

6.10.1 Consensus Algorithms

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*Consensus algorithms are the basis of all the blockchains/DAGs. They are the most important part of the blockchain/DAG platforms. Without them(consensus algorithms) we will be left with just a dumb, immutable database.*¹⁾

The OMG members recommend the Federal Reserve invest [Research Development Test & Evaluation \(RDT&E\) Funding](#) in developing and perfecting any [Consensus Algorithms](#) required by the CBDC since they are an essential part of any DIDO implementation such as [Blockchain](#), [Distributed Ledger](#), [Directed Acyclical Graphs](#), etc).

There are a few consequences to not having “the best” Consensus Algorithms for the CBDC:

- Loss of confidence in the Federal Reserve and the CBDC by the Stakeholders
- Cost of operating the CBDC
- Unavailability during disasters
- Vulnerability during Cyberattacks

Currently, in the Cryptocurrency world, most of the Mining Operations have moved from being distributed to being centralized and operated by a few select organizations in highly centralized locations. For example,

*Fundamentally, Bitcoin mining operations and traditional data centers are similar in the basic design and operational principles. Power must be brought into the building and distributed to the requirement, air distribution systems cool the equipment, and the building provides protection from outdoor conditions and security threats.*²⁾

If this is true for a U.S. CBDC, then what advantage does the CBDC have over the [Real-Time Payments \(RTP\)](#) developed by the [Automated Clearing House \(ACH\) Network](#).

¹⁾

Vaibhav Saini, hackernoon.com, [ConsensusPedia: An Encyclopedia of 30+ Consensus Algorithms, A complete list/comparison of all Consensus Algorithms](#), 26 June 2021, Accessed: 7 September 2021
<https://hackernoon.com/consensuspedia-an-encyclopedia-of-29-consensus-algorithms-e9c4b4b7d08f>

²⁾

Sunbird, [Largest Bitcoin Mining Farms in the World](#), Accessed: 9 May 2022,
https://www.sunbirdcim.com/sites/default/files/Sunbird_InfoGraphic_Bitcoin.pdf

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