



Ten Years of Blockchain: Unveiling the Mystery and Moving Beyond the Hype

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The convergence of finance and technology is rapidly reshaping the business landscape as the digital revolution brought by fintech companies is delivering innovation and new technologies at an increased pace.

Ten years since its launch as the technology underpinning bitcoin, blockchain is one of these disruptive technologies but it is still surrounded by a layer of mystery, despite there being a lot of excitement around this technology. To fully understand its true potential and build long-term trust around blockchain, it is therefore important to unveil the layer of mystery, understand what are the roadblocks ahead, and move beyond the current hype.

How Does Blockchain Work?

Blockchain introduced a “distributed ledger” that provides a distributed way to guarantee and verify transactions by making them publicly available. The technology owes its name to “blocks” of data packages that the distributed ledger stores, transmits, and that are connected to each other in a digital append-only “chain”.

By using cryptography and consensus among multiple computers, the system is considered immune to tampering, fraud, or political control as long as no entity controls more than 50% of the computing power of all computers on the network.

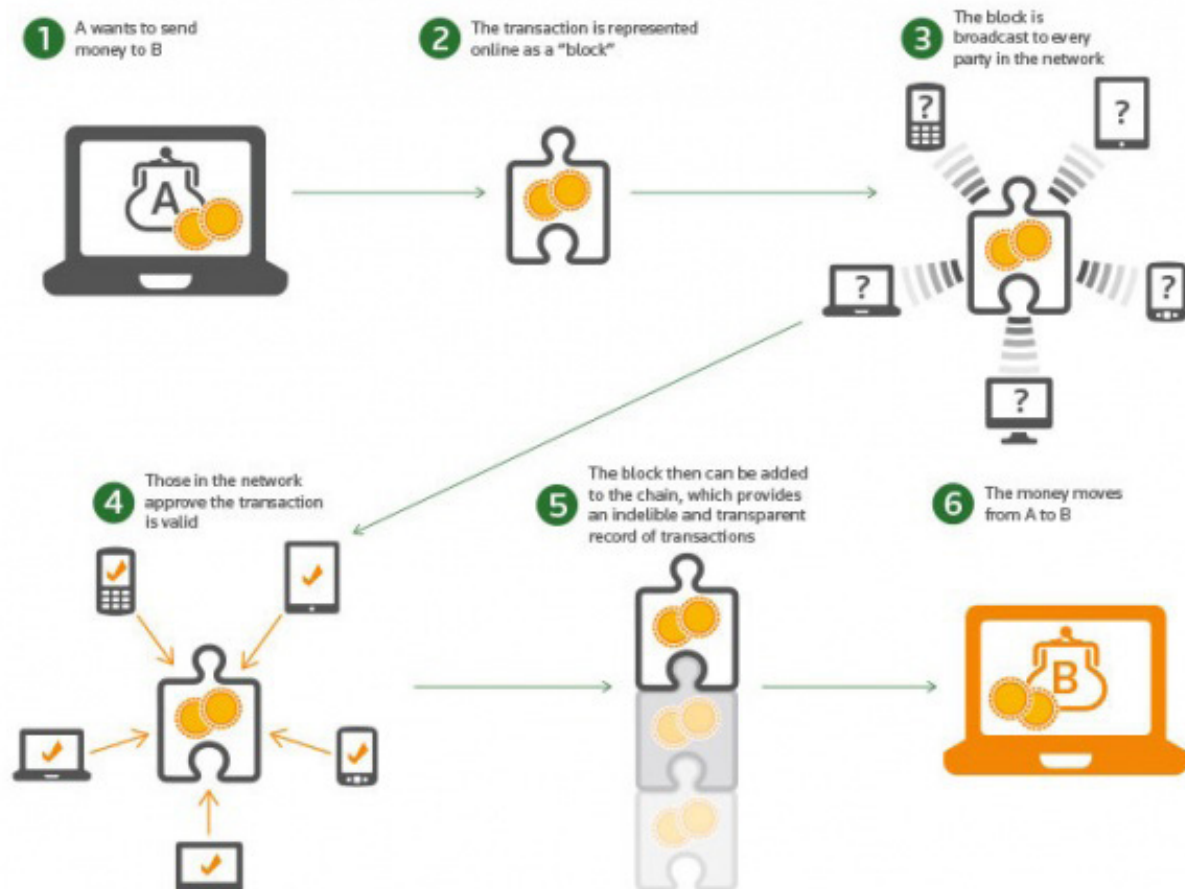


Exhibit 1: A Simple Blockchain Transaction

Source: *Financial Times*

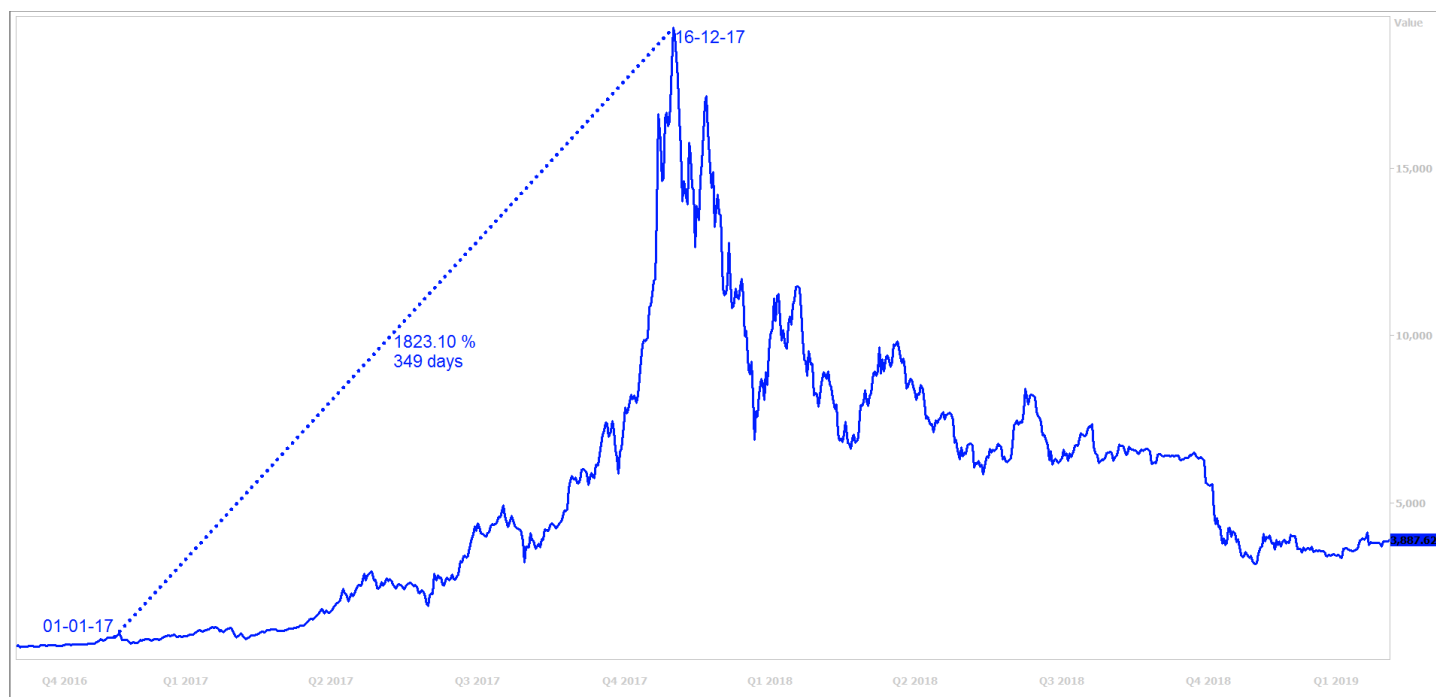


Exhibit 2: Bitcoin Price on the Bitstamp Exchange

Source: *Eikon*

Types of Blockchain

Different flavors of blockchains have emerged over the years, with some distributed ledgers being public and others being private. The fundamental distinction between the two is who is allowed to participate in the network, execute the consensus protocol, and maintain the shared ledger.

In a public blockchain, the network is completely open and anyone can join and participate. At the other extreme, a closed private blockchain guarantees privacy by requiring an invitation by the owner or the administrator to join the ledger.

A third hybrid option, known as consortium blockchain, is a partly private ledger that offers many of the same benefits affiliated with private blockchain without consolidating power in a single consortium member.

How is Blockchain Being Used?

Blockchain applications are numerous and diverse, and both financial institutions and corporates are exploring the potential of this technology to make their operations faster, more efficient, and more transparent.

The first application of blockchain was bitcoin, the cryptocurrency that went mainstream in 2017 when its price soared by over 1,823% from January to its peak in December. Designed to eliminate the "middleman" from financial transactions, digital currencies enable direct, free, pseudonymous transactions between users.

In the financial world, financial institutions have been investing in blockchain to simplify their record-keeping for payments and transaction reconciliation. Blockchain can also be used in the KYC process where bank clients are identified on a single occasion, and their information is securely shared on a private blockchain network accessed by other banks to mutualize the KYC process and fight financial crime.

In the commodities and energy space, the application of blockchain promises to fundamentally transform a sector that is still analogue and that relies on outdated processes that have not evolved much since the Venetian or Dutch traders from the Renaissance.

By applying blockchain technology, commodities and energy players can digitalize and standardize their transactions to increase speed and efficiency on one hand, and reduce costs and documentary fraud on the other.

In the global supply chains, the biggest promise of blockchain is probably the adoption of smart contracts. Smart contracts are a set of conditions recorded on the blockchain that can automatically trigger and self-execute a set of activities when these predefined conditions are met. Similar to the "if" formula used in Excel to check whether certain conditions are met, in a smart contract if something happens then something else will happen in response, as an example the transfer of ownership.

To work, smart contracts need data. Oracles such as BlockOne IQ from Refinitiv enable smart contracts to interact with off-chain data such as FX rates, commodity prices, equity prices, corporate actions, etc needed to understand whether the predefined conditions of the smart contract are met, and then trigger the self-execution.

Myths and Misconceptions

As with any buzzword, blockchain is characterized by a lot of excitement and several myths surround this technology ten years since its launch.

According to McKinsey, five of these myths account for the most common misconceptions around blockchain's benefits and limitations.

The first myth is that blockchain is bitcoin. As we saw, there is so much more to blockchain than bitcoin, the first application offered by this technology. Blockchain is now being adopted by different industries and its applications cover a variety of use cases.

The second myth is that blockchain is better than traditional databases. In reality, there are different traditional technology alternatives to blockchain, each with its unique properties and trade-offs. It is therefore important not to be tempted by the current hype, and instead deploy the most appropriate technology that can solve the specific business need.

The third myth is that blockchain is immutable, or that it cannot be tampered with. In normal circumstances, blockchain data is "append only" meaning that new blocks can be added on to the ledger and that the previous data cannot be changed. However, blockchain could be tampered with if an entity controls more than 50% of the network computing power, and if all the previous transactions are rewritten. While this scenario would be difficult and largely impractical to achieve, it cannot be excluded a priori. Also, researchers at Cornell University recently showed that there could be creative ways to subvert a blockchain even with less than half the mining power, for instance by gaining an unfair advantage by fooling other nodes into wasting time on already-solved crypto-puzzles.

The fourth myth is that blockchain is 100% secure. In reality, while blockchain uses strong mathematical encryption and cryptography, blockchain does not exist in a vacuum and its security depends on the ecosystem of adjacent software and applications that can, and have been, hacked.

The fifth common myth is that blockchain is a truth machine. While blockchain can verify the transactions and the data that are on the chain itself, it cannot assess the veracity and accuracy of any off-chain data that is written on the blockchain by an Oracle.

Sustainability, A Dark Side of Blockchain

From a sustainability angle, there is dark side of blockchain when we look at the energy consumption and carbon footprint of this technology.

Since bitcoin mining can provide a solid stream of revenue in form of bitcoins, bitcoin miners are willing to run specialized software on power-hungry machines to solve the complex computational problems needed to validate transactions before they are added into the chain.

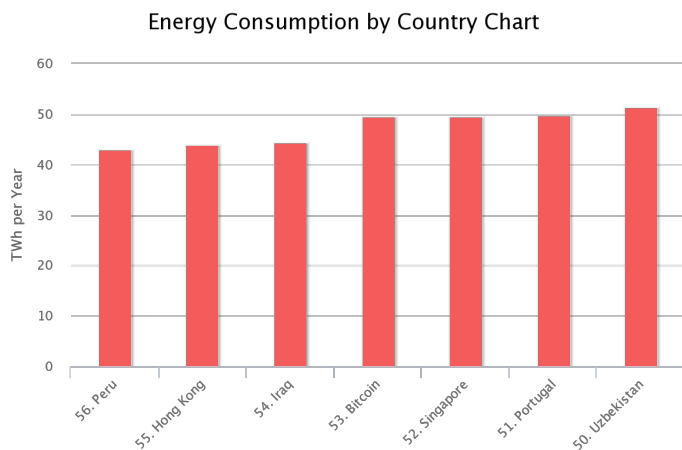


Exhibit 3: Annual Energy Consumption by Bitcoin and Select Countries

Source: Bitcoinenergyconsumption.com

Ten years since its launch, the total energy consumption of the bitcoin network has grown to epic proportions and it now consumes more energy than a number of countries. To put things into perspective, and based on a report published by the International Energy Agency, if bitcoin was a country its energy consumption would rank between Iraq and Singapore.

Also, there is a growing concern around the carbon impact of blockchain. While difficult to estimate, the carbon footprint will ultimately depend on the fossil fuels burned to produce the electricity needed to mine bitcoin.

The Main Roadblocks Ahead

As with any innovation, the process of capillary adoption in the global economic and social systems will take some time. According to a recent paper from the Harvard Business Review, blockchain adoption will be gradual and steady, not sudden, as waves of technological and institutional change gain momentum and many barriers will need to fall.

What are the main roadblocks ahead that could stall blockchain's expansion?

- The challenge of industry standards and large-scale adoption. For blockchain to work in any given industry, it is important that defined standards and policy frameworks emerge from the current fragmented landscape. Once a common industry standard has been agreed, it will then be possible to expect a critical mass adoption by the stakeholders of that specific industry.
- In global supply chains for instance, there will be the need to onboard commodity producers, agents, banks, traders, insurers, port authorities, and so on. This is not a trivial task in today's global, complex, and fragmented supply chains.
- The cost of getting started. Financial institutions and corporates rely their daily operations on billions of dollars of existing IT software and infrastructure. To replace the existing systems and justify the transition to blockchain, the business benefits and the ROI will need to be greater than the costs of getting started.

- Sustainability. The current amounts of energy consumed are unsustainable, and sustainability may become a deterrent to many financial institutions and corporations that are now focusing on ESG and sustainability.
- Speed. For use cases such as trading, where low latency is fundamental and measured in milliseconds, the current speed of the blockchain network to clear and settle transactions, approximately 10 minutes for bitcoin, is simply too long.
- Too much transparency. The transparency offered by blockchain could simply be too much for some market players who may not want to give away too much information and could reveal their proprietary strategies or the secret sauce of their success.
- Regulatory uncertainty. The regulatory framework relating to blockchain is still evolving. The current lack of regulatory clarity and consensus from regulators represents a level of uncertainty that some companies may not be willing to face. Understanding which jurisdiction should govern a blockchain contract, or how to align the technology to the General Data Protection Regulation (GDPR), are just two of the legal challenges that companies need to overcome.

Conclusion

Ten years since its launch, there is a lot of hype around the potential of blockchain technology, but there are also several myths and misconceptions around it.

How to move forward, and when will it be the pivotal moment for companies to embrace blockchain? For this technology to become ubiquitous, it will all depend when the main roadblocks will be removed from the path of its expansion across industries and society.

Early adopters comfortable with taking the risk, and willing to move beyond proofs of concept, will be the ones that will benefit from blockchain's potential, but will incur the risks of navigating through uncharted waters.

Author Bio



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Alessandro Sanos is heading Refinitiv's Commodities business in Western Europe, the Middle East, and Africa. Most recently, he was heading Thomson Reuters' Risk business in Europe. Prior to joining Reuters, he worked for PwC in Greece covering the shipping and energy market, and for JPMorgan Chase in the United Kingdom. Alessandro is a regular speaker on market and digital trends at industry events, a guest lecturer on innovation and digital transformation for university Masters degrees, and the Chapter Head of Geneva for the CAIA Association.