CLAIMS

1. A method for configuring role-based digital twins, comprising:

receiving, by a processing system having one or more processors, an organizational definition of an industrial plant operation, wherein the organizational definition defines a set of roles within the industrial plant operation;

generating, by the processing system, an organizational digital twin of the industrial plant operation based on the organizational definition, wherein the organizational digital twin is a digital representation of an organizational structure of the industrial plant operation;

determining, by the processing system, a set of relationships between different roles within the set of roles based on the organizational definition;

determining, by the processing system, a set of settings for a role from the set of roles based on the determined set of relationships;

linking an identity of a respective individual to the role;

determining, by the processing system, a configuration of a presentation layer of a role-based digital twin corresponding to the role based on the settings of the role that is linked to the identity, wherein the configuration of the presentation layer defines a set of states that is depicted in the role-based digital twin associated with the role;

determining, by the processing system, a set of data sources that provide data corresponding to the set of states, wherein each data source provides one or more respective types of data; and

configuring one or more data structures that is received from the one or more data sources, wherein the one or more data structures is configured to provide data used to populate one or more of the set of states in the role-based digital twin.

2. The method of claim 1, wherein the organizational definition further identifies a set of physical assets of the industrial plant operation.

3. The method of claim 1, wherein determining the set of relationships includes parsing the organizational definition to identify a reporting structure and one or more business units of the industrial plant operation.

4. The method of claim 3, wherein the set of relationships is inferred from the reporting structure and the business units.

5. The method of claim 1, further comprising linking a set of identities to the set of roles, wherein each identity corresponds to a respective role from the set of roles.

6. The method of claim 1, wherein the role-based digital twin integrates with an industrial plant operation resource planning system that operates on the organizational digital twin that represents the set of roles in the industrial plant operation, such that changes in the industrial plant operation resource planning system are automatically reflected in the organizational digital twin.

7. The method of claim 1, wherein the organizational structure includes hierarchical components.

8. The method of claim 1, wherein the set of settings for the set of roles includes role-based permission settings.

9. The method of claim 8, wherein the role-based permission settings are based on hierarchical components defined in the organizational definition.

10. The method of claim 1, wherein the set of settings for the set of roles includes role-based preference settings.

11. The method of claim 1, wherein the set of settings for the set of roles includes role-based taxonomy settings.

12. The method of claim 11, wherein the taxonomy settings identify a taxonomy that is used to characterize data that is presented in the role-based digital twin, such that the data is presented in a taxonomy that is linked to the role corresponding to the role-based digital twin.

13. A system for data collection in an industrial environment, the system comprising:

an industrial system comprising a plurality of components, and a plurality of sensors each operatively coupled to at least one of the plurality of components;

a sensor communication circuit structured to interpret a plurality of sensor data values in response to a sensed parameter group;

a pattern recognition circuit structured to determine a recognized pattern value in response to at least a portion of the plurality of sensor data values;

a sensor learning circuit structured to update the sensed parameter group in response to the recognized pattern value; wherein the sensor communication circuit is further structured to adjust the interpreting of the plurality of sensor data values in response to the updated sensed parameter group, wherein the sensor learning circuit is further structured to update the sensed parameter group by updating a network path configuration corresponding to at least one sensor from the sensed parameter group; and

a reporting circuit, wherein the sensed parameter group is associated with a role-based taxonomy setting, and the role-based taxonomy setting is further associated with at least one reporting rule for reporting the update to the sensed parameter group to at least one role taxonomy including among the role-based taxonomy setting.

14. The system of claim 13, wherein the sensed parameter group comprises a fused plurality of sensors, and wherein the recognized pattern value further includes a secondary value comprising a value determined in response to the fused plurality of sensors.

15. The system of claim 13, wherein the sensor learning circuit is further structured to update the sensed parameter group to form the updated sensed parameter group by performing at least one additional operation including updating a sensor selection of the sensed parameter group; updating a sensor sampling rate of at least one sensor from the sensed parameter group; updating a sensor resolution of at least one sensor from the sensed parameter group; updating a storage value corresponding to at least one sensor from the sensed parameter group; updating a priority corresponding to at least one sensor from the sensed parameter group; and updating at least one of a sampling rate, sampling order, or sampling phase.