CLAIMS

1. A computing system comprising:

at least one processor;

a non-transitory computer-readable medium; and

program instructions stored on the non-transitory computer-readable medium that are executable by the at least one processor to cause the computing system to:

receive respective operating data for a plurality of assets;

based on the received operating data, define a predictive model and a corresponding workflow that are related to the operation of the plurality of assets; and

transmit to at least one asset of the plurality of assets the predictive model and the corresponding workflow for local execution by the at least one asset.

2. The computing system of claim 1, wherein the respective operating data comprises (i) abnormal-condition data associated with a failure that occurred at a given asset at a particular time and (ii) at least one of sensor or actuator data indicating at least one operating condition of the given asset at the particular time.

3. The computing system of claim 1, wherein the predictive model is defined to output a probability that a particular event will occur at a given asset within a period of time into the future.

4. The computing system of claim 3, wherein the corresponding workflow comprises one or more operations to be performed based on the determined probability.

5. The computing system of claim 1, wherein the corresponding workflow comprises one or more of (a) a given asset controlling one or more actuators of the given asset to facilitate modifying an operating condition of the given asset, (b) a given asset locally executing one or more diagnostic tools, (c) a given asset acquiring sensor data according to a given data-acquisition scheme, and (d) a given asset transmitting data to the computing system according to a given data-transmission scheme.

6. The computing system of claim 5, wherein the given data-acquisition scheme indicates one or more sensors of the given asset from which data is acquired.

7. The computing system of claim 6, wherein the given data-acquisition scheme further indicates an amount of data that the given asset will acquire from each of the one or more sensors.

8. The computing system of claim 5, wherein the given data-transmission scheme indicates a frequency at which the given asset transmits data to the computing system.

9. The computing system of claim 1, wherein the computing system is a first computing system, and wherein the corresponding workflow comprises a given asset transmitting instructions to a second computing system to facilitate causing the second computing system to carry out an operation related to the given asset.

10. The computing system of claim 1, wherein the at least one asset of the plurality of assets comprises a first asset and a second asset, and wherein transmitting the predictive model and the corresponding workflow comprises transmitting to the first asset and the second asset the predictive model and the corresponding workflow.

11. A non-transitory computer-readable medium having instructions stored thereon that are executable to cause a computing system to:

receive respective operating data for a plurality of assets;

based on the received operating data, define a predictive model and a corresponding workflow that are related to the operation of the plurality of assets; and

transmit to at least one asset of the plurality of assets the predictive model and the corresponding workflow for local execution by the at least one asset.

12. A computer-implemented method comprising:

receiving respective operating data for a plurality of assets;

based on the received operating data, defining a predictive model and a corresponding workflow that are related to the operation of the plurality of assets; and

transmitting to at least one asset of the plurality of assets the predictive model and the corresponding workflow for local execution by the at least one asset.

13. The computer-implemented method of claim 12, wherein the corresponding workflow comprises acquiring sensor data according to a data-acquisition scheme, wherein the data-acquisition scheme indicates one or more sensors of a given asset from which data is acquired.

14. A computing system comprising:

at least one processor;

a non-transitory computer-readable medium; and

program instructions stored on the non-transitory computer-readable medium that are executable by the at least one processor to cause the computing system to:

receive operating data for a plurality of assets, wherein the plurality of assets comprises a first asset;

based on the received operating data, define an aggregate predictive model and an aggregate corresponding workflow that are related to the operation of the plurality of assets;

determine one or more characteristics of the first asset;

based on the one or more characteristics of the first asset and the aggregate predictive model and the aggregate corresponding workflow, define at least one of an individualized predictive model or an individualized corresponding workflow that is related to the operation of the first asset; and

transmit to the first asset the defined at least one individualized predictive model or individualized corresponding workflow for local execution by the first asset.

15. The computing system of claim 14, wherein the one or more characteristics of the first asset comprises at least one of an asset age or an asset health.

16. The computing system of claim 14, wherein determining the one or more characteristics of the first asset comprises determining the one or more characteristics of the first asset based on received operating data for the first asset.

17. The computing system of claim 14, wherein defining at least one of an individualized predictive model or an individualized corresponding workflow comprises defining the individualized predictive model and the individualized corresponding workflow, and wherein transmitting the at least one individualized predictive model or individualized corresponding workflow comprises transmitting the individualized predictive model and the individualized corresponding workflow.

18. The computing system of claim 14, wherein defining at least one of an individualized predictive model or an individualized corresponding workflow comprises defining the individualized corresponding workflow, and wherein transmitting the at least one individualized predictive model or individualized corresponding workflow comprises transmitting the aggregate predictive model and the individualized corresponding workflow.

19. The computing system of claim 18, wherein the aggregate corresponding workflow comprises a first operation, and wherein the individualized corresponding workflow comprises a second operation that differs from the first operation.

20. The computing system of claim 19, wherein the first operation comprises acquiring data according to a first acquisition scheme, and wherein the second operation comprises acquiring data according to a second acquisition scheme.

21. The computing system of claim 19, wherein the first operation comprises acquiring data according to an acquisition scheme, and wherein the second operation comprises executing one or more diagnostic tools.

22. The computing system of claim 14, wherein the plurality of assets further comprises a second asset, and wherein the program instructions further comprise instructions that are executable to cause the computing system to:

after transmitting the at least one individualized predictive model or individualized corresponding workflow, receive operating data for the second asset indicating an occurrence of an event at the second asset;

based on the received operating data for the second asset, modify the at least one individualized predictive model or individualized corresponding workflow; and

transmit to the first asset the modified at least one individualized predictive model or individualized corresponding workflow.

23. A non-transitory computer-readable medium having instructions stored thereon that are executable to cause a computing system to:

receive operating data for a plurality of assets, wherein the plurality of assets comprises a first asset;

based on the received operating data, define an aggregate predictive model and an aggregate corresponding workflow that are related to the operation of the plurality of assets;

determine one or more characteristics of the first asset;

based on the one or more characteristics of the first asset and the aggregate predictive model and the aggregate corresponding workflow, define at least one of an individualized predictive model or an individualized corresponding workflow that is related to the operation of the first asset; and

transmit to the first asset the defined at least one individualized predictive model or individualized corresponding workflow for local execution by the first asset.

24. A computer-implemented method comprising:

receiving operating data for a plurality of assets, wherein the plurality of assets comprises a first asset;

based on the received operating data, defining an aggregate predictive model and an aggregate corresponding workflow that are related to the operation of the plurality of assets;

determining one or more characteristics of the first asset;

based on the one or more characteristics of the first asset and the aggregate predictive model and the aggregate corresponding workflow, defining at least one of an individualized predictive model or an individualized corresponding workflow that is related to the operation of the first asset; and

transmitting to the first asset the defined at least one individualized predictive model or individualized corresponding workflow for local execution by the first asset.

25. The computer-implemented method of claim 24, wherein defining at least one of an individualized predictive model or an individualized corresponding workflow comprises defining the individualized corresponding workflow, and wherein transmitting the

at least one individualized predictive model or individualized corresponding workflow comprises transmitting the aggregate predictive model and the individualized corresponding workflow.

26. The computer-implemented method of claim 25, wherein the aggregate corresponding workflow comprises a first operation, and wherein the individualized corresponding workflow comprises a second operation that differs from the first operation.

27. The computer-implemented method of claim 26, wherein one of the first operation or the second operation comprises executing one or more diagnostic tools.

28. A computing device comprising:

an asset interface configured to couple the computing device to an asset;

a network interface configured to facilitate communication between the computing device and a computing system located remote from the computing device;

at least one processor;

a non-transitory computer-readable medium; and

program instructions stored on the non-transitory computer-readable medium that are executable by the at least one processor to cause the computing device to:

receive, via the network interface, a predictive model that is related to the operation of the asset, wherein the predictive model is defined by the computing system based on operating data for a plurality of assets;

receive, via the asset interface, operating data for the asset;

execute the predictive model based on at least a portion of the received operating data for the asset; and

based on executing the predictive model, execute a workflow corresponding to the predictive model, wherein executing the workflow comprises causing the asset, via the asset interface, to perform an operation.

29. The computing device of claim 28, wherein the asset interface communicatively couples the computing device to an on-asset computer of the asset.

30. The computing device of claim 28, wherein the asset comprises an actuator, and wherein executing the workflow comprises causing the actuator to perform a mechanical operation.

31. The computing device of claim 28, wherein executing the workflow comprises one or more of (a) causing the asset to execute a diagnostic tool and (b) causing, via the network interface, execution of an operation remote from the asset.

32. The computing device of claim 31, wherein causing execution of an operation remote from the asset comprises instructing the computing system to execute an operation remote from the asset.

33. The computing device of claim 28, wherein the program instructions stored on the non-transitory computer-readable medium are further executable by the at least one processor to cause the computing device to:

before executing the predictive model, individualize the predictive model.

34. The computing device of claim 33, wherein individualizing the predictive model comprises modifying one or more parameters of the predictive model based at least on received operating data for the asset.

35. The computing device of claim 33, wherein the program instructions stored on the non-transitory computer-readable medium are further executable by the at least one processor to cause the computing device to:

after individualizing the predictive model, transmit to the computing system, via the network interface, an indication that the predictive model has been individualized.

36. The computing device of claim 28, wherein the predictive model is a first predictive model, and wherein the program instructions stored on the non-transitory computer-readable medium are further executable by the at least one processor to cause the computing device to:

before executing the first predictive model, transmit to the computing system, via the network interface, a given subset of the received operating data for the asset, wherein the

given subset of received operating data comprises operating data generated by a given group of one or more sensors.

37. The computing device of claim 36, wherein the program instructions stored on the non-transitory computer-readable medium are further executable by the at least one processor to cause the computing device to:

after transmitting the given subset of the received operating data for the asset, receive a second predictive model that is related to the operation of the asset, wherein the second predictive model is defined by the computing system based on the given subset of the received operating data for the asset; and

execute the second predictive model instead of the first predictive model.

38. A non-transitory computer-readable medium having instructions stored thereon that are executable to cause a computing device coupled to an asset via an asset interface of the computing device to:

receive, via a network interface of the computing device configured to facilitate communication between the computing device and a computing system located remote from the computing device, a predictive model that is related to the operation of the asset, wherein the predictive model is defined by the computing system based on operating data for a plurality of assets;

receive, via the asset interface, operating data for the asset;

execute the predictive model based on at least a portion of the received operating data for the asset; and

based on executing the predictive model, execute a workflow corresponding to the predictive model, wherein executing the workflow comprises causing the asset, via the asset interface, to perform an operation.

39. The non-transitory computer-readable medium of claim 38, wherein the program instructions stored on the non-transitory computer-readable medium are further executable to cause the computing device to:

before executing the predictive model, individualize the predictive model.

40. The non-transitory computer-readable medium of claim 39, wherein individualizing the predictive model comprises modifying one or more parameters of the predictive model based at least on received operating data for the asset.

41. The non-transitory computer-readable medium of claim 38, wherein the predictive model is a first predictive model, and wherein the program instructions stored on the non-transitory computer-readable medium are further executable to cause the computing device to:

before executing the first predictive model, transmit to the computing system, via the network interface, a given subset of the received operating data for the asset, wherein the given subset of received operating data comprises operating data generated by a given group of one or more sensors.

42. The non-transitory computer-readable medium of claim 41, wherein the program instructions stored on the non-transitory computer-readable medium are further executable to cause the computing device to:

after transmitting the operating data from the particular group of the one or more sensors, receive a second predictive model that is related to the operation of the asset, wherein the second predictive model is defined by the computing system based on the given subset of the received operating data for the asset; and

execute the second predictive model instead of the first model.

43. A computer-implemented method, the method comprising:

receiving, via a network interface of a computing device that is coupled to an asset via an asset interface of the computing device, a predictive model that is related to the operation of the asset, wherein the predictive model is defined by a computing system located remote from the computing device based on operating data for a plurality of assets;

receiving, by the computing device via the asset interface, operating data for the asset;

executing, by the computing device, the predictive model based on at least a portion of the received operating data for the asset; and

based on executing the predictive model, executing, by the computing device, a workflow corresponding to the predictive model, wherein executing the workflow comprises causing the asset, via the asset interface, to perform an operation.

44. The computer-implemented method of claim 43, the method further comprising:

before executing the predictive model, individualizing, by the computing device, the predictive model.

45. The computer-implemented method of claim 44, wherein individualizing the predictive model comprises modifying one or more parameters of the predictive model based at least on received operating data for the asset.

46. The computer-implemented method of claim 43, wherein executing the workflow further comprises causing, via the network interface, execution of an operation remote from the asset.