

Global Investment
Strategy Team

Digital assets — A world of possibility

Key takeaways

- Many expect digital assets to be the building blocks of a new internet, the Internet of Value.
- The Internet of Value will move forms of value around the globe, such as money, financial assets, and other personal valuables.
- The Internet of Value is likely to be disruptive to the world of finance, just as the original internet was to communications and information.

What it may mean for investors

- We believe that as the Internet of Value evolves, so will new possibilities and investment opportunities.

“You don’t know what you don’t know.” — Socrates

In the beginning, innovations can be very difficult to grasp because, as Socrates once said, “You don’t know what you don’t know.” So, most of our digital asset and cryptocurrency writings over the past year have been focused on the detail — how the technology works, where cryptocurrencies come from, risks, opportunities, and the like. It helps at times, though, to take a step back and see the big picture.

Today’s publication is the fifth in our digital asset and cryptocurrency educational series. Its aim is to make sure newcomers see the big picture concepts, before being buried in detail. We’ll begin with some simple definitions, and why we believe this new industry is worth an investor’s time to learn.

Digital assets are most commonly referred to as cryptocurrencies. The reason is that bitcoin, the first digital asset created in 2009, was designed to be a digital currency or digital form of cash. Many of bitcoin’s earliest competitors were designed to be digital currencies too. The industry has since evolved and expanded, though. Other assets are now being digitized, such as loans, securities, and smart contracts. To be as clear as possible moving forward, we will refer to this new innovation and industry as digital assets.

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We believe digital assets are a transformative innovation on par with the internet, cars, and electricity. Oddly, they may be one of the easier transformative innovations to grasp at this early stage. The reason is that they have a present comparable — the internet.

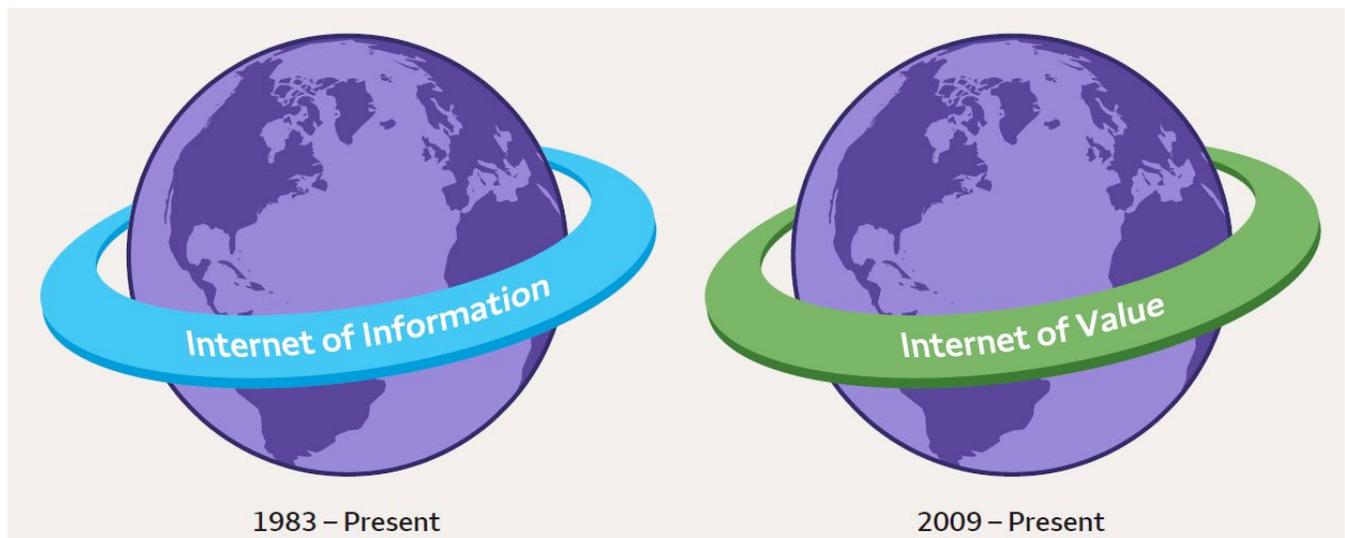
The internet is a digital network that moves information around the globe. Digital assets (cryptocurrencies, tokens, etc.) are the building blocks behind a new digital network that moves value around the globe, such as financial assets, intellectual property, and other valuables. The world will soon know two internets, in our opinion: the Internet of Information, and the Internet of Value (Visual below). Most importantly, we believe the Internet of Value will be as transformational to the world of finance as the Internet of Information was for information and communications.

The two internets

When discussing the two internets with newcomers, we often hear questions about why the current Internet of Information does not move forms of value, such as money, already. The answer is that the idea was tried, but no attempt worked until bitcoin was created in 2009. Each attempt failed for different reasons, but one main issue always stood out — security.

The Internet of Information was built to move information, or even more specifically, “copied” information. When we send emails, pictures, and videos, we are sending copies, not originals. For the most part, copies are OK with information, but not with forms of value like money. Making copies of money will ruin the value of the money. Money is valuable precisely because it is scarce and cannot be randomly copied. Imagine if we each had the ability to print \$1 trillion. We would, and all of that money would be worthless.

The two internets



Source: Wells Fargo Investment Institute, July 2022. For illustrative purposes only.

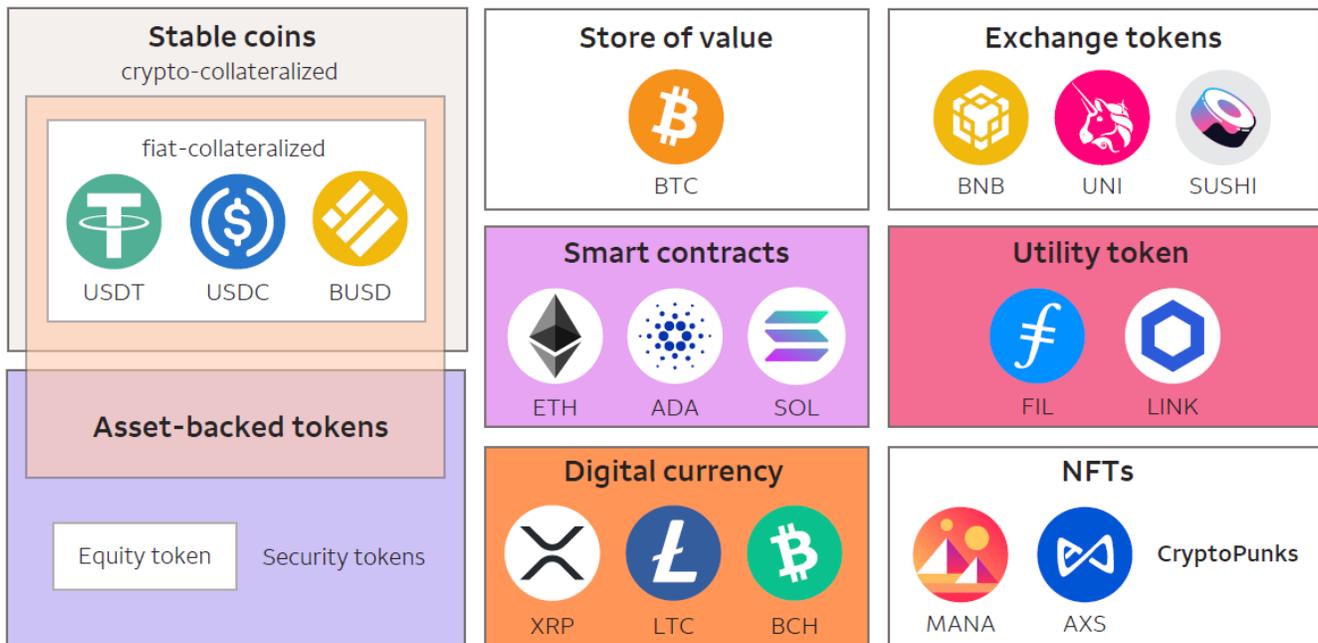
The Internet of Value beginnings

The Internet of Value began with the invention of bitcoin in 2009. Its inventor, Satoshi Nakamoto, understood that for digital money to work (in other words, fixing the copy problem), it needed to run on its own network, or internet. He created it, and called it the Bitcoin network.

This is the moment when some can become lost on bitcoin, so let’s review. Bitcoin is most often described as digital money. It is, but it is a digital money network too. Bitcoin is two things rolled into one. Satoshi created a digital money that he called “bitcoin” —spelled with a lowercase “b.” And he created a network (or internet) for the money to move on, which he called Bitcoin the Network, spelled with a capital “B.”

The importance of bitcoin to the new Internet of Value runs deep. Bitcoin was not only the first digital asset; it seeded most of the rest. It was Satoshi’s technology recipe that many early competitors followed; in fact, some copied bitcoin’s blueprint almost precisely. Because most of the earliest digital assets were designed to be digital currencies, “cryptocurrencies” was the name given to the industry. The industry has since evolved, though. Digital assets come in all shapes and sizes now: 20,000 of them, worth roughly \$880 billion.¹ Some have their own networks, similar to bitcoin, while others are applications that sit atop another digital asset’s network. We believe many may have legitimate growth opportunities, and we are seeing new financial products emerge, like loans, securities, and smart contracts. A sampling of different digital assets can be seen in the chart below. We will explain the different types in greater detail in future publications. The digital asset groups and tickers listed are samples only, and are not endorsements for a particular digital asset group or ticker.

Digital asset group examples



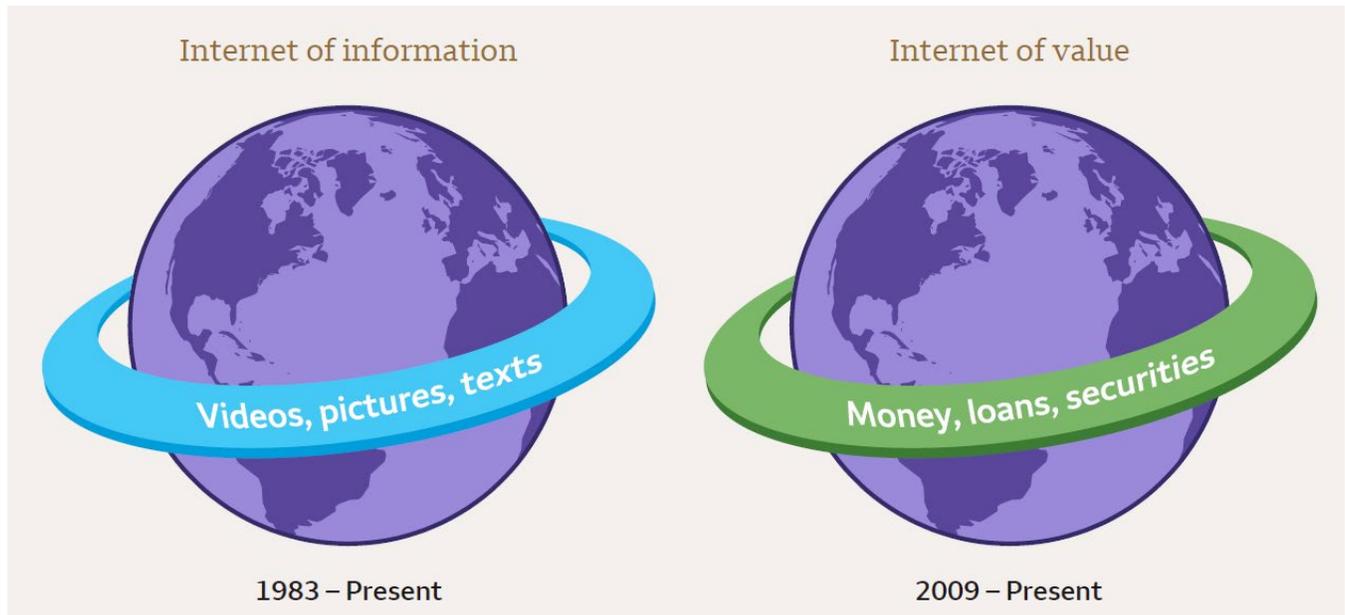
Source: Wells Fargo Investment Institute, July 2022. **This table is for illustrative purposes only and does not constitute a recommendation to invest in any particular digital asset.** Selection criteria for tickers listed were based on market capitalization and popularity among users. Each is ranked in the top 120 out of 14,239 total digital assets, ranked by market cap, according to nomics.com. This data is also supported by Digitalcoinprice.com, where each ticker is listed in the Top 100 by market capitalization, except for SUSHI, which has a rank of #151. Each ticker is recognizable and relatively large among each category. Use of a ticker inside a digital asset group is not an endorsement for any specific ticker. Tickers used are for example purposes only. Tether (USDT); USD Coin (USDC); Binance USD (BUSD); Bitcoin (BTC); Ethereum (ETH); Cordano (ADA); Solana (SOL); XRP (XRP); Litecoin (LTC); Bitcoin Cash (BCH); BNB (BNB); Uniswap (UNI); SushiSwap (SUSHI); Filecoin (FIL); Chainlink (LINK); Decentraland (MANA); Axie Infinity (AXS). See end of report for subsector definitions.

1. www.coinmarketcap.com

The Internet of Value = digital assets + infrastructure

The Internet of Value is best thought of like the Internet of Information. The Internet of Information is made up of many smaller networks, carrying different types of information, such as emails, pictures, texts, videos, etc. These smaller networks are then rolled up into the big network that we call the internet. Companies build infrastructure to support these networks, and internet commerce.

The Internet of Value will be shaped in a similar way, in our view. The series of smaller networks, though, will be select digital assets which will move other digital assets that represent valuable things such as money, securities, deeds, loans, property, art, votes, and the like. Supporting infrastructure is already being built-up in areas such as exchanges, trading, custody, and banking.



Source: Wells Fargo Investment Institute, July 2022. For illustrative purposes only.

Understanding how major innovations disrupt

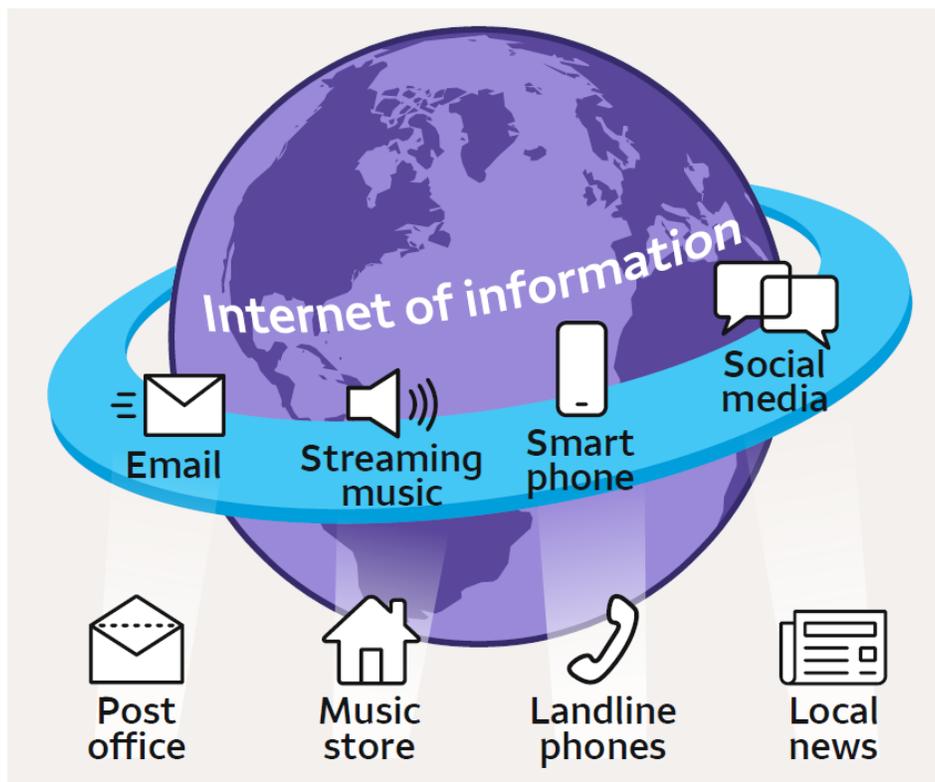
Innovative disruptions can be hard to appreciate in real-time. They can be easier to see in hindsight, though, so let's look at how the internet has changed communication.

Prior to the internet, consumer choices were limited. News was delivered through one local newspaper and a handful of television stations. We connected through letters and payphones, browsed music at the local music store, and bought maps at each crossed state line. The internet changed that. A global informational highway, open for anyone to use, forced local monopolies to compete globally. Pushing the local to compete globally gave us more choices, greater experiences, lower costs, and easier communication.

The internet also made our lives easier by dematerializing physical things, and making them digital. Take our work desks, as an example. While staplers are still physical, calendars, clocks, calculators, mail, phone calls, and contacts have all gone digital.

Simply put — major innovations disrupt by optimizing experiences. They often do this by pushing efficiencies; the local must compete with the global, and the physical must compete with the digital.

Dematerializing information and communication



Source: Wells Fargo Investment Institute, July 2022. For illustrative purposes only.

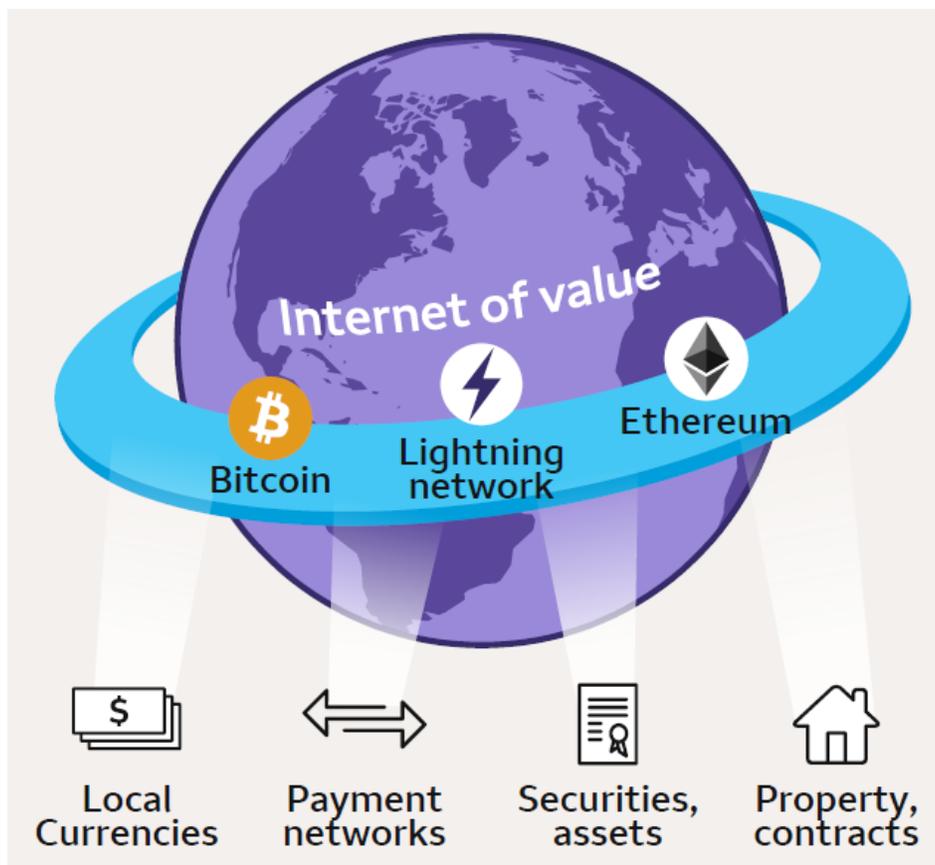
Disrupting traditional finance

The Internet of Value has the same kind of game-changing potential. It's a global network, too, open for anyone to use and built to optimize experiences through efficiencies. Much of the finance world we know today could soon find itself dematerialized, running on one open global Internet of Value.

Today's financial networks are electronic and relatively fast, but they are not open for anyone to use or build upon. Companies often build their own networks, which rely heavily on physical assets, such as buildings, people, and proprietary technology. The competition must do the same, which arguably creates unnecessary, excess systems and makes transactions more expensive than they need to be. Innovation suffers too with such high fixed costs.

Digital assets, on the other hand, do not rely on the physical world nearly as much. Networks are shared, as are technology improvements. Anyone can create a new product on top of these open networks, which spurs innovation and cuts down on high physical costs. For consumers, we believe open networks will lead to more choices, greater experiences, lower costs, and easier communications. Businesses will have to choose whether they see these changes as threats or opportunities. For those unsure whether this new technology is a threat or opportunity, we advise becoming educated on the transformative power of the original internet. Over the past 40 years, the internet taught us that latecomers to open networks often had the most to lose. Early movers, on the other hand, used open networks to gain economies of scale.

Dematerializing money and finance



Source: Wells Fargo Investment Institute, July 2022. **Provided for illustrative purposes only and does not constitute a recommendation to invest in any particular asset class.**

Examples of digital assets dematerializing traditional finance

While the digital asset space is young, real-time disruptive examples already exist in trading, lending, custody, asset management, payment processing, and remittances, to name a few. To help better understand what change may look like, we'll share the example of payments processing.

Today's largest payment processors have been around for decades. They've invested billions, and continue to invest billions, to keep pace with technology and the global economy. Each payment processor typically maintains its own network and infrastructure, such as buildings, people, servers, etc. And there are many types of payment processors — some process credit card payments, while others send money overseas (remittances), as examples. Importantly, these networks are often not interoperable. In other words, a credit card network is an efficient way to pay for lunch, but not necessarily to remit money to El Salvador. This type of narrow-use infrastructure is ripe to be dematerialized, in a world with a global Internet of Value. Digital assets can do these network jobs globally, securely, and often at a fraction of the cost.

Remittances

El Salvador, one of the world's poorest countries, has benefited from financial dematerialization. 24.1% of the country's gross domestic product comes from families sending money home from abroad (remittances), according to the World Bank. And 70% of adults do not have a bank account.² In 2021, the country turned to bitcoin and a few bitcoin-centered companies³ for help.

Bitcoin, the network (see graphic on next page), uses a fast processing layer that sits on top of it, called Lightning. Lightning has many unique features that make it superior to traditional payment systems. It not only processes payments, it settles them, too — instantly, virtually for free, and anywhere in the world. On top of that, this combination network of Bitcoin and Lightning, can process many kinds of payment, and move many kinds of money, not just bitcoin⁴. It's a common misperception that consumers must buy bitcoin, or be subjected to its volatility, to move money over these networks. The citizens of El Salvador can receive U.S. dollars directly to their phone, avoiding most processing fees and the risk of robbery while traveling to a physical location to convert payments.

Credit card processing

In April, during the largest bitcoin conference of the year in Miami, a U.S. based company called Strike announced that it is bringing bitcoin, and the Lightning network, to large U.S. retailers. Many deals have been signed, so consumers may soon see cheaper payment options at checkout counters.⁵ Each retailer will handle its fee savings differently. Some may make prices cheaper and some may pocket the savings, while others may pay their employees more. Regardless, fewer fees mean less friction, which will likely benefit consumers and the economy.

2. <https://blogs.worldbank.org/peoplemove/lightning-disruption-remittance-costs-silver-lining-entrepreneurship-during-crisis>

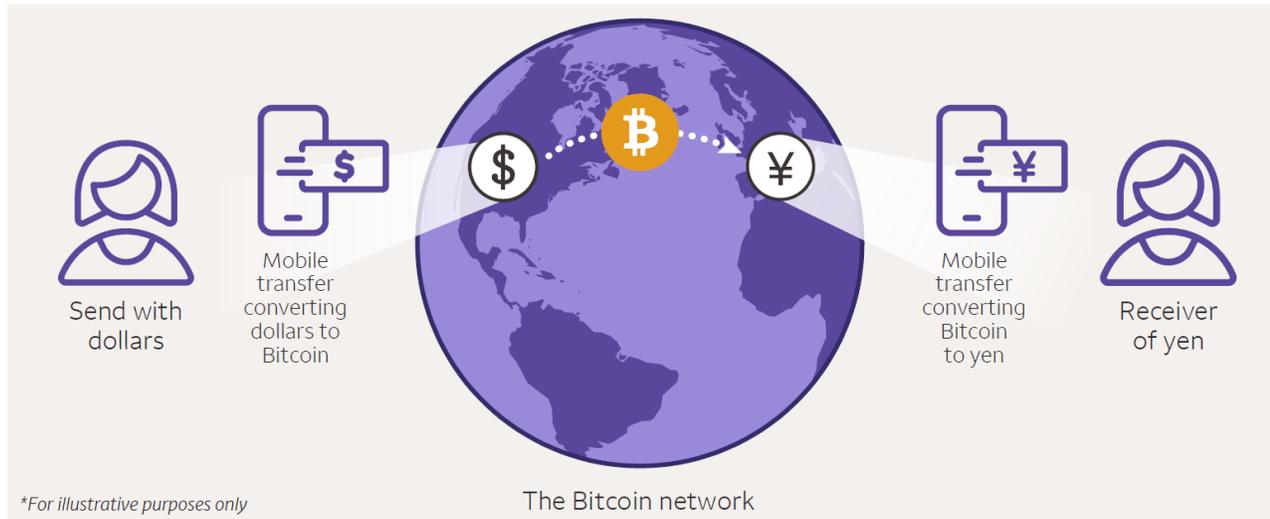
3. Companies building their businesses around the use of bitcoin the digital asset, and Bitcoin the network.

4. Divakaruni, Anantha, and Peter Zimmerman. 2022. "The Lightning Network: Turning Bitcoin into Money." Working Paper No. 22-19. Federal Reserve Bank of Cleveland. <https://doi.org/10.26509/frbc-wp-202219>.

5. <https://www.pymnts.com/blockchain/bitcoin/2022/bringing-bitcoin-firmly-into-payments-strike-partners-with-ncr-shopify-blackhawk>

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How the Bitcoin network works



Source: Wells Fargo Investment Institute, July 2022. **Provided for illustrative purposes only and does not constitute a recommendation to invest in any particular asset class.**

Summary

In our view, digital assets are a transformative innovation on par with the internet, cars, and electricity. They are likely to be the building blocks of a new large digital network that moves money and assets, and that network is open for anyone in the world to use. Infrastructure is emerging to support this new Internet of Value.

Traditional finance is beginning to embrace open networks, and we expect the adoption of digital assets to continue to accelerate over the coming years. Early movers may get to ride the open network effects, and gain economies of scale, while those late to the movement may lose — something that the internet has taught us for 40 years.

To be clear, while we believe there is an investment thesis behind digital assets, the industry is still young and maturing. At such an early stage of investment development, many investment risks remain. The main risks facing the industry are additional regulation, technology and business failures, operational risks with handling and storing digital assets, price volatility, and limited consumer protections. These risks will be discussed in greater detail in future digital asset educational publications.

Risk Considerations

Each asset class has its own risk and return characteristics. The level of risk associated with a particular investment or asset class generally correlates with the level of return the investment or asset class might achieve.

Virtual or cryptocurrency is not a physical currency, nor is it legal tender. Bitcoin and other cryptocurrencies are a very speculative investment and involves a high degree of risk. Investors must have the financial ability, sophistication/experience and willingness to bear the risks of an investment, and a potential total loss of their investment. An investor could lose all or a substantial portion of his/her investment. Cryptocurrency has limited operating history or performance. Fees and expenses associated with a cryptocurrency investment may be substantial. Cryptocurrencies are sometimes exchanged for U.S. dollars or other currencies around the world, but they are not backed or supported by any government or central bank. Their value is completely derived by market forces of supply and demand, and they are more volatile than traditional fiat currencies.

Ticker descripts (page 3 graphic)

Stable Coins: Cryptocurrencies designed to have a relatively stable price. Usually by pegging its market value to a commodity, financial instrument, or other cryptocurrency. Ultimately stable coins are designed to have lower volatility relative to other digital assets.

Store of Value: Digital assets that maintain their value over a long period of time, as well as being liquid.

Smart Contracts: Smart contracts are digital assets with the terms and agreements between buyers and sellers already written in the code. Smart contracts expand on the original idea of cryptocurrencies by allowing more complex transactions on the block chain.

Digital Currency: Digital currencies are a form of currency only available in electronic form. Their primary goal is to act as a medium of exchange.

Exchange Tokens: Exchange tokens are the “native” cryptocurrencies for a specific cryptocurrency exchange. They are used to make transactions easier to execute within the exchanges. Users may also receive benefits when using exchange tokens, such as lower trade fees.

Utility Tokens: Utility tokens are created on an existing blockchain and serve a specific use. Typically, utility tokens give the user rights or access to specific services or projects on the blockchain.

NFTs: NFTs (Non-Fungible Tokens) are unique digital assets that represent tangible and intangible items. This can include pieces of art, collectibles, clothing, music, etc. Unlike other digital assets, NFTs are non-fungible. Meaning they are unique and cannot be copied or interchanged with another NFT.

Equity Tokens: Equity tokens are a type of security token. Equity tokens are like equities and give ownership rights to the holder.

Security Tokens: Security tokens act like equity tokens, except that they provide no ownership rights. Instead, they represent only a stake in the value created by the underlying 3rd party.

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