

CLAIMS

What is claimed is:

1. A computer implemented method of manipulating data structures corresponding to a digital asset and its evolution, wherein the digital asset is associated with a plurality of parties, the method comprising:

- determining a first function that includes multiple mutually exclusive choices defined therein for disposition of the digital asset, wherein each choice in the multiple mutually exclusive choices has an associated configured function and a respective choice-step condition;
- executing the first function instance no more than once,
 - wherein executing the first function occurs upon receiving a valid selected choice from the multiple mutually exclusive choices and receiving an indication of consent of parties required by the valid selected choice, and
 - wherein executing the first function further comprises executing the associated configured function of the valid selected choice; and
- terminating the first function upon determining that the choice-step condition of the valid selected choice is satisfied;
- determining a second function to create an agree record associated with the digital asset;
- executing the second function based on receiving an indication of consent of parties required for the agreement; and
- sending, to an append-only ledger maintained by a plurality of distinct nodes of a computer network, results of the executed first and second function instances as committed transactions, wherein the append-only ledger includes a private ledger shared between a private subset of the plurality of nodes, the private ledger storing the committed transactions.

2. The method of claim 1 wherein the at least one of the plurality of parties whose respective rights are at stake is the same as at least one of the plurality of parties whose consent is required.

3. The method of claim 1 further comprising providing a delete function that requires the consent of one or more parties in the plurality of parties affected by the delete function to invalidate a second function or disable a non-executed first function, wherein the append-only ledger stores the results of the delete functions.

4. The method of claim 1 wherein the append-only ledger comprises a blockchain.

5. The method of claim 1 wherein the append-only ledger may be queried for digital asset status based on pattern-matching.

6. The method of claim 1 wherein the append-only ledger may be queried for digital asset status of all modeled digital assets in the append-only ledger using queries based on top-level definitions.

7. The method of claim 1, further comprising providing a delete function to render an active model of a digital asset inactive and no longer available for future transactions.

8. A computer-implemented method of interpreting a modeled digital asset and its evolution, wherein the digital asset is associated with a plurality of parties, the method comprising:

- executing a first function instance no more than once, wherein the first function instance includes multiple mutually exclusive choices defined therein for disposition of the digital asset, and each choice in the multiple exclusive choices has an associated configured function and a respective choice-step condition,

- wherein executing the first function instance occurs upon receiving a valid selected choice of the multiple mutually exclusive choices and receiving an indication of consent of parties required by the valid selected choice,

- wherein executing the first function instance further includes executing the associated configured function instance of the valid selected choice, and

- terminating the first function instance upon determining that the choice-step condition of the valid selected choice is satisfied;

- executing a second function instance to create an agree record associated with the digital asset upon receiving an indication of consent of parties required for the agreement; and sending results of the executed first and second function instances to an append-only ledger maintained by a plurality of distinct nodes of a computer network as committed transactions, wherein the append-only ledger includes a private ledger shared between a private subset of the plurality of nodes, the private ledger storing the committed transactions.

9. The method of claim 8 wherein the at least one of the plurality of parties whose respective rights are at stake is the same as at least one of the plurality of parties whose consent is required.

10. The method of claim 8 further comprising executing a delete function that requires the consent of one or more parties in the plurality of parties affected by the delete function to invalidate a second function instance or disable a non-executed first function instance, and storing the results of the delete functions in the append-only ledger.

11. The method of claim 8 wherein the append-only ledger comprises a blockchain.

12. The method of claim 8 wherein the append-only ledger may be queried for digital asset status based on pattern-matching.

13. The method of claim 8 wherein the append-only ledger may be queried for digital asset status of all modeled digital assets in the append-only ledger using queries based on top-level definitions.

14. The method of claim 8 further comprising executing a delete function to render an active model of a digital asset inactive and no longer available for future transactions.

15. A digital system configured to interpret a modeled digital asset and its evolution, wherein the digital asset is associated with a plurality of parties, the system comprising:

- at least one processor configured to:

- execute a first function instance no more than once,
 - wherein the first function instance includes multiple mutually exclusive choices defined therein for disposition of the digital asset, and each choice in the multiple mutually exclusive choices has an associated configured function and a respective choice-step condition,
 - wherein executing the first function instance occurs upon receiving a valid selected choice of the multiple mutually exclusive choices and receiving an indication of consent of parties required by the valid selected choice,
 - wherein executing the first function instance further comprises executing the associated configured function of the valid selected choice,
- terminate the first function instance upon determining that the choice-step condition of the valid selected choice is satisfied, and
- execute a second function instance to create an agree record associated with the digital asset upon receiving an indication of consent of parties required for the agreement; and
- send results of the executed first and second function instances to be stored in an append-only ledger as committed transactions, wherein the append-only ledger maintained by a plurality of distinct nodes of a computer network, results of the executed first and second function instances as committed transactions, wherein the append-only ledger includes a private ledger shared between a private subset of the plurality of nodes, the private ledger storing the committed transactions.

16. The system of claim 15 wherein the at least one of the plurality of parties whose respective rights are at stake is the same as at least one of the plurality of parties whose consent is required.

17. The system of claim 15, the processor further configured to execute a delete function that requires the consent of one or more parties in the plurality of parties affected by the delete function to invalidate a second function or disable a non-executed first function, and to store the execution results of the delete functions in the append-only ledger.

18. The system of claim 15 wherein the append-only ledger comprises a blockchain.

19. The system of claim 15 wherein the append-only ledger may be queried for digital asset status of all modeled digital assets in the append-only ledger using queries based on top-level definitions.

20. The system of claim 15, wherein the processor is further configured to execute a delete function to render an active model of a digital asset inactive and no longer available for future transactions.