen the development of blockchain networks in sectors ranging from medicine, the legal profession and government administration, to agriculture, retail, manufacturing and power generation among others. The currencies used by these networks, known collectively as utility tokens serve as the means for managing access to these services.

Perhaps the most well-known utility blockchain is the Ethereum network which hosts decentralized applications or Dapps which manage “smart contracts”. Ethereum acts as a “Blockchain as a Service” or BaaS platform on which other tokens can easily be issued and provides the necessary transactions processing capacity.

There also exist other BaaS networks, for example NEM, Stratis, EOS and Cardana, as well as commercially operated services such as IBM’s Hyperledger.

Other utility token networks specialize in offering specific services. Examples include Vechain, which provides supply chain management facilities, Power Ledger (POWR) for energy grid management, Medibloc and Dentacoin which provide healthcare record processing, and the data cloud storage system Storj.

Another major user for blockchain technology is the developing Internet of Things (IoT) sector. IBM’s own Watson IoT Platform enables IoT devices to communicate and be managed via a private ledger operating on the IBM blockchain.

Changpeng Zhao, CEO of the world’s biggest cryptocurrency

exchange Binance says current BaaS platforms such as Ethereum cannot scale to high volume usage. He believes existing “open to all” BaaS systems will lose market position to new more specialized networks.

Brian Armstrong, CEO of leading US cryptocurrency exchange Coinbase predicts continual growth of cryptocurrency applications and believes the number of people using cryptocurrencies could reach one billion over the next five years, compared to just 40 million today. Armstrong says: “Every open source project, every charity, potentially every fund or these new types of decentralized organizations, they’re all going to have their own tokens."

Another growth area for blockchain technology are security tokens representing traded assets such as stocks, bonds, derivatives and commodities. In contrast to other blockchain currencies, security tokens are now recognized and regulated by the US SEC.

These new areas of application for blockchain tokens combined with greater usage will mean increased demand for cryptocurrency exchanges providing high-reliability trading services.

Some stock exchanges have plans to implement security token exchanges. Cryptocurrency futures trading has also grown substantially via exchanges such as Hong-Kong based Bitmex and Chicago Mercantile Exchange (CME), the world’s largest futures exchange.

Another area of development are decentralized exchanges implemented on a blockchain. The world’s largest cryptocurrency exchange Binance has announced plans to launch its own decentralized exchange. Changpeng Zhao of Binance says “I believe that decentralized exchanges are the future”.

While some countries have adopted a belligerent policy toward cryptocurrency, others have been more

accommodating, such as Japan and Australia, where crypto is now recognized legal tender.

Christine Lagarde, head of the IMF believes cryptocurrency could eventually replace traditional fiat currencies, although it's debatable to what extent governments would willingly cede monetary control to privately-operated digital currencies.

A more likely outcome might be development by central banks of national fiat cryptocurrencies using blockchain technology which enables governments to maintain full control over their currency. According to MIT Technology Review, at least 15 central banks are interested in adopting blockchain technology for their existing national currencies, among them China, Canada, Norway, Senegal and Tunisia.

These developments indicate the blockchain technology sector is experiencing a rapid period of growth and innovation which is benefiting many different areas of application. Technical and other issues still inhibit mass adoption, but these will gradually be overcome.

How Blockchain Applications Can Benefit From VoltDB Database

As the number of users and transaction volumes increase, efficient blockchain performance and node operation will be crucial, especially for large scale networks such as those servicing IoT applications as well as high volume cryptocurrency exchanges.

Low real-time latency rates of responsiveness and high transaction volume throughput are crucial to the success of all these services. So far, many blockchain networks have not shown to scale well under high user volume conditions.

Big data blockchain applications of this kind are areas where VoltDB's high performance database can assist in improving

network responsiveness.

VoltDB provides an in-memory distributed architecture which has proven to be capable of powering financial trading platforms and related applications.

VoltDB has also been shown to scale exceptionally well under very high volume transaction loads through its technique of deploying data partitioning across server clusters.

Click here to read more about VoltDB’s real-time SQL database architecture and how it can assist blockchain applications deliver the transaction responsiveness, scalability and reliability such networks demand.