CLAIMS

1. A computer-implemented method for blockchain-based consensus management, comprising:

obtaining a request for creating a consensus template, wherein the request comprises information about a plurality of participating entities associated with the consensus template;

generating, based on the request, a dataset representing a hierarchical structure of the participating entities associated with the consensus template;

creating a blockchain transaction for registering the consensus template to a blockchain, wherein the blockchain transaction comprises the dataset representing the hierarchical structure of the participating entities; and

sending, to one or more blockchain nodes associated with the blockchain for adding to the blockchain, the blockchain transaction for registering the consensus template to the blockchain.

2. The method of claim 1, wherein the information about the plurality of participating entities comprises:

an identifier associated with each of one or more of the participating entities;

a public key of a blockchain account associated with each of one or more of the participating entities;

contact information associated with each of one or more of the participating entities;

information associated with the hierarchical structure of the participating entities; or

a weight assigned to each of one or more of the participating entities.

3. The method of claim 1 or 2, further comprising:

obtaining, from the request for creating the consensus template, one or more criteria for determining achievement of consensus; and

storing the one or more criteria for determining achievement of consensus.

4. The method of any one of the claims 1-3, wherein the request for creating the consensus template comprises a JavaScript Object Notation (JSON) file.

5. The method of any one of the claims 1-4, wherein the generating a dataset representing a hierarchical structure of the participating entities associated with the consensus template comprises:

parsing the request for creating the consensus template to obtain a tree structure representing the hierarchical structure of the participating entities; and

generating one or more arrays corresponding to the tree structure.

6. The method of claim 5, wherein:

the tree structure comprises a plurality of nodes, the plurality of nodes comprising a root node, one or more branch nodes, and a plurality of leaf nodes;

the tree structure comprises one or more weights respectively associated with one or more of the nodes of the tree structure; and

each of the leaf nodes corresponds to one of the participating entities associated with the consensus template.

7. The method of claim 6, wherein:

one or more of the leaf nodes each corresponds to an individual associated with an entity; and

a parent node of the one or more of the leaf nodes corresponds to the entity.

8. The method of claim 6 or 7, wherein the one or more arrays comprise:

an array comprising one or more serial numbers associated with one or more of the nodes of the tree structure;

an array comprising one or more serial numbers associated with one or more parent nodes of the one or more of the nodes of the tree structure; or

an array comprising the one or more weights respectively associated with the one or more of the nodes of the tree structure.

9. The method of any one of the claims 1-8, wherein the blockchain transaction for registering the consensus template to a blockchain is executable to invoke a blockchain contract configured to register one or more consensus templates to the blockchain.

10. The method of any one of the claims 1-9, wherein:

the obtaining a request for creating a consensus template comprises obtaining the request for creating the consensus template from a computing device associated with one of the participating entities associated with the consensus template; and

the method further comprises returning a confirmation for creation of the consensus template to the computing device associated with the one of the participating entities.

11. A computer-implemented method for blockchain-based consensus management, comprising:

obtaining a request for creating a consensus object requiring consensus of a plurality of participating entities, wherein the request for creating the consensus object comprises an identifier of a consensus template associated with a hierarchical structure of the participating entities;

initializing, based on the hierarchical structure of the participating entities associated with the consensus template, a plurality of parameters associated with the consensus object, wherein the parameters comprise a parameter corresponding to each of the participating entities, and wherein the initializing comprises setting each of the parameters to an initial value;

creating a blockchain transaction for registering the consensus object to the blockchain, wherein the blockchain transaction for registering the consensus object to the blockchain comprises the initial value associated with each of the parameters; and

sending, to one or more blockchain nodes associated with a blockchain for adding to the blockchain, the blockchain transaction for registering the consensus object to the blockchain.

12. The method of claim 11, wherein the blockchain transaction further comprises a plurality of properties of the consensus object, the properties comprising:

the identifier of the consensus template;

an identifier of the consensus object;

an identifier associated with each of one or more of the participating entities;

a public key of a blockchain account associated with each of one or more of the participating entities; or

a weight assigned to each of one or more of the participating entities.

13. The method of claim 11 or 12, wherein the initializing a plurality of parameters associated with the consensus object comprises:

obtaining a tree structure representing the hierarchical structure of the participating entities, the tree structure comprising a plurality of nodes;

generating an array comprising a plurality of positions, each of the positions corresponding to one of the nodes of the tree structure, wherein the positions respectively correspond to the parameters associated with the consensus object; and

setting each of the positions of the array to the initial value for the parameter corresponding to the position.

14. The method of any one of the claims 11-13, wherein:

the obtaining a request for creating a consensus object comprises obtaining the request for creating the consensus object from a computing device associated with one of the participating entities associated with the consensus object; and

the method further comprises returning a confirmation for creation of the consensus object to the computing device associated with the one of the participating entities.

15. The method of any one of the claims 11-14, further comprising:

sending, to one or more computing devices associated with one or more of the participating entities associated with the consensus object, a notification for creation of the consensus object, wherein the notification comprises an identifier of the consensus object and a request for approval of the consensus object.

16. A computer-implemented method for blockchain-based consensus management, comprising:

obtaining an approval message for a consensus object associated with a blockchain, the consensus object comprising a plurality of parameters associated with a hierarchical structure of a plurality of participating entities, wherein the approval message comprises information associated with one of the participating entities and the one of the participating entities corresponds to one of the parameters;

obtaining, based on the approval message, a digital signature associated with the one of the participating entities;

authenticating the digital signature based on information associated with the consensus object;

creating, based on the approval message, a blockchain transaction executable to set the parameter corresponding to the one of the participating entities to an updated value; and

sending, to one or more blockchain nodes associated with the blockchain for adding to the blockchain, the blockchain transaction executable to set the parameter corresponding to the one of the participating entities to the updated value.

17. A computer-implemented method for blockchain-based consensus management, comprising:

obtaining a request for a status of a consensus object associated with a blockchain, wherein the consensus object comprises a plurality of parameters associated with a hierarchical structure of a plurality of participating entities;

obtaining, from the blockchain, a plurality of values respectively associated with the parameters of the consensus object;

generating, based on the plurality of values, a status summary of the consensus object; and

returning the status summary of the consensus object.

18. A system, comprising:

one or more processors; and

one or more computer-readable memories coupled to the one or more processors and having instructions stored thereon that are executable by the one or more processors to perform the method of any of claims 1 to 17.

19. A non-transitory computer-readable storage medium configured with instructions executable by one or more processors to cause the one or more processors to perform the method of any of claims 1 to 17.

20. An apparatus comprising a plurality of modules for performing the method of any of claims 1 to 17.