BLOCKCHAIN ALTERNATIVES

Our definitive guide to blockchain alternatives
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So what are some of the barriers to adoption?

**Restricted internal barriers**
Many businesses are still working on evaluating the technology’s feasibility or comparing different blockchains, instead of focusing on actually developing practical ways it could be put into practice to improve business operations. Companies are experimenting with private (permission) blockchain models rather than open (public) blockchains. This is due to public blockchains being seen as a bigger data security risk.

**Lack of understanding**
Misunderstanding and a lack of general knowledge of the technology and its capabilities form some of the most compelling barriers to blockchain technology adoption. Many organisations don’t fully understand what blockchain is or what it can do. However, even if people learn more and become more knowledgeable, the issue might arise in which companies become resistant to changing existing systems because of the cost and time. This then causes a whole new barrier within itself. What companies need to understand is that the benefits of blockchain greatly outweigh the costs.

**Difficult to use**
Blockchain technology is still very hard to use for some, with most people needing to learn the skills and knowledge before they go on to use and implement it. A user must know how public and private keys work as well as have an understanding of all the blockchain platforms.

News, studies, and experts often claim that blockchain technology could transform businesses and bring multiple benefits to the table. These include streamlining business processes, saving money, and giving consumers greater choice than ever before.

With the decentralised technology, businesses can become more transparent and gain greater trust from their customers. Blockchain can be applied to the supply chain, payment processes, and identity management.

With all these benefits available to businesses, it comes as a shock that only 15% of businesses surveyed had actually implemented a blockchain technology based solution. This suggests a reluctance for many businesses to adopt the technology and this hesitancy could exist for a number of reasons.
Developers face many challenges, including knowing how and being able to build on top of blockchain technology. They also need the tools to be able to build better software with the help of blockchain. The key is to be able to use many blockchains, not just one. This means the future is not a single solution, but many blockchains and many solutions all addressing similar issues.

**View from the experts**

London-based accounting firm Deloitte has published a report which finds that mainstream adoption of blockchain technology still faces significant obstacles and challenges. Although barriers to adoption are gradually decreasing, “for most enterprises, obstacles have kept the value of blockchain more perspective than actual, and commercial adoption thus far remains limited.”

“Because of its relatively poor performance, many observers do not consider blockchain technology to be viable for large-scale applications,” says Deloitte.

Meanwhile, PwC carried out research into what was holding back the adoption of blockchain in business. The results were as follows:

- Regulatory uncertainty (48%)
- Lack of trust among users (45%)
- Ability to bring network together (44%)
- Separate blockchains not working together (41%)
What is Hedera Hashgraph?

Hedera Hashgraph is a platform that could possibly rival blockchain technology. The Hedera Hashgraph platform is a new form of distributed consensus. Like other peer-to-peer platforms, it removes the need for a middleman to complete transactions.

Their website reads: “The platform is lightning fast, fair, and secure and, unlike some blockchain-based platforms, doesn’t require compute-heavy Proof-of-Work.”

Proof-of-Work refers to a piece of data which is difficult to produce but easy for others to verify. In the space of crypto, it’s used on blockchains for others to verify transactions as legitimate. It helps ensure that blockchains run as transparently as possible.

The Hedera Hashgraph project is certainly ambitious in attempting to rival blockchain technology. But it’s important to note that whilst Hashgraph is still a form of distributed ledger technology, it isn’t exactly a blockchain either. So what are the key differences?
Consensus
Blockchain is a distributed ledger which is coded to record transactions. However, Hashgraph claims to support a more superior data structure. This structure is meant to be capable of solving the consensus mechanism, a leading problem blockchain is currently facing.

Blockchain relies on proof-of-work, where every node must agree on the order of transactions that have occurred. This narrows down the number of potential applications for blockchain.

In comparison, Hashgraph relies on the consensus algorithm to overcome shortcomings. Hashgraph implements byzantine fault tolerance, meaning all transactions are validated when more than two-thirds of nodes are made aware of the transaction in place.

Hedera Hashgraph also uses a gossip protocol that isn’t used in traditional blockchain. This is where nodes exchange data with other nodes to build the Hashgraph data structure. They do this by distributing signed information about current and past transactions to random neighbours. The neighbours then process this information and send it to other nodes. This process is then continued until every node gets the new information.

Faster transactions
Hashgraph is a much faster technology due to the gossip protocol it uses. This is because it optimises messages and minimises communication. While Bitcoin allows for five transactions per second and Ethereum allows for 15 per second, Hashgraph can process thousands of transactions per second, proving how much quicker than blockchain it really is. This can be a big game-changer for e-commerce businesses.

Open source vs patented
Blockchain is open source and has a large community that contributes to its development, with decentralisation being its defining quality. Hashgraph, however, is based on a patented algorithm. This means it is owned by Swirlds, and any new invite will rely on and go through Swirlds.

Public and private
Both technologies can exist in public and private forms. This means anyone can participate in the public versions. Public forms of blockchain include Ethereum, while the only public version of Hashgraph is called Hedera Hashgraph.

Mining
Within a blockchain, a miner is able to choose the order of transactions that occur. They can delay the transactions by putting them in future blocks or stop them from entering the system entirely. However, Hashgraph offers consensus time stamping, which offers a solution for this. The time stamping restricts users from affecting the order of transactions by denying authority to any sort of manipulation. This can ease the hesitant felt by many businesses as it increases trust and overall security.
What is DAG technology?
Distributed Ledger Technology (DLT) doesn’t only refer to blockchains. It includes DAG technology as well. Both DAG and blockchain record transactions on a distributed ledger, but they do so in very different ways. DAG technology allows cryptocurrencies to be blockchain-free and is potentially a viable alternative to blockchain.

DAG stands for Directed Acyclic Graph, which should clear up all your doubts if you happen to be a computer scientist. For readers new to this area, if you think of a blockchain as a sort of linked chain of blocks, then DAG would be more like a tree, with several branches linking one transaction to another.

Look no further than popular cryptocurrencies IOTA, DagCoin, and ByteBall for examples of cryptocurrencies created with DAG technology.

DAG technology, unlike blockchain, has no miners or blocks. In fact, users have to confirm each other’s transactions through a process that confirms previous transactions with new transactions.

The benefits of DAG technology
One of the obvious benefits of DAG technology is that there are no blocks. So, unlike cryptocurrencies on blockchains like Bitcoin or Ethereum, there is no block size issue. This means that the scaling problems proving to be stumbling blocks for major coins don’t exist with DAG.
Moreover, rather than being dependent on mining farms to confirm transactions through the Proof of Work consensus, DAG simply uses the transaction itself to confirm a new transaction. Just like blockchain technology, DAG technology is a distributed, peer-to-peer ledger. But since it does not face the same scaling issues or dependence on electricity for mining as blockchain, it could solve some of the issues surrounding blockchains.

Current issues with blockchain technology

**Speed:** DAG technology is faster than blockchain and solves its speed issues by confirming based on a transaction to transaction basis, rather than block to block. This has the obvious advantage of not having to wait for miners to process large blocks of transactions. It can bring down transaction costs as well.

**Centralised mining:** There’s also the ongoing oligopoly issue with centralised mining. Since individual mining has long ceased to be profitable or even possible, miners must join mining pools to be in with a chance of winning a block reward.

This leads to the majority of the hash power being concentrated in just a few places. China, for example, has already amassed some 73% of the Bitcoin hash rate.

Centralised mining goes against the principles of Bitcoin, and DAG technology aims to resolve this since there are no miners on a DAG network.

**Sustainability of cryptographic puzzles:** Cryptocurrencies rely on cryptographic puzzles that are hard to crack with existing hardware. However, in the long run, it’s possible that these puzzles become obsolete as hardware advances. DAG technology does not rely on these puzzles to confirm transactions, which means that there is no sustainability issue.

**High transaction fees:** Cryptocurrency is often touted as a way forward for financial inclusion by allowing for microtransactions. However, high transaction fees can eradicate this possibility. Currencies like IOTA which use a DAG technology called Tangle enable zero transaction fees which make micropayments possible.

**Scalability:** DAG technology is infinitely more scalable, as previously discussed. By enabling near zero user fees, it can handle a very high volume of transactions, unlike current blockchains. In fact, the more transactions on the DAG network the better, as they are validated faster with new transactions confirming previous ones.

**Energy consumption:** DAG has no need for miners or mining equipment, which resolves the issue of excessive energy consumption known to be harmful to the environment.

The downside of DAG technology

If blockchain technology is in its infancy, DAG technology is still wearing nappies. There’s plenty of teething trouble surrounding it, too. Since it works best when there is a high volume of transactions, a reduction in transaction volume can make it vulnerable to attack. This means that it’s not as secure as blockchain technology.

In order to address these possible attacks, most DAG cryptocurrencies have had to implement centralised features, such as “witness nodes”, or central coordinators, or even a completely private network system. So far, DAG cannot sustain decentralisation in its purest form.
THE IMPORTANCE OF BLOCKCHAIN EDUCATION

While there is reluctance to adopt blockchain technology, it may ring true that businesses would be even more nervous about the alternatives. So how can the fear be overcome and how do we get closer to mainstream adoption?

Most businesses cite a lack of understanding as one of the biggest barriers to blockchain adoption. With so much jargon surrounding the technology, it’s not really a surprise.

Educating businesses and consumers about blockchain technology, how to use it, and the benefits they can unlock will be key to mainstream adoption.

No mainstream adoption without education
Professor Sally Eaves, a world-renowned British academic recognised as one of the industry’s top thought leaders on education, expresses the importance of blockchain education.

She explains that recent research found 38% of the British population simply did not understand blockchain, but 61% expressed a clear desire to learn more. It’s a startlingly high figure which highlights a massive void in the level of people’s knowledge and understanding of crypto and blockchain.

“Mainstream adoption and accelerated growth are dependent on broadened awareness and accessibility to quality information,” Professor Eaves explained. “This also negates a combination of tech misinformation, misfires and at times misuses that have occurred in the space and beyond.”

“Stronger bias-free educational resources are paramount to cut through the noise and address different audiences, including those with no pre-existing knowledge, where removing jargon and focusing on the benefits of application over technical specifics can make a significant difference.”
The technology is often thought to be in its infancy, making many businesses and consumers weary. But the great thing about it being in its infancy is that it is always developing and new applications are always being found. To keep on top of the latest Blockchain news and developments, be sure to follow Coin Rivet.

CONCLUSION

There are many ways to achieve blockchain adoption, in whatever form, but it requires confidence from businesses and consumers.
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