Claims

1. A method for facilitating a transaction at one or more nodes of a blockchain network, the one or more nodes configured to manage a blockchain, the method comprising:

receiving instructions to setup a smart contract for determining whether a bulk cargo has been transferred according to a set of rules;

receiving transaction information comprising bulk cargo transfer data and geolocation data;

processing the transaction information using the smart contract to determine whether the bulk cargo transfer data and the geolocation data are in accordance with the set of rules; and

in response to a determination that the bulk cargo transfer data and the geolocation data are in accordance with the set of rules, recording the transaction information on the blockchain;

wherein the bulk cargo transfer data comprises temporal mass flow meter data;

wherein the set of rules comprises bulk cargo transfer requirements and variability thresholds associated with the bulk cargo transfer requirements; and

wherein processing the transaction information using the smart contract to determine whether the bulk cargo transfer data and the geolocation data are in accordance with the set of rules comprises verifying whether the bulk cargo transfer data fall within the variability thresholds associated with the bulk cargo transfer requirements.

2. The method as claimed in claim 1, further comprising processing the instructions and recorded transaction information to generate a smart invoice associated with transfer of the bulk cargo.

3. The method as claimed in claim 2, further comprising recording a cryptographic hash of the smart invoice on the blockchain.

4. The method as claimed in any one of claims 1 to 3, further comprising:

receiving a request to generate the instructions to setup the smart contract;

processing the request to verify whether the request is in accordance with an endorsement policy;

in response to a determination that the request is in accordance with the endorsement policy, recording the request on the blockchain;

receiving order information comprising the set of rules; and

processing the set of rules and recorded request to generate the instructions to setup the smart contract.

5. The method as claimed in claim 4, further comprising recording a cryptographic hash of the instructions to setup the smart contract on the blockchain.

6. The method as claimed in claim 4 or 5, wherein processing the request to verify whether the request is in accordance with the endorsement policy comprises receiving an authorisation from each of the one or more nodes associated with the request, the authorisation generated in response to a determination that the request is digitally signed by one of the one or more nodes.

7. The method as claimed in any one of claims 1 to 6, wherein the geolocation data comprises temporal automatic identification system (AIS) data.

8. The method as claimed in claim 7, wherein the set of rules comprises temporal geolocation requirements and variability thresholds associated with the temporal geolocation requirements.

9. The method as claimed in claim 8, wherein processing the transaction information using the smart contract to determine whether the bulk cargo transfer data and the geolocation data are in accordance with the set of rules comprises verifying whether the geolocation data fall within the variability thresholds associated with the temporal geolocation requirements.

10. A system for facilitating a transaction at one or more nodes of a blockchain network, the one or more nodes configured to manage a blockchain, the system comprising:

a processing device configured to:

receive instructions to setup a smart contract for determining whether a bulk cargo has been transferred according to a set of rules;

receive transaction information comprising bulk cargo transfer data and geolocation data;

process the transaction information using the smart contract to determine whether the bulk cargo transfer data and the geolocation data are in accordance with the set of rules; and

in response to a determination that the bulk cargo transfer data and the geolocation data are in accordance with the set of rules, record the transaction information on the blockchain

wherein the bulk cargo transfer data comprises temporal mass flow meter data;

wherein the set of rules comprises bulk cargo transfer requirements and variability thresholds associated with the bulk cargo transfer requirements; and

wherein processing the transaction information using the smart contract to determine whether the bulk cargo transfer data and the geolocation data are in accordance with the set of rules comprises verifying whether the bulk cargo transfer data fall within the variability thresholds associated with the bulk cargo transfer requirements.

11. The system as claimed in claim 10, wherein the processing device is further configured to process the instructions and recorded transaction information to generate a smart invoice associated with transfer of the bulk cargo.

12. The system as claimed in claim 11, wherein the processing device is further configured to record a cryptographic hash of the smart invoice on the blockchain.

13. The system as claimed in any one of claims 10 to 12, wherein the processing device is further configured to:

receive a request to generate the instructions to setup the smart contract;

process the request to verify whether the request is in accordance with an endorsement policy;

in response to a determination that the request is in accordance with the endorsement policy, record the request on the blockchain;

receive order information comprising the set of rules; and

process the set of rules and recorded request to generate the instructions to setup the smart contract.

14. The system as claimed in claim 13, wherein the processing device is further configured to record a cryptographic hash of the instructions to setup the smart contract on the blockchain.

15. The system as claimed in claim 14, wherein the processing device is configured to receive an authorisation from each of the one or more nodes associated with the

request, the authorisation generated in response to a determination that the request is digitally signed by one of the one or more nodes.

16. The system as claimed in any one of claims 10 to 15, wherein the geolocation data comprises temporal automatic identification system (AIS) data.

17. The system as claimed in claim 16, wherein the set of rules comprises temporal geolocation requirements and variability thresholds associated with the temporal geolocation requirements.

18. The system as claimed in claim 17, wherein the processing device is configured to verify whether the geolocation data fall within the variability thresholds associated with the temporal geolocation requirements.