

1.0 Definition of Terms

[Return to DIDO Consensus](#)

The following definitions and explanations are provided to help explain DIDO **Consensus**.

Bizantine General Problem

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TBD

Consensus

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- **Note:** There is a difference between a **DIDO Consensus** and a **Community of Interest (Col) Consensus**.

DIDO Consensus

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The **DIDO Consensus** is concerned with the way Consensus occurs to support the propagation of transactions throughout the DIDO Network. DIDO Consensus is generally inherent to the DIDO Platform. Any preference for a particular **Consensus Mechanism** on a particular project needs to be addressed as part of the functional requirements for the project. For example, there is a requirement for Proof of Work (PoW) or Proof of State (PoS).

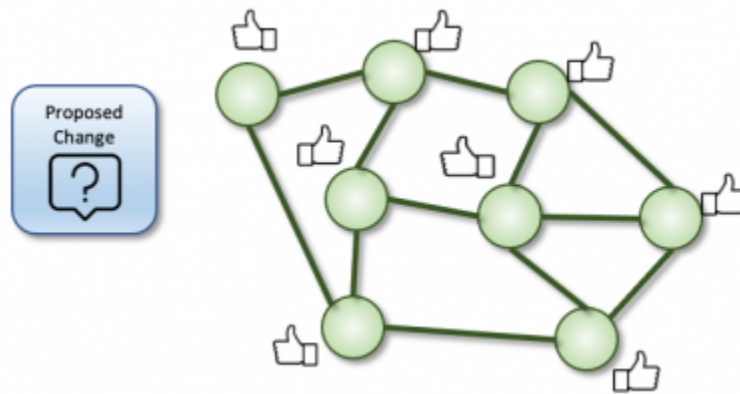


Figure 1: The DIDO Network Nodes have Consensus the data state represents “truth”.

Col Consensus

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Col Consensus is concerned with how decisions are made in the Col. The details of how Consensus is reached within a COI are generally captured in the Community's (i.e., [Ecosphere's](#)) [Policies and Procedures \(P&P\)](#).

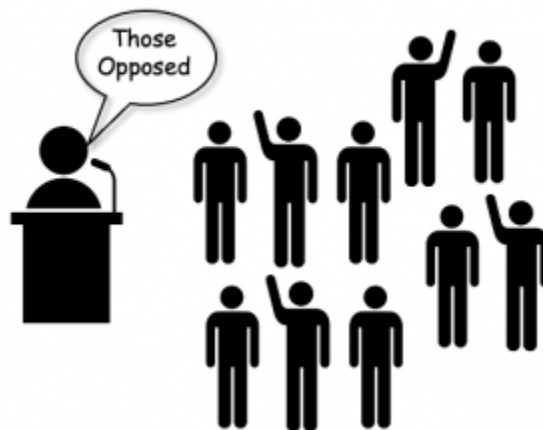


Figure 2: The COI Consensus.

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Consensus Protocol

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Consensus Protocol, in DIDOS, is developed by a specific DIDO platform to implement **Consensus Mechanism** over their DIDO network to achieve **Consensus**. This means that two DIDO Platforms can use the same Consensus Mechanism but have different implementations. The differences in the implementation makes a difference in the efficiency of the DIDO Platform and can be used as a selection

criterion between different Platforms. For example, there are two DIDO platforms (A and B) that both use Proof of Work(PoW). A is more efficient the B, therefore, the efficiency requirements will favor A.

- **Note:** There can be more evaluation criteria than efficiency.

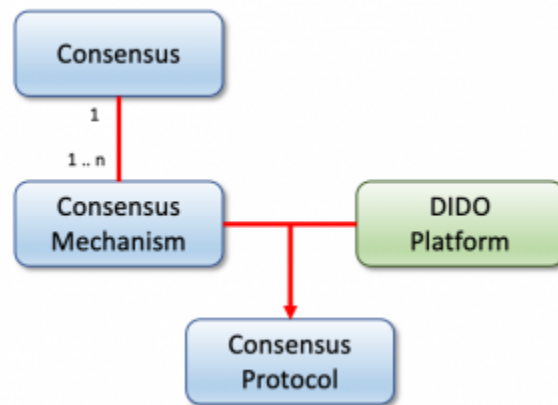


Figure 3: The relationship between Consensus, Consensus Mecahnism, and Consensus Protocol.

Transaction

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All data within the DIDO are immutable with newer values (i.e., data states) being posted using a transaction that provides instructions on how to migrate the original data state to a new data state. Over time, the chain of history of data state changes (i.e., **Journal**) for one piece of data can become quite long. Given a known data state at a particular time, the current state of the data can be reconstructed using the journaled transactions.

In addition, the new data state also includes references back to the original data state. This allows the navigation of the journal back to the original data state (i.e., **Genesis Data**).

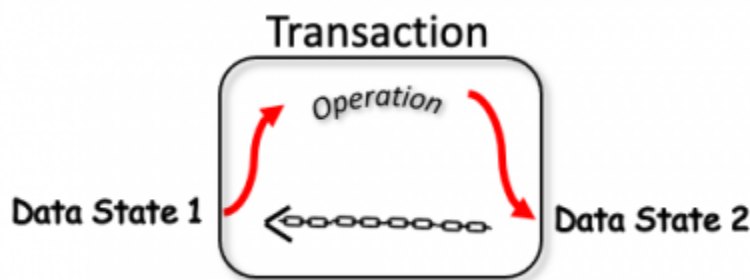


Figure 4: Transaction move the Data from one state to the next and remember the precious data state.

The following are some examples of Data State change commands. These are not Transactions because they do not include a reference to the original data to be changed (i.e., altered).

```
CHANGE EmotionState FROM HAPPY TO GLAD
CHANGE AccountBalance BY +5.00
```

- **Note:** In the example above, to be a transaction, the GLAD data state also has a reference back to

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In the experiment, two generals are only able to communicate with one another by sending a messenger through enemy territory. The experiment asks how they might reach an agreement on the time to launch an attack while knowing that any messenger they send could be captured.

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- The diagram illustrates a message acknowledgment process between General Alpha and General Beta. The process involves sending a message, receiving an acknowledgment, and handling a 'Message' and 'Acknowledge' loop. The diagram shows a sequence of steps: General Alpha sends a message, General Beta receives it and responds with 'Okay', General Alpha receives the response, and the process ends with 'Acknowledge'.

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