

Appendix K: DIDO Consensus

[Return to Reference Architecture \(RA\)](#) or [Return to Appendices](#)

Why is it important

[Consensus Algorithm](#) are essential in establishing confidence in a DIDO.

Thus there are various types of consensus algorithms in blockchain prospect, some of them are explained below¹⁾

- [K.1 Definition of Terms](#)
- [K.3 Consensus Mechanisms](#)
- [K.4 Consensus Platforms](#)
- [K.5 Consensus Algorithm References](#)
- [platform](#)

Table 1:

Consensus Alorithym	Description	Platform Examples	Pros	Cons	Type
Proof of Work (PoW)		Bitcoin, Litecoin, ZCash, Primecoin, Monero, Vertcoin	Less opportunity for 51% attack Better Security	Greater energy consumption Centralization of Miners	Competitive Consensus Webpage: SAINI
Proof of Stake (PoS)		Ethereum, Dash, Peercoin, Decred, Reddcoin, PivX	<ul style="list-style-type: none"> • Energy efficient Webpage: SAINI • More expensive to attack for attackers Webpage: SAINI • Not susceptible to economies of scale Webpage: SAINI 	<ul style="list-style-type: none"> • nothing-at-stake problem Webpage: SAINI 	Competitive Consensus Webpage: SAINI
Delegated Proof of Stake (DPoS)		<ul style="list-style-type: none"> • Steem, EOS, and BitShares Webpage: BHARDWAJ • BitShares, Steemit, EOS, Lisk, Ark Webpage: SAINI 	<ul style="list-style-type: none"> • Energy efficient. Webpage: SAINI • Fast. Steemit, a high traffic blogging site uses it. EOS has a block-time of 0.5 sec. Webpage: SAINI 	<ul style="list-style-type: none"> • A bit centralized. Webpage: SAINI • Participants with high stakes can vote themselves in to become a validator. Something which is seen recently in EOS. Webpage: SAINI 	Collaborative consensus Webpage: SAINI
Leased Proof of Stake (LPoS)		Waves			
Proof of Elapsed Time (PoET)		Hyperledger Sawtooth, Resource-Efficient Mining (REM)			
Practical Byzantine Fault Tolerance (PBFT)		Stellar, Ripple, Hyperledger Fabric Webpage: BHARDWAJ			
Simplified Byzantine Fault Tolerance (SBFT)		Chain			
Delegated Byzantine Fault Tolerance (DBFT)		NEO Webpage: BHARDWAJ			
Directed Acyclic Graphs (DAG)		Iota, Hedera Hashgraph Webpage: BHARDWAJ			
Proof of Activity (PoA)		<ul style="list-style-type: none"> • Espers and Decred Webpage: BHARDWAJ • Decred Webpage: SAINI 			Collaborative consensus Webpage: SAINI

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Consensus Alorithym	Description	Platform Examples	Pros	Cons	Type
Proof of Identity (PoI)					
Proof of Importance (PoI)		NEM			
Proof of Capacity (PoC) Proof of Space (PoS)		Burstcoin and SpaceMint Webpage: BHARDWAJ	<ul style="list-style-type: none"> Similar to PoW but uses space instead of computation. Thus much environmental friendly. Can be used for malware detection, by determining whether the L1 cache of a processor is empty (e.g., has enough space to evaluate the PoSpace routine without cache misses) or contains a routine that resisted being evicted. Can be used for anti-spam measures and denial of service attack prevention. PoC can use any regular hard drives including those with Android-based systems. It is reportedly up to 30-times more energy efficient than the ASIC-based mining of the bitcoin cryptocurrency. There is no need for dedicated hardware or constant upgrading of hard drives. Mining data can be easily wiped-off and the drive can be reused for any other data storage purpose. https://www.investopedia.com/terms/p/proof-capacity-cryptocurrency.asp 	<ul style="list-style-type: none"> Not many developers have adopted the system. It is possible for malware to affect mining activities. Widespread adoption of PoC could start an "arms race" to produce higher capacity hard drives. https://www.investopedia.com/terms/p/proof-capacity-cryptocurrency.asp 	Collaborative consensus Webpage: SAINI
Proof of Burn (PoB)		Slim Coin Webpage: BHARDWAJ			
Proof of Weight (PoW)		Algorand, Filecoin, Chia	<ul style="list-style-type: none"> Energy efficient.Webpage: SAINI Highly Customisable and scalable.Webpage: SAINI 	<ul style="list-style-type: none"> Incentivization can be hard.Webpage: SAINI 	Competitive consensus Webpage: SAINI

1)

Coinjoker, [Consensus Algorithms in Blockchain](#), Accessed: 9 July 2021, <https://www.cryptonexchangescript.com/blockchain-consensus-algorithms>

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