

CLAIMS

What is claimed is:

1. A computer-implemented method, the method comprising:
receiving, at a map-service provider associated with a blockchain, map data from
5 a data collector;
transmitting the map data to a data-service provider for processing;
receiving, at the map-service provider, non-crowdsourced data from a data
provider;
transmitting the non-crowdsourced data to the data-service provider for
10 processing with the map data;
receiving a request for processed map data from a service user;
retrieving, from the data-service provider, the processed map data that is
generated from the map data and the non-crowdsourced data; and
transmitting the processed map data to the service user in response to the request.
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2. The computer-implemented method of claim 1, wherein the map-service provider
provides automated data consumption or data authorization for the service user.
3. The computer-implemented method of claim 1, wherein the map-service provider,
20 the data-service provider, and the data provider are computing devices participating in the
blockchain.
4. The computer-implemented method of claim 1, further comprising:
prior to receiving the map data from the data collector, executing, by the map-
25 service provider, a smart contract with the data collector.
5. The computer-implemented method of claim 1, further comprising:
prior to transmitting the map data to the data-service provider, executing, by the
service provider, a smart contract with the data-service provider.

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6. The computer-implemented method of claim 1, wherein transmitting the map data to a data-service provider for processing includes transmitting the map data to a data-service provider for normalizing the map data or discarding irregular data from the map data.

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7. The computer-implemented method of claim 1, wherein the blockchain is a consortium blockchain.

8. The computer-implemented method of claim 1, wherein the map data is collected by the data collector using crowdsourcing.

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9. One or more computer-readable storage media encoded with instructions that, when executed by one or more processors, cause the one or more processors to:

receive, at a map-service provider associated with a blockchain, map data from a data collector;

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transmit the map data to a data-service provider for processing;

receive, at the map-service provider, non-crowdsourced data from a data provider;

transmit the non-crowdsourced data to the data-service provider for processing with the map data;

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receive a request for processed map data from a service user;

retrieve, from the data-service provider, the processed map data that is generated from the map data and the non-crowdsourced data; and

transmit the processed map data to the service user in response to the request.

10. The one or more computer-readable storage media of claim 9, wherein the map-service provider provides automated data consumption or data authorization for the service user.

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11. The one or more computer-readable storage media of claim 9, wherein the map-service provider, the data-service provider, and the data provider are computing devices participating in the blockchain.

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12. The one or more computer-readable storage media of claim 9, further comprising:
prior to receiving the map data from the data collector, executing, by the map-
service provider, a smart contract with the data collector.

5 13. The one or more computer-readable storage media of claim 9, further comprising:
prior to transmitting the map data to the data-service provider, executing, by the
service provider, a smart contract with the data-service provider.

14. The one or more computer-readable storage media of claim 9, wherein
10 transmitting the map data to a data-service provider for processing includes transmitting
the map data to a data-service provider for normalizing the map data or discarding
irregular data from the map data.

15. The one or more computer-readable storage media of claim 9, wherein the
15 blockchain is a consortium blockchain.

16. The one or more computer-readable storage media of claim 9, wherein the map
data is collected by the data collector using crowdsourcing.

20 17. A system, comprising:
one or more processors; and
one or more computer-readable storage media encoded with instructions that,
when executed by the one or more processors, cause the one or more processors to:
receive, at a map-service provider associated with a blockchain, map data
25 from a data collector;
transmit the map data to a data-service provider for processing;
receive, at the map-service provider, non-crowdsourced data from a data
provider;
transmit the non-crowdsourced data to the data-service provider for
30 processing with the map data;
receive a request for processed map data from a service user;

retrieve, from the data-service provider, the processed map data that is generated from the map data and the non-crowdsourced data; and

transmit the processed map data to the service user in response to the request.

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18. The system of claim 17, wherein the map-service provider provides automated data consumption or data authorization for the service user, and wherein the map-service provider, the data-service provider, and the data provider are computing devices participating in the blockchain.

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19. The system of claim 17, further comprising instructions executable by the one or more computers to, prior to receiving the map data from the data collector, executing, by the map-service provider, a smart contract with the data collector.

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20. The system of claim 17, further comprising instructions executable by the one or more computers to, prior to transmitting the map data to the data-service provider, executing, by the service provider, a smart contract with the data-service provider.