

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
02 May 2024 (02.05.2024)



(10) International Publication Number
WO 2024/091687 A3

(51) International Patent Classification:

G06Q 10/087 (2023.01) *G06Q 10/08* (2024.01)
G06Q 10/06 (2023.01) *G06Q 50/28* (2012.01)

(21) International Application Number:

PCT/US2023/036158

(22) International Filing Date:

27 October 2023 (27.10.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/381,545 28 October 2022 (28.10.2022) US

(71) Applicant: **STRONG FORCE VCN PORTFOLIO 2019, LLC** [US/US]; 501 East Las Olas Blvd, Fort Lauderdale, Florida 33301 (US).

(72) Inventors: **CELLA, Charles H.**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **CARD-NO, Andrew**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **PARENTI, Jenna**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **LOCKE, Andrew S.**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **KELL, Brad**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **EL-TAHRY, Teymour S.**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **FORTIN JR., Leon**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **BUNIN, Andrew**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **SHARMA, Kunal**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **CHARON, Taylor**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **MALCHEV, Hristo**; 501 East Las Olas Blvd Suite 200, Fort Lauderdale, Florida 33301 (US). **VETTER, Eric P.**; 501 East Las Olas Blvd

(54) Title: SYSTEMS, METHODS, KITS, AND APPARATUSES FOR MANAGING VALUE CHAIN NETWORKS IN SYSTEM OF SYSTEMS

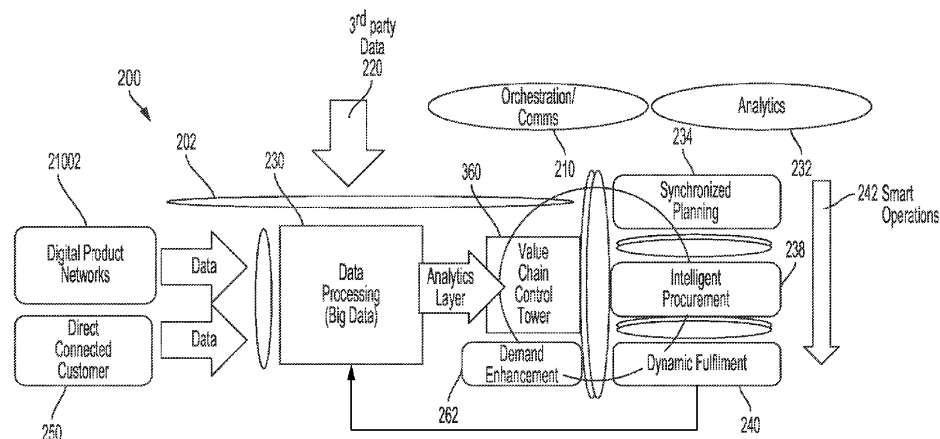


FIG. 2

(57) Abstract: Methods and systems described herein may provide control towers and/or mini control towers and/or digital twins to manage a value chain network (VCN). Information associated with a set of value chain network entities of a VCN may be received from a variety of sources. That information may be provided to a set of Artificial Intelligence (AI)-based learning models. The AI-based learning models may use that information along with the control towers and/or mini control towers and/or digital twins to determine a potential risk in the VCN, to determine a potential action to take in the VCN, to configure intelligent procurement in the VCN, to configure predictive sourcing in the VCN, to automate VCN entities, to instruct smart machines in the VCN, and to configure robotic process automation in the VCN.

[Continued on next page]

Suite 200, Fort Lauderdale, Florida 33301 (US). **GOOD-MAN, Benjamin D.**; . (US). **STEIN, David**.

(74) **Agent: NYE, Michael** et al.; 45 Ottawa Ave SW, Suite 1100, Grand Rapids, Michigan 49503 (US).

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) **Date of publication of the international search report:**
06 June 2024 (06.06.2024)