**APPENDIX F: BRIEF DESCRIPTION OF THE GRAPHICS**

**Figure 1: All things internet, net of $ formed by 1) epoch time intervals 2) syntax**

Silicon quartz crystal based computer chips oscillate, vibrate when stimulated by an electric current. The trough and crest wave pattern after being represented by sawtooth cube, square, boxes eminating, propagating along a line is used to describe time epochs or time cycles that are used or not used to process, parse syntax as if, then, else instructions or used in math calculations such as cryptographic math proofs. There are no internet “layers”, “packets”, “frames”, “pings”, “satoshi’s”, blockchain blocks…

**Figure 2: Adaptive Procedural Template Checklist derived from Battlefield Digitization, Network Centric Warfare, Network Enabled Operations NEO**

An adaptive procedural template is a checklist where items on the checklist may be added or removed and replaced by items considered to be more useful or superior. Most of the items are intrinsic to DARPA, DOD system of systems engineering internet development supporting data digitial dashboard operations in use over decades. An improvement to an invention may be itself considered to be an invention such as the firefly inspired heartbeat algorithm with it’s instrinsic heartbeat message event bus. If a superior algorithm is found then this algorithm replaces the old algorithm and so on

**Figure 3: USPTO 13/573,002 Syntax Lexicon Library of Templates / Message Sets**

Blockchain developers use alpha-numeric brevity OPSCODES to describe commodities or fungible goods or items that represent fungible stores of value. Military NATO bases are small cities that transact a range of goods, commodities, fungible items that are described by computer codes – OPSCODES that are matched with systemically, procedurally generated symbols and 2525 A, B, C, D standard series symbol sets essential to man – machine – computer Artificial Intelligence A.I. This disciplined effort took decades and thousands of man hours to develop and refine. Why reinvent this syntax lexicon library wheel with every new cryptocurrency blockchain startup ?

**Figure 4: Beacon Communities supported by OOTW systems framework**

USPTO 13/573,002's foundation is Battlefield Digitization / Network Centric Warfare's signaling, telemetry support framework where the improvement is OOTW Operations Other Than War involves establishing a foundation framework for internet, net of programmable money, description, metrics, meters, econometrics for DAO Distributed Autonomous Organizations / trade federations participating in a new eco sustainable programmable economy model with UTZ Universal Time Zone temporal synchronization, stochastic harmonization supported by NIST’s QRNB Quantum Random Number Beacon for non-repudiation of events at any place, time in the future.

**Figure 5: Adaptive Procedural Template checklist**

Adaptive Procedural Template = checklist of useful tools, procedures…

Use adaptive, procedural templates to aid individuals join trade federations. Affiliated organizations are geo-spatially, temporally located in distributed, dispersed locations across time – space. Member organizations may join or leave in an adhoc, agile manner to take advantage or react to events, situations while retaining autonomy or the ability to act on one’s own behalf, control one’s own activities, The process involves agile, adhoc joins, merges, drops to / from federation in lieu of formal merger, and acquisition

**FIGURE 9: Adaptive Procedural Template Checklist / USPTO 13/573,002**

**FIGURE 7 SCOTUS ALICE CORP VS CLS BANK 2014 ruling compliant meme**

SCOTUS ALICE CORP VS CLS BANK compliance with the Supreme Court's Alice Corp Vs CLS Bank 2014 ruling "claims may not direct towards abstract ideas". All internet Web 3.0 and programmable money efforts are incorrect and are moving away from interoperability as each internet, internet of money theme variation propagates non-existent memes, metaphors each using their own terms, vernacular, syntax.

**Figure 8: Beacon Communities / One World Government mediation / mitigation**

THREE OPTIONS: one world government’s one world currency:

1. IMF's International Monetary Fund SDR Special Drawing Rights stable coin basket
2. NESERA / GESERA's QFS Quantum Financial System ground station in Las Vegas
3. Department of Commerce - Treasury – NIST QRNB Quantum Random Number Beacon located in Boulder Colorado (Stephen King's Book The Stand's Free Zone)
4. NIST’s QRNB intent is to be interoperable with other QRNB’s, therefore, this Max Planck Institute / Announcement is germane to a discussion of a one world government / one world economic system of systems: distributed quantum computers – will need (UTZ Universal Time Zone) stochastic harmonization. "Our work provides a pathway towards extreme mechanical nonlinearities, and towards quantum devices that use mechanical resonators as qubits" <https://www.nature.com/articles/s41534-021-00393-3>

**FIGURE 10: USPTO 13/573,002 Main Graphic**

SUMMARY: The Heart Beacon Cycle Time  - Space Meter USPTO 13/573,002 is an adaptive procedural template / checklist of ideas, methods, processes, procedures, algorithms, tools… used to organize a system of federated systems comprised of diverse groups, people speaking many different languages through the universal language of symbols into Distributed Autonomous groups organized in time - space to achieve common goals such as establishing an Ecologically sustainable Economic heartbeat. This method involves reuse of over 300 use cases supported by hundreds of message sets described in spread sheet row - column format populated by thousands of brevity OPSCODES mapped to symbols essential to artificial intelligence man - machine interface. NATO bases are small cities that transact many goods, items, commodities with host nations. Why reinvent the syntax lexicon Rosetta Stone wheel?

**Figure 11: USPTO 13/573,002 GRAPHIC LEGEND**

List of symbols and objects used to describe the invention

**Figure 12: Adaptive Procedural Template Checklist of ideas, processes, procedures, structured data exchange templates**

The Heart Beacon Cycle Time - Space Meter is an Adaptive Procedural Template Framework checklist of ideas, algorithms, processes, procedures, metric, meters, signal & telemetry standards to establish consistent Eco sustainable economic time cycle epochs for program programmable money / programmable economy among Distributed Autonomous Organizations participating in trade federations on the (technically non-existent) crypto currency blockchain / hash-graph etc.

**Figure 13: All things internet, artifacts of the programmible economy formed using 1) time epochs 2) syntax**

THESIS: All things internet, internet of programmable money are formed using:

1. Time epochs created by oscillating quartz crystal silicon chips
2. Syntax used / not used as programming instructions during epoch time cycles

THESIS SUMMARY: All things internet, net of money blockchains are formed by unicast, multicast, anycast protocols. Programmable money’s improvements are in cryptography. Blockchains are formed by unicast, multicast, anycast and workflow filters. Programmable money’s improvements are in cryptography. Internet 3.0 and the new web will be based on the original structure described by Stanford University. There are no packets, frames, layers, blocks, shards, graphs, hash graphs “bots”, “motes”, … or Satoshi's traversing the net, stored in a blockchain cube.

**FIGURE 14: Web 3.0 formed using 1) Time epochs 2) syntax**

Blockchains are formed by unicast, multicast, anycast and workflow filters. Programmable money’s improvements are in cryptography. Internet 3.0 and the new web will be based on the original structure described by Stanford University. There are no packets, frames, layers, blocks, shards, graphs, hash graphs “bots”, “motes”, … or Satoshi's traversing the net, stored in a blockchain cube. Transactions are unicast, multicast, or anycast (workflow). The afore mention terms are non-existent fabrication. Method includes for example, universal meme for Bitcoin and like cryptocurrencies, Blockchain Proof of Work, Stake, POET Proof of Elapsed Time, Project Lightning Vs Segregated Witness, and Fast Internet Bitcoin Relay Engine FIBRE... Therefore, a common tool / meme is needed to help establish consensus metrics, meters and to establish a code reference syntax lexicon - library of OPSCODE brevity codes mapped to symbols and (DoD / NATO) symbol sets useful for A.I. Artificial Intelligence

**FIGURE 15: ERICSSON ERLANG OPEN MONEY / USPTO 13/573,002**

ERLANG – ERLANG FOLSOM: Erlang based metrics system inspired by Coda Hale's metrics (<https://github.com/dropwizard/metrics>). The metrics API's purpose is to collect real-time metrics from Erlang applications and publish them via Erlang APIs and output plugins. folsom is not a persistent store. There are 6 types of metrics: counters, gauges, histograms (and timers), histories, meter\_readers and meters. Metrics can be created, read and updated via the folsom\_metrics module. LINK <https://github.com/boundary/folsom>

**Figure 16: Universal Time Zone UTZ Stochastic Harmonization / Synchronization**

Geo-spatial, temporal metrics, meters that are synchronized, stochastically harmonized across UTZ Universal Time Zone. Micro to macro-cycle heartbeat cycle, heartbeat message, blockchain updates for system of systems synchronization, stochastic harmonization, spatial econometrics

**Figure 17: SCOP Heartbeat Epoch Time Interval Start, Stop, TTL Time To Live**

INTERNET BUILDING BLOCK: HEARTBEAT ADMINISTRATIVE INTERFACE: SCOP Administrative Interface as an Internet, net of Money configuration tool. SCOP is a tool that exemplifies how the internet really works. SCOP is a web application, PHP based, that is a front-end to heartbeat. . SCOP can start/stop services, view/edit configuration files, make backups, take a server online/offline, add/remove virtual/real servers, etc.

**FIGURE 18: The Alice Effect / SCOTUS Alice Corp Vs CLS Bank 2014 ruling**

SCOTUS 2014 Alice in Wonderland Alice Corp Vs CLS Bank ruling "claims may not direct towards abstract ideas". Physical is the opposite of abstract.

**FIGURE 19: How the internet really works / impact on SCOTUS Alice Ruling 2014**

Internet = unicast / anycast publish - subscribe / multicast - broadcast & workflow stored across, among a distributed database now as it was in the be

**FIGURE 20: PATENT SYNERGY: DISCOVERY MACHINE / USPTO 13/573,002**

Discovery Machine® leverages a wide range of AI techniques from knowledge acquisition (KA) to machine learning (ML) to develop “intelligent constructs” for training, decision support and automation. Discovery Machine Discovery Machine®‘s patented knowledge capture methodology works in conjunction with our patented visual modeling tools to enable the agile production of intelligent constructs.

**Figure 21: Firefly Inspired Heartbeat Synchronization Algorithm**

Firefly inspired heartbeat synchronization algorithm proposed by the Universities of Bologna Italy, Hungary includes message event bus algorithm – protocol, software application neutral monitors geo-spatial, temporally distributed events reported across a DAO among federated groups synchronized in time-space for common goals. The firefly algorithm (FA) is a nature-inspired metaheuristic optimization algorithm developed by Xin-She Yang that is inspired by the flashing behavior of fireflies (Yang, 2008), originally designed to solve continuous optimization problems (Lukasik and Żak, 2010; From: Swarm Intelligence and Bio-Inspired Computation, 2013.

This work presents a **heartbeat** synchronization protocol for overlay networks **inspired** by mathematical models of flash synchronization in certain species of fireflies, and shows that synchronization emerges even when messages can have significant delay subject to large jitter. **Heartbeat** synchronization strives to have nodes in a distributed system generate periodic, local "**heartbeat**" events as heartbeat messages over a universal event message bus.

**FIGURE 22: ECONOMIST MILTON FRIEDMAN’S K% RULE GDP HEARTBEAT**

Economist Milton Friedman predicted the rise of a computer capable of automatically adjusting the inflation rate of money. is the monetarist proposal that the money supply should be increased by the central bank by a constant percentage rate every year, irrespective of business cycles.

**FIGURE 23: TERRA TRC TRADE REFERENCE COMMODITY BASED CURRENCY**

TRADE REFERENCE CURRENCY TERRA TRC: Terra (The Trade Reference Currency, TRC) is the name of a possible "world currency". The concept was proposed by Belgian economist and expert on monetary systems Bernard A. Lietaer in 2001, based on a similar proposal from the 1930s.The currency is meant to be based on a basket of the 9-12 most important commodities (according to their importance in worldwide trade). Currency resistant to inflation.

**FIGURE 24: Code Syntax Lexicon, Message Template Library**

Establishing a consistent context library / lexicon and time stamping data by organization <Org\_ID> and by data class type and by resource type to form a universal syntax, code, date element, tag Rosetta Stone and reference for coders, programmers, heartbeat algorithm event message bus. Military OPSCODE brevity alpha- numeric codes are mapped, associated, paired with MILSTD 2525 A, B, C, D symbols and symbol sets. MIL Standard sets are critical to A.I. Artificial Intelligence Man - machine interaction. USPTO 13/573,002's foundation is Battlefield Digitization / Network Centric Warfare's signaling, telemetry support framework where the improvement is OOTW Operations Other Than War involves use for net, net of programmable money, econometrics for DAO Distributed Autonomous Organizations / trade federations participating in a programmable economy across the UTZ Universal Time Zone.

**FIGURE 25: Structured Military Messaging / Data Exchange FFIRNS, FFUDNS**

Structured military messaging involves identifying use cases as messages and message sets commonly used to accomplish tasks that are identified by number. Data elements or Field Form Identifiers Reference Numbers or FFIRNS and Field Unit Designators as three and four digit codes unambiguously identify the use of the data element in number forms. Three and four digit codes in turn refer to text descriptions referencing symbols in symbol libraries / databases. Messages are processed, parsed in - out of distributed database. Syntax / symbol source libraries that need a common reference format include as a minimum:

• Named-Data Networking NDN Centric Networking (XML tags)

• OASIS TOSCA YAML document indent data encoding scheme

• GITHUB code, syntax library, Java Script OS (“tag”} convention..

World Financial Standard ISO 20022 is a multi-part International Standard prepared by ISO Technical Committee TC68 Financial Services. It describes a common platform for the development of messages in ASN.1 Abstract Syntax Notation: A single standardization approach (methodology, process, repository) to be used by all financial standards initiatives. common platform for the development of messages using:

* a modelling methodology to capture in a syntax-independent way financial business areas, business transactions and associated message flows
* a central dictionary of business items used in financial communications
* a set of XML and ASN.1 design rules to convert the message models into XML or ASN.1 schemas, whenever the use of the ISO 20022 XML or ASN.1-based syntax is preferred ISO 20022: <https://www.iso20022.org/about-iso-20022>
* Foundation Tech / Standards for programmable $ given the internet was financed, steered by the Department of Defense / NATO. Why reinvent decades of research and system of systems engineering structured data exchange best practice? Is this even possible any time soon? **ISO 20022: https://iso20022.org/about-iso-20022**

**FIGURE 26: Situation Awareness Reference Architecture SARA**

Situational **Awareness** **Reference** **Architecture** (**SARA**) to foster knowledge sharing capabilities. **SARA** is a compilation of industry standards, technical practices and processes designed to enable situational **awareness** across shared infrastructure.

**FIGURE 27: MAIN USE CASE: FEDERATE / FEDERATION**

Trade federations form among local communities or among sovereign (First) nations. The off-site connector workflow object convention connects, mitigates, adjusts by summation, statistical mean by aggregation among federated, non-federated groups acting as format gateways among participating, non – participating groups. Federate Latin: foedus, gen.: foederis Latin: foedus, gen.: foederis, covenant characterized by a union of partially self-governing states or regions under a central (federal) government.

**FIGURE 28: SYNTAX LEXICON LIBRARY**

DoD / NATO system of systems engineering signaling, telemetry framework and syntax OPSCODE brevity codes matched with 2525C symbol sets vital for A.I. man-machine interface, interoperability, consistency and DAO consensus

**FIGURE 29: IRS MEMO 1421 CRYPTO LAND USE MEME / USPTO 13/573,002**

IRS Memo #1421: Purchased Bitcoins are treated akin to property. Plots A, B, C represent 3 unspent transaction outputs controlling N Bitcoins. - End-state Bitcoin quantity will be fixed like land “Bitcoin as protocol of ownership, not transfer. Coins never travel, but simply switch owners”. Method and means metric steps:

Step 1: prove coin ownership <Org\_ID> Coin Issuer

Step 2: coins sent where, when Lat-Long, Time Stamp

Step 3: specify ownership <Org\_ID> issuing agent

Step 4: Issuing Org of Record adjudicates w buyer

**Figure 30: IDMaps / SonarHops Distance Estimation Service / USPTO 13/573,002**

IDMAPS – SONAR HOPS: IDMaps / SonarHops internet distance estimation service: IDMaps is a global internet host distance estimation service that provides distance information used by SONAR / HOPS query / reply service. IDMaps measures, disseminates internet wide distance information to for example, Distributed Autonomous Virtual Organizations DAVOS. Higher level services for example at the macro-cycle level collect distance information to build a virtual distance map of internet by estimating distance between any IP address pair. Location is achieved by use of triangulation Distance information adjusts to “permanent” topology changes e.g., splits, joins, adds, moves, drops, merges in lieu of formal merger / acquisition. IDMaps assists Network Time Protocol (NTP) servers establish long term peering relationships. Distance Metrics focus is on latency (e.g., round-trip delay) and where possible, bandwidth. We improve stochastic harmonization by use of firefly inspired algorithms that strive to achieve synchronization by matching firefly synchronization behavior with the closest matching heartbeat time temporal snapshot cycle interval.

**FIGURE 31: BIG DATA / USPTO 13/573,002**

Big Data as the “Next Oil”: Establishing a consistent context library / lexicon and time stamping data by organization <Org\_ID> and by data class type and by resource type to form a universal syntax, code, date element, tag Rosetta Stone and reference for coders, programmers, heartbeat algorithm event message bus. Establish a consistent context library / lexicon and time stamping data by organization <Org\_ID> and by data class type and by resource type to form a universal syntax, code, date element, tag Rosetta Stone and reference for coders, programmers, heartbeat algorithm event message bus. Military OPSCODE brevity alpha- numeric codes are mapped, associated, paired with MILSTD 2525 A, B, C, D symbols and symbol sets. MIL Standard sets are critical to A.I. Artificial Intelligence Man - machine interaction. USPTO 13/573,002's foundation is Battlefield Digitization / Network Centric Warfare's signaling, telemetry support framework where the improvement is OOTW Operations Other Than War involves use for net, net of programmable money, econometrics for DAO Distributed Autonomous Organizations / trade federations participating in a new model eco sustainable programmable economy across the UTZ Universal Time Zone.

**FIGURE 32: ENERGY ATTENUATES OVER DISTANCES / USPTO 13/573,002**

USPTO 13,573,002 electric meter claim based on electric dipole effect: closer is cheaper given less infrastructure needed given energy attenuates over distances • data over energy link where #energy pulses constitute a method and means to transmit data over electric wired, wireless pathways • electric dipole effect Radio Wave Properties: Electric and Magnetic Dipole Antennae LINK: https://youtu.be/wUpOlqbHcjI?t=111

**Figure 33: SPACE – TIME BEACON**

PROJECT BEACON METHOD: A snapshot or sync delta value taken at a predetermined time interval (micro-cycle to macro cycle) is used to calculate a statistical mean value of commodities comprising a GDP index used as a value index nation's / world's unit of value as the basis for valuating a currency unit of exchange. The world’s systems need to be time-space synchronized, stochastically harmonized across the one world, global UTZ Universal Time Zone via heartbeat messages using universally shared, standards based OPSCODE brevity codes drawn from a universal structured data exchange syntax lexicon with over 300 use case templates e.g., NATO’s lexicon library

**Figure 34: myriad consensus algorithm blockchain memes / metaphors = Babel**

Reuse of DARPA - NATO's structured data exchange that maps data element OPSCODES to symbol sets is key to Artificial Intelligence AI man - machine interface, consensus, consistency among myriad blockchain programmable money algorithms, memes. Method includes for example, universal meme for Bitcoin and like cryptocurrencies, Blockchain Proof of Work, Stake, POET Proof of Elapsed Time, Project Lightning Vs Segregated Witness, and Fast Internet Bitcoin Relay Engine FIBRE... Therefore, a common tool / meme is needed to help establish consensus metrics, meters

**Figure 35: Proof of Work Consensus**

Proof of Work (PoW) was first published in 1993 by Cynthia Dwork and Moni Naor and was later applied by Satoshi Nakamoto in the Bitcoin paper in 2008. The Proof of Work consensus algorithm involves solving a computational challenging puzzle in order to create new blocks in the blockchain. The process of verifying the transactions in the block to be added, organizing these transactions in a chronological order in the block and announcing the newly mined block to the entire network does not take much energy and time. The energy consuming part is solving the ‘hard mathematical problem’ to link the new block to the last block in the valid blockchain. When a miner finally finds the right solution, the node broadcasts it to the whole network at the same time, receiving a cryptocurrency prize (the reward) provided by the PoW protocol.

**FIGURE 36: Proof of Stake Consensus**

Proof-of-stake is a cryptocurrency consensus mechanism for processing transactions and creating new blocks in a blockchain. A consensus mechanism is a method for validating entries into a distributed database and keeping the database secure. In the case of cryptocurrency, the database is called a blockchain—so the consensus mechanism secures the blockchain. The next block writer on the blockchain is selected at random, with higher odds being assigned to nodes with larger stake positions.

**Figure 37: PoST Proof of Space – Time Consensus**

**Figure 38: Proof of Activity Consensus**

**Figure 39: Proof of Authority Consensus**

**Figure 40: Proof of Burn Consensus**

**Figure 41: Proof of Capacity Consensus**

**Figure 42: Proof of Weight / Volumetric Consensus**

**FIGURE 43: Bitcoin Classic / Core / Unlimited / USPTO 13/573,002**

**FIGURE 44: MICROSOFT BLETCHLEY BLOCKCHAIN INTEROPERABILTY**

**Figure 45: SAWTOOTH / POET Proof of Elapsed Time Consensus**

**FIGURE 46: Segregated Witness - Project Lightning Consensus / USPTO 13/573,002**

**FIGURE 47: BITCOIN NG NEXT GENERATION / USPTO 13/573,002**

**FIGURE 48: Brave New Coin B-WAP Consensus / USPTO 13/573,002**

**FIGURE 49: DASH / USPTO 13/573,002**

**FIGURE 50: ETHEREUM – CASPER / USPTO 13/573,002**

**FIGURE 51: HYPERLEDGER FRAMEWORK / USPTO 13/573,002**

**FIGURE 52: R3 Consortium CORDA / USPTO 13/573,002**

**FIGURE 53: DFINITY Blockchain Nervous System / USPTO 13/573,002**

**Figure 54: Byzantine Fault Tolerant BFT-SMART / USPTO 13/573,002**

**FIGURE 55: OpenBazaar Free Trade on the Blockchain / USPTO 13/573,002**

**FIGURE 56: EPCIS RFID / USPTO 13/573,002**

**Figure 57: HASHGRAPH DAG Directed Acyclic Graph / USPTO 13/573,002**

**Figure 58: FEDCOIN – WORLDCOIN ECONOMIC HEARTBEAT**

Economist Milton Friedman’s K% rule: “FEDCOIN / WORLDCOIN currency derived from sampling lead economic indicators across a global, universal event bus by use of the firefly-heartbeat algorithm message event bus to track changes i.e., updating statistical means of a GDP Gross Domestic Product based index, USPTO 13/573,002 supports economist Milton Friedman’s K% rule where a FEDCOIN / WORLDCOIN currency is derived from sampling lead economic indicators across a global, universal event bus applying the firefly-heartbeat algorithm tracking changes, updating q statistical mean value index. Nobel Prize winning economist Milton Friedman described an "economic heartbeat" in his K% rule where the Treasury increases the money supply increases and decreases pegged to increases, decreases in GDP index volume.

**FIGURE 59: High Frequency Flash Trade Breaker / Algorithmic Regulation**

HFT given: other than the ubiquitous </108> {"108"} heartbeat message sending start, stop, TTL Time To Live commands to algorithmic HFT trade to master controllers, how will stock, commodity, crypto etc. markets be mitigated, moderated among the quantum computing haves / have nots? Quantum computing mediation, mitigation among the quantum haves, have nots and techniques e.g., particle detection using liquid nitrogen vs waves at room temperature that will affect for example, transactions of HFT High Frequency Trade stock, commodities, cryptocurrencies, crypto currency synthetics, Central Bank Digital Currencies / and activities among DeFi DAO exchanges – trade federations. HFT Algorithmic regulation: firefly inspired heartbeat synchronization algorithm applied to stocks, commodities, currency exchanges. Improving temporal trade parity between cryptocurrency blockchain and conventional and HFT, quantum computing enabled stock exchanges by using the firefly-heartbeat algorithm to take trade speed samples among trade populations across time zones to establish temporal consensus among disparate trade protocols, optimal trade speed / frequency by defining a start, stop and duration TTL Time To Live trade window. Define time intervals with discrete start, stop, TTL Time To Live trade windows using commands embedded within </108> heartbeats, heartbeat messages organic to all system’s master controller.

**Figure 60: Econometrics, Meters, Trade Federation Demurrage Fees**

GDP Gross Domestic Product Index / statistical mean value index based TRC Trade Reference Currency demurrage fees by Economist Bernard Lietaer of Belgium. Demurrage fees incentivize conservation of resources, commodities i.e., discounts for locally produced, consumed goods and commodities where for example, closer is cheaper given closer consumes less fuel an produces less carbon emissions. Currency based on demurrage charges to support logistics of goods moved from supplier to consumer called the TERRA TRC. The Terra TRC Trade Reference Currency is a global complementary currency designed to provide an inflation-resistant international standard of value; to stabilize the business cycle on a global level; and to realign stockholder’s interests with long-term sustainability. From a legal viewpoint, the Terra is standardized “countertrade” (international barter), which is routinely used for over one trillion dollars’ worth of transactions per year. Legislation on countertrade exists in about two hundred countries, including all the major trading nations.

SOURCE: https://lietaer.com/2010/01/terra/

**FIGURE 61: CRYPTO CURRENCY BLOCKCHAIN TRADENET**

Block Tradenet trade system simple trade-investment platform uses a copy-trading method. Each investment runs on an FX-Bot which trades using trading algorithms

**FIGURE 62: NEW ECONOMY BLOCKCHAIN BLUEPRINT**

**FIGURE 63: Financial Nostradamus / FutureMan fusion USPTO 13/573,002**

Financial Nostradamus / USPTO 13/573,002 fusion: Veritaseum is a blockchain-based fintech software company which delivers global access to peer-to-peer capital markets through its decentralized platform, digital asset research, and transfers. At heart, the project seeks to level the economic playing field by creating software which enables participation in P2P capital markets without intermediates like banks, brokers, financial advisors, and other mediators. The use case of VERI token is to redeem with Veritaseum software for advisory services, research and to gain entry into Veritaseum’s autonomous financial machines, P2P value trading system, and P2P letters of credit. The platforms utility token VERI is used to purchase access to the platform's products and services, which range from asset tokenization to financial research data and even self-custody escrow services. VeADIR stands for Veritaseum Autonomous Distributed Interactive Research. Source: https://cryptonews.com/coins/veritaseum/

**FIGURE 64: CRYPTOCURRENCY BLOCKCHAIN MESH ECONOMY**

In institutional economics, the economy is a system to coordinate exchange. Rather than looking at rules, institutional cryptoeconomics focuses on ledgers: data structured by rules. Institutional cryptoeconomics is interested in the rules that govern ledgers, the social, political, and economic institutions that have developed to service those ledgers, and how the invention of the blockchain changes patterns of ledgers throughout society.

**FIGURE 65: GAMIFICATION / USPTO 13/573,002**

GAMIFICATION: application of typical elements of game playing (e.g., point scoring, competition with others, rules of play) to other areas of activity, typically as an online marketing technique to encourage engagement with a product or service

**Figure 66: Econometrics Framework / USPTO 13/573,002**

NATO system of systems engineering signaling, telemetry framework and syntax OPSCODE brevity codes matched with 2525C symbol sets vital for A.I. man-machine interface, interoperability, consistency and DAO consensus. The Heart Beacon Cycle Time – Space Meter is a reuse with improvements to the military’s signal, telemetry syntax symbol set framework. Its purpose is to establish universal metrics, meters, organize individuals into DAO Distributed Autonomous Organizations / Trade Federations for common goals such as Eco sustainable SLA Service Level Agreements where closer = cheaper given closer = less fuel, carbon emissions.

**FIGURE 67: E Government as a Service E-GASS/ USPTO 13/573,002 Synergy**

E-GaaS: international blockchain platform for organizing economic, state, social activities of citizens , communities on the basis of smart law, smart contract system. eGaaS offers a comprehensive solution needed for state and business management on the blockchain platform. Distributed digital asset registries were the first projects that used blockchain systems such as databases designed for secure storage of records on real estate property, stocks, copyright and so on. It is assumed hosting any document on the blockchain is equivalent to notarization of its content at a fixed time point.

**FIGURE 68: IOTA TANGLE DAG / HBC USPTO 13/573,002**

IOTA: Internet Of Things IOT distributed ledger with microtransactions without fees. Tangle: a directed, ASYNCHRONOUS acyclic graph (DAG) for storing transactions.

**FIGURE 69: RIPPLE XRP / USPTO 13/573,002**

Ripple Transaction Protocol or Ripple protocol, built on a distributed open source Internet protocol, consensus ledger and native currency called XRP. Ripple enables "secure, instant and nearly free global financial transactions of any size with no chargebacks." Ripple supports tokens representing fiat currency, cryptocurrency, commodity or any other unit of value such as frequent flier miles or mobile minutes. Ripple is based around a shared, public database or ledger, which uses a consensus process that allows for payments, exchanges and remittance in a distributed process.

**FIGURE 70: SPACESHIP EARTH OPERATING MANUAL SIGNALS ANNEX K**

Given food, fertilizer shortages (wheat, sunflower, soybean... baby formula...), energy, fuel prices and looming fuel rationing, it logically follows that the world has no other options than to organize both micro (local) and macro (global) economies observing space - time conservative SLA Service Level Agreements where closer = cheaper given closer = less fuel, time resources used to produce, ship… Demurrage fees incentivize resource, commodity conservation i.e., discounts for locally produced, consumed goods and commodities. It is TIME. Buckminster Fuller “build a new model”

**FIGURE 71: USPTO 13/573,002 TEMPORAL SNAPSHOT**

1.5.7.2 A continuous action, operation, series of changes, sync deltas updating groups

1.5.7.3 A cyclic, iterative process syncing groups in time-space

Sync Deltas = changes from one epoch time cycle to the next: crypto currencies tethered to tangible commodities formed into indices of assets.

Heart Beacon Cycle provides a signal and telemetry framework reporting events, transactions to facilitate reporting of data sync deltas in time window intervals, stages and uses data filtering iteration to eliminate duplicated instructions, identical source code in the system of systems signaling, systems telemetry engineering framework.

**FIGURE 72: German Army H.A.N.D.S. OOTW Operations Other Than War 2003**

Humanitarian Assistance Networked Donor System: H.A.N.D.S adaptation of military doctrine, organization, training, material, infrastructure, interagency interaction, leadership, personnel and facilities” to OOTW Operations Other Than War i.e., humanitarian aid… Circa 2003, German Bundeswehr suggested reuse of the concepts of "Network Centric Warfare" "Network Enabled Operations " "Vernetzte Operationsführung" in Germany, “Shared situational awareness enables collaboration synchronization, and enhances sustainability, speed of command" DOD SITUATION AWARENESS PROGRAM SWORDS TO PLOWSHARES OOTW

**Figure 73: Crypto Currencies main issues**

The crypto community has six major issues: Volatility, Inconsistent Memes, Identity, lack of intrinsic value and blockchain scalability. USPTO 13/573,002 addresses all six issues systemically. All things internet are built / made of TIME Cycles used / not used to process syntax as instructions. It follows, that issues with any internet system -- including Bitcoin must be fixed using this truth.

ARTICLE: Could the Bitcoin Lightning Network Solve Blockchain Scalability? LINK:  "hashed timelock contracts between users , in the blockchain, if only two participants care about a transaction, it’s not necessary for all other nodes in the bitcoin network to know about that transaction. It is instead preferable to only have the bare minimum of information on the blockchain. It is desirable for two individuals to net out their relationship at a later date, rather than detailing every transaction on the blockchain. This can be achieved by using time locks as a component to global consensus. As a result, Bitcoin can scale to billions of transactions per day with the computational power available today on a modern desktop computer. Transaction between users occurs during a micro-cycle, then reconciled at a pre-arranged macro-cycle, with a NIST Cyber Beacon random # time stamp for non-repudiation given reconciliation will probably occur at a later data in time.

SCALABILITY: SEE ARTICLE: Could the Bitcoin Lightning Network Solve Blockchain Scalability? LINK:  "hashed time-lock contracts between users" In the blockchain, if only two participants care about a transaction, it’s not necessary for all other nodes in the bitcoin network to know about that transaction. It is instead preferable to only have the bare minimum of information on the blockchain. It is desirable for two individuals to net out their relationship at a later date, rather than detailing every transaction on the blockchain. This can be achieved by using time locks as a component to global consensus. As a result, Bitcoin can scale to billions of transactions per day with the computational power available today on a modern desktop computer. Transaction between users occurs during a micro-cycle, then reconciled at a pre-arranged macro-cycle, with a NIST Cyber Beacon random # time stamp for non-repudiation given reconciliation will occur at a later data in time. Bitcoin Lightning Network

IDENTITY: Organizational unit (computing) From Wikipedia, In computing, an organizational unit (OU) provides a way of classifying objects located in directories, or names in a digital certificate hierarchy, typically used either to differentiate between objects with the same name (John Doe in OU "marketing" versus John Doe in OU "customer service"), or to parcel out authority to create and manage objects (for example: to give rights for user-creation to local technicians instead of having to manage all accounts from a single central group). Organizational units most commonly appear in X.500 directories, X.509 certificates, Lightweight Directory Access Protocol (LDAP) directories, active directory (AD), and Lotus Notes directories and certificate trees, but they may feature in almost any modern directory or digital certificate container grouping system. In most systems, organizational units appear within a top-level organization grouping or organization certificate, called a domain. In many systems one OU can also exist within another OU. When OUs are nested, as one OU contains another OU, this creates a relationship where the contained OU is called the child and the container is called the parent. Thus, OUs are used to create a hierarchy of containers within a domain. Only OUs within the same domain can have relationships. OUs of the same name in different domains are independent.

**Figure 74: Double Slit experiment particle / wave duality**

In physics, the double-slit experiment is a demonstration that light and matter can display characteristics of both classically defined waves and particles; ... experiment with light was part of classical physics long before the development of quantum mechanics and the concept of wave-particle duality. Quantum computing based on waves at room temperature Vs particles in a liquid nitrogen cooled chamber given energy required to keep the environment near absolute zero with liquid nitrogen. Use of light waves at room temperature = more ecologically sustainable, more accurate quantum computing given less challenge to synchronize, stochastically harmonize quantum computing sites over UTZ Universal Time Zone as a basis for programming, computing programmable money / programmable economy.

**Figure 75: USPTO 13/573,002 Quantum Computing Space – Time**

**Figure 76: QUANTUM COMPUTING / USPTO 13/573,002 SYNERGY**

**Figure 77: NIST QRNB Quantum Random Number Beacon / USPTO 13/573,002**

**Figure 78: NIST QRNB Quantum Random Number Beacon Text Description**

**Figure 79: Standing on the shoulders of giants**

DECISION POINT: Economic #RESET is a mathematical certainty. Do we RESET the global system of systems as is or will we re-engineer using NATO system of systems engineering standing on the shoulders of giants

1. CLIMATE CHANGE: IF / WHEN: Climate Change causes a drop in crop commodity food production by 20–25 % while population continues to grow, THEN it follows that this condition will become a matter of national security. It’s TIME to implement an Ecologically Sustainable Economic Heartbeat ELSE face > greater chaos by not leveraging proven system of system structured data exchange methods. An ecologically sustainable economic heartbeat is needed.

2. CLIMATE CHANGE: IF climate change causes a drop in crop commodity by 20–25 % while population grows, THEN this condition will become a matter of national security. THEN this will require revisiting Belgian Economist Bernard Lietaer’s TRC Trade Reference Currency ELSE face > socio economic chaos TERRA Trade Reference Currency by Economist Bernard Lietaer LINK http://lietaer.com/2010/01/terra/

**Figure 80: Programmable money’s physics / metaphysics**

Metaphysical musings on programmable money: fictional "blocks on the cryptocurrency blockchain" in light of SCOTUS Alice in Wonderland 2014 ruling "claims may not direct towards abstract ideas" / The endless debate over (distributed) Database Vs messaging structured data exchange. In reality, messages are parsed in / out of data storage conventions using point to point or multicast internet protocol = same as it ever was

**Figure 81: Patent Applicant’s Business Card**

Contact information for Steven J. McGee patent applicant

**Figure 82: The Great Reset of 2021 / The Greater Reset of 2021 – 2030 ? Caveat: standing on the shoulders of giants**

**Fig 83: USPTO 13/573,002: The Heart Beacon Cycle Time – Space Meter summary**

The Heart Beacon Cycle Time  - Space Meter USPTO 13/573,002 is an adaptive procedural template / checklist of ideas, methods, processes, procedures, algorithms, tools… used to organize a system of federated systems comprised of diverse groups, people speaking many different languages through the universal language of symbols into Distributed Autonomous groups organized in time - space to achieve common goals such as establishing an Ecologically sustainable Economic heartbeat. This method involves reuse of over 300 structured data exchange messages and message sets (playbook) use cases described in spread sheet row - column numbered format brevity OPSCODES mapped to symbols essential to artificial intelligence man - machine interface. NATO bases are small cities that transact virtually every good, item, commodity with the host nation. Why reinvent the syntax lexicon Rosetta Stone wheel?