~~WHAT IS~~ CLAIM~~ED I~~S:

1. An information technology system, comprising:

a cloud-based management platform with a micro-services architecture, the platform having:

a set of interfaces that are configured to access and configure features of the platform;

a set of network connectivity facilities that are configured to direct a set of value chain network entities to connect to the features of the platform;

a set of adaptive intelligence facilities that are configured to automate a set of capabilities of the platform related to at least one of the value chain network entities and the features of the platform;

a set of data storage facilities that are configured to store data collected and handled by the platform, wherein the data is related to at least one of the value chain network entities and the features of the platform; and

a set of monitoring facilities that are configured to monitor the value chain network entities;

wherein the platform is configured to host a set of applications for directing an enterprise to manage the value chain network entities from a point of origin of a product of the enterprise to a point of customer use.

2. The system of claim 1, wherein the set of interfaces includes at least one of a demand management interface and a supply chain management interface.

3. The system of claim 1, wherein the set of network connectivity facilities includes at least one of:

- a 5G network system deployed in a supply chain infrastructure facility operated by the enterprise.

- an Internet of Things system deployed in a supply chain infrastructure 25 facility operated by the enterprise,

- a cognitive networking system deployed in a supply chain infrastructure facility operated by the enterprise, and

- a peer- to-peer network system deployed in a supply chain infrastructure facility operated by the enterprise.

~~4. The system of claim 1, wherein the set of network connectivity facilities includes an Internet of Things system deployed in a supply chain infrastructure facility operated by the enterprise.~~

~~5. The system of claim 1, wherein the set of network connectivity facilities includes a cognitive networking system deployed in a supply chain infrastructure facility operated by the enterprise.~~

~~6. The system of claim 1, wherein the set of network connectivity facilities includes a peer-to-peer network system deployed in a supply chain infrastructure facility operated by the enterprise.~~

~~7.~~4. The system of claim 1, wherein the set of adaptive intelligence facilities includes at least one of:

- an edge intelligence system deployed in a supply chain infrastructure facility operated by the enterprise,

- a robotic process automation system,

- a self configuring data collection system deployed in a supply chain 15 infrastructure facility operated by the enterprise,

- a digital twin system representing attributes of at least one value chain network entity of the value chain network entities controlled by the enterprise, and

- a smart contract system that is configured to automate a set of interactions among the value chain network entities.

~~8. The system of claim 1, wherein the set of adaptive intelligence facilities includes a robotic process automation system.~~

~~9. The system of claim 1, wherein the set of adaptive intelligence facilities includes a self-configuring data collection system deployed in a supply chain infrastructure facility operated by the enterprise.~~

~~10. The system of claim 1, wherein the set of adaptive intelligence facilities includes a digital twin system representing attributes of at least one value chain network entity of the value chain network entities controlled by the enterprise.~~

~~11. The system of claim 1, wherein the set of adaptive intelligence includes a smart contract system that is configured to automate a set of interactions among the value chain network entities.~~

~~12.~~5. The system of claim 1, wherein the set of data storage facilities uses at least one of:

- a distributed data architecture, and

- a graph database representing a set of hierarchical relationships of the value chain network entitie.

~~13.~~6. The system of claim 1, wherein the set of data storage facilities uses a blockchain.

~~14.~~7. The system of claim 1, wherein the set of data storage facilities uses a distributed ledger.

~~15. The system of claim 1, wherein the set of data storage facilities uses a graph database representing a set of hierarchical relationships of the value chain network entities.~~

~~16.~~8. The system of claim 1, wherein the set of monitoring facilities includes at least one of:

- an Internet of Things monitoring system, and
- a sensor system deployed in an infrastructure facility operated by the enterprise.

~~17. The system of claim 1, wherein the set of monitoring facilities includes a sensor system deployed in an infrastructure facility operated by the enterprise.~~

~~18.~~9. The system of claim 1, wherein the set of applications includes at least one of:

- a set of applications of at least two types from among a set of supply chain management applications, demand management applications, intelligent product applications, and enterprise resource management applications, and
- an asset management application.

~~19. The system of claim 1, wherein the set of applications includes an asset management application.~~

~~20.~~10. The system of claim 1, wherein the value chain network entities are selected from the group consisting of products, suppliers, producers, manufacturers, retailers, businesses, owners, operators, operating facilities, customers, consumers, workers, mobile devices, wearable devices, distributors, resellers, supply chain infrastructure facilities, supply chain processes, logistics processes, reverse logistics processes, demand prediction processes, demand management processes, demand aggregation processes, machines, ships, barges, warehouses, maritime ports, airports, airways, waterways, roadways, railways, bridges, tunnels, online retailers, ecommerce sites, demand factors, supply factors, delivery systems, floating assets, points of origin, points of destination, points of storage, points of use, networks, information technology systems, software platforms, distribution centers, fulfillment centers, containers, container handling facilities, customs, export control, border control, drones, robots, autonomous vehicles, hauling facilities, drones/robots/AVs, waterways, and port infrastructure facilities.

~~21.~~11. The system of claim 1, wherein the platform manages a set of demand factors, a set of supply factors, and a set of supply chain infrastructure facilities.

~~22.~~12. The system of claim ~~21~~ 11, wherein the supply factors are factors selected from the group consisting of Component availability, material availability, component location, material location, component pricing, material pricing, taxation, tariff, impost, duty, import

regulation, export regulation, border control, trade regulation, customs, navigation, traffic, congestion, vehicle capacity, ship capacity, container capacity, package capacity, vehicle availability, ship availability, container availability, package availability, vehicle location, ship location, container location, port location, port availability, port capacity, storage availability, storage capacity, warehouse availability, warehouse capacity, fulfillment center location, fulfillment center availability, fulfillment center capacity, asset owner identity, system compatibility, worker availability, worker competency, worker location, goods pricing, fuel pricing, energy pricing, route availability, route distance, route cost, and route safety factors.

~~23.~~13. The system of claim ~~21~~ 11, wherein the demand factors are factors selected from the group consisting of product availability, product pricing, delivery timing, need for refill, need for replacement, manufacturer recall, need for upgrade, need for maintenance, need for update, need for repair, need for consumable, taste, preference, inferred need, inferred want, group demand, individual demand, family demand, business demand, need for workflow, need for process, need for procedure, need for treatment, need for improvement, need for diagnosis, compatibility to system, compatibility to product, compatibility to style, compatibility to brand, demographic, psychographic, geolocation, indoor location, destination, route, home location, visit location, workplace location, business location, personality, mood, emotion, customer behavior, business type, business activity, personal activity, wealth, income, purchasing history, shopping history, search history, engagement history, clickstream history, website history, online navigation history, group behavior, family behavior, family membership, customer identity, group identity, business identity, customer profile, business profile, group profile, family profile, declared interest, and inferred interest factors.

~~24.~~14. The system of claim ~~21~~ 11, wherein the supply chain infrastructure facilities are facilities selected from the group consisting of ship, container ship, boat, barge, maritime port, crane, container, container handling, shipyard, maritime dock, warehouse, distribution, fulfillment, fueling, refueling, nuclear refueling, waste removal, food supply, beverage supply, drone, robot, autonomous vehicle, aircraft, automotive, truck, train, lift, forklift, hauling facilities, conveyor, loading dock, waterway, bridge, tunnel, airport, depot, vehicle station, train station, weigh station, inspection, roadway, railway, highway, customs house, and border control facilities.

~~25.~~15. The system of claim 1, wherein the set of applications involves a set selected from the group consisting of supply chain, asset management, risk management, inventory management, demand management, demand prediction, demand aggregation, pricing,

positioning, placement, promotion, blockchain, smart contract, infrastructure management, facility management, analytics, finance, trading, tax, regulatory, identity management, commerce, ecommerce, payments, security, safety, vendor management, process management, compatibility testing, compatibility management, infrastructure testing, incident management, predictive maintenance, logistics, monitoring, remote control, automation, self-configuration, self-healing, self-organization, logistics, reverse logistics, waste reduction, augmented reality, virtual reality, mixed reality, demand customer profiling, entity profiling, enterprise profiling, worker profiling, workforce profiling, component supply policy management, product design, product configuration, product updating, product maintenance, product support, product testing, warehousing, distribution, fulfillment, kit configuration, kit deployment, kit support, kit updating, kit maintenance, kit modification, kit management, shipping fleet management, vehicle fleet management, workforce management, maritime fleet management, navigation, routing, shipping management, opportunity matching, search, advertisement, entity discovery, entity search, distribution, delivery, and enterprise resource planning applications.

~~26. An information technology system, comprising:~~

~~a cloud-based management platform with a micro-services architecture, the platform having a set of interfaces that are configured to access and configure features of the platform, a set of network connectivity facilities that are configured to direct a set of value chain network entities to connect to the features of the platform, a set of adaptive intelligence facilities that are configured to automate a set of capabilities of the platform related to at least one of the value chain network entities and the features of the platform, a set of data storage facilities that are configured to store data collected and handled by the platform, and a set of monitoring facilities that are configured to monitor the value chain network entities, wherein~~

the interfaces, the network connectivity facilities, the adaptive intelligence facilities, the data storage facilities, and the monitoring facilities are coordinated for monitoring and management of the value chain network entities;

a set of applications that are configured to direct an enterprise to manage the value chain network entities of the platform from a point of origin to a point of customer use; and

a unified set of robotic process automation systems that provide coordinated automation among at least two types of applications from among a set of demand management applications, a set of supply chain applications, a set of intelligent product applications, and a set of enterprise resource management applications for a category of goods with respect to the value chain network entities of the platform.

27. The system of claim 26, wherein the unified set of robotic process automation systems automate a process selected from the group consisting of selection of a quantity of product for an order, selection of a carrier for a shipment, selection of a vendor for a component, selection of a vendor for a finished goods order, selection of a variation of a product for marketing, selection of an assortment of goods for a shelf, determination of a price for a finished good, configuration of a service offer related to a product, configuration of product bundle, configuration of a product kit, configuration of a product package, configuration of a product display, configuration of a product image, configuration of a product description, configuration of a website navigation path related to a product, determination of an inventory level for a product, selection of a logistics type, configuration of a schedule for product delivery, configuration of a logistics schedule, configuration of a set of inputs for machine learning, preparation of product documentation, preparation of disclosures about a product, configuration of a product for a set of local requirements, configuration of a set of products for compatibility, configuration of a request for proposals, ordering of equipment for a warehouse, ordering of equipment for a fulfillment center, classification of a product defect in an image, inspection of a product in an image, inspection of product quality data from a set of sensors, inspection of data from a set of onboard diagnostics on a. product, inspection of diagnostic data from an Internet of Things system, review of sensor data from environmental sensors in a set of supply chain environments, selection of inputs for a digital twin, selection of outputs from a digital twin, selection of visual elements for presentation in a digital twin, diagnosis of sources of delay in a supply chain, diagnosis of sources of scarcity in a supply chain, diagnosis of sources of congestion in a supply chain, diagnosis of sources of cost overruns in a supply chain, diagnosis of sources of product defects in a supply chain, and prediction of maintenance requirements in supply chain infrastructure.

28. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of a quantity of product for an order.
29. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of a carrier for a shipment.
30. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of a vendor for a component.
31. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of a vendor for a finished goods order.
32. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of a variation of a product for marketing.
33. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of an assortment of goods for a shelf.
34. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves determination of a price for a finished good.
35. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a service offer related to a product.
36. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a product bundle.
37. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a product kit.
38. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a product package.
39. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a product display.
40. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a product image.
41. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a product description.
42. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a website navigation path related to a product.
43. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves determination of an inventory level for a product.
44. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of a logistics type.

45. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a schedule for product delivery.
46. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a logistics schedule.
47. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a set of inputs for machine learning.
48. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves preparation of product documentation.
49. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves preparation of disclosures about a product.
50. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a product for a set of local requirements.
51. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a set of products for compatibility.
52. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves configuration of a request for proposals.
53. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves ordering of equipment for a warehouse.
54. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves ordering of equipment for a fulfillment center.
55. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves classification of a product defect in an image.
56. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves inspection of a product in an image.
57. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves inspection of product quality data from a set of sensors.
58. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves inspection of data from a set of onboard diagnostics on a product.
59. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves inspection of diagnostic data from an Internet of Things system.
60. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves review of sensor data from environmental sensors in a set of supply chain environments.

61. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of inputs for a digital twin.

62. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of outputs from a digital twin.

63. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves selection of visual elements for presentation in a digital twin.

64. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves diagnosis of sources of delay in a supply chain.

65. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves diagnosis of sources of scarcity in a supply chain.

66. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves diagnosis of sources of congestion in a supply chain.

67. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves diagnosis of sources of cost overruns in a supply chain.

68. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves diagnosis of sources of product defects in a supply chain.

69. The system of claim 27, wherein one of the processes automated by the robotic process automation system involves prediction of maintenance requirements in supply chain infrastructure.

70. The system of claim 26, wherein the set of demand management applications, supply chain applications, intelligent product applications and enterprise resource management applications are selected from the group consisting of supply chain, asset management, risk management, inventory management, demand management, demand prediction, demand aggregation, pricing, positioning, placement, promotion, blockchain, smart contract, infrastructure management, facility management, analytics, finance, trading, tax, regulatory, identity management, commerce, ecommerce, payments, security, safety, vendor management, process management, compatibility testing, compatibility management, infrastructure testing, incident management, predictive maintenance, logistics, monitoring, remote control, automation, self-configuration, self-healing, self-organization, logistics, reverse logistics, waste reduction, augmented reality, virtual reality, mixed reality, demand customer profiling, entity profiling, enterprise profiling, worker profiling, workforce profiling, component supply policy management, product design, product configuration, product updating, product maintenance, product support, product testing, warehousing, distribution, fulfillment, kit configuration, kit deployment, kit support, kit updating, kit maintenance, kit modification, kit management, shipping fleet

management, vehicle fleet management, workforce management, maritime fleet management, navigation, routing, shipping management, opportunity matching, search, advertisement, entity discovery, entity search, distribution, delivery, and enterprise resource planning applications.

71. The system of claim 26, wherein the set of interfaces includes at least one of a demand management interface and a supply chain management interface.

72. The system of claim 26, wherein the set of network connectivity facilities includes a 5G network system deployed in a supply chain infrastructure facility operated by the enterprise.

73. The system of claim 26, wherein the set of network connectivity facilities includes an Internet of Things system deployed in a supply chain infrastructure facility operated by the enterprise.

74. The system of claim 26, wherein the set of network connectivity facilities includes a cognitive networking system deployed in a supply chain infrastructure facility operated by the enterprise.

75. The system of claim 26, wherein the set of network connectivity facilities includes a peer-to-peer network system deployed in a supply chain infrastructure facility operated by the enterprise.

76. The system of claim 26, wherein the set of adaptive intelligence facilities includes an edge intelligence system deployed in a supply chain infrastructure facility operated by the enterprise.

77. The system of claim 26, wherein the set of adaptive intelligence facilities includes a robotic process automation system.

78. The system of claim 26, wherein the set of adaptive intelligence facilities includes a self-configuring data collection system deployed in a supply chain infrastructure facility operated by the enterprise.

79. The system of claim 26, wherein the set of adaptive intelligence facilities includes a digital twin system representing attributes of value chain network entity controlled by the enterprise.

80. The system of claim 26, wherein the set of adaptive intelligence facilities includes a smart contract system that is configured to automate a set of interactions among a set of value chain network entities.

81. The system of claim 26, wherein the set of data storage facilities uses a distributed data architecture.

82. The system of claim 26, wherein the set of data storage facilities uses a blockchain.

83. The system of claim 26, wherein the set of data storage facilities uses a distributed ledger.

84. The system of claim 26, wherein the set of data storage facilities uses graph database representing a set of hierarchical relationships of the value chain network entities.

85. The system of claim 26, wherein the set of monitoring facilities includes an Internet of Things monitoring system.

86. The system of claim 26, wherein the set of monitoring facilities includes a sensor system deployed in an infrastructure facility operated by an enterprise.

87. The system of claim 26, wherein the set of applications includes a set of applications of at least two types from among a set of supply chain management applications, demand management applications, intelligent product applications and enterprise resource management applications.

88. The system of claim 26, wherein the set of applications includes an asset management application.

89. The system of claim 26, wherein the value chain network entities are selected from the group consisting of products, suppliers, producers, manufacturers, retailers, businesses, owners, operators, operating facilities, customers, consumers, workers, mobile devices, wearable devices, distributors, resellers, supply chain infrastructure facilities, supply chain processes, logistics processes, reverse logistics processes, demand prediction processes, demand management processes, demand aggregation processes, machines, ships, barges, warehouses, maritime ports, airports, airways, waterways, roadways, railways, bridges, tunnels, online retailers, ecommerce sites, demand factors, supply factors, delivery systems, floating assets, points of origin, points of destination, points of storage, points of use, networks, information technology systems, software platforms, distribution centers, fulfillment centers, containers, container handling facilities, customs, export control, border control, drones, robots, autonomous vehicles, hauling facilities, drones/robots/AVs, waterways, and port infrastructure facilities.

90. The system of claim 26, wherein the platform manages a set of demand factors, a set of supply factors, and a set of supply chain infrastructure facilities.

91. The system of claim 90, wherein the supply factors are factors selected from the group consisting of Component availability, material availability, component location, material location, component pricing, material pricing, taxation, tariff, impost, duty, import regulation, export regulation, border control, trade regulation, customs, navigation, traffic, congestion, vehicle capacity, ship capacity, container capacity, package capacity, vehicle availability, ship availability, container availability, package availability, vehicle location, ship location, container location, port location, port availability, port capacity, storage availability, storage capacity, warehouse availability, warehouse capacity, fulfillment

center location, fulfillment center availability, fulfillment center capacity, asset owner identity, system compatibility, worker availability, worker competency, worker location, goods pricing, fuel pricing, energy pricing, route availability, route distance, route cost, and route safety factors.

92. The system of claim 90, wherein the demand factors are factors selected from the group consisting of product availability, product pricing, delivery timing, need for refill, need for replacement, manufacturer recall, need for upgrade, need for maintenance, need for update, need for repair, need for consumable, taste, preference, inferred need, inferred want, group demand, individual demand, family demand, business demand, need for workflow, need for process, need for procedure, need for treatment, need for improvement, need for diagnosis, compatibility to system, compatibility to product, compatibility to style, compatibility to brand, demographic, psychographic, geolocation, indoor location, destination, route, home location, visit location, workplace location, business location, personality, mood, emotion, customer behavior, business type, business activity, personal activity, wealth, income, purchasing history, shopping history, search history, engagement history, clickstream history, website history, online navigation history, group behavior, family behavior, family membership, customer identity, group identity, business identity, customer profile, business profile, group profile, family profile, declared interest, and inferred interest factors.

93. The system of claim 90, wherein the supply chain infrastructure facilities are facilities selected from the group consisting of ship, container ship, boat, barge, maritime port, crane, container, container handling, shipyard, maritime dock, warehouse, distribution, fulfillment, fueling, refueling, nuclear refueling, waste removal, food supply, beverage supply, drone, robot, autonomous vehicle, aircraft, automotive, truck, train, lift, forklift, hauling facilities, conveyor, loading dock, waterway, bridge, tunnel, airport, depot, vehicle station, train station, weigh station, inspection, roadway, railway, highway, customs house, and border control facilities.

94. The system of claim 26, wherein the set of applications involves a set selected from the group consisting of supply chain, asset management, risk management, inventory management, demand management, demand prediction, demand aggregation, pricing, positioning, placement, promotion, blockchain, smart contract, infrastructure management, facility management, analytics, finance, trading, tax, regulatory, identity management, commerce, ecommerce, payments, security, safety, vendor management, process management, compatibility testing, compatibility management, infrastructure testing, incident management, predictive maintenance, logistics, monitoring, remote control,

automation, self-configuration, self-healing, self-organization, logistics, reverse logistics, waste reduction, augmented reality, virtual reality, mixed reality, demand customer profiling, entity profiling, enterprise profiling, worker profiling, workforce profiling, component supply policy management, product design, product configuration, product updating, product maintenance, product support, product testing, warehousing, distribution, fulfillment, kit configuration, kit deployment, kit support, kit updating, kit maintenance, kit modification, kit management, shipping fleet management, vehicle fleet management, workforce management, maritime fleet management, navigation, routing, shipping management, opportunity matching, search, advertisement, entity discovery, entity search, distribution, delivery, and enterprise resource planning applications.

95. An information technology system, comprising:

a cloud-based management platform with a micro-services architecture, the platform having a set of interfaces that are configured to access and configure features of the platform, a set of network connectivity facilities that are configured to direct a set of value chain network entities to connect to the features of the platform, a set of adaptive intelligence facilities that are configured to automate a set of capabilities of the platform related to at least one of the value chain network entities and the features of the platform, a set of data storage facilities that are configured to store data collected and handled by the platform, and a set of monitoring facilities that are configured to monitor the value chain network entities, wherein the interfaces, the network connectivity facilities, the adaptive intelligence facilities, the data storage facilities, and the monitoring facilities are coordinated for monitoring and management of the value chain network entities;

a set of applications that are configured to direct an enterprise to manage the value chain network entities of the platform from a point of origin to a point of customer use; and

a set of microservices layers including an application layer supporting at least one supply chain application and at least one demand management application, wherein the microservices layers include a data collection layer that collects information from a set of Internet of Things resources that collect information with respect to supply chain entities and demand management entities related to the value chain network entities of the platform.

96. The system of claim 95, wherein the set of Internet of Things resources that collect information with respect to supply chain entities and demand management entities collects information from entities selected from the group consisting of products, suppliers, producers, manufacturers, retailers, businesses, owners, operators, operating facilities, customers, consumers, workers, mobile devices, wearable devices, distributors, resellers, supply chain infrastructure facilities, supply chain processes, logistics processes, reverse

logistics processes, demand prediction processes, demand management processes, demand aggregation processes, machines, ships, barges, warehouses, maritime ports, airports, airways, waterways, roadways, railways, bridges, tunnels, online retailers, ecommerce sites, demand factors, supply factors, delivery systems, floating assets, points of origin, points of destination, points of storage, points of use, networks, information technology systems, software platforms, distribution centers, fulfillment centers, containers, container handling facilities, customs, export control, border control, drones, robots, autonomous vehicles, hauling facilities, drones/robots/AVs, waterways, and port infrastructure facilities.

97. The system of claim 95, wherein the set of Internet of Things resources is selected from the group consisting of camera systems, lighting systems, motion sensing systems, weighing systems, inspection systems, machine vision systems, environmental sensor systems, onboard sensor systems, onboard diagnostic systems, environmental control systems, sensor-enabled network switching and routing systems, RF sensing systems, magnetic sensing systems, pressure monitoring systems, vibration monitoring systems, temperature monitoring systems, heat flow monitoring systems, biological measurement systems, chemical measurement systems, ultrasonic monitoring systems, radiography systems, LIDAR-based monitoring systems, access control systems, penetrating wave sensing systems, SONAR-based monitoring systems, radar-based monitoring systems, computed tomography systems, magnetic resonance imaging systems, and network monitoring systems.

98. The system of claim 95, wherein the set of Internet of Things resources includes a set of camera systems.

99. The system of claim 95, wherein the set of Internet of Things resources includes a set of lighting systems.

100. The system of claim 95, wherein the set of Internet of Things resources includes a set of machine vision systems.

101. The system of claim 95, wherein the set of Internet of Things resources includes a set of motion sensing systems.

102. The system of claim 95, wherein the set of Internet of Things resources includes a set of weighing systems.

103. The system of claim 95, wherein the set of Internet of Things resources includes a set of inspection systems.

104. The system of claim 95, wherein the set of Internet of Things resources includes a set of environmental sensor systems.

105. The system of claim 95, wherein the set of Internet of Things resources includes a set of onboard sensor systems.

106. The system of claim 95, wherein the set of Internet of Things resources includes a set of onboard diagnostic systems.

107. The system of claim 95, wherein the set of Internet of Things resources includes a set of environmental control systems.

108. The system of claim 95, wherein the set of Internet of Things resources includes a set of sensor-enabled network switching and routing systems.

109. The system of claim 95, wherein the set of Internet of Things resources includes a set of RF sensing systems.

110. The system of claim 95, wherein the set of Internet of Things resources includes a set of magnetic sensing systems.

111. The system of claim 95, wherein the set of Internet of Things resources includes a set of pressure monitoring systems.

112. The system of claim 95, wherein the set of Internet of Things resources includes a set of vibration monitoring systems.

113. The system of claim 95, wherein the set of Internet of Things resources includes a set of temperature monitoring systems.

114. The system of claim 95, wherein the set of Internet of Things resources includes a set of heat flow monitoring systems.

115. The system of claim 95, wherein the set of Internet of Things resources includes a set of biological measurement systems.

116. The system of claim 95, wherein the set of Internet of Things resources includes a set of chemical measurement systems.

117. The system of claim 95, wherein the set of Internet of Things resources includes a set of ultrasonic monitoring systems.

118. The system of claim 95, wherein the set of Internet of Things resources includes a set of radiography systems.

119. The system of claim 95, wherein the set of Internet of Things resources includes a set of LIDAR-based monitoring systems.

120. The system of claim 95, wherein the set of Internet of Things resources includes a set of access control systems.

121. The system of claim 95, wherein the set of Internet of Things resources includes a set of penetrating wave sensing systems.

122. The system of claim 95, wherein the set of Internet of Things resources includes a set of SONAR-based monitoring systems.

123. The system of claim 95, wherein the set of Internet of Things resources includes a set of radar-based monitoring systems.

124. The system of claim 95, wherein the set of Internet of Things resources includes a set of computed tomography systems.

125. The system of claim 95, wherein the set of Internet of Things resources includes a set of magnetic resonance imaging systems.

126. The system of claim 95, wherein the set of Internet of Things resources includes a set of network monitoring systems.

127. The system of claim 95, wherein the set of interfaces includes at least one of a demand management interface and a supply chain management interface.

128. The system of claim 95, wherein the set of applications is at least one of demand management applications, supply chain applications, intelligent product applications, and enterprise resource management applications that are selected from the group consisting of supply chain, asset management, risk management, inventory management, demand management, demand prediction, demand aggregation, pricing, positioning, placement, promotion, blockchain, smart contract, infrastructure management, facility management, analytics, finance, trading, tax, regulatory, identity management, commerce, ecommerce, payments, security, safety, vendor management, process management, compatibility testing, compatibility management, infrastructure testing, incident management, predictive maintenance, logistics, monitoring, remote control, automation, self-configuration, self-healing, self-organization, logistics, reverse logistics, waste reduction, augmented reality, virtual reality, mixed reality, demand customer profiling, entity profiling, enterprise profiling, worker profiling, workforce profiling, component supply policy management, product design, product configuration, product updating, product maintenance, product support, product testing, warehousing, distribution, fulfillment, kit configuration, kit deployment, kit support, kit updating, kit maintenance, kit modification, kit management, shipping fleet management, vehicle fleet management, workforce management, maritime fleet management, navigation, routing, shipping management, opportunity matching, search, advertisement, entity discovery, entity search, distribution, delivery, and enterprise resource planning applications.

129. The system of claim 95, wherein the set of network connectivity facilities includes a 5G network system deployed in a supply chain infrastructure facility operated by the enterprise.

130. The system of claim 95, wherein the set of network connectivity facilities includes an Internet of Things system deployed in a supply chain infrastructure facility operated by the enterprise.

131. The system of claim 95, wherein the set of network connectivity facilities includes a cognitive networking system deployed in a supply chain infrastructure facility operated by the enterprise.

132. The system of claim 95, wherein the set of network connectivity facilities includes a peer-to-peer network system deployed in a supply chain infrastructure facility operated by the enterprise.

133. The system of claim 95, wherein the set of adaptive intelligence facilities includes an edge intelligence system deployed in a supply chain infrastructure facility operated by the enterprise.

134. The system of claim 95, wherein the set of adaptive intelligence facilities includes a robotic process automation system.

135. The system of claim 95, wherein the set of adaptive intelligence includes a self-configuring data collection system deployed in a supply chain infrastructure facility operated by the enterprise.

136. The system of claim 95, wherein the set of adaptive intelligence facilities includes a digital twin system representing attributes of value chain network entity controlled by the enterprise.

137. The system of claim 95, wherein the set of adaptive intelligence facilities includes a smart contract system that is configured to automate a set of interactions among a set of value chain network entities.

138. The system of claim 95, wherein the set of data storage facilities uses a distributed data architecture.

139. The system of claim 95, wherein the set of data storage facilities uses a blockchain.

140. The system of claim 95, wherein the set of data storage facilities uses a distributed ledger.

141. The system of claim 95, wherein the set of data storage facilities uses a graph database representing a set of hierarchical relationships of value chain network entities.

142. The system of claim 95, wherein the set of monitoring includes an Internet of Things monitoring system.

143. The system of claim 95, wherein the set of monitoring facilities includes a sensor system deployed in an infrastructure facility operated by an enterprise.

144. The system of claim 95, wherein the set of applications includes a set of applications of at least two types from among a set of supply chain management applications, demand

management applications, intelligent product applications and enterprise resource management applications.

145. The system of claim 95, wherein the set of applications includes an asset management application.

146. The system of claim 95, wherein the value chain network entities are selected from the group consisting of products, suppliers, producers, manufacturers, retailers, businesses, owners, operators, operating facilities, customers, consumers, workers, mobile devices, wearable devices, distributors, resellers, supply chain infrastructure facilities, supply chain processes, logistics processes, reverse logistics processes, demand prediction processes, demand management processes, demand aggregation processes, machines, ships, barges, warehouses, maritime ports, airports, airways, waterways, roadways, railways, bridges, tunnels, online retailers, ecommerce sites, demand factors, supply factors, delivery systems, floating assets, points of origin, points of destination, points of storage, points of use, networks, information technology systems, software platforms, distribution centers, fulfillment centers, containers, container handling facilities, customs, export control, border control, drones, robots, autonomous vehicles, hauling facilities, drones/robots/AVs, waterways, and port infrastructure facilities.

147. The system of claim 95, wherein the platform manages a set of demand factors, a set of supply factors and a set of supply chain infrastructure facilities.

148. The system of claim 147, wherein the supply factors are factors selected from the group consisting of Component availability, material availability, component location, material location, component pricing, material pricing, taxation, tariff, impost, duty, import regulation, export regulation, border control, trade regulation, customs, navigation, traffic, congestion, vehicle capacity, ship capacity, container capacity, package capacity, vehicle availability, ship availability, container availability, package availability, vehicle location, ship location, container location, port location, port availability, port capacity, storage availability, storage capacity, warehouse availability, warehouse capacity, fulfillment center location, fulfillment center availability, fulfillment center capacity, asset owner identity, system compatibility, worker availability, worker competency, worker location, goods pricing, fuel pricing, energy pricing, route availability, route distance, route cost, and route safety factors.

149. The system of claim 147, wherein the demand factors are factors selected from the group consisting of product availability, product pricing, delivery timing, need for refill, need for replacement, manufacturer recall, need for upgrade, need for maintenance, need for update, need for repair, need for consumable, taste, preference, inferred need, inferred want, group

demand, individual demand, family demand, business demand, need for workflow, need for process, need for procedure, need for treatment, need for improvement, need for diagnosis, compatibility to system, compatibility to product, compatibility to style, compatibility to brand, demographic, psychographic, geolocation, indoor location, destination, route, home location, visit location, workplace location, business location, personality, mood, emotion, customer behavior, business type, business activity, personal activity, wealth, income, purchasing history, shopping history, search history, engagement history, clickstream history, website history, online navigation history, group behavior, family behavior, family membership, customer identity, group identity, business identity, customer profile, business profile, group profile, family profile, declared interest, and inferred interest factors.

150. The system of claim 147, wherein the supply chain infrastructure facilities are facilities selected from the group consisting of ship, container ship, boat, barge, maritime port, crane, container, container handling, shipyard, maritime dock, warehouse, distribution, fulfillment, fueling, refueling, nuclear refueling, waste removal, food supply, beverage supply, drone, robot, autonomous vehicle, aircraft, automotive, truck, train, lift, forklift, hauling facilities, conveyor, loading dock, waterway, bridge, tunnel, airport, depot, vehicle station, train station, weigh station, inspection, roadway, railway, highway, customs house, and border control facilities.

151. The system of claim 95, wherein the set of applications involves a set selected from the group consisting of supply chain, asset management, risk management, inventory management, demand management, demand prediction, demand aggregation, pricing, positioning, placement, promotion, blockchain, smart contract, infrastructure management, facility management, analytics, finance, trading, tax, regulatory, identity management, commerce, ecommerce, payments, security, safety, vendor management, process management, compatibility testing, compatibility management, infrastructure testing, incident management, predictive maintenance, logistics, monitoring, remote control, automation, self-configuration, self-healing, self-organization, logistics, reverse logistics, waste reduction, augmented reality, virtual reality, mixed reality, demand customer profiling, entity profiling, enterprise profiling, worker profiling, workforce profiling, component supply policy management, product design, product configuration, product updating, product maintenance, product support, product testing, warehousing, distribution, fulfillment, kit configuration, kit deployment, kit support, kit updating, kit maintenance, kit modification, kit management, shipping fleet management, vehicle fleet management, workforce management, maritime fleet management, navigation, routing, shipping

management, opportunity matching, search, advertisement, entity discovery, entity search, distribution, delivery, and enterprise resource planning applications.

152. An information technology system, comprising:

a cloud-based management platform with a micro-services architecture, the platform having a set of interfaces that are configured to access and configure features of the platform, a set of network connectivity facilities that are configured to direct a set of value chain network entities to connect to the features of the platform, a set of adaptive intelligence facilities that are configured to automate a set of capabilities of the platform related to at least one of the value chain network entities and the features of the platform, a set of data storage facilities that are configured to store data collected and handled by the platform, and a set of monitoring facilities that are configured to monitor the value chain network entities, wherein the interfaces, the network connectivity facilities, the adaptive intelligence facilities, the data storage facilities, and the monitoring facilities are coordinated for monitoring and management of the value chain network entities;

a set of applications that are configured to direct an enterprise to manage the value chain network entities of the platform from a point of origin to a point of customer use; and

a set of microservices layers including an application layer supporting at least one supply chain application and at least one demand management application, wherein the microservices layers include a robotic process automation layer that uses information collected by a data collection layer and a set of outcomes and activities involving the applications of the application layer to automate a set of actions for at least a subset of the applications with respect to the value chain network entities of the platform.

153. The system of claim 152, wherein the robotic process automation layer automates a process selected from the group consisting of selection of a quantity of product for an order, selection of a carrier for a shipment, selection of a vendor for a component, selection of a vendor for a finished goods order, selection of a variation of a product for marketing, selection of an assortment of goods for a shelf, determination of a price for a finished good, configuration of a service offer related to a product, configuration of product bundle, configuration of a product kit, configuration of a product package, configuration of a product display, configuration of a product image, configuration of a product description, configuration of a website navigation path related to a product, determination of an inventory level for a product, selection of a logistics type, configuration of a schedule for product delivery, configuration of a logistics schedule, configuration of a set of inputs for machine learning, preparation of product documentation, preparation of disclosures about a product, configuration of a product for a set of local requirements, configuration of a set

of products for compatibility, configuration of a request for proposals, ordering of equipment for a warehouse, ordering of equipment for a fulfillment center, classification of a product defect in an image, inspection of a product in an image, inspection of product quality data from a set of sensors, inspection of data from a set of onboard diagnostics on a product, inspection of diagnostic data from an Internet of Things system, review of sensor data from environmental sensors in a set of supply chain environments, selection of inputs for a digital twin, selection of outputs from a digital twin, selection of visual elements for presentation in a digital twin, diagnosis of sources of delay in a supply chain, diagnosis of sources of scarcity in a supply chain, diagnosis of sources of congestion in a supply chain, diagnosis of sources of cost overruns in a supply chain, diagnosis of sources of product defects in a supply chain, and prediction of maintenance requirements in supply chain infrastructure.

154. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of a quantity of product for an order.

155. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of a carrier for a shipment.

156. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of a vendor for a component.

157. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of a vendor for a finished goods order.

158. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of a variation of a product for marketing.

159. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of an assortment of goods for a shelf.

160. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves determination of a price for a finished good.

161. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a service offer related to a product.

162. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of product bundle.

163. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a product kit.

164. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a product package.

165. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a product display.

166. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a product image.

167. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a product description.

168. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a website navigation path related to a product.

169. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves determination of an inventory level for a product.

170. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of a logistics type.

171. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a schedule for product delivery.

172. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a logistics schedule.

173. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a set of inputs for machine learning.

174. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves preparation of product documentation.

175. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves preparation of disclosures about a product.

176. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a product for a set of local requirements.

177. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a set of products for compatibility.

178. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves configuration of a request for proposals.

179. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves ordering of equipment for a warehouse.

180. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves ordering of equipment for a fulfillment center.

181. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves classification of a product defect in an image.

182. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves inspection of a product in an image.

183. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves inspection of product quality data from a set of sensors.

184. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves inspection of data from a set of onboard diagnostics on a product.

185. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves inspection of diagnostic data from an Internet of Things system.

186. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves review of sensor data from environmental sensors in a set of supply chain environments.

187. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of inputs for a digital twin.

188. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of outputs from a digital twin.

189. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves selection of visual elements for presentation in a digital twin.

190. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves diagnosis of sources of delay in a supply chain.

191. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves diagnosis of sources of scarcity in a supply chain.

192. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves diagnosis of sources of congestion in a supply chain.

193. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves diagnosis of sources of cost overruns in a supply chain.

194. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves diagnosis of sources of product defects in a supply chain.

195. The system of claim 152, wherein one of the actions automated by the robotic process automation layer involves prediction of maintenance requirements in supply chain infrastructure.

196. The system of claim 152, wherein the set of interfaces includes at least one of a demand management interface and a supply chain management interface.

197. The system of claim 152, wherein the set of applications is at least one of demand management applications, supply chain applications, intelligent product applications, and

enterprise resource management applications that are selected from the group consisting of supply chain, asset management, risk management, inventory management, demand management, demand prediction, demand aggregation, pricing, positioning, placement, promotion, blockchain, smart contract, infrastructure management, facility management, analytics, finance, trading, tax, regulatory, identity management, commerce, ecommerce, payments, security, safety, vendor management, process management, compatibility testing, compatibility management, infrastructure testing, incident management, predictive maintenance, logistics, monitoring, remote control, automation, self-configuration, self-healing, self-organization, logistics, reverse logistics, waste reduction, augmented reality, virtual reality, mixed reality, demand customer profiling, entity profiling, enterprise profiling, worker profiling, workforce profiling, component supply policy management, product design, product configuration, product updating, product maintenance, product support, product testing, warehousing, distribution, fulfillment, kit configuration, kit deployment, kit support, kit updating, kit maintenance, kit modification, kit management, shipping fleet management, vehicle fleet management, workforce management, maritime fleet management, navigation, routing, shipping management, opportunity matching, search, advertisement, entity discovery, entity search, distribution, delivery, and enterprise resource planning applications.

198. The system of claim 152, wherein the set of network connectivity facilities includes a 5G network system deployed in a supply chain infrastructure facility operated by the enterprise.

199. The system of claim 152, wherein the set of network connectivity facilities includes an Internet of Things system deployed in a supply chain infrastructure facility operated by the enterprise.

200. The system of claim 152, wherein the set of network connectivity facilities includes a cognitive networking system deployed in a supply chain infrastructure facility operated by the enterprise.

201. The system of claim 152, wherein the set of network connectivity facilities includes a peer-to-peer network system deployed in a supply chain infrastructure facility operated by the enterprise.

202. The system of claim 152, wherein the set of adaptive intelligence facilities includes an edge intelligence system deployed in a supply chain infrastructure facility operated by the enterprise.

203. The system of claim 152, wherein the set of adaptive intelligence facilities includes a robotic process automation system.

204. The system of claim 152, wherein the set of adaptive intelligence facilities includes a self-configuring data collection system deployed in a supply chain infrastructure facility operated by the enterprise.

205. The system of claim 152, wherein the set of adaptive intelligence facilities includes a digital twin system representing attributes of value chain network entity controlled by the enterprise.

206. The system of claim 152, wherein the set of adaptive intelligence facilities includes a smart contract system for automating a set of interactions among a set of value chain network entities.

207. The system of claim 152, wherein the set of data storage facilities uses a distributed data architecture.

208. The system of claim 152, wherein the set of data storage facilities uses a blockchain.

209. The system of claim 152, wherein the set of data storage facilities uses a distributed ledger.

210. The system of claim 152, wherein the set of data storage facilities uses a graph database representing a set of hierarchical relationships of value chain network entities.

211. The system of claim 152, wherein the set of monitoring facilities includes an Internet of Things monitoring system.

212. The system of claim 152, wherein the set of monitoring facilities includes a sensor system deployed in an infrastructure facility operated by an enterprise.

213. The system of claim 152, wherein the set of applications includes a set of applications of at least two types from among a set of supply chain management applications, demand management applications, intelligent product applications and enterprise resource management applications.

214. The system of claim 152, wherein the set of applications includes an asset management application.

215. The system of claim 152, wherein the value chain network entities are selected from the group consisting of products, suppliers, producers, manufacturers, retailers, businesses, owners, operators, operating facilities, customers, consumers, workers, mobile devices, wearable devices, distributors, resellers, supply chain infrastructure facilities, supply chain processes, logistics processes, reverse logistics processes, demand prediction processes, demand management processes, demand aggregation processes, machines, ships, barges, warehouses, maritime ports, airports, airways, waterways, roadways, railways, bridges, tunnels, online retailers, ecommerce sites, demand factors, supply factors, delivery systems, floating assets, points of origin, points of destination, points of storage, points of use,

networks, information technology systems, software platforms, distribution centers, fulfillment centers, containers, container handling facilities, customs, export control, border control, drones, robots, autonomous vehicles, hauling facilities, drones/robots/AVs, waterways, and port infrastructure facilities.

216. The system of claim 152, wherein the platform manages a set of demand factors, a set of supply factors, and a set of supply chain infrastructure facilities.

217. The system of claim 216, wherein the supply factors are factors selected from the group consisting of Component availability, material availability, component location, material location, component pricing, material pricing, taxation, tariff, impost, duty, import regulation, export regulation, border control, trade regulation, customs, navigation, traffic, congestion, vehicle capacity, ship capacity, container capacity, package capacity, vehicle availability, ship availability, container availability, package availability, vehicle location, ship location, container location, port location, port availability, port capacity, storage availability, storage capacity, warehouse availability, warehouse capacity, fulfillment center location, fulfillment center availability, fulfillment center capacity, asset owner identity, system compatibility, worker availability, worker competency, worker location, goods pricing, fuel pricing, energy pricing, route availability, route distance, route cost, and route safety factors.

218. The system of claim 216, wherein the demand factors are factors selected from the group consisting of product availability, product pricing, delivery timing, need for refill, need for replacement, manufacturer recall, need for upgrade, need for maintenance, need for update, need for repair, need for consumable, taste, preference, inferred need, inferred want, group demand, individual demand, family demand, business demand, need for workflow, need for process, need for procedure, need for treatment, need for improvement, need for diagnosis, compatibility to system, compatibility to product, compatibility to style, compatibility to brand, demographic, psychographic, geolocation, indoor location, destination, route, home location, visit location, workplace location, business location, personality, mood, emotion, customer behavior, business type, business activity, personal activity, wealth, income, purchasing history, shopping history, search history, engagement history, clickstream history, website history, online navigation history, group behavior, family behavior, family membership, customer identity, group identity, business identity, customer profile, business profile, group profile, family profile, declared interest, and inferred interest factors.

219. The system of claim 216, wherein the supply chain infrastructure facilities are facilities selected from the group consisting of ship, container ship, boat, barge, maritime port, crane,

container, container handling, shipyard, maritime dock, warehouse, distribution, fulfillment, fueling, refueling, nuclear refueling, waste removal, food supply, beverage supply, drone, robot, autonomous vehicle, aircraft, automotive, truck, train, lift, forklift, hauling facilities, conveyor, loading dock, waterway, bridge, tunnel, airport, depot, vehicle station, train station, weigh station, inspection, roadway, railway, highway, customs house, and border control facilities.

220. The system of claim 152, wherein the set of applications involves a set selected from the group consisting of supply chain, asset management, risk management, inventory management, demand management, demand prediction, demand aggregation, pricing, positioning, placement, promotion, blockchain, smart contract, infrastructure management, facility management, analytics, finance, trading, tax, regulatory, identity management, commerce, ecommerce, payments, security, safety, vendor management, process management, compatibility testing, compatibility management, infrastructure testing, incident management, predictive maintenance, logistics, monitoring, remote control, automation, self-configuration, self-healing, self-organization, logistics, reverse logistics, waste reduction, augmented reality, virtual reality, mixed reality, demand customer profiling, entity profiling, enterprise profiling, worker profiling, workforce profiling, component supply policy management, product design, product configuration, product updating, product maintenance, product support, product testing, warehousing, distribution, fulfillment, kit configuration, kit deployment, kit support, kit updating, kit maintenance, kit modification, kit management, shipping fleet management, vehicle fleet management, workforce management, maritime fleet management, navigation, routing, shipping management, opportunity matching, search, advertisement, entity discovery, entity search, distribution, delivery, and enterprise resource planning applications.

221. An information technology system, comprising:

a cloud-based management platform with a micro-services architecture, the platform having a set of interfaces that are configured to access and configure features of the platform, a set of network connectivity facilities that are configured to direct a set of value chain network entities to connect to the features of the platform, a set of adaptive intelligence facilities that are configured to automate a set of capabilities of the platform related to at least one of the value chain network entities and the features of the platform, a set of data storage facilities that are configured to store data collected and handled by the platform, and a set of monitoring facilities that are configured to monitor the value chain network entities, wherein the interfaces, the network connectivity facilities, the adaptive intelligence facilities, the data

storage facilities, and the monitoring facilities are coordinated for monitoring and management of the value chain network entities;

a set of applications that are configured to direct an enterprise to manage the value chain network entities of the platform from a point of origin to a point of customer use; and

a machine learning/artificial intelligence system configured to generate recommendations for placing at least one of an additional sensor and a camera on and/or in proximity to a value chain network entity of the value chain network entities, and wherein data from the at least one of the additional sensor and the camera feeds into a digital twin that represents the value chain network entities.

222. The system of claim 221, wherein the set of interfaces includes at least one of a demand management interface and a supply chain management interface.

223. The system of claim 221, wherein the set of applications is at least one of demand management applications, supply chain applications, intelligent product applications, and enterprise resource management applications that are selected from the group consisting of supply chain, asset management, risk management, inventory management, demand management, demand prediction, demand aggregation, pricing, positioning, placement, promotion, blockchain, smart contract, infrastructure management, facility management, analytics, finance, trading, tax, regulatory, identity management, commerce, ecommerce, payments, security, safety, vendor management, process management, compatibility testing, compatibility management, infrastructure testing, incident management, predictive maintenance, logistics, monitoring, remote control, automation, self-configuration, self-healing, self-organization, logistics, reverse logistics, waste reduction, augmented reality, virtual reality, mixed reality, demand customer profiling, entity profiling, enterprise profiling, worker profiling, workforce profiling, component supply policy management, product design, product configuration, product updating, product maintenance, product support, product testing, warehousing, distribution, fulfillment, kit configuration, kit deployment, kit support, kit updating, kit maintenance, kit modification, kit management, shipping fleet management, vehicle fleet management, workforce management, maritime fleet management, navigation, routing, shipping management, opportunity matching, search, advertisement, entity discovery, entity search, distribution, delivery, and enterprise resource planning applications.

224. The system of claim 221, wherein the set of network connectivity facilities includes a 5G network system deployed in a supply chain infrastructure facility operated by the enterprise.

225. The system of claim 221, wherein the set of network connectivity facilities includes an Internet of Things system deployed in a supply chain infrastructure facility operated by the enterprise.

226. The system of claim 221, wherein the set of network connectivity facilities includes a cognitive networking system deployed in a supply chain infrastructure facility operated by the enterprise.

227. The system of claim 221, wherein the set of network connectivity facilities includes a peer-to-peer network system deployed in a supply chain infrastructure facility operated by the enterprise.

228. The system of claim 221, wherein the set of adaptive intelligence facilities includes an edge intelligence system deployed in a supply chain infrastructure facility operated by the enterprise.

229. The system of claim 221, wherein the set of adaptive intelligence facilities includes a robotic process automation system.

230. The system of claim 221, wherein the set of adaptive intelligence facilities includes a self-configuring data collection system deployed in a supply chain infrastructure facility operated by the enterprise.

231. The system of claim 221, wherein the set of adaptive intelligence facilities includes a digital twin system representing attributes of value chain network entity controlled by the enterprise.

232. The system of claim 221, wherein the set of adaptive intelligence facilities includes a smart contract system for automating a set of interactions among a set of value chain network entities.

233. The system of claim 221, wherein the set of data storage facilities uses a distributed data architecture.

234. The system of claim 221, wherein the set of data storage facilities uses a blockchain.

235. The system of claim 221, wherein the set of data storage facilities uses a distributed ledger.

236. The system of claim 221, wherein the set of data storage facilities uses a graph database representing a set of hierarchical relationships of value chain network entities.

237. The system of claim 221, wherein the set of monitoring facilities includes an Internet of Things monitoring system.

238. The system of claim 221, wherein the set of monitoring facilities includes a sensor system deployed in an infrastructure facility operated by an enterprise.

239. The system of claim 221, wherein the set of applications includes a set of applications of at least two types from among a set of supply chain management applications, demand management applications, intelligent product applications and enterprise resource management applications.

240. The system of claim 221, wherein the set of applications includes an asset management application.

241. The system of claim 221, wherein the value chain network entities are selected from the group consisting of products, suppliers, producers, manufacturers, retailers, businesses, owners, operators, operating facilities, customers, consumers, workers, mobile devices, wearable devices, distributors, resellers, supply chain infrastructure facilities, supply chain processes, logistics processes, reverse logistics processes, demand prediction processes, demand management processes, demand aggregation processes, machines, ships, barges, warehouses, maritime ports, airports, airways, waterways, roadways, railways, bridges, tunnels, online retailers, ecommerce sites, demand factors, supply factors, delivery systems, floating assets, points of origin, points of destination, points of storage, points of use, networks, information technology systems, software platforms, distribution centers, fulfillment centers, containers, container handling facilities, customs, export control, border control, drones, robots, autonomous vehicles, hauling facilities, drones/robots/AVs, waterways, and port infrastructure facilities.

242. The system of claim 221, wherein the platform manages a set of demand factors, a set of supply factors, and a set of supply chain infrastructure facilities.

243. The system of claim 242, wherein the supply factors are factors selected from the group consisting of Component availability, material availability, component location, material location, component pricing, material pricing, taxation, tariff, impost, duty, import regulation, export regulation, border control, trade regulation, customs, navigation, traffic, congestion, vehicle capacity, ship capacity, container capacity, package capacity, vehicle availability, ship availability, container availability, package availability, vehicle location, ship location, container location, port location, port availability, port capacity, storage availability, storage capacity, warehouse availability, warehouse capacity, fulfillment center location, fulfillment center availability, fulfillment center capacity, asset owner identity, system compatibility, worker availability, worker competency, worker location, goods pricing, fuel pricing, energy pricing, route availability, route distance, route cost, and route safety factors.

244. The system of claim 242, wherein the demand factors are factors selected from the group consisting of product availability, product pricing, delivery timing, need for refill, need for

replacement, manufacturer recall, need for upgrade, need for maintenance, need for update, need for repair, need for consumable, taste, preference, inferred need, inferred want, group demand, individual demand, family demand, business demand, need for workflow, need for process, need for procedure, need for treatment, need for improvement, need for diagnosis, compatibility to system, compatibility to product, compatibility to style, compatibility to brand, demographic, psychographic, geolocation, indoor location, destination, route, home location, visit location, workplace location, business location, personality, mood, emotion, customer behavior, business type, business activity, personal activity, wealth, income, purchasing history, shopping history, search history, engagement history, clickstream history, website history, online navigation history, group behavior, family behavior, family membership, customer identity, group identity, business identity, customer profile, business profile, group profile, family profile, declared interest, and inferred interest factors.

245. The system of claim 242, wherein the supply chain infrastructure facilities are facilities selected from the group consisting of ship, container ship, boat, barge, maritime port, crane, container, container handling, shipyard, maritime dock, warehouse, distribution, fulfillment, fueling, refueling, nuclear refueling, waste removal, food supply, beverage supply, drone, robot, autonomous vehicle, aircraft, automotive, truck, train, lift, forklift, hauling facilities, conveyor, loading dock, waterway, bridge, tunnel, airport, depot, vehicle station, train station, weigh station, inspection, roadway, railway, highway, customs house, and border control facilities.

246. The system of claim 221, wherein the set of applications involves a set selected from the group consisting of supply chain, asset management, risk management, inventory management, demand management, demand prediction, demand aggregation, pricing, positioning, placement, promotion, blockchain, smart contract, infrastructure management, facility management, analytics, finance, trading, tax, regulatory, identity management, commerce, ecommerce, payments, security, safety, vendor management, process management, compatibility testing, compatibility management, infrastructure testing, incident management, predictive maintenance, logistics, monitoring, remote control, automation, self-configuration, self-healing, self-organization, logistics, reverse logistics, waste reduction, augmented reality, virtual reality, mixed reality, demand customer profiling, entity profiling, enterprise profiling, worker profiling, workforce profiling, component supply policy management, product design, product configuration, product updating, product maintenance, product support, product testing, warehousing, distribution, fulfillment, kit configuration, kit deployment, kit support, kit updating, kit maintenance, kit

modification, kit management, shipping fleet management, vehicle fleet management, workforce management, maritime fleet management, navigation, routing, shipping management, opportunity matching, search, advertisement, entity discovery, entity search, distribution, delivery, and enterprise resource planning applications.

247. A value chain system that provides container fleet management decisions comprising:

a machine learning system that trains a machine-learned model that outputs a container fleet management decision given a respective set of input features relating to a specific shipping event, wherein the machine learning system trains the machine-learned model based on training data sets that define features of previous shipping events and outcomes of the shipping events;

an artificial intelligence system that receives a request for container fleet management and determines a container fleet management decision based on the machine-learned model and the request; and

a digital twin system that generates an environment digital twin of an environment of a container fleet and one or more container digital twins of respective containers in the container fleet, wherein the digital twin system:

executes a container fleet simulation based on the environment digital twin and the one or more container digital twins,

issues a container fleet management request from the artificial intelligence system based on a state of the container fleet simulation; and

adjusts the state of the container fleet simulation based on the container fleet management decision output by the artificial intelligence system in response to the container fleet management request.

248. The value chain system of claim 247, wherein the digital twin system outputs a simulation outcome to the machine learning system, and the machine learning system reinforces the machine-learned model used to determine the container fleet management decision based on the simulation outcome.

249. The value chain system of claim 247, wherein the artificial intelligence system receives the container fleet management request from the digital twin system and determines the container fleet management decision based on simulation features defined in the container fleet management request, wherein the simulation features are indicative of the state of the container fleet simulation.

250. The value chain system of claim 247, wherein the request for container fleet management includes one or more properties of a simulated shipping event.

251. The value chain system of claim 250, wherein the artificial intelligence system determines the container fleet management decision based on the one or more properties of the simulated shipping event and the machine-learned model.

252. The value chain system of claim 250, wherein the one or more properties include a type of good being shipped.

253. The value chain system of claim 250, wherein the one or more properties include a source and a destination of a container.

254. The value chain system of claim 247, wherein the digital twin system provides outcome data to the machine learning system, wherein the outcome data defines a simulation outcome resulting from the container fleet management decision.

255. A value chain system that provides recommendations for designing a logistics system comprising:

a machine learning system that trains a machine-learned model that outputs a logistics design recommendation given a respective set of input features relating to a specific respective logistics system, wherein the machine learning system trains the machine-learned model based on training data sets that define features of logistics systems and outcomes of the logistics systems;

an artificial intelligence system that receives a request for logistics system design and determines a logistics system design recommendation based on the machine-learned model and the request; and

a digital twin system that generates an environment digital twin of a logistics environment that incorporates the logistics system design recommendation and one or more physical asset digital twins of physical assets, wherein the digital twin system:

executes a logistics simulation based on the logistics environment digital twin and the one or more physical asset digital twins,

issues a logistics system design request from the artificial intelligence system based on a state of the logistics simulation; and

adjusts the state of the logistics simulation based on the logistics system design recommendation output by the artificial intelligence system in response to the logistics system design request.

256. The value chain system of claim 255, wherein the digital twin system outputs a graphical representation of the environment digital twin to a display, whereby a user views the simulation via the display.

257. The value chain system of claim 255, wherein the digital twin system outputs a simulation outcome of the simulation to the machine learning system, and the machine learning system

reinforces the machine-learned model used to determine the logistics system design recommendation based on the simulation outcome.

258. The value chain system of claim 255, wherein the artificial intelligence system receives the request from a logistics design system that designs logistics systems, wherein the request includes one or more logistics factors corresponding to a proposed logistics solution of an organization.

259. The value chain system of claim 258, wherein the logistics factors include one or more of: a type of product corresponding to the proposed logistics solution, one or more features of the type of product, a location of a manufacturing site, a location of a distribution facility, a location of a warehouse, a location of a customer base, proposed expansion areas of the organization, and supply chain features.

260. The value chain system of claim 255, wherein the logistics design system provides outcome data relating to the logistics system design recommendation to the machine learning system, and the machine learning system reinforces the machine-learned model that are used to determine the logistics system design recommendation based on the outcome data.

261. The value chain system of claim 255, wherein the artificial intelligence system determines the logistics system design recommendation to minimize delay times.

262. The value chain system of claim 255, wherein the artificial intelligence system determines the logistics system design recommendation to comply with regulatory requirements.

263. A value chain system that designs packaging comprising:

a machine learning system that trains a machine-learned model that outputs a packaging design recommendation given a respective set of input features relating to a specific respective packaging design, wherein the machine learning system trains the machine-learned model based on training data sets that define features of packaging designs and outcomes of the packaging designs;

an artificial intelligence system that receives a request for packaging design and determines a packaging design recommendation based on the machine-learned model and the request; and

a digital twin system that generates a package digital twin of a package that incorporates the packaging design recommendation, wherein the digital twin system:

executes a packaging simulation based on the package digital twin;

issues a packaging design request from the artificial intelligence system based on a state of the logistics simulation; and

adjusts the state of the logistics simulation based on the packaging design recommendation output by the artificial intelligence system in response to the packaging design request.

264. The value chain system of claim 263, wherein the digital twin system outputs a graphical representation of the package digital twin to a display, whereby a user views the simulation via the display.

265. The value chain system of claim 263, wherein the digital twin system outputs a graphical representation of the package digital twin in a graphical user interface, whereby a user edits the packaging design via the graphical user interface.

266. The value chain system of claim 263, wherein the digital twin system outputs a simulation outcome of the simulation to the machine learning system, and the machine learning system reinforces the machine-learned model used to determine the packaging design recommendation based on the simulation outcome.

267. The value chain system of claim 263, wherein the artificial intelligence system receives the request from a packaging design system that designs packaging for physical objects, wherein the request includes one or more packaging factors corresponding to a proposed packaging design for the physical objects.

268. The value chain system of claim 267, wherein the packaging factors include one or more of: a type of the physical objects, dimensions of the physical objects, masses of the physical objects, and shipping methods of the physical objects.

269. The value chain system of claim 263, wherein the packaging design system provides outcome data relating to the packaging design recommendation to the machine learning system, and the machine learning system reinforces the machine-learned model that are used to determine the packaging design recommendation based on the outcome data.

270. The value chain system of claim 263, wherein the artificial intelligence system determines the packaging design recommendation to minimize damage.

271. The value chain system of claim 263, wherein the artificial intelligence system determines the packaging design recommendation to minimize costs.

272. The value chain system of claim 263, wherein the artificial intelligence system determines the packaging design recommendation to mitigate environmental impact.

273. An information technology system for leveraging digital twins in a value chain having a plurality of value chain entities, the information technology system comprising:

a plurality of sensors positioned at least one of in, on, and near a set of value chain entities of the value chain entities and configured to collect sensor data related to the set of value chain entities, the sensor data being substantially real-time sensor data; and

an adaptive intelligence system connected to the plurality of sensors and configured to receive the sensor data from the plurality of sensors, the adaptive intelligence system including:

an artificial intelligence system configured to input the sensor data into a machine learning model such that the sensor data is used as training data for the machine learning model, and the machine learning model is configured to transform the sensor data into simulation data; and

a digital twin system configured to create a digital replica of the set of value chain entities based on the simulation data, wherein the digital replica of the value chain entities is configured to be used to provide a substantially real-time representation of the value chain entities and provide a simulation of a possible future state of the value chain entities via the simulation data.

274. The information technology system of claim 273, wherein the machine learning model is configured to learn which types of sensor data are relevant to dynamics of each value chain entity of the value chain entities and simulation thereof.

275. The information technology system of claim 273, wherein the machine learning model is configured to make suggestions to a user of the information technology system via an interface regarding potential changes to the plurality of sensors that would improve simulation of the value chain entities via the digital twin system.

276. The information technology system of claim 273, wherein the machine learning model is configured to prioritize collection and transmission of sensor data that are relevant to dynamics of the value chain entities and simulation thereof.

277. A value chain network management platform, comprising:

a machine learning system that trains one or more machine-learned models to output one or more e-commerce recommendations to a value chain network customer via an interface using training data that includes product features and outcomes; and

an artificial intelligence system that receives a request for e-commerce from an e-commerce system, wherein the artificial intelligence is configured to determine and generate an e-commerce recommendation based on the one or more machine-learned models and the request, and the artificial intelligence is configured to leverage one or more product digital twins and one or more customer digital twins to execute a simulation based on the one or more customer digital twins, the one or more product digital twins, and the e-commerce recommendation.

278. The value chain network management platform of claim 277, wherein the machine learning system integrates with a model interpretability system, and wherein the model

interpretability system is configured to implement Testing with Concept Activation Vectors (TCAV) functionality, whereby the model interpretability facilitates learning of human-interpretable concepts by the machine-learned model.

279. The value chain network management platform of claim 277, wherein the one or more machine-learned models are at least one of trained and retrained using simulation data from one or more simulations involving one or more customer profile digital twins.

280. A value chain network management platform comprising:

a machine learning system that trains one or more machine-learned models to output one or more risk management decisions using training data that includes component features and outcomes; and

an artificial intelligence system that receives a request for risk management from a risk management system, wherein the artificial intelligence system is configured to determine and generate a risk management decision based on the one or more machine-learned models and the request, and the artificial intelligence system is configured to leverage one or more component digital twins and one or more environment digital twins to execute a simulation based on the one or more component digital twins, the one or more environment digital twins, and the risk management decision.

281. The value chain network management platform of claim 280, wherein the risk management decision relates to a condition of a component.

282. The value chain network management platform of claim 280, wherein the one or more machine-learned models are at least one of trained and retrained using simulation data from one or more simulations involving one or more components.

283. An information technology system comprising:

a value chain network management platform having an asset management application associated with maritime assets, wherein the platform comprises:

a data handling layer including data sources containing information used to populate a training set based on a set of maritime activities of one or more of the maritime assets and at least one of design outcomes, parameters, and data associated with the one or more of the maritime assets;

an artificial intelligence system that is configured to learn on the training set collected from the data sources, wherein the artificial intelligence system is configured to simulate one or more attributes of the one or more of the maritime assets, and the artificial intelligence system is configured to generate one or more sets of recommendations for a change in the one or more attributes based on the training set collected from the data sources;

a digital twin system that is configured to provide for visualization of a digital twin of the one or more of the maritime assets including detail generated by the artificial intelligence system of the one or more attributes in combination with the one or more generated sets of recommendations.

284. The system of claim 283, wherein the maritime assets include one or more container ships, and wherein the digital twin system further provides for visualization of the digital twin of the one or more container ships including the one or more attributes in combination with one or more of the sets of recommendations associated with the container ships.

285. The system of claim 283, wherein the maritime assets include one or more barges, and wherein the digital twin system further provides for visualization of the digital twin of one or more of the barges including the one or more attributes in combination with one or more of the sets of recommendations associated with the barges.

286. The system of claim 283, wherein the maritime assets include one or more components of a port infrastructure installed on or adjacent to land, and wherein the digital twin system further provides for visualization of the digital twin of one or more of the components of port infrastructure including the one or more attributes in combination with one or more of the sets of recommendations associated with the components of port infrastructure.

287. The system of claim 286, wherein the maritime assets also include a container ship moored to a component of the port infrastructure.

288. The system of claim 283, wherein the maritime assets include one or more moored navigation units deployed on water.

289. The system of claim 283, wherein the maritime assets include one or more ships each connected to a barge.

290. The system of claim 283, wherein the maritime assets are associated with a real-world maritime port, and wherein the digital twin system further provides for visualization of the digital twin of one or more of the components of the real-world maritime port including the one or more attributes in combination with one or more of the sets of recommendations associated with the components of the real-world maritime port.

291. The system of claim 283, wherein the maritime assets are associated with a real-world shipyard, and wherein the digital twin system further provides for visualization of the digital twin of one or more of the components of the real-world shipyard including the one or more attributes in combination with one or more of the sets of recommendations associated with the components of the real-world shipyard.

292. The system of claim 283, wherein the digital twin of one or more of the maritime assets is a floating asset twin associated with a ship.

293. The system of claim 292, wherein the floating asset twin is configured to provide for visualization of a navigation course of the ship relative to a planned course of the ship and one or more of the sets of recommendations from the artificial intelligence system for a change in the navigation course of the ship.

294. The system of claim 292, wherein the floating asset twin is configured to provide for visualization of an engine performance of the ship and one or more of the sets of recommendations from the artificial intelligence system for a change in the engine performance of the ship.

295. The system of claim 294, wherein the visualization of the engine performance includes an emissions profile of the ship.

296. The system of claim 292, wherein the floating asset twin is configured to provide for visualization of a hull integrity of the ship and one or more of the sets of recommendations from the artificial intelligence system for a change in maintenance of the hull of the ship.

297. The system of claim 292, wherein the floating asset twin is configured to provide for visualization of in-situ hydrodynamic changes to a portion of a hull disposed below a water line of the ship and one or more of the sets of recommendations from the artificial intelligence system for a change in a hydrodynamic surface to change performance of the ship.

298. The system of claim 297, wherein the floating asset twin is configured to determine a schedule for the change to the hydrodynamic surface of the hull disposed below the waterline of the ship to improve fuel efficiency based on known routes of travel and weather patterns.

299. The system of claim 292, wherein the floating asset twin is configured to provide visualizations of in-situ aerodynamic changes to a portion of a hull disposed above a water line of the ship and one or more of the sets of recommendations from the artificial intelligence system for a change in an aerodynamic surface to change performance of the ship.

300. The system of claim 299, wherein the floating asset twin is configured to determine a schedule for the change to the aerodynamic surface disposed above the waterline of the ship to improve fuel efficiency using known routes of travel and historical weather patterns.

301. The system of claim 292, wherein the floating asset twin is configured to provide visualizations of extendable buoyant members from a hull of the ship to improve stability during certain maneuvers of the ship and one or more of the sets of recommendations from the artificial intelligence system for a change in the extendable buoyant members to change performance of the ship.

302. The system of claim 292, wherein the floating asset twin is configured to provide visualizations of a plurality of inspection points on the ship and maintenance histories associated with those inspection points.

303. The system of claim 302, wherein the floating asset twin is further configured to provide one or more of the sets of recommendations from the artificial intelligence system for a change in maintenance of the plurality of inspection points.

304. The system of claim 302, wherein the floating asset twin is further configured to provide for visualizations of the plurality of inspection points on the ship affected by travel within a geofenced area and maintenance histories associated with those inspection points.

305. The system of claim 302, wherein the floating asset twin is further configured to provide details of a ledger of activity associated with the visualization of the plurality of inspection points on the ship affected by travel within a geofenced area and maintenance histories associated with those inspection points.

306. The system of claim 292, wherein the floating asset twin is configured to provide for visualization for a first user of one of a navigation course of the ship and an engine performance of the ship within a first geofenced area and for visualization for a second user of one of the navigation course of the ship and the engine performance of the ship within a second different geofenced area and where transit between the first and second geofenced areas motivates a handoff of the floating asset twin of the ship between the first user and the second user.

307. The system of claim 283, wherein the digital twin is configured to at least partially represent one or more of the maritime assets associated with an event investigation and to at least partially detail a timeline of the event investigation and the associated maritime assets.

308. The system of claim 307, wherein the digital twin is further configured to provide one or more of the sets of recommendations from the artificial intelligence system for a change of one of the attributes of the associated maritime assets based on the event investigation and the timeline.

309. The system of claim 283, wherein the digital twin is configured to at least partially represent one or more of the maritime assets associated with a legal proceeding and to at least partially detail at least a portion of a timeline pertinent to the legal proceeding and the associated maritime assets.

310. The system of claim 309, wherein the digital twin is further configured to provide one or more of the sets of recommendations from the artificial intelligence system for a change of

one of the attributes of the associated maritime assets based on the legal proceeding and the timeline.

311. The system of claim 283, wherein the digital twin is configured to at least partially represent one or more of the maritime assets associated with at least one of a casualty forecast and a casualty report, and to at least partially detail at least a portion of a timeline pertinent to the at least one of the casualty forecast, the casualty report, and the associated maritime assets.

312. The system of claim 311, wherein the digital twin is further configured to provide one or more of the sets of recommendations from the artificial intelligence system for a change of one of the attributes of the associated maritime assets to reduce exposure relative to a set of previous casualty forecasts based on at least one of the casualty forecast and the casualty report, and the timeline.

313. The system of claim 283, wherein the maritime assets include a port infrastructure facility, wherein the data collected by a value chain network management platform facilitates identifying theft at or misuse of the port infrastructure facility by correlating data between a set of data collectors for one or more physical items in the port infrastructure facility and the digital twin detailing the one or more physical items of the port infrastructure facility for the at least one of the port infrastructure facility and a set of operators.

314. The system of claim 313, wherein the digital twin details the one or more physical items of the port infrastructure facility for at least one operator that includes a view of expected states of at least a portion of the one or more physical items.

315. The system of claim 283, wherein the maritime assets include a shipyard, wherein the data collected by a value chain network management platform facilitates identifying theft at or misuse of one or more physical items in the shipyard by correlating data between a set of data collectors for the one or more physical items and the digital twin detailing the one or more physical items of the shipyard for the at least one of the shipyard and a set of operators.

316. The system of claim 315, wherein the digital twin details the one or more physical items of the shipyard for at least one operator that includes a view of expected states of at least a portion of the one or more physical items.

317. The system of claim 283, wherein the artificial intelligence system determines a set of geofence parameters, and wherein the digital twin provides further visualization of at least one geofence that integrates representation of a set of the maritime assets with a representation of a maritime environment adjacent to the geofence.

318. The system of claim 317, wherein the digital twin is further configured to provide one or more of the sets of recommendations from the artificial intelligence system for a change of one of the attributes of the set of maritime assets based on the visualization of the at least one geofence.

319. The system of claim 283, wherein the maritime assets are ships capable of carrying cargo, wherein the artificial intelligence system determines a set of geofence parameters, and wherein the digital twin provides further visualization of at least one geofence that integrates representation of the ships capable of carrying cargo with a representation of a maritime environment.

320. The system of claim 319, wherein the digital twin is further configured to provide one or more of the sets of recommendations from the artificial intelligence system for a change of one of the attributes of the ships capable of carrying cargo based on the visualization of the at least one geofence.

321. An information technology system having a management platform comprising:

a user interface that provides a set of adaptive intelligence systems that provide coordinated artificial intelligence for a set of demand management applications and a set of supply chain applications for a category of goods by determining relationships among demand management and supply chain applications based on inputs used by the applications and results produced by the applications; and

a set of artificial intelligence systems as part of the set of adaptive intelligence systems that provide coordinated intelligence for the set of demand management applications and the set of supply chain applications for the category of goods by determining a temporal prioritization of demand management application outputs that impact control of supply chain applications so as to meet a temporal demand for at least one of the goods in the category of goods.

322. The system of claim 321, wherein the adaptive intelligence system facilitates coordinated artificial intelligence for the set of demand management applications or the set of supply chain applications, or both for a category of goods by processing data that is available in any of a plurality of data sources including processes, bill of materials, weather, traffic, design specification, customer complaint logs, customer reviews, Enterprise Resource Planning (ERP) System, Customer Relationship Management (CRM) System, Customer Experience Management (CEM) System, Service Lifecycle Management (SLM) System, Product Lifecycle Management (PLM) System.

323. The system of claim 322, wherein the set of adaptive intelligence systems provide user access to coordinated artificial intelligence capabilities for use with the sets of applications.

324. The system of claim 322, wherein the user interface presents a set of coordinated artificial intelligence capabilities responsive to the category of goods.

325. The system of claim 322, wherein the user interface facilitates configuring the set of adaptive intelligence systems with at least one artificial intelligence system.

326. The system of claim 322, wherein the at least one artificial intelligence system is a hybrid artificial intelligence system.

327. The system of claim 322, wherein the at least one artificial intelligence system comprises a hybrid neural network.

328. The system of claim 322, wherein the set of adaptive intelligence systems that provide coordinated artificial intelligence operates on or responsive to data collected by or produced by other systems of an adaptive intelligence systems layer.

329. The system of claim 322, wherein the set of adaptive intelligence systems that provide coordinated artificial intelligence provides coordinated intelligence for a specific operator and/or enterprise that participates in the supply chain for the category of goods.

330. The system of claim 322, wherein the set of adaptive intelligence systems that provide coordinated artificial intelligence employs a neural network that processes at least one of demand management application outputs and supply chain application outputs to provide the coordinated intelligence.

331. The system of claim 322, wherein the set of adaptive intelligence systems that provide coordinated artificial intelligence is configured through the user interface for at least two demand management applications selected from the list consisting of a demand planning application, a demand prediction application, a sales application, a future demand aggregation application, a marketing application, an advertising application, an e-commerce application, a marketing analytics application, a customer relationship management application, a search engine optimization application, a sales management application, an advertising network application, a behavioral tracking application, a marketing analytics application, a location-based product or service-targeting application, a collaborative filtering application, a recommendation engine for a product or service

332. The system of claim 322, wherein the set of adaptive intelligence systems that provide coordinated artificial intelligence is configured through the user interface for at least two supply chain applications selected from the list consisting of a goods timing management application, a goods quantity management application, a logistics management application, a shipping application, a delivery application, an order for goods management application, and an order for components management application.

333. The system of claim 321, wherein the set of adaptive intelligence systems provides a set of capabilities that facilitate development and deployment of intelligence for at least one function selected from a list of functions consisting of supply chain application automation, demand management application automation, machine learning, artificial intelligence, intelligent transactions, intelligent operations, remote control, analytics, monitoring, reporting, state management, event management, and process management.

334. The system of claim 321, wherein an artificial intelligence system of the adaptive intelligence systems layer operates on or responsive to data collected by or produced by other systems of the adaptive intelligence systems layer.

335. The system of claim 321, wherein a set of artificial intelligence systems may provide coordinated intelligence for a specific operator and/or enterprise that participates in the supply chain for the category of goods.

336. The system of claim 321, wherein the coordinated intelligence includes a portion of a set of artificial intelligence systems that employs a neural network that processes at least one of demand management application outputs and supply chain application outputs to provide the coordinated intelligence.

337. The system of claim 321, wherein the demand management applications include at least two of a demand planning application, a demand prediction application, a sales application, a future demand aggregation application, a marketing application, an advertising application, an e-commerce application, a marketing analytics application, a customer relationship management application, a search engine optimization application, a sales management application, an advertising network application, a behavioral tracking application, a marketing analytics application, a location-based product or service-targeting application, a collaborative filtering application, a recommendation engine for a product or service.

338. The system of claim 321, wherein the supply chain applications include at least two of a goods timing management application, a goods quantity management application, a logistics management application, a shipping application, a delivery application, an order for goods management application, and an order for components management application.

339. The system of claim 321, wherein an artificial intelligence system facilitates coordinated intelligence for the sets of applications by processing data that is available in any of a plurality of data sources including processes, bill of materials, weather, traffic, design specification, customer complaint logs, customer reviews, Enterprise Resource Planning (ERP) System, Customer Relationship Management (CRM) System, Customer Experience

Management (CEM) System, Service Lifecycle Management (SLM) System, Product Lifecycle Management (PLM) System.

340. The system of claim 321, wherein the set of adaptive intelligence systems are configured in a topology that facilitates shared adaptation capabilities among at least two adaptive intelligence systems in the set of adaptive intelligence systems.

341. The system of claim 321, wherein the set of adaptive intelligence systems employ artificial intelligence to provision available network resources for both the set of demand management applications and for the set of supply chain applications.

342. The system of claim 321, wherein the set of demand management applications comprises a demand planning application.

343. The system of claim 321, wherein the set of adaptive intelligence systems employ artificial intelligence to improve at least one of the list of outputs consisting of a process output, an application output, a process outcome and an application outcome.

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

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

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

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

345. The method of claim 344, wherein the organizational definition further identifies a set of physical assets of the enterprise.

346. The method of claim 344, wherein determining the set of relationships includes parsing the organizational definition to identify a reporting structure and one or more business units of the enterprise.

347. The method of claim 346, wherein the set of relationships are inferred from the reporting structure and the business units.

348. The method of claim 344, 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.

349. The method of claim 344, wherein the role-based digital twin integrates with an enterprise resource planning system that operates on the organizational digital twin that represents the set of roles in the enterprise, such that changes in the enterprise resource planning system are automatically reflected in the organizational digital twin.

350. The method of claim 344, wherein the organizational structure includes hierarchical components.

351. The method of claim 350, wherein the hierarchical components are embodied in a graph data structure.

352. The method of claim 344, wherein the set of settings for the set of roles includes role-based permission settings.

353. The method of claim 352, wherein the role-based permission settings are based on hierarchical components defined in the organizational definition.

354. The method of claim 344, wherein the set of settings for the set of roles includes role-based preference settings.

355. The method of claim 354, wherein the role-based preference settings are configured based on a set of role-specific templates.

356. The method of claim 355, wherein the set of role-specific templates includes at least one of a CEO template, a COO template, a CFO template, a counsel template, a board member template, a CTO template, a chief marketing officer template, an information technology manager template, a chief information officer template, a chief data officer template, an investor template, a customer template, a vendor template, a supplier template, an engineering manager template, a project manager template, an operations manager template, a sales manager template, a salesperson template, a service manager template, a maintenance operator template, and a business development template.

357. The method of claim 344, wherein the set of settings for the set of roles includes role-based taxonomy settings.

358. The method of claim 357, 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.

359. The method of claim 358, wherein the set of taxonomies includes at least one of a CEO taxonomy, a COO taxonomy, a CFO taxonomy, a counsel taxonomy, a board member taxonomy, a CTO taxonomy, a chief marketing officer taxonomy, an information technology manager taxonomy, a chief information officer taxonomy, a chief data officer taxonomy, an investor taxonomy, a customer taxonomy, a vendor taxonomy, a supplier taxonomy, an engineering manager taxonomy, a project manager taxonomy, an operations manager taxonomy, a sales manager taxonomy, a salesperson taxonomy, a service manager taxonomy, a maintenance operator taxonomy, and a business development taxonomy.

360. The method of claim 344, wherein at least one role of the set of roles is selected from among a CEO role, a COO role, a CFO role, a counsel role, a board member role, a CTO role, an information technology manager role, a chief information officer role, a chief data officer role, a human resources manager role, an investor role, an engineering manager role, an accountant role, an auditor role, a resource planning role, a public relations manager role, a project manager role, an operations manager role, a research and development role, an engineer role, including but not limited to mechanical engineer, electrical engineer, semiconductor engineer, chemical engineer, computer science engineer, data science engineer, network engineer, or some other type of engineer, and a business development role.

361. The method of claim 344, wherein the at least one role is selected from among a factory manager role, a factory operations role, a factory worker role, a power plant manager role, a power plant operations role, a power plant worker role, an equipment service role, and an equipment maintenance operator role.

362. The method of claim 344, wherein the at least one role is selected from among a market maker role, a market analyst role, an exchange manager role, a broker-dealer role, a trading role, a reconciliation role, a contract counterparty role, an exchange rate setting role, a market orchestration role, a market configuration role, and a contract configuration role.

363. The method of claim 344, wherein the at least one role is selected from among a chief marketing officer role, a product development role, a supply chain manager role, a product design role, a marketing analyst role, a product manager role, a competitive analyst role, a customer service representative role, a procurement operator, an inbound logistics operator, an outbound logistics operator, a customer role, a supplier role, a vendor role, a demand

management role, a marketing manager role, a sales manager role, a service manager role, a demand forecasting role, a retail manager role, a warehouse manager role, a salesperson role, and a distribution center manager role.

364. A method for training an expert agent, comprising:

receiving digital twin data from a set of data sources, the digital twin data including:

sensor data that is received from a set of sensors that monitor a set of monitored physical entities associated with the enterprise, the sensor data transported by a set of network entities; and

enterprise data streams generated by a set of enterprise assets, wherein the enterprise assets include at least one of physical entities associated with the enterprise and digital entities associated with the enterprise;

structuring the digital twin data into a set of digital twin data structures that are configured to serve a plurality of different role-based digital twins;

receiving a request for a role-based digital twin from a client application, wherein the role-based digital twin is configured with respect to a defined role within the enterprise;

determining a subset of the structured digital twin data to corresponds to a set of states that are depicted in the role-based digital twin;

providing the subset of the structured digital twin data to the client application;

receiving expert agent training data sets from the client application, each expert agent training data set indicating a respective action taken by a user using the client application and one or more features that correspond to the respective action; and

training an expert agent on behalf of the user based on the expert agent training data sets, wherein the expert agent is configured to determine actions to be performed on behalf of the user, wherein the determined actions are either recommended to the user or automatically performed on behalf of the user.

365. The method of claim 364, wherein the defined role is selected from among a factory manager role, a factory operations role, a factory worker role, a power plant manager role, a power plant operations role, a power plant worker role, an equipment service role, and an equipment maintenance operator role.

366. The method of claim 364, wherein the defined role is selected from among a market maker role, an exchange manager role, a broker-dealer role, a trading role, a reconciliation role, a contract counterparty role, an exchange rate setting role, a market orchestration role, a market configuration role, and a contract configuration role.

367. The method of claim 364, wherein the defined role is selected from among a chief marketing officer role, a product development role, a supply chain manager role, a customer

role, a supplier role, a vendor role, a demand management role, a marketing manager role, a sales manager role, a service manager role, a demand forecasting role, a retail manager role, a warehouse manager role, a salesperson role, and a distribution center manager role.

368. The method of claim 364, wherein the expert agent training data includes interactions training data that indicates a set of interactions with a set of experts by the user during performance of the role.

369. The method claim 368, wherein the set of interactions used to train the expert agent includes interactions of the user with the physical entities.

370. The method of claim 368, wherein the set of interactions used to train the expert agent includes interactions of the user with the role-based digital twin.

371. The method of claim 368, wherein the set of interactions used to train the expert agent includes interactions of the user with the sensor data as depicted in the role-based digital twin.

372. The method of claim 368, wherein the set of interactions used to train the artificial intelligence system includes interactions of the experts with the data streams generated by the physical entities.

373. The method of claim 368, wherein the set of interactions used to train the expert agent system includes interactions of the experts with one or more computational entities.

374. The method of claim 368, wherein the set of interactions used to train the expert agent includes interactions of the user with one or more network entities.

375. The method of claim 364, wherein the expert agent is trained to determine an action selected from the group comprising: selection of a tool, selection of a task, selection of a dimension, setting of a parameter, selection of an object, selection of a workflow, triggering of a workflow, ordering of a process, ordering of a workflow, cessation of a workflow, selection of a data set, selection of a design choice, creation of a set of design choices, identification of a failure mode, identification of a fault, identification of an operating mode, identification of a problem, selection of a human resource, selection of a workforce resource, providing an instruction to a human resource, and providing an instruction to a workforce resource.

376. The method of claim 364, wherein the executive is trained on a training set of outcomes resulting from the actions taken by the executive.

377. The method of claim 376, wherein the training set of outcomes includes data relating to at least one of a financial outcome, an operational outcome, a fault outcome, a success outcome, a performance indicator outcome, an output outcome, a consumption outcome,

an energy utilization outcome, a resource utilization outcome, a cost outcome, a profit outcome, a revenue outcome, a sales outcome, and a production outcome.

378. The method of claim 364, wherein the expert agent is trained to perform an action selected from among determining an architecture for a system, reporting on a status, reporting on an event, reporting on a context, reporting on a condition, determining a model, configuring a model, populating a model, designing a system, designing a process, designing an apparatus, engineering a system, engineering a device, engineering a process, engineering a product, maintaining a system, maintaining a device, maintaining a process, maintaining a network, maintaining a computational resource, maintaining equipment, maintaining hardware, repairing a system, repairing a device, repairing a process, repairing a network, repairing a computational resource, repairing equipment, repairing hardware, assembling a system, assembling a device, assembling a process, assembling a network, assembling a computational resource, assembling equipment, assembling hardware, setting a price, physically securing a system, physically securing a device, physically securing a process, physically securing a network, physically securing a computational resource, physically securing equipment, physically securing hardware, cyber-securing a system, cyber-securing a device, cyber-securing a process, cyber-securing a network, cyber-securing a computational resource, cyber-securing equipment, cyber-securing hardware, detecting a threat, detecting a fault, tuning a system, tuning a device, tuning a process, tuning a network, tuning a computational resource, tuning equipment, tuning hardware, optimizing a system, optimizing a device, optimizing a process, optimizing a network, optimizing a computational resource, optimizing equipment, optimizing hardware, monitoring a system, monitoring a device, monitoring a process, monitoring a network, monitoring a computational resource, monitoring equipment, monitoring hardware, configuring a system, configuring a device, configuring a process, configuring a network, configuring a computational resource, configuring equipment, and configuring hardware.

379. The method of claim 364, wherein the expert agent is at least one of trained and configured via feedback from at least one expert in the defined role regarding a set of outputs of the expert agent.

380. The method of claim 379, wherein the set of outputs of the expert agent upon which the expert provides feedback includes at least one of a recommendation, a classification, a prediction, a control instruction, an input selection, a protocol selection, a communication, an alert, a target selection for a communication, a data storage selection, a computational selection, a configuration, an event detection, and a forecast.

381. The method of claim 380, wherein the feedback of the at least one expert is solicited to train the expert agent to replicate the expertise of the expert in the role.

382. The method of claim 380, wherein the feedback of the at least one expert is used to modify a set of inputs to the expert agent.

383. The method of claim 380, wherein herein the feedback of the at least one expert is used to identify and characterize at least one error by the expert agent.

384. The method of claim 383, wherein a report on a set of errors is provided to a user of the expert agent to enable reconfiguring of the expert agent based on the feedback from the expert.

385. The method of claim 384, wherein reconfiguring the artificial intelligence system includes at least one of removing an input that is the source of the error, reconfiguring a set of nodes of the artificial intelligence system, reconfiguring a set of weights of the artificial intelligence system, reconfiguring a set of outputs of the artificial intelligence system, reconfiguring a processing flow within the artificial intelligence system, and augmenting the set of inputs to the artificial intelligence system.

386. The method of claim 364, wherein the expert agent is trained learn upon a training set of outcomes and to provide at least one of training and guidance to an individual who is responsible for performing the defined role.

387. The method of claim 386, wherein the training set of outcomes includes data relating to at least one of a financial outcome, an operational outcome, a fault outcome, a success outcome, a performance indicator outcome, an output outcome, a consumption outcome, an energy utilization outcome, a resource utilization outcome, a cost outcome, a profit outcome, a revenue outcome, a sales outcome, and a production outcome.

388. The method of claim 364, wherein the defined role is selected from among a CEO role, a COO role, a CFO role, a counsel role, a board member role, a CTO role, an information technology manager role, a chief information officer role, a chief data officer role, an investor role, an engineering manager role, a project manager role, an operations manager role, and a business development role.

389. A method for serving digital twins comprising:

receiving, by a processing system of a digital twin system, a request for a digital twin from a user device of a user associated with an enterprise, the enterprise deploying a sensor system to monitor one or more facilities of the enterprise;

determining, by the processing system, a workforce role of the user with respect to the enterprise;

generating, by the processing system, a role-based digital twin corresponding to the workforce role of the user based on a perspective view corresponding to the workforce role of the user, wherein the role-based digital twin depicts one or more states and/or entities that are related to the enterprise; and

providing, by the processing system, the role-based digital twin to the user device, wherein providing the role-based digital twin:

identifying, by the processing system, a set of data types that are used to populate the at least one of the states and/or entities of the role-based digital twin, wherein the set of data types include one or more sensor data feeds that are received from the sensor system deployed by the enterprise; and

connecting, by the processing system, the one or more sensor data streams to the role-based digital twin.

390. The method of claim 389, wherein generating the role-based digital twin includes determining the perspective view corresponding to the workforce role of the user based on the workforce role of the user and a set of data types that are relevant to the workforce role of the user.

391. The method of claim 390, wherein determining the perspective view corresponding to the workforce role of the user includes determining an appropriate granularity level for each data type of the set of data types.

392. The method of claim 391, wherein the appropriate granularity level for at least one of the data types is defined in a default configuration corresponding to the workforce role.

393. The method of claim 391, wherein the appropriate granularity level for at least one of the data types is determined based on previous interactions of the user with the role-based digital twin.

394. The method of claim 389, wherein the sensor system includes an edge device that receives sensor data from a set of sensors within the sensor system and generates the sensor data stream that is provided to the digital twin system via a network.

395. The method of claim 394, wherein the edge device receives sensor data from the set of sensors and selectively compresses the sensor data based on values indicated in the sensor data to obtain the sensor data stream.

396. The method of claim 394, wherein connecting the one or more sensor streams includes:

receiving the sensor data stream from the edge device; and

routing the sensor data stream to the user device that is presenting the role-based digital twin to the user.

397. The method of claim 394, wherein connecting the one or more sensor streams includes:

receiving the sensor data stream from the edge device; and

analyzing the sensor data stream to identify one or more fault conditions corresponding to an object being monitored by the sensor system; and

routing an indicator of the fault condition to the user device that is presenting the role-based digital twin to the user.

398. The method of claim 394, wherein connecting the one or more sensor streams includes:

receiving the sensor data stream from the edge device;

analyzing the sensor data stream to identify a recommendation corresponding to the workforce role of the user; and

routing an indicator of the recommendation to the user device that is presenting the role-based digital twin to the user.

399. The method of claim 394, wherein connecting the one or more sensor streams includes:

receiving the sensor data stream from the edge device;

analyzing the sensor data stream to identify a recommendation corresponding to the workforce role of the user; and

routing an indicator of the recommendation to the user device that is presenting the role-based digital twin to the user.

400. The method of claim 389, wherein the workforce is a factory operations workforce.

401. The method of claim 389, wherein the workforce is a plant operations workforce.

402. The method of claim 389, wherein the workforce is a resource extraction operations workforce.

403. The method of claim 389, wherein the workforce is a network operations workforce responsible for operating a network for an industrial production environment.

404. The method of claim 389, wherein the workforce is a supply chain management workforce.

405. The method of claim 389, wherein the workforce is a demand planning workforce.

406. The method of claim 389, wherein the workforce is a logistics planning workforce.

407. The method of claim 389, wherein the workforce is a vendor management workforce.

408. The method of claim 389, wherein at least one workforce role is selected from among a CEO role, a COO role, a CFO role, a counsel role, a board member role, a CTO role, an information technology manager role, a chief information officer role, a chief data officer role, an investor role, an engineering manager role, a project manager role, an operations manager role, and a business development role.

409. The method of claim 389, wherein at least one workforce role is selected from among a factory manager role, a factory operations role, a factory worker role, a power plant

manager role, a power plant operations role, a power plant worker role, an equipment service role, and an equipment maintenance operator role.

410. The method of claim 389, wherein at least one workforce role is selected from among a market maker role, an exchange manager role, a broker-dealer role, a trading role, a reconciliation role, a contract counterparty role, an exchange rate setting role, a market orchestration role, a market configuration role, and a contract configuration role.

411. The method of claim 389, wherein at least one workforce role is selected from among a chief marketing officer role, a product development role, a supply chain manager role, a customer role, a supplier role, a vendor role, a demand management role, a marketing manager role, a sales manager role, a service manager role, a demand forecasting role, a retail manager role, a warehouse manager role, a salesperson role, and a distribution center manager role.

412. A method for providing a digital twin of a workforce, comprising:

maintaining an information technology architecture that supports a set of enterprise digital twins of a set of physical and digital entities of an enterprise, the architecture including:

a set of sensors that provide sensor data about the set of physical entities;

a set of data streams generated by at least a subset of the set of physical and digital entities;

a set of computational entities that process data and a set of network entities that transport data that is derived from the set of sensors and the set of data streams;

a set of data processing systems for extracting, transforming and loading the data that is transported by the network entities into a set of resources that are sources for the digital twin;

representing an enterprise organizational structure in an organizational digital twin of an enterprise;

parsing the structure to infer relationships among a set of roles within the organizational structure, wherein the relationships and the roles define a workforce of the enterprise;

determining a set of parameters with which the digital twin is configured based on the inferred set of relationships; and

configuring the presentation layer of a digital twin based on the set of parameters.