

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 programmable money / programmable economy conducted among Distributed Autonomous Organizations participating in distributed trade federations on the (technically non-existent) crypto currency blockchain / hash-graph etc.. USPTO 13/573,002 is an Adaptive Procedural Template supports Distributed Trade Federation / Organizations with 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 consensus.

USPTO 13/573,002 as an Adaptive Procedural Template supports Distributed Trade Federation / Organizations with 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 consensus

BACKGROUND: Nobel Prize Winning Economist Milton Friedman: "Only a crisis - actual or perceived - produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around. That, I believe, is our basic function: to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes the politically inevitable." — Milton Friedman

BACKGROUND: 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 conservation of resources, commodities i.e., discounts for locally produced, consumed goods and commodities. It is TIME.

Question: what constitutes foundation tech for #DeFi / programmable \$\$\$ ?

Teams are forming to win the Mother of all DeFi Distributed Finance / programmable \$\$\$ - money IP Intellectual Property wars. The winning team will prove that their IP intellectual property filings establishes / established FOUNDATION TECHNOLOGY.

Question: How is foundation tech described through the lens of SCOTUS 2014 "Alice in Wonderland" ruling?

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", "notes", ... 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.

The above cited memes made up terms are non - compliant US Supreme Court SCOTUS Alice Corp Vs CLS Bank 2014 ruling "claims may not direct towards abstract ideas", Note: Physical is the opposite of abstract considering SCOTUS Alice 2014 ruling and in light of the fact that NIST's National Institute of Standards and Technology QRNB Quantum Random Number Beacon is based on light photonics.

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, emissions.

USPTO 13/573,002 Goal: to improve geo-spatial temporal, syntactic - semantic consistency, interoperability among myriad programmable cryptocurrency blockchain money, programmable economy memes

PURPOSE: 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. Common time – space geo spatial temporal meters. 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 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

## 1. Background

The term Distributed Autonomous Organization DAO was created by a military think tank RAND Corporation circa 2001. This term is being reused by organizations describing cryptocurrency blockchain technology. USPTO 13,573,002's method is protocol, technology neutral. Use cases focus on the cryptocurrency blockchain. For example, many message oriented middleware products use message event bus strategies. USPTO 13/573,002 reuses and improves upon military Network Centric Warfare best practice of organizing individuals in groups geo-spatially distributed across distances and UTZ time zones i.e., micro – macro cycle scheduling, use of organizational, resource identifiers via structured data exchanges is reused / improved through use of algorithms which are essentially workflow rules and math for example.

### 1.1 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

### 1.2 Scope

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.

### 1.3 Roles

The baseball umpire meme is the rule observer / enforcer i.e., the cryptocurrency blockchain segregated witness observer. The baseball game statistician performs data analytics e.g., time series database maintainer, the base runner delivers (code syntax) instructions via 3 x 5 cards. Base running forms blocks on blockchain that is represented by the baseball diamond when stood up on its home plate corner in 3d embodies a cube that has length, width, depth height = volume, Little League Tournament board votes on most valuable player in voting functions. The Little League tournament Baseball meme roles comply with SC Alice Corp V CLS Bank rule,

### 1.4 Definitions and Acronyms

Adaptive Procedural Templates are formed using entries linked to detailed treatises. Treatises spell out and describe definitions, acronyms and process details. Terms in internet, internet of money treatises are often abstractions – hence the baseball meme

## 1.5 References

References cite documents, detailed treatises, standard body publications describing procedural steps cited by the procedural template. References refer to detailed treatises

### 1.5.1 Traceability

The act of researching or ascertaining the origin or location of something: To ascertain the successive stages in the development or progress of for example, tracing a project's life cycle. In context with this paper's procedural template, tracking changes from micro-macro cycle across UTZ time zones across space time maintaining non-repudiation at any point, place in time in the future as provided for example, by NIST's QRNB Quantum Random Number Beacon operated by the Department of Commerce's NIST National Institute of Standards and Technology in Boulder Colorado.

### 1.5.2 Policies

The adaptive procedural template will include standards and policies published by standards groups describing detailed treatises according to individual use cases

### 1.5.3 Standards

The adaptive procedural template will include standards and policies published by standards groups describing detailed treatises according to individual use cases, consensus algorithms, Web 3.0 standards, blockchain organization standards...

### 1.5.4 Processes

Heart Beacon Cycle adaptive procedural template emphasizes protocol, software application neutral rules (algorithms) over processes coded by software vendors.

1.5.5 Procedures Procedures / Processes / Workflow are derived from, and are referential to Battlefield Digitization, Network Centric Operations, Net Enabled Operations and like terms

Firefly inspired heartbeat synchronization 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

Other procedures are intrinsic to algorithms / protocols such as Princeton's John Nash Equilibrium algorithms and count minimum sketch or streaming K algorithms

Invention relies on System of systems type processes: collection of task-oriented, dedicated systems pooling resources, capabilities together to create a more complex system with more functionality, performance than the sum of separate systems 1.5.6 Guidelines

Example: Distributed Autonomous Organization DAO's in trade federations agree to use common components, shared processes, methods, signaling – telemetry micro-macro schedule, metrics, meters to form service level agreements used in smart contracts.

### 1.5.7 Templates

Checklist: minimum list of items, components, building blocks, processes, procedures agreed upon within federations to achieve consensus forming a basis for equitable trade

1.5.7.1 A systematic series of actions directed to a goal ex: form, maintain federations

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

### 1.5.8 Common foundation blocks

1.5.8.1 Organize by assigning Organization Identifiers {"Org\_ID"}

1.5.8.2 Track Resources i.e., commodities by Uniform Resource Name

1.5.8.3 Take / distribute State Meta Data heartbeat snapshots i.e., @ 15 / N min

1.5.8.4 Federate Latin: foedus, gen.: foederis Ex: RSK Federation Form federations: Latin: foedus, gen.: foederis, covenant characterized by a union of partially self-governing states or regions under a central (federal) government.

1.6 Distributed Autonomous Organization DAO support. The term DAO was coined by military think tank RAND Corporation circa 2001. Militaries operate as organizations. Operations are distributed across time zones

1.7 Common signaling, telemetry, symbol, and data elements mapped to symbology symbol sets help DAO's stay synchronized. Joining autonomous trade federations using agile, adhoc NetOps is an option to formal merger and acquisition supporting Distributed Autonomous Organizations DAO's using DeFi programs, apps, processes, procedures.

1.8 Improved temporal, geo-spatial, syntactic - semantic consistency, interoperability among myriad programmable money memes among an equitable, programmable trade federation economic framework through use of select tools, algorithms.

1.9 Signal, telemetry support of the Terra TRC Trade Reference Currency: 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

1.10 National Institute for Standards and Technology NIST ATOMIC CLOCK in Boulder Colorado provides a global temporal reference source across the UTZ Universal Time Zone source for sync data event time stamps and NIST QRNB Quantum Random Number Beacon for non-repudiation of events / transactions at any point in time / place in the future.

1.11 Method uses waves Vs particles in quantum computing for ecological, temporal efficiencies and ease of synchronization, stochastic harmonization

1.12 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

2 Invention focuses on consensus methods to establish common metrics, meters and space-time synchronization across many disparate, distributed autonomous organizations. The main method uses conventions of a Little League Baseball tournament where the environment is surveyed, and boundaries form a 360-degree clock face time clock. Agents and workflow are represented by players, officials

3 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

4 Geo-spatial, temporal metrics and meters universally consistent and synchronized across UTZ Universal Time Zone. Micro to macro-cycle updates for system of systems synchronization, stochastic harmonization, spatial econometrics.

5 Universal Time Zone UTZ proposal using via improvement to the University of Bologna / Hungary's firefly inspired heartbeat synchronization algorithm by matching the firefly synchronization pulse to closest OPTEMPO epoch cycle.

6. The "Grail" A sync'd shared situational awareness view shared among a system of systems showing statistical mean value indexes is achieved by reuse of improved Network Centric Warfare / Battlefield Digitization methods. Epoch time cycles describe, create cyclic sync delta timed intervals to sample, report data changes e.g., linear sequential hop count and / or radius geo-spatial temporal intensity water drop in pond meme temporal epoch time intervals to sample, report econometric metrics and meters
7. Eco sustainable SLA Service Level Agreement where closer is shorter and closer is faster = closer = cheaper, less fuel geospatial temporal intensity metrics, meters
8. Algorithmic regulation: firefly inspired heartbeat synchronization algorithm applied to stocks, commodities, currency exchanges algorithmic regulation. 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.
9. 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
10. 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.

11. Supreme Court Alice Corp Vs CLS Bank compliant universal memes metaphor for coders, programmers given all things internet are formed using time cycles / syntax as instructions for example, universal cryptocurrency blockchain meme mediation
12. Quantum computing event isolation metrics, meters, observation using waves instead of particles requiring chipset environment is cooled to near absolute zero with liquid nitrogen that is prone to error due to temperature fluctuation
13. Systems of Federated Systems signaling, telemetry support framework 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

#### 1.5.9 System of systems signaling, telemetry, heartbeat message bus framework

1.5.9.1 Examples: Geo-spatial, temporal metrics and meters universally consistent and synchronized across UTZ Universal Time Zone. Micro to macro-cycle updates for system of systems synchronization, stochastic harmonization, spatial econometrics.

1.5.9.2. Universal Time Zone UTZ proposal using via improvement to the University of Bologna / Hungary's firefly inspired heartbeat synchronization algorithm by matching the firefly synchronization pulse to closest OPTEMPO epoch cycle.

#### 1.6.0 Minimum essential requirements for Trade Federations on the cryptocurrency DLT Distributed Ledger Technology blockchain (partial listing):

1.6.1 GDP Gross Domestic Product Index / statistical mean value index based TRC Trade Reference Currency demurrage fees by Economist Bernard Lietaer of Belgium

1.6.2 Geo-spatial temporal metrics, and meters i.e. storing increments of value for all things internet, internet of \$\$\$ into the "blockchain cube" fictional data structure

1.6.3 Ecologically sustainable Economic Epochs applying geospatial temporal methods and means i.e., IDMaps - SonarHops, Ericsson Erlang time algorithms / time equations to



base economic incentives, derive TRC Trade Reference Currency demurrage charges i.e., closer is cheaper given closer = less fuel, less time, demurrage fees

1.6.4 Universal meme for Consensus algorithm interoperability, synchronization

1.6.5 OPSCODE brevity code syntax - symbol set lexicon of tokenized GDP Gross Domestic Product pacing items described in a syntax lexicon library

1.6.6 Rosetta Stone syntax lexicon library needed for A.I. Artificial Intelligence man - machine interface. Symbols, symbol sets reference standardized OPSCODE brevity codes

1.6.7 Universal heartbeat message event / transaction QRNB Quantum Random Number Beacon non-repudiation bus, Time-space synchronized Universal Time Zone UTZ stochastic harmonization using a firefly inspired heartbeat algorithm / heartbeat message event - transaction bus comprised of a </108> system heartbeat message

1.6.8 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

1.6.9 Big data sync, time – space metrics and meters descriptive framework based on geo-spatial temporal time – space stamp methods to establish time - space Epochs i.e., IDMaps – SonarHops distance estimation service, Ericsson Erlang time equations

1.7 Epoch time cycles are (not) used in describing sync delta cyclic changes from one epoch time cycle to the next. Paul Revere meme linear sequential and water drop in pond mem geo-spatial temporal intensity radius hop count form common, universal, shared econometric metrics and meters among distributed, federated trade units

1.8 Tools Tool selections may be inserted, removed by majority federation vote. If a superior tool is deemed an improvement, the old tool is replaced by the new at a point in time agreed upon by a majority of for example, trade federation representatives

1.9 Profiles

See Organizational Profile: [http://nist.gov/baldrige/publications/bus\\_org\\_profile.cfm](http://nist.gov/baldrige/publications/bus_org_profile.cfm)

## 2. Procedure (Steps)

Steps are adapted from military system of systems situation awareness reporting, net-centric warfare / operations or NEO Net Enabled Operations. Steps are correlated with

Little League Baseball tournament operations and game play for universal understanding, and compliance with Supreme Court Alice Corp Vs CLS Bank ruling: claims may not direct towards abstract ideas. Physical = opposite of abstract

2.1 Begin a list of steps beginning at the number one

2.2 Begin a list of steps that restart at the number one

Net Centric Warfare adapted procedural steps are iterative

### 3. Process/Procedure (Mapping)

#### 3.1 Entry Criteria

Organizations agree to adopt a minimum list of procedures, processes, tools. Unsuccessful consensus on the minimum list may be resolved by member exit 3.2 Process / Procedure Map

System of Systems trade federations use stored procedures e.g., process workflows to implement business logic in the distributed database / blockchain. Logic filters and text tags used as code syntax is stored in a syntax lexicon "Rosetta Stone" i.e., database

3.3 Inputs: Heart Beacon Cycle invention programming involves processes. Applications, procedures, procedure calls, workflows, algorithms and tools agreed upon by Trade Federations to support 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.

3.4 Outputs: USPTO 13/573,002 aids in establishing consistency, interoperability, temporal synchronization and stochastic harmonization among myriad consensus algorithm memes, and metaphors under constant development and change

#### 3.5 Methods

Specific activities depend on the type of use case. However, all use cases are iterative and follow the design of adaptive procedural templates – see detailed treatise (s)

3.5.1 METHOD 1: A systemic, adaptive, procedural template method used to improve synchronization in metrics, metering using `</Org_ID>`, `{"URN"}` XML data tags in signaling during heartbeat micro-cycles prior to data fusion center entry consisting of iterative heartbeat cycle metrics, meters reporting where state meta data heartbeat snapshot recalculations are performed at off site connectors that are signaling relays

performing recalculation, syntax processing during macro-cycle epochs reconciling dissimilar standards, data syntax formats that are then reported signaled, news casted, beacon broadcasted to distributed organization applique overlay displays

3.5.2 METHOD 2. An adaptive procedural template used to improve signaling, synchronization, stochastic harmonization across UTZ Universal Time Zones using TCP/IP heartbeat time stamping occurring during micro-cycles of state meta data prior to data fusion center entry among metrics, metering processes comprised of TCP/IP heartbeats, heartbeat messages signaled during micro-cycles scheduling instructions, commands, processes, procedures, algorithms, telemetry instructions for example, to master-controller processes i.e., block, start, stop, pause, resume, set Time To live TTL i.e., stock market high frequency flash trade, currency, interest rates, tax rates, time banking, cloud computing commodity exchanges, big data, electrical micro-grid, fungible goods, real time bidding, many use cases. Summary: Time stamping and applying descriptive data type tags to heartbeat state meta data after data is collected and queued, stored in temporary structures or entered into data base instantiations after the fact is problematic. All internet supported devices including high frequency stock, currency, commodity etc., flash trade master controllers receive heartbeats. System Heartbeats are intervals, epoch time cycles used to (not) process syntax.

3.5.3 METHOD 3 A systemic adaptive procedural template method improving stochastic networks harmonization through use of timing, synchronization intrinsic to TCP/IP heartbeat / heartbeat message signaling using set, scheduled, epochs in micro-cycles in combination with firefly insect signaling stochastic harmonization algorithms where firefly protocol sample means are matched with closest heartbeat sync delta micro-cycle report values to recalculate statistical averages, means signaled through off site connector conversion, recalculation gateways that news-cast, beacon broadcast to subscribers monitoring macro-cycle reports that heretofore would not exist without following the Heart Beacon Cycle procedural template as guides for reporting thus improving temporal harmonization in metrics and metering of stochastic mesh fabrics grid control planes over wide areas in cases involving issues in terms of consistency, reliability, traceability, positive organizational identification, temporal transaction fidelity, event, alert predictability, data analytics, network forensics real time bidding, stock market exchange floor server co-location verses servers distantly located, fluctuations in interest rates, currency exchanges, double payment adjudication, fungible good trading stochastic harmonization, electrical power micro-grids, cloud computing, "big data"...

3.5.4 METHOD 4. A systemic adaptive procedural template method using time stamping and signaling intrinsic to TCP/IP heartbeat, heartbeat sync delta snapshots, heartbeat </108> message signaling to enable adaptive organization change management using XML <ORG\_ID> network service interface NSI templates updating self-organizing

process templates i.e., directory service, reporting, map, network, system of systems effecting changes in directory structures database MIB i.e., network subnet joins, moves, splits drops, adds as alternatives to mergers, acquisitions effecting changes responsive to leader's actions, decisions i.e., mission-aware networking, network centric operations improving agile, ad hoc organizational business operations course of actions selection by organizations improving action / reaction to change. Use cases: network moves, adds, joins, splits, drops used instead of merger, acquisition

3.5.5 METHOD 5. A systemic adaptive procedural template method improving search engine methods using heartbeat, beacon signaling, <ORG\_ID>, , <class\_types>, Paul Revere, water drop in pond meme metric recalculations occurring at offsite connectors, conversion relay gateways where detection of trigger point function recalculations of state meta data set aggregations are used to detect threshold fluctuations by resource , , quantity, availability duration etc., further used to improve geo-spatial temporal descriptive mapping methods, changes in clusters of objects, entities, artifacts i.e., location, epoch time stamp geo-spatially, temporally, used to locate, search, then group into virtual collections using <data\_tags> i.e., in spatial econometric, volumetric operations within network mesh fabrics triggering news-casting invitations to join equitably metered federated group arbitrage events, activities that are triggered by internet search operations improving collaboration, metrics and metering in for example, commodity, fungibles trading, resource pooling, crowd sourcing, economics.

3.5.6 Method 6: Physical linear – sequential "Paul Revere" meme used to represent TCP/IP internet "hops" that are abstractions ineligible for patent protection. Water drop in pond physical metaphor describes geospatial temporal intensity in omni-directional, circle, radius type situations. Naval sonar water drop in pond USPTO 13/573,002 meme explains geo-spatial temporal intensity metrics, meters using a physical metaphor. TCP/IP "ping" is an abstraction as are "packets", "frames", "hops", "Satoshi's" as data stores in a cryptocurrency "blockchain" (distributed database)

3.5.7 METHOD 7. A systemic adaptive procedural template method used to improve handicapped / information alerts, events, methods reliant on heartbeat timing, signaling synchronization of state meta-data improved using Paul Revere, water drop in pond memes to create, calculate radius, intensity metrics viewed as geo-spatial, temporal intensity effects i.e., visual light bar tabs i.e., stock exchange candlestick charts, audible tone, vibration-tactile situational awareness alerts by correlating tone based messaging precedence XML where lower / higher precedence settings equate to lower / higher audible tones, tactile vibrations for deaf where fewer / greater number of light tabs lit correlates, corresponds to priority, precedence further used in alert triggers of threshold fluctuations displayed in appliqué overlay graphics as metrics, meters. Reference: Describes reuse of structured military messaging's precedence system to support for

example, processing of Named Data Networking distance, interest packets by numeric precedence. This method is effective among machine to machine (Internet of Things).

3.5.8 METHOD 8. A systemic, adaptive procedural template method using heartbeat signaling, time stamp record keeping processes of state meta data described, typed by organizations, resources typed by Uniform Resource Name, further improved through use of Paul Revere, Water Drop in Pond memes to quantify, describe unused resources with unmet needs by performing recalculations of state meta-data snapshot artifacts occurring at offsite connector conversion gateways where micro-cycle reports from local, micro-cycle activities are signaled, relayed to higher echelon organizations monitoring macro-cycles who are interested in for example stock market "pools" where "output" is correlated and displayed onto appliqué views of aggregate sync delta changes in macro-micro economics recalculations, stocks, commodities, currencies, interest rates, electric micro-grids, currency (Terra) exchanges, spatial econometrics, contributory economics. Syntax code language parsed, processed during silicon chip generated time cycles forms all things internet, internet of money.

3.5.9 Method 9: Method / Claim describes the military's network centric operations systems of systems method of collecting state meta data sync delta heartbeat snapshot data during operational micro-cycles that is then summed, aggregated, disseminated and displayed during macro-cycles as part of Network Enabled Operations NEO situation awareness system of systems engineering best practice over time

3.6 Outputs: State meta data collected from a current micro-cycle to the next and from many micro-cycles summed, aggregated to report during macro-cycle reporting periods are stored, collected in the off-site collector depicted by that corresponding workflow symbol. See detailed treatise on workflow, workflow symbols for example <https://edrawsoft.com/flowchart-symbols.php>

3.7 Verification and Validation See detailed treatise (s) on Verification and Validation

3.8 Exit Criteria: Organizations may elect to tether, untether to the Distributed Autonomous Organization based federation at their discretion (maintain autonomy) or organizations may be disconnected if they fail to observe federation rules

3.9 Metrics: Use of physical metaphors such as the water drop in pond, Paul Revere metaphor comply with Supreme Court Alice Corp Vs CLS Bank ruling claims may not direct towards abstract ideas. See figure twelve, USPTO application 13/573,002 main embodiment. Metrics are based on epoch time cycles as the only actual option

3.10 Records Control Table ELECTRONIC RECORDS MANAGEMENT

### 3.11 Controlled Documents Table ELECTRONIC RECORDS MANAGEMENT

Figure 3: USPTO 13/573,002 Syntax Lexicon Library of Templates / Message Sets  
APPENDIX A USE CASES:

1. Eco sustainable Economic Heartbeat / Programmable Economy Namespace
2. Distributed Autonomous Organization DAO support. The term DAO was coined by military think tank RAND Corporation circa 2001. Militaries always operate as organizations. NATO operations are usually distributed across many time zones
3. Common signaling, telemetry, symbol, and data element sets help DAO's stay synchronized. Joining autonomous trade federations using agile, adhoc NetOps is an option to formal merger and acquisition as an alternative, adaptive business strategy.
4. Support federations: from Latin: foedus, gen.: foederis, covenant characterized by a union of partially self-governing states or regions under a central (federal) government.
5. Spatial econometrics. Geo-spatial, temporal metrics and meters will be universally consistent and synchronized across time zones. Micro to macro-cycle updates maintain system of systems synchronization at specified, coordinated time e.g, 5, 15, 30 minutes
6. Universal Time Zone UTZ proposal using via improvement to the University of Bologna / Hungary's firefly inspired heartbeat synchronization algorithm by matching the firefly synchronization pulse to the closest OPTEMPO epoch cycle.
7. The "Grail" A sync'd shared situational awareness view among a system of systems showing statistical mean value indexes can be achieved by reuse of improved net centric warfare methods joined with establishing a universal event bus using firefly-inspired heartbeat synchronization and system heartbeat, heartbeat messages
8. Sync delta cyclic changes: describes linear sequential, geo-spatial temporal intensity radius hop count econometric metrics and meters
9. Ecologically sustainable where closer is shorter and closer is cheaper, faster and uses less fuel, and therefore, results in less carbon emissions, fewer carbon credits
10. Algorithmic regulation: firefly inspired heartbeat synchronization algorithm in stocks, currency exchanges is a segue to algorithmic regulation. Improving

temporal trade parity between Bitcoin Blockchain & conventional stock exchanges by using the firefly-heartbeat algorithm to take trade speed samples among trade populations across time zones to establish consensus among disparate trade protocols, optimal trade speed / frequency as a statistical mean. Define time intervals with discrete start, stop, TTL Time To Live trade windows using commands embedded within </108> heartbeats, heartbeat messages organic to all internet, net of money, programmable money based systems.

11. Support economist Milton Friedman's K% rule where a FEDCOIN / WORLDCOIN currency could be 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.
12. 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. Common time – space geo spatial temporal meters. 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 establishing a framework, foundation 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 sync, stochastic harmonization

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 4: Beacon Communities supported by OOTW system of systems framework

#### APPENDIX B: USPTO 13/573,002 CLAIMS:

1. A systemic, adaptive, procedural template method used to improve synchronization in metrics, metering using `</Org_ID>`, `{"URN"}` XML data tags in signaling during heartbeat micro-cycles prior to data fusion center entry consisting of iterative heartbeat cycle metrics, meters reporting where state meta data heartbeat snapshot recalculations are performed at off site connectors that are signaling relays performing recalculation, syntax processing during macro-cycle epochs reconciling dissimilar standards, data syntax formats that are then reported signaled, news casted, beacon broadcasted to distributed organization applique overlay displays

Summary: Syntax code language parsed, processed during silicon chip generated time cycles forms all things internet, internet of money. Claim describes the military's network centric operations systems of systems method of collecting state meta data sync delta heartbeat snapshot data during operational micro-cycles that is then summed, aggregated, disseminated and displayed during macro-cycles as part of Network Enabled Operations NEO situation awareness system of systems engineering. USPTO vetted application for National security.

2. A adaptive procedural template used to improve signaling, synchronization using TCP/IP heartbeat time stamping occurring during micro-cycles of state meta data prior to data fusion center entry among metrics, metering processes comprised of TCP/IP heartbeats, heartbeat messages signaled during micro-cycles scheduling instructions, commands, processes, procedures, algorithms, telemetry instructions for example, to master-controller processes i.e., block, start, stop, pause, resume, set Time To live TTL i.e., stock market high frequency flash trade, currency, interest rates, tax rates, time banking, cloud computing commodity exchanges, big data, electrical micro-grid, fungible goods, real time bidding, many use cases.

Summary: Time stamping and applying descriptive data type tags to heartbeat state meta data after data is collected and queued, stored in temporary structures or entered into data base instantiations after the fact is problematic. All internet supported devices including high frequency stock, currency, commodity etc., flash trade master controllers

receive heartbeats. Heartbeats are silicon chip created intervals, epochs, time cycles used to (not) process syntax.

3. A systemic adaptive procedural template method improving stochastic networks harmonization through use of timing, synchronization intrinsic to TCP/IP heartbeat / heartbeat message signaling using set, scheduled, epochs in micro-cycles in combination with firefly insect signaling stochastic harmonization algorithms where firefly protocol sample means are matched with closest heartbeat sync delta micro-cycle report values to recalculate statistical averages, means signaled through off site connector conversion, recalculation gateways that news-cast, beacon broadcast to subscribers monitoring macro-cycle reports that heretofore would not exist without following the Heart Beacon Cycle procedural template as guides for reporting thus improving temporal harmonization in metrics and metering of stochastic telecommunication mesh fabrics grid control planes over wide areas in cases involving issues in terms of consistency, reliability, traceability, positive organizational identification, temporal transaction fidelity, event, alert predictability, data analytics, network forensics real time bidding, stock market exchange floor server co-location verses servers distantly located, fluctuations in interest rates, currency exchanges, double payment adjudication, fungible good trading stochastic harmonization, electrical power micro-grids, cloud computing, "big data" in many use cases.
4. A systemic adaptive procedural template method using time stamping and signaling intrinsic to TCP/IP heartbeat, heartbeat sync delta snapshot message signaling to improve dynamic, adaptive organization change management using XML <ORG\_ID> network service interface NSI templates updating self-organizing process templates i.e., directory service, reporting, map, network, system of systems effecting changes in directory structures database MIB i.e., network subnet joins, moves, splits drops, adds as alternatives to mergers, acquisitions effecting changes responsive to leader's actions, decisions i.e., mission-aware networking, network centric operations improving agile, ad hoc organizational business operations course of actions selection by organizations registered for more than one <ORG\_ID> improving reaction to change.
5. A systemic adaptive procedural template method improving search engine methods using heartbeat, beacon signaling, <ORG\_ID>, , <class\_types>, Paul Revere, water drop in pond meme metric recalculations occurring at off site connectors, conversion relay gateways where detection of trigger point function recalculations of state meta data set aggregations are used to detect threshold fluctuations by resource , , quantity, availability duration etc., further used to improve geo-spatial temporal descriptive mapping methods, changes in clusters

of objects, entities, artifacts i.e., location, epoch time stamp geo-spatially, temporally, used to locate, search, then group into virtual collections using <data\_tags> i.e., in spatial econometric, volumetric operations within network mesh fabrics triggering news-casting invitations to join equitably metered federated group arbitrage events, activities that are triggered by internet search operations improving collaboration, metrics and metering in for example, commodity, fungibles trading, resource pooling, crowd sourcing, economics. Summary: Physical linear – sequential “Paul Revere” meme used given TCP/IP internet “hops” are abstractions ineligible for patent protect. Water drop in pond physical metaphor describes geospatial temporal intensity in omni-directional, circle, radius type situations. Naval sonar meme explains geo-spatial temporal intensity metrics, meters. TCP/IP “ping” is an abstraction.

6. A systemic adaptive procedural template method used to improve handicapped / information alerts, events, methods reliant on heartbeat timing, signaling synchronization of state meta-data improved using Paul Revere, water drop in pond memes to create, calculate radius, intensity metrics viewed as geo-spatial, temporal intensity effects i.e., visual light bar tabs i.e., stock exchange candlestick charts, audible tone, vibration-tactile situational awareness alerts by correlating tone based messaging precedence XML where lower / higher precedence settings equate to lower / higher audible tones, tactile vibrations for deaf where fewer / greater number of light tabs lit correlates, corresponds to priority, precedence further used in alert triggers of threshold fluctuations displayed in appliqué overlay graphics as metrics, meters. Describes reuse of structured military messaging’s precedence system to support for example, processing of Named Data Networking distance, interest packets by numeric precedence for example, among Internet of Everything / Things
7. A systemic, adaptive procedural template method using heartbeat signaling, time stamp record keeping processes of state meta data described, typed by organizations, resources typed by Uniform Resource Name, further improved through use of Paul Revere, Water Drop in Pond memes to quantify, describe unused resources with unmet needs by performing recalculations of state meta-data snapshot artifacts occurring at off site connector conversion gateways where micro-cycle reports from local, micro-cycle activities are signaled, relayed to higher echelon organizations monitoring macro-cycles who are interested in for example stock market “pools” where “output” is correlated and displayed onto appliqué views of aggregate sync delta changes in macro-micro economic recalculations, stocks, commodities, currencies, interest rates, electric micro-grids, currency (Terra) exchanges, spatial econometrics, contributory economics. Claim highlights ‘off site connector” that is a workflow convention as the method where

for example, trade federation "A" interfaces with organization (s), nation states, Economic Unions EU that may or may not observe the same conventions, rules, methods

Invention claims form the basis of a system of systems signaling and telemetry annex for Richard Buckminster Fuller's Operating Manual for Spaceship Earth.

A systemic, adaptive procedural template method using state meta data typed by organization, resources by Uniform Resource Name, improved using Paul Revere, Water Drop in Pond memes to quantify, describe unused resources with unmet needs in terms of proximity from source to point of use, consumption, storage etc., by performing recalculations of state meta-data snapshot artifacts occurring at off-site connector conversion gateways where micro-cycle reports from local, micro-cycle activities are signaled, relayed to macro-cycles reports of data fluctuations due to geo-spatial temporal intensity changes filtered by priority, precedence then newscast signaled to ad hoc federated group subscriptions where state meta data snapshot reports are shown in appliqué overlay data filtered value index views

Invention's focus is economic micro-macro cycles. However, the invention initially focused on emergency first response under the name "Heartbeat e9-1-1". Many use cases are supported. Internet "packets" "frames" "datagrams" are metaphors and memes ineligible for patent protection. Inventors use Little League Baseball memes and 3 x 5 index cards to describe messages, syntax, code as instructions that are processed during silicon chip created time cycles

Internet, internet of money artifacts are created using silicon chip created time cycles to process / not process code syntax as instructions. Following the military's structured military messaging method where numbered messages and message sets for the basis to describe state meta data in compact, concise, efficient terms that will help unify, standardize coding. Military operational methods, discipline used to schedule, synchronize, organize DAO Distributed Autonomous Organizations across time-space reused in other use cases improves synchronicity Example procedural template: Stanford Research Institute's Linear Accelerator SLAC:

Procedural template entries at most, includes a line or two. In depth technical treatise (s) citing every conceivable nuance is impractical, counterproductive and out of scope of an adaptive procedural template. Procedural template entries are pointers to more detailed treatise and references and are referential to a treatise A treatise is a formal and systematic written discourse on some subject, generally longer and treating it in greater depth than an essay and are concerned with investigating subject principles. Reference: Trade Federation Stanford SLAC's procedural template adaptation

Figure 5: Adaptive Procedural Template checklist

Figure 6: Satoshi Nakamoto 2008 White Paper / Internet's two main building blocks

Appendix D: References – Acronyms, Terms of Tools, Processes, Procedures

ATOMIC CLOCK NIST National Institute of Science and Technology timing is based on the consistent decay of radioactive material such as Cesium. Atomic clocks are constructed by locking an electronic oscillator to the frequency of an atomic transition. The frequencies associated with such transitions are so reproducible that the definition of the second is now tied to the frequency associated with a transition in cesium-133: 1 second = 9,192, 631,770 cycles of a standard Cs-133 transition

A baseball diamond is a square, is a block. A Bitcoin block is awarded using age (time) or vectors (time / direction / velocity) or voting (tournament league board). A baseball tournament is played on baseball diamonds that are physical, tangible but not abstract.

FIGURE 7, 7.1: SCOTUS ALICE CORP VS CLS BANK 2014 ruling compliant meme

BITCOIN / CRYPTOCURRENCY PROGRAMMABLE MONEY: a.k.a. the "Internet of Money" "Bitcoin is a language" "Bitcoin's language is time itself" Diginomics.com

BLOCKCHAIN DISTRIBUTED LEDGER: provides a tamper-proof data structure, providing a shared public ledger open to all. The mathematics involved are impressive, and the use of specialized hardware to construct this vast chain of cryptographic data renders it practically impossible to replicate. All transactions are embedded in the bitcoin blockchain. Use of SHA-256 cryptography ensures the integrity of the blockchain applications – all transactions must be signed using a private key or seed, which prevents third parties from tampering with it. Transactions are confirmed by the network within 10 minutes or so and this process is handled by bitcoin miners. Mining is used to confirm transactions through a shared consensus system, and usually requires several independent confirmations for the transaction to go through. This process guarantees random distribution and makes tampering very difficult.

BITNATION GOVERNANCE 2.0 LINK <https://bitnation.co/>

BITNATION provides the same services traditional governments provides, from dispute resolution and insurance to security and much more – but in a geographically unbound, decentralized, and voluntary way. BITNATION is powered by Bitcoin 2.0 blockchain technology – a cryptographically secured public ledger distributed amongst all of its users. As we like to say – BITNATION: Blockchains, Not Borders.

BLOCKCHAIN: SCOTUS 2014 Alice in Wonderland Alice Corp Vs CLS Bank ruling "claims may not direct towards abstract ideas"

MIT panel: "#blockchain not yet a clear design choice for CBDC Central Bank Digital Currencies". "blockchain" = non-existent meme / metaphor / notional construct. Internet = unicast / anycast publish - subscribe / multicast - broadcast & workflow + distributed Dbase: #blockchain

<https://www.theblockcrypto.com/post/58067/during-mit-panel-experts-say-blockchain-is-not-yet-a-clear-design-choice-for-central-bank-digital-currencies>

BUCKMINSTER FULLER's SPACE-SHIP EARTH: Operating Manual for Spaceship Earth relates Earth to a spaceship flying through space. The spaceship has a finite amount of resources and cannot be resupplied. Buckminster Fuller Institute LINK BFI dot Org [https://en.wikipedia.org/wiki/Operating\\_Manual\\_for\\_Spaceship\\_Earth](https://en.wikipedia.org/wiki/Operating_Manual_for_Spaceship_Earth)

CASPER PoC3 Blockchain BACKBONE: Casper is a security-deposit based economic consensus protocol. Nodes, as "bonded validators", have to place a security deposit (action called "bonding") in order to serve the consensus by producing blocks. The protocol's direct control of these security deposits is the primary way in which Casper affects the incentives of validators. Specifically, if a validator produces anything that Casper considers "invalid", their deposit is forfeited along with the privilege of participating in the consensus process. The use of security deposits addresses the "nothing at stake" problem; that behaving badly is not expensive. When something is at stake, bonded validators who misbehave in an objectively verifiable manner will lose it.

CEILOMETER, GNOCCHI, PANDA: builds metering around a data structure called samples. A sample is generated each time Ceilometer measures something. It is composed of a few fields, such as the resource id that is metered, the user and project ID owning resources, the meter name, the measured value, a timestamp and a few free-form metadata. Each time Ceilometer measures something, one of its components (an agent, a pollster...) constructs and emits a sample headed for the storage component called the collector. The collector is responsible for storing samples into a database. The Ceilometer collector uses a pluggable storage system usable with any database

Ceilometer REST API allows executing various reading requests on the data store. It returns the list of resources that have been measured for a particular project, or computes statistics on metrics. Source: <https://dzone.com/articles/openstack-ceilometer>

CHAMBER OF DIGITAL COMMERCE is the world's leading trade association representing the digital asset and blockchain industry. Our mission is to promote the acceptance and use of digital assets and blockchain-based technologies. Through education, advocacy,



and working closely with policymakers, regulatory agencies and industry, our goal is to develop a pro-growth legal environment that fosters innovation, jobs and investment.  
LINK <http://www.digitalchamber.org>

CODE FOR AMERICA Code for America partners with city, county, and state governments to redesign public services in three key areas that have high impact for communities. Together, we turn challenges into opportunities to not only serve communities better but transform how governments think about technology. LINK  
COUNT MINIMUM SKETCH ALGORITHM: streaming algorithm Find a randomized streaming algorithm whose output (as a random variable) has the desired expectation but usually high variance (i.e., noise). To reduce the variance/noise, run many independent copies in parallel and combine their outputs. Count sketch is a probabilistic data structure designed to answer the following question: Reading a stream of elements  $a_1, a_2, a_3, \dots$ , where many elements are replicas in a given time it will provide an answer to question: how many original elements have been seen Count minimum sketch is a probabilistic data structures sacrificing certainty for space. Count minimum sketch selects 2 parameters: accuracy of the results  $\epsilon$  and probability of bad estimate  $\delta$ .

DASH: Unlike Bitcoin nodes, Master nodes receive payments for their service to the network – similar to demurrage charges in the Trade Reference Currency TERRA TRC. Dash includes decentralized funding, decentralized governance, decentralized storage. Dash's governance system, visit <https://dash.org>. Dash features: - InstantX:

Masternodes instantly lock transactions to solve the problem of lag time in transactions

- Self-Budgeting: To solve the problem of lack of funding for development, Masternodes can direct funds right from the blockchain to support development.
- Self-Governance: To solve the problem of making governance decisions on the future of the currency, Masternodes can vote on what development occurs.

ECONOMIST MILTON FRIEDMAN'S K% RULE: 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. EQUILIBRIUM ALGORITHM / polynomial-time algorithm by John Nash Princeton University:  
see: <http://web.cs.ucla.edu/~awm/cs288/class3.pdf>

Ericsson Patents Open Money for Society 20130166398 "System And Method For Implementing A Context Based Payment System." <https://letstalkbitcoin.com/ericsson-patents-open-money-for-society> "It is our vision that one day everyone with access to a mobile phone will be able to spend, send and receive money as easily as sending a text



via SMS." "When money is open, the way we send, spend and receive money will change forever." Ericsson posted on their m-commerce site "Bitcoin And the Value of Money" which discusses "From Bartering, to Gold, to Bitcoins" Facilitation of Effective Trade, Limited Resources, and Value as a Mutual Agreement.

"Local producers are sometimes forced to price goods relative to distant competition, and, because of lower production and wage costs in different parts of the world (or even country), substantially lower profit margins can be the result. There are times, however, when consumers might be willing to buy locally produced goods for the good of the society {Emphasis LTB}, and that attitude is more prevalent today than in the past. But what a consumer says they will do, and what actually occurs in practical, real shopping situations can be significantly different. Faced with competitive quality products, but disparate prices, the consumer often feels that he or she has no real choice, especially if budgets are more constrained because of uncertain economic conditions, and therefore are not what they used to be. Thus, personal economic pressures can hinder "good" buying decisions. Retailers too are cognizant of an increased awareness for the value of locally produced products. They market local producers and even arrange special sections with "good" products, i.e., those that minimally impact the environment both in terms of environmentally friendly manufacturing methods, but also those articles that have been produced locally." "Thus, current economic conditions, and prevailing economic theories make it difficult, if not impossible, for an average consumer to make an impact on the local economy and the local environment, regardless of their attitudes. Therefore, we provide methods for creating a context based payment system.

Patent Abstract: "Disclosed herein is a context-based payment system. Electronic currency or coupons can be made dependent on context, and the context can be one of location or geography, time, date, distance, sound, or other devices. The value of the currency exists only if a pre-condition is fulfilled. For example, if the currency is location dependent, the value only exists in a defined area (currency value area). The goods or the service in the value-system are also context dependent, that is, they can only be sold or offered in a defined area (product value area). Accordingly, if the product value area and the currency value area overlap, a purchase and payment can be made."

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>

ETHEREUM "WORLD COMPUTER" combination of cryptographic architecture and Turing completeness, Ethereum virtual machine (EVM) refers to part of the protocol that handles internal state and computation. It is often referred to as the project's defining innovation over other blockchain-based systems. By taking the cryptographic payment structure of bitcoin and adding a Turing complete scripting language, The term "Turing complete" means a system capable of performing logical steps of computational functions. Ethereum is different than from bitcoin in that it is first and foremost a computing platform Vs a payment system. LINK <http://coindesk.com/whats-big-idea-behind-ethereums-world-computer/>

FEDERATION (CLOUD COMPUTING): FEDERATION: from Latin: foedus, gen.: foederis, covenant characterized by a union of partially self-governing states or regions under a central (federal) government. In a federation, the self-governing status of the component states, as well as the division of power between them and the central government, are typically constitutionally entrenched and may not be altered by a unilateral decision of either party, the states or the federal political body. Individuals, organizations retain AUTONOMY to act on their own behalf. Federation: reuse of military System of Systems research, best practice guiding formation of a procedural template framework is key to forming and maintaining sustainable Trade Federations as Distributed Autonomous Organizations DAO's / DAC's Corporations. Military's organize individuals into organizations and Organizational Units dispersed autonomous groups working on collective goals synchronized in time-space

Federate: Within a federated system, an organization needs a standardized and repeatable way of describing services it makes available to teams in leagues and policies by which it runs its operations. Federated identities within groups retain their autonomy, ability to act on their own behalf. Organization Identifiers </ORG IDs> represents a business, non-profit corporation, or government entity in the American Registry of Internet Numbers ARIN database. Entities may have more than one <Org\_ID> for contingency planning. More than one ORG\_ID enables business contingency plans for different scenarios, use cases, different circumstances.

Federated Identity Management: federation describes the organization arrangements necessary for interconnection between teams, leagues, and commissions joined to achieve common goals. Federated systems need to interoperate across organizational boundaries and connect processes utilizing different technologies, identity storage, security approaches and programming models. Resources available to the group include the health or availability of individuals forming groups where monitoring is performed to ascertain if groups are mission capable or not in context with available resources and whether the group's location is within a pre-defined geo-spatial range of a given activity or event. A federation describes the organization arrangements necessary for linkage

between teams, leagues, and commissions joined to achieve common goals. Operations are performed as part of group's activities. If trade is deemed non-equitable, groups, individuals may leave the trade federation as a network drop until conditions change or the individuals change their minds and decide to re-affiliate, re-tether to the collective. LINK <https://en.wikipedia.org/wiki/Federation> See Bitcoin Blockchain smart contract RSK federation network Buenos Aires Rootstock.

FIREFLY-HEARTBEAT ALGORITHM UNIVERSITY of BOLOGNA / HUNGARY: Firefly inspired Heartbeat Synchronization: in a paper entitled Firefly-inspired Heartbeat Synchronization in Overlay Networks by the University of Bologna and Trento Italy along with the University of Szeged, Hungary: "Heartbeat synchronization strives to have nodes in a distributed system generate periodic, local "heartbeat" events approximately at the same time. Many useful distributed protocols rely on the existence of such heartbeats for driving their cycle- based execution. The heartbeat synchronization protocol for overlay networks is inspired by mathematical models of flash synchronization in certain species of fire flies. Nodes send flash messages to their neighbors when a local heartbeat triggers. Fireflies adjust the phase of their next heartbeat based on incoming flash messages using an algorithm inspired by mathematical models of fire-fly synchronization. Heartbeat synchronization strives to have nodes in a distributed system generate periodic, local "heartbeat" events approximately at the same time. It differs from classical clock synchronization in that nodes are not interested in counting cycles and agreeing on a ID of a current cycle. There is no requirement regarding the length of a cycle with respect to real time as long as a length is bounded and all nodes agree on it eventually. The goal is to guarantee that all nodes start and end their cycles at the same time, with an error that is at least one, but preferably more, orders of magnitude smaller than a chosen cycle length. Firefly heartbeat synchronization reduces uncertainty in stochastic networks. Paper: Firefly-inspired Heartbeat Synchronization in Overlay Networks. Ozalp Babaoglu. Univ. Bologna, Italy <http://cs.unibo.it/~babaoglu/papers/pdf/SASO07-fireflies.pdf>

Firefly Algorithm: 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 a major part of an edited book was also dedicated to the firefly algorithm and its applications (Yang, 2013a). For example, Senthilnath et al. provided an extensive performance study by comparing the firefly algorithm with 11 different algorithms and concluded that FA can be used for efficient clustering (Senthilnath et al., 2011); From: Swarm Intelligence and Bio-Inspired Computation, 2013 <https://www.sciencedirect.com/topics/engineering/firefly-algorithm>

**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

**GITHUB:** GitHub is a web-based Git repository hosting service. It offers distributed revision control, source code, source code management, bug tracking, feature requests, task management, and Wikis for every project. GitHub renders common formats like text, CSV, and geospatial data. GitHub includes enterprise controls to collaborate openly while limiting access to a team, to select stakeholders, or to entire organizations.

LINK <http://github.com/Beacon-Heart/Heart-Beacon>

**GRAPHENE:** form of partnership called a Decentralized Conglomerate A universal shared platform allows organizations to have a common interest in the platform itself, without the platform imposing any control on the organizations that join the universal platform ecosystem where organizations directly invest in each other." Profits can be shared without the necessity of the companies coordinating their operations." By entering into a Decentralized Conglomerate means the co-ordination takes place within an automated system," "The OpenLedger team has created the universal shared platform on which organizations can enter agreements to share their profits in exchange for community support." Graphene Blockchain Worker System

LINK [https://bitshares.org/doxygen/group\\_workers.html](https://bitshares.org/doxygen/group_workers.html)

**HADOOP:** Apache Hadoop is an open-source software framework for distributed storage and distributed processing of very large data sets on computer clusters.

**Histograms and Timers:** Histograms are collections of statistical analysis values, such as mean, min, max, kurtosis and percentile that can be used as timed update functions.

**Apache ZooKeeper** is a software project of the Apache Software Foundation, providing an open source distributed configuration service, synchronization service, and naming registry for distributed systems. LINK [https://en.wikipedia.org/wiki/Apache\\_ZooKeeper](https://en.wikipedia.org/wiki/Apache_ZooKeeper)

**Apache Storm** is a free and open source distributed real-time computation system. Storm makes it easy to reliably process unbounded streams of data, doing for real-time processing what Hadoop did for batch processing. Storm has many use cases: real-time analytics, online machine learning, continuous computation, distributed RPC, ETL etc. Storm benchmark clocked it at over a million tuples processed per second per node. Trident is an abstraction on top of Storm providing higher-level constructs "cascading", it batches groups of Tuples to 1) Make reasoning about processing easier 2) efficient data persistence with the help of an API that provides exactly-once semantics LINK

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 snapshot cycle interval. IDMaps / SonarHops

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 standardisation approach (methodology, process, repository) to be used by all financial standards initiatives. It is a 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.

The resulting models and derived messages are published in the Catalogue of messages and stored in the ISO 20022 Financial Repository available on this website. This flexible framework allows communities of users and message development organizations to define message sets according to an internationally agreed approach using internationally agreed business semantics and, whenever desirable, to migrate to the use of a common XML or ASN.1-based syntax.

ISO 20022 ISO describes semantic 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?

KRYPTON: Ethereum based smart contract platform LINK <http://krypton.rocks> KONG API MANAGEMENT: Application Program Interface scalable, open source API Layer (API Gateway, or API Middleware). Kong runs in front of any RESTful API and is extended through Plugins, which provide extra functionalities and services beyond the core platform. Kong was originally built at Mashape to secure, manage and extend over 15,000 APIs & Microservices for its API Marketplace LINK <https://getkong.org/about/>

LAW OF TIME Book of the Cube Time Cube Matrix Cosmic Calendar Law of Time dot org – see math behind the Earth – Moon – Sun cyclic patterns

LIBRARY of ALEXANDRA (The Distributed Blockchain Library) LINK

LITTLE LEAGUE BASEBALL TOURNAMENT / GAME OF BASEBALL RULES See Baseball Rules: [http://mlb.mlb.com/mlb/official\\_info/official\\_rules/official\\_rules.jsp](http://mlb.mlb.com/mlb/official_info/official_rules/official_rules.jsp)

MEDICI Stock Exchange Blockchain “Medici,” Goal: democratize Wall Street LINK <http://wired.com/2014/10/overstock-com-assembles-coders-build-bitcoin-like-stock-market/>

MICROSOFT Azure Blockchain as a Service (BaaS): Project Bletchley is a vision for Microsoft to deliver Blockchain as a Service (BaaS) that is open and flexible for all platforms, partners and customers. Source: <https://azure.microsoft.com/en-us/blog/bletchley-blockchain/> Project Bletchley common themes:

- Platform openness requirement.
- Identity, key management, privacy, security, operations management, interoperability
- Consortium / Federation blockchains, permissioned networks for contracts,
- Fabric for blockchain, serving as cloud platform for distributed applications

MONEYBALL: The Art of Winning in an Unfair Game Book Moneyball: The Art of Winning an Unfair Game is a book by Michael Lewis is about the Oakland Athletics baseball team and its general manager Billy Beane. <http://en.wikipedia.org/wiki/Moneyball> <https://datascience.berkeley.edu/moneyball-book-review/>

MONEYBALL ECONOMICS: Sabermetrics, or Moneyball, is the practice of crunching data in an effort to build a stronger and smarter team without needing to go after the rock stars of the sport who may cost a team millions. This method holds that the skill of individual players isn't what makes or breaks a team; in the long run, the goal is to make sure that each necessary skill is accounted for, whether by one player or four. The team



will work like a clock, with each cog serving its own purpose (no matter how hopeless they may be at another area).. crafting a team while staying within a meager budget.

**NAMED DATA NETWORKING NDN NEXT GENERATION INTERNET:** Named-data networking focus is on content caching to reduce congestion and improve delivery speed, simpler configuration of network devices, and building security into the network at the data level. Types of Packets: Communication in NDN is driven by receivers i.e., data consumers, through the exchange of two types of packets: Interest and Data. Both types of packets carry a name that identifies a piece of data transmitted in one Data packet. Overview of the Packet Contents for NDN Packet:

**NAMED DATA NETWORK INTEREST:** A consumer puts name of a desired piece of data into an Interest packet and sends it to network. Routers use name to forward Interest query toward data producer(s). **Data:** Once Interest packet reaches a node that has the requested data, the node will return a Data packet that contains both the name and the content, together with a signature by the producer's key which binds the two. This Data packet follows in reverse the path taken by requesting consumer's interest.

**NET CENTRIC OPERATIONS / NET ENABLED OPERATIONS NEO**

See: [https://en.wikipedia.org/wiki/Network-centric\\_warfare](https://en.wikipedia.org/wiki/Network-centric_warfare) See: <http://ncoic.org>

To determine if a organization - squad or platoon was mission capable or where it was supposed to be and equipped with the requisite resources: food, water, fuel, ammo etc. data is sampled and forwarded using a minimum of network resources e.g., time frames, intervals, epochs allocated for specific purposes. The Internet Protocol was examined closely and it was re-discovered that time interval frame assignments were left unassigned / available by internet creators (Stanford U etc.) to transport additional state meta data at some future date when a need arose. These heretofore unassigned time intervals set aside for future use would be used to carry data about the organization – the unit designation or Organizational Identifier <Org\_ID>, geo-location at specified times and its resources Uniform Resource Name. Deriving common building blocks from JBFS which are the common building blocks (heartbeat and </108< heartbeat messages intrinsic to financial and First Response Systems. USPTO 13/573,002 is based upon and applies improvements to United States Army Communication Electronic Command CECOM's greatest invention Blue Force Tracker.

**National Information Exchange Model NIEM:** connects communities of people who share a common need to exchange information in order to advance their missions. LINK

**NXT FOUNDATION:** Nxt revolutionises the financial technology, crowdfunding and governance industries by providing not only the groundbreaking NXT crypto-currency, but also a powerful, modular toolset to build with in any way Nxt users can imagine. Nxt



gives users complete freedom to create their own applications. <http://blockchainwizards.com/nxtfoundation/>

OPEN LEDGER: Smart #Bitcoins backed w real world collateral: decentralized exchange #blockchain. Graphene real-time blockchain technology, options:

1. Create new currency as User Issued Asset. revenue generating asset of Open Ledger using decentralized platform called OBITS. LINK
2. Create a Market Pegged Asset for coin: allow trading only in certain market pairs. Define who is allowed to hold coin by using white- and blacklists. Issuer can opt-out of his privileges indefinitely for the sake of trust and reputation.
3. BitTeaser is powered by a digital token with the abbreviation "BTSR". The network infrastructure allows users to earn tokens by blogging, selling ads, and being active community members. LINK <http://ccedk.com/dc/btsr>
4. ICO Crowd Funding Economic Enterprise Engine – "Crowdfunding 3.0": : official form of payment used to pay for any startup services offered by CCEDK, investment with revenue streams from payments and fees, token offering real return over time, Token and investment with an exit ex: sell ICO token at level 1 ICO price until final launch. Fund buy back, burning process reducing overall supply allowing a growth in value of remaining funds over time

Object Management Group's (OMG) Data Distribution Service for Real-Time Systems (DDS) is an open middleware standard that enables scalable, real-time, dependable, high performance and interoperable data exchanges between publishers and subscribers. DDS is brokerless and provides abstraction of a virtual Global Data Space, a ubiquitous, universal and fully distributed data cache. DDS provides a standard API as a interoperable wire protocol.

OPCODE: TURING COMPLETE SCRIPTING LANGUAGE: In computing, an opcode (abbreviated from operation code) is the portion of a machine language instruction that specifies the operation to be performed. Beside the opcode itself, instructions usually specify the data they will process, in form of operands. <https://en.wikipedia.org/wiki/Opcode>

OPERAND PROGRAMMABLE MONEY: Operand - "In mathematics, an operand is the object of a mathematical operation, a quantity on which an operation is performed." "In computing, an operand is the part of a computer instruction that specifies what data is to be manipulated or operated on, while at the same time representing the data itself."

In Operand, the transactional unit carries the execution methods and parameters that apply to the units of currency involved for that transaction. Operand is programmable money that brings the utility of everyday banking features to the unbanked and underbanked and empowers their adoption through the automata of the Operand protocol. Operand is a currency that functions as a seamless and embedded economic layer on the web that serves as the technological underlay for payments, decentralized exchange, digital asset invocation and transfer, and smart contract issuance and execution. By embedding the instruction set of the transaction into the transaction metadata, the blockchain itself serves as the interpreter for programmed transactions. Operand creates utilities such as direct debit payments or even standing orders. Operand is trustless and non-retractable whilst being fully accountable and transparent on the public ledger. The programmable aspect enables further security on every transaction as the clients must reach network consensus on the method of execution. Smart contracts can then be forged on all aspects of exchange. LINK  
Page: <http://operand.money>

OpenTelemetry OTEL: One standard from OpenCensus / OpenTracing merged to form OpenTelemetry (OTel for short) in May 2019. OTEL's goal is to provide a set of standardized vendor-agnostic SDKs, APIs, and tools for ingesting, transforming, and sending data to an Observability back-end (i.e. open-source or commercial vendor). OTEL OpenTelemetry: A single, vendor-agnostic instrumentation library per language with support for both automatic and manual instrumentation. • A single vendor-neutral collector binary that can be deployed in a variety of ways. • An end-to-end implementation to generate, emit, collect, process, export telemetry data. • Full control of data with the ability to send data to multiple destinations in parallel • Open-standard semantic conventions to ensure vendor-agnostic data collection • The ability to support multiple context propagation formats in parallel

REACT JS Java script: facilitates building of stateful & reusable UI components uses a concept called the Virtual DOM Document Object Model that selectively renders subtrees of nodes based upon state changes LINK

ROSETTA STONE SYNTAX LIBRARY LEXICON CODE GUIDE REGISTRY The Rosetta Stone is a rock stele, found in 1799, inscribed with a decree issued at Memphis, Egypt, in 196 BC on behalf of King Ptolemy V. The decree appears in three scripts: the upper text is Ancient Egyptian hieroglyphs, the middle portion is Demotic script, and the lowest is Ancient Greek. Because it presents essentially the same text in all three scripts (with some minor differences among them), the stone provided the key to the modern understanding of Egyptian hieroglyphs. It was the first Ancient Egyptian bilingual text recovered in modern times, and it aroused widespread public interest with its potential

to decipher this previously untranslated hieroglyphic language. Lithographic copies and plaster casts began circulating among European museums and scholars.

Rosetta Stone concept in context with this project: a common syntax library and ability to convert to YAML indents to binary XML to various other Message Text Formats MTF to enable universal signaling / telemetry among a system of systems is needed. Structured messaging will help accelerate the process of organizing syntax into categories and forming syntax from disparate systems into template libraries simply because numbers are universal – text and symbols less so. 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.

One of the DHS's top three goals is "A national common operating picture for critical infrastructure". A congressional directive states "nothing less than network centric homeland security akin to network centric warfare". This Interoperability challenge exists to this day to develop a common syntax library / Rosetta Stone among disparate systems to form an integrated, synchronized, situational awareness system of systems. Syntax / symbol source libraries that need a common reference format include:

- 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>

RANDOM NUMBER BEACON NIST: uses two independent commercially available sources of randomness, each with an independent hardware entropy source and SP 800-90-approved components. The Beacon is designed to provide unpredictability, autonomy, and consistency. Unpredictability means that users cannot algorithmically predict bits before they are made available by the source. Autonomy means that the source is resistant to attempts by outside parties to alter the distribution of the random bits. Consistency means that a set of users can access the source all receiving the same random string. The Beacon broadcasts full-entropy bit-strings in blocks of 512 bits every 60 seconds. Each value is time-stamped and signed and includes the hash of the previous value to chain the sequence of values together. This prevents all, even the source, from retroactively changing an output packet without being detected. The beacon keeps all output packets and makes them available online. [http://nist.gov/itl/csd/ct/nist\\_beacon.cfm](http://nist.gov/itl/csd/ct/nist_beacon.cfm)

OpenTelemetry:

- Signal refers to the categories of telemetry that are supported by the specification. It currently supports the Signals below, and more may be added in the future.
- Traces: Traces give us the big picture of what happens when a request is made by user or an application.
- Metrics: A metric is a measurement about a service, captured at runtime.
- Logs: A log is a timestamped text record, either structured (recommended) or unstructured, with metadata.
- Baggage: Baggage refers to contextual information that's passed between spans

## DISTRIBUTED TRACING

Log is a timestamped message emitted by services or other components. Unlike Traces, however, they are not necessarily associated with any particular user request or transaction. Sample Log: I, [2021-02-23T13:26:23.505892 #22473] INFO -- : [6459ffe1-ea53-4044-aaa3-bf902868f730] Started GET "/" for ::1 at 2021-02-23 13:26:23 -0800

Spans: represents a unit of work or operation. It tracks specific operations that a request makes, painting a picture of what happened during the time in which that operation was executed. A Span contains name, time-related data, structured log messages, and other metadata (i.e. Attributes) to provide information about the operation it tracks.

Structured Military Message Text Format USMTF / XML MTF FORMATTED MESSAGE CATALOG includes, and describes in detail 300 + messages info exchange requirements using common, Message Text Formats MTFs. MTFs specify / information agreed by group consensus presenting information in a logical, well specified and unambiguous layout resulting in a highly efficient information payload to overhead ratio. Thinking of the world's language, symbol and syntax differences along with coder's proclivity to design a different data {"tag"} convention with each new programming language, the use of NUMBERS as a universal method to unambiguously, consistently describe data transaction parameters is logical. See FIGURE 5: Code Syntax Lexicon, Message Template Library See FIGURE 6: Structured Military Messaging / Data Rosetta Stone

Structured military messaging identifies messages, message sets, data element fields BY NUMBER to improve the interoperability of Joint military systems. See MIL-STD-6040. XML-MTF mapping specification and associated XML-MTF schema derivation procedures provided by NATO describe a common method of translating MTF messages to, and from, the equivalent XML representation. XML-MTF mapping specification and schema derivation procedure illustrate specific considerations such as Tag naming conventions and ambiguity issues. The XML-MTF involves detailed descriptions of MTF structure and rules, specification of legal field content, e.g. data elements <https://en.wikipedia.org/wiki/USMTF> LINK See also Binary XML

TIME SERIES DATABASE: is a software system that is optimized for handling time series data, arrays of numbers indexed by time (a datetime or a datetime range). In some fields these time series are called profiles, curves, or traces. A time series of stock prices might be called a price curve. A time series of energy consumption might be called a load profile. [https://en.wikipedia.org/wiki/Time\\_series\\_database](https://en.wikipedia.org/wiki/Time_series_database) LINK

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). Lietaer states that this would provide a currency that would not suffer from inflation: Terra = reference unit defined as standardized basket of key internationally traded commodities & services. Example: 100 Terra = 1 barrel of oil / + 10 bushels of wheat / + 20 kg of copper + 1/10 of ounce of gold. NB: any standardizable good or service can be included. Similar stability to gold standard, but with basket instead of single commodity (more stable than any one component). Terra is Inflation-resistant by definition. The basic principle emerged from early concepts presented in an article in the French newspaper "Le Fédériste" on 1 January 1933. The idea to establish a "L'Europa – monnaie de la paix", in English "Europe - Money of peace", was given birth. The idea

was enthusiastically picked up by Lietaer during an educational journey.

LINK: [https://en.wikipedia.org/wiki/Terra\\_\(currency\)](https://en.wikipedia.org/wiki/Terra_(currency))

"According to Lietaer in his influential *The Future of Money*, there is a four-tiered monetary system for the future. People and businesses will routinely deal in this multiple currency system, as we use all kinds of value cards, air miles, vouchers, credit and debit cards and virtual (cryptographic "crypto") Complementary currencies CC.

The first tier of this monetary structure would be a 'global reference currency', which is not linked to nation states as such. This currency provides a steady reliable type of money that can be used for international trade based on internationally traded items like gold, copper, and wheat. Lietaer believes this kind of new world currency could morph into being from various corporate scrips used in cashless trade between businesses.

"Apparently, in the US, 400,000 businesses are linked to about 700 barter exchanges, which results in \$8.5 billion in cashless trade. It seems that this kind of trade rips along at 15% a year, three times the speed of dollar commercial exchanges".

A second tier in this monetary structure would be, for example, certain multinational currencies utilized by what would be deemed as geopolitically-close countries. This could include say the NAFTA dollar, the Euro, and an ASEAN (the 10-member Association of Southeast Asian Nations) currency.

On the third level, we have some remaining national currencies which run within or outside the multinational currency regions. But this time, individual states no longer have the monopoly in issuance of currency.

At the fourth level, we have CCs/new money. To Lietaer, these CCs could have an expanded role and greater influence, as they may be widely used and exchanged through community internet clearing houses.

The Terra is a CC that would be issued by a nation's central bank. As outlined by Lietaer in his seminal "*A 'Green' Convertible Currency*", what we will have is a "commodity-based currency, for a New Currency backed by a basket of from three to a dozen different commodities for which there are existing international commodity markets. For instance, 100 New Currency could be worth 0.05 ounces of gold, plus 3 ounces of silver, plus 15 pounds of copper, plus 1 barrel of oil, plus 5 pounds of wool." This CC/new money is therefore backed by the valuation of the commodities in the basket at the value of the national currency of the society it originates from. So in the US, the value of the basket, in terms of USD, will determine the exchange rate between those trading in USD for the Terra in America. The Terra would work in tandem with the national

currency and is not a new money that supplants everything else in its wake. As the Terra TRC (Trade Reference Currency) White Paper by Takashi Kiuchi, Chairman of The Future 500, states:

"The Terra is designed as a complementary currency operating in parallel with national currencies. Therefore, everything that exists today as monetary and financial products or practices continues to exist. The Terra mechanism is only one additional option available for those international economic actors who voluntarily choose to use it."

TRC Trade Reference Currency SOURCE: <https://www.lietaer.com/2010/01/terra/>

SPATIAL ECONOMETRICS: See Dictionary of Economics

LINK [http://dictionaryofeconomics.com/article?id=pde2008\\_S000195](http://dictionaryofeconomics.com/article?id=pde2008_S000195) See also:

- central place theory
- international trade theory
- location theory
- GIS data in economics, urban economics
- monocentric versus polycentric models in urban economics
- new economic geography
- systems of cities
- urban agglomeration
- urban production externalities
- urban transportation economics

STREAMING K ALGORITHM: streaming algorithms are algorithms for processing data streams in which the input is presented as a sequence of items and can be examined in only a few passes (typically just one). These algorithms have limited memory available to them (much less than the input size) and also limited processing time per item. These constraints may mean that an algorithm produces an approximate answer based on a summary or "sketch" of the data stream in memory.

LINK: [https://en.wikipedia.org/wiki/Streaming\\_algorithm](https://en.wikipedia.org/wiki/Streaming_algorithm)

TCP/IP INTERNET "HEARTBEAT" is a metaphor, meme for epochs, time cycles, intervals generated or formed by silicon microchips used to process syntax instructions

UNIVERSAL TIME ZONE UTZ PROJECT: Universal Time Zone (UTZ) Proposed Clock At the United Nations on May 20, 2003, President, George W. Bush, announced a proposal to unify all the world's time zones into a single Universal Time Zone (UTZ). In remarks attempting to better position the USA in world affairs, Bush said, "It is unfair to the



United States that other countries have the advantage of being in tomorrow while the US is stuck in today. If it is 9 PM in Washington D.C., it is already tomorrow in London or Paris. That patently unfair." LINK <http://www.csghnetwork.com/utzproptimecalc.html>

## APPENDIX B: REFERENCES – ACRONYMS, METAPHORS, MEMES

Supreme Court precedent case Alice Corp Vs CLS Bank requires all internet, internet of money (Bitcoin, Blockchain) related patent applications to apply physical memes. For example, the internet TCP/IP "ping" terms is an abstraction. The internet's "hop", "hop count" is an abstraction. SAW Concept LLC's application is compliant with the Supreme Court internet, internet of money precedent by using a Little League Baseball tournament as a main embodiment with internet technical theme derivative use cases

### PAUL REVERE BASEBALL GAME BASE RUNNING LINEAR-SEQUENTIAL MEME

The Paul Revere linear-sequential meme – metaphor is a physical, historical meme used instead of an abstract metaphor that the internet uses called TCP/IP "hop counts".

Hop Counts: (123): Hops are linear and sequential referring to applicant's Paul Revere meme (126). Hops are described / defined from null as a condition / state: stationary, inactive. Hops are changes in location from point a to point b to point n. Hops follow a base running paradigm in the main embodiment (131) and are referential to TCP/IP in embodiment 1. Hops are counted incrementally where hops are changes in location e.g., home plate to first, second, and third base and back to home base (131). Hop metrics are incremental changes from null 0,1,2,3,4 - N (126) that may be positive or negative values. Hop counts are used to equitably meter, measure and derive performance or effectiveness metrics, meters. Time stamps (112) form time frames, temporally bound hops e.g., in time and space. Erlang logic is useful in establishing time boundaries and time limits among geo-spatially disperse events.

Time filtered and spatially metered reports are comprised of state meta-data snapshot / heartbeat message / sync delta messages where state meta data is harvested during micro-cycles then posted / displayed during longer macro-cycles. WATER DROP IN POND MEME

"Water drop in pond meme directs to a detailed treatises describing geo-spatial temporal intensity metrics and meters using sonar in water as opposed to a TCP/IP internet ping. Reasons for this distinction is that sonar wave behavior in water used by naval military units is well known while a TCP/IP internet "ping" is an abstract metaphor formed by time intervals / cycles / epochs / CPU clock intervals that are used to process / not process instructions describing distances between internet nodes.

Water Drop in Pond area, circular, circumference metaphor – meme: areas defined by radius / circumference (124) are described in terms of radii within a circumference of a circle used to encompass or encircle a cluster of players, teams, or leagues into a discrete set. Resource items are typed, classified by measured from a known reference point i.e. ten-digit map grid coordinate describing a limited or bounded geo-spatial area described by concentric rings /circles shown to expand or contract with threshold metric changes denoting intensity i.e., an earthquake occurs during game with pre / aftershocks. Wave crests and troughs are converted into analog integer equivalents where amplitude and frequency changes convey event intensity, duration as thresholds. Discrete wave crest to trough phase changes are summed. Wave crests and troughs define cycles in terms of on, off, duration and describe slowing and speeding up of events, activities occurring within the circular geo-spatial area containing items of interest --see geo-spatial area entries, in related art for treatises

Radius searches performed within circumference (124) use as search key tag / word targets. Search results are filtered and processed by tag classes and types then saved as search results time tagged with the micro-cycle heartbeat timestamp (112) running concurrently within and assisting with the formation of a self-organizing reporting cycle in a macro-cycle as part of a Heart Beacon Cycle (137). Radius searches are conducted to discover threshold, duration and intensity conditions changes useful in precedence processing parameters i.e., flash override, flash, immediate, priority routine shown on appliqué acetate overlay display boards (134).

IEEE 802.11AG hop by hop detection, control for epoch assignment, hop count management, hop by hop detection function to determine hop by hop count corresponding null / 0 and steps from null representing hop counts e.g., +1, +2, +3, +4 and / or -1, -2, -3, -4 Paul Revere linear, sequential metaphor indicating distance traveled in context with router / server / switch / node traversal

IEEE 802.11 HbH hop by hop control supporting Paul Revere, metrics of increases / decreases in thresholds, intensity, duration and hop count summation

IEEE C37.118 Harmonization and Synchronization for heartbeat data pulses and watchdog heartbeat functions in electrical power grid applications to base micro-grid arbitrage when used with user, customer, client, organization beacon broadcasts

US 7,571,430 Trimbell, et al. August 4, 2009 Adaptive dispatch table based on templates Original Assignee: LSI Logic Corporation Inventors: Forrest Trimbell,

PATENT FILING: USPTO 13/573,002 The Heart Beacon Cycle Time - Space Meter Adaptive Procedural Template (checklist of tools, procedures, processes, algorithms)  
DESCRIPTION: USPTO 13/573,002: Signals, telemetry syntax symbol set framework /

metrics, meters for the net, net of programmable \$\$\$ / economy. Organize individuals into DAO Distributed Autonomous Organizations / Trade Federations for common goals i.e., equitable, sustainable economic system of systems engineering framework

GERMAN ARMY RECOMMENDATION CIRCA 2003: using Battlefield Digitization, Net Centric Warfare, System of Systems Engineering best practice for OOTW Operations Other Than War - a German Army suggestion made in 2003 to support DATF Distributed Autonomous Trade Federations / DAOs for a world economic framework

SWORDS TO PLOWSHARES DESCRIPTION: Adaptive Procedural Template forming / supporting a system of federated systems with a distributed signaling, telemetry (OPORD Annex K) framework derived from DARPA / Pentagon / NATO's Common Operational Picture COP-SIOP Single Integrated Operational Picture / system of systems engineering family of systems dating from the mid 1990's (swords to plowshares) / German Army suggestion to use COP - SIOP Battlefield Digitization Digital Dashboard procedures for OOTW Operations Other Than War circa 2003

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.

PATENT APPLICATION TYPE: Adaptive Procedural Template USPTO 13/573,002: Time-Space Meter / Syntax Lexicon Rosetta Stone, Checklist: adaptive procedural template in patent application terms does not capture attention so graphics are used as a picture representing a checklist of useful tools, procedures, processes, algorithms, ideas that a trade federation would agree to use to achieve, maintain their collective goals of the distributed federation. The Heart Beacon Cycle Time - Space Meter Adaptive Procedural Template checklist of useful tools, procedures, products, algorithms, econometrics, processes, metrics, meters, e.g., time - space, geo-spatial, temporal, cryptocurrency data storage into a "blockchain cube" with height, width, depth, volume, programmable money metrics, meters representing, describing a myriad of memes, metaphors within the cryptocurrency programmable money continuum.

USPTO 13/573,002 METHOD: Code Eco sustainable incentives into programmable economic framework reusing / leveraging NATO systems of systems engineering best practice. Form federations of Distributed, Autonomous Organizations DAO communities, states, sovereign nations using an adaptive procedural template checklist promoting organization and synchronization among geo-spatially and temporally dispersed groups using a common syntax – symbol set lexicon. Federated groups activities are

synchronized geo-spatially across time - space to achieve synergy, synchronicity of events orchestrated from micro to macro cycles from grassroots to capitals.

1. Reuse OPSCODE brevity codes mapped to message symbol sets enabling Artificial Intelligence / human interaction ( i.e., man — machine interface).
2. Apply lessons learned (bandwidth discipline, interoperability, OPTEMPO sync cycles... intrinsic to NATO SOP swords to plowshares following German military proposal use cases circa 2003.

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

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

THESIS: 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", "notes", ... 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

The above cited memes made up terms are non - compliant US Supreme Court SCOTUS Alice Corp Vs CLS Bank 2014 ruling "claims may not direct towards abstract ideas", Note: Physical is the opposite of abstract considering SCOTUS Alice 2014 ruling and in light of the fact that NIST's National Institute of Standards and Technology QRNB Quantum Random Number Beacon is based on light photonics.

ABSTRACT / ABSTRACTION:

1. existing in thought or as an idea but not having a physical or concrete existence. thought of apart from concrete realities, specific objects, an abstract idea
2. expressing a quality or characteristic apart from any specific object or instance
3. theoretical; not applied or practical: abstract science.
- 4, difficult to understand; abstruse:

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 at Boulder Colorado (Stephen King's Book The Stand's Free Zone)

PRECEDENT: Nobel Prize winning economist Milton Friedman's K% rule is a GDP Gross Domestic Product economic heartbeat, a GDP pulse. Apply a Quantum Random Number Beacon QRNB for non-repudiation at any location / time in the future = basis for a one world economic system of systems unit of value FEDCOIN, World Coin PRECEDENT:

GDP INDEX ECONOMY: Thomas Edison and Henry Ford proposed a currency based on a basket of crop commodities. Edison believed that crops held their value over time - enter climate change reality and the merits are self-evident.

PRECEDENT: NOBLE PRIZE-WINNING ECONOMIST: Milton Friedman's K% rule as an "economic heartbeat". K-Percent Rule DEFINITION: The K-Percent Rule proposal by economist Milton Friedman was the central bank should increase the money supply by a constant percentage every year. The K-Percent Rule proposes to set the money supply growth / reduction at a rate equal to the growth of real GDP each year. K-Percent Rule — Investopedia <http://www.investopedia.com/terms/k/k-percent-rule.asp>

PRECEDENT: NOBEL PRIZE WINNER Simon Smith Kuznets gross national income (GNI), previously known as gross national product (GNP), is the total domestic and foreign output claimed by residents of a country, consisting of Gross Domestic Product (GDP), plus factor incomes earned by foreign residents, minus income earned in the domestic economy by nonresidents (Todaro & Smith, 2011: 44).[2] Comparing GNI to GDP shows the degree to which a nation's GDP represents domestic or international activity. Kuznets became the first economist to show that the Absolute Income Hypothesis gives inaccurate predictions in the long run by using time-series data.

Wikipedia [https://en.wikipedia.org/wiki/Simon\\_Kuznets](https://en.wikipedia.org/wiki/Simon_Kuznets)

PRECEDENT TRADE REFERENCE CURRENCY TRC / FRENCH MONEY OF PEACE: Later in the 1990's, Belgian Economist Bernard Lietaer proposed a commodity based TRC Trade Reference 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/>

PRECEDENT: AMERICAN AXLE V. NEAPCO RULING Judge: "an inventive concept to instead focus on the reliance on Hooke's law and predicted that because all inventions depend to some extent on the operation of unstated natural laws, the majority's opinion would open the door to Section 101 challenges in practically every patent case. Tesla: "think of energy, frequency, and vibration" Judge Moore also took exception to the majority disregarding the use of a cardboard liner as an inventive concept to instead focus on the reliance on Hooke's law and predicted that because all inventions depend to some extent on the operation of unstated natural laws, the majority's opinion would open the door to Section 101 challenges in practically every patent case. Article source: <https://bilski.typepad.com/blog/2018/03/good-vibrations-bad-vibrations-american-axle-v-neapco-ruling.html>

Patent Application: Price Discover: 0160358256 [0056 In accordance with an example embodiment of the present invention, the amount of an investment required from a speculator is calculated by executing the following cost of speculation equation:  $V \cdot \int \frac{|\log(P) - \log(\Delta P)|}{R} dt$ . The variables for the cost of speculation equation are as follows: P represents a variable of price, P(t) is a variable function of price over time in a given market,  $\Delta P$  represent a speculative price function. P(t) can mathematically represent the future prices as functions of price over time. The function value of R(t) is a predetermined value for the rate of return. For example, for R(t), the value can be 100% annualized so for a t in years  $R(1)=2$ ,  $R(2)=4$  and  $R(0.5)=1.414$ , but as would be appreciated by one skilled in the art, any function is possible. The value for V(t) at any given time is the expected value to the market (e.g., volume of goods to trade multiplied by the market commission) The value for V(t) can be updated empirically as the commodities market functions by calculation as a moving average of volume times the markets total transactional overhead charge. Source / Attributed to: Noah Healy Data Scientist at Castle Hill Gaming strategic design for (commodity) markets drastically lowering transaction costs while increasing returns for informed speculators to launch a global economic boom. Price discovery method and means:

Source: <https://tinyurl.com/4w4m359h>

PAUL REVERE LINEAR-SEQUENTIAL MEME: The Paul Revere linear-sequential meme – metaphor is a physical, historical meme used instead of an abstract metaphor that the internet uses called TCP/IP "hop counts".

Hop Counts: (123): Hops are linear and sequential referring to applicant's Paul Revere meme (126). Hops are described / defined from null as a condition / state: stationary, inactive. Hops are changes in location from point a to point b to point n. Hops follow a



base running paradigm in the main embodiment (131) and are referential to TCP/IP in embodiment 1. Hops are counted incrementally where hops are changes in location e.g., home plate to first, second, and third base and back to home base (131). Hop metrics are incremental changes from null 0,1,2,3,4 - N (126) that may be positive or negative values. Hop counts are used to equitably meter, measure and derive performance or effectiveness metrics, meters. Time stamps (112) form time frames, temporally bound hops e.g., in time and space. Erlang logic is useful in establishing time boundaries and time limits among geo-spatially disperse events. Time filtered and spatially metered reports are comprised of state meta-data snapshot / heartbeat message / sync delta messages where state meta data is harvested during micro-cycles then posted / displayed during longer macro-cycles

Hop Counts: SCIENCE ALERT dot org: PHYSICS: A Huge Step Forward in Quantum Computing Was Just Announced: The First-Ever Quantum Circuit FELICITY NELSON 22 JUNE 2022

The latest invention follows the team's creation of the first ever quantum transistor in 2012. (A transistor is a small device that controls electronic signals and forms just one part of a computer circuit. An integrated circuit is more complex as it puts lots of transistors together.) To make this leap in quantum computing, the researchers used a scanning tunneling microscope in an ultra-high vacuum to place quantum dots with sub-nanometer precision. The placement of each quantum dot needed to be just right so the circuit could mimic how electrons hop along a string of single- and double-bonded carbons in a polyacetylene molecule.

SCOTUS "Alice in Wonderland ruling "claims may not direct towards abstract ideas. Thesis: physical is the opposite of abstract e.g., Paul Revere's ride as an analog to hop by hop, hop count metrics for quantum circuit's quantum dots

Science Alert: 22 June 2022: <https://www.sciencealert.com/a-huge-step-forward-in-quantum-computing-was-just-announced-the-first-ever-quantum-circuit>

INTERNET TREATISES: Time filtered, and spatially metered reports are comprised of state meta-data snapshot / heartbeat message / sync delta messages where state meta data is harvested during micro-cycles then posted / displayed during longer macro-cycles See hop count treatise referential to internet TCP/IP treatises

1. IEEE 802.11AG is used for hop-by-hop detection and control for epoch assignment and hop counts management and for hop by hop detection function to determine hop by hop count corresponding to machine readable and executable null / 0 and steps from null representing hop counts e.g., +1, +2, +3,



+4 and / or -1, -2, -3, -4 Paul Revere linear, sequential metaphor indicating distance traveled in context with router / server / switch / node traversal

2. IEEE 802.11 HbH hop by hop control described, represented by USPTO 13/573,002 Paul Revere, rain drop in pond meme - metaphor metrics denoting increases / decreases in thresholds intensity, duration and hop count sums

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> • water drop in pond meme • Paul Revere linear, sequential

Sync Deltas = changes from one epoch time cycle to the next: crypto currencies tethered to tangible commodities formed into indices of Delta-1 assets: Linear Finance (LINA) is a cross-chain Decentralized Delta-One Asset Protocol with Unlimited Liquidity. It is the first protocol that allows users to cost-effectively create, trade and manage liquid assets (Liquids) and creative thematical Digital Traded Funds. Linear Buildr is a decentralized application for staking and building LUSD, accepting a mixture of LINA tokens and other major cryptocurrencies. Linear Exchange enables trading of a variety of liquid assets (Liquids) based on spot cryptocurrencies, commodities, and thematic indexes with nearly instant confirmation time and immediate finality.

Source: <https://lnkd.in/dmTaeHJ>

Crypto currency index: optimal algorithm for sampling, reporting (heartbeat message event bus) index fluctuations across UTZ time zones providing stochastic harmonization? firefly-heartbeat algorithm)

Luxor Egypt: "the shortest path to the knowledge of truth is nature"

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/>

PROJECT BEACON: Reuse NATO's system of systems syntax lexicon OPSCODE brevity code structured data exchange, heartbeat micro gamito macro cycle Universal Time Zone UTZ sync to support an EIN Earth Intelligence Network neural net emulation. Support Beacon Communities with an open-source Earth Intelligence Network EIN integrated with NIST's QRNB quantum random number beacon blockchain for event, transaction non-repudiation at any place – time in the future .

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.

ECO INCENTIVES: Ecologically sustainable economic transactions need to be incentivized among the world's Ecological and Economic system of systems. 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

THREE DECADES OF NATO SYSTEM OF SYSTEMS ENGINEERING REUSE: NATO has invested decades of mapping OPSCODE brevity codes to symbology / symbols / symbol sets contained in three hundred 300 plus message set / use cases as part of Battlefield digitization, Net Centric Warfare NET Enabled Operations NEO NETOPS system of systems engineering. Blockchain, crypto currency developers are recreating, reinventing this decades old, tedious, time intensive, labor intensive, expensive structured data exchange wheel with every new meme, metaphor. Crypto currency based economics needs a universal syntax lexicon digital base Artificial Intelligence A.I., quantum blockchain heartbeat beacon to synchronize, sample tokenized commodities across a stochastically harmonized UTZ Universal Time Zone using the firefly-heartbeat algorithm and Princeton University Mathematician John Nash's Equilibrium algorithms NATO bases are small cities that transact most goods, commodities with the host nation. Why reinvent the syntax lexicon Rosetta Stone wheel? Reuse: system of systems tool to accelerate an EIN Earth Intelligence Net – see Project #UNRIG by Robert David Steele

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. Why wait until crisis, DEFCON 2 stage?
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/>

ECO INCENTIVES: Ecologically sustainable economic transactions need to be incentivized among the world's Ecological and Economic system of systems. 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

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.

Secrets of Synchronization / Particle - wave duality (#quantum) firefly pair coupling to synchronize across time - space via firefly-heartbeat algorithm for stochastic harmonization, UTZ synchronization @ 8:10: [https://youtu.be/t\\_VPRCtiUg?t=490](https://youtu.be/t_VPRCtiUg?t=490)

QUANTUM COMPUTING: the use of quantum-mechanical phenomena such as superposition and entanglement to perform computation. Quantum computers are believed to be able to solve certain computational problems, such as integer factorization. in a quantum Turing machine, the difference is that the tape exists in a quantum state, as does the read-write head. This means that the symbols on the tape can be either 0 or 1 or a superposition of 0 and 1; in other words, the symbols are both 0 and 1 (and all points in between) at the same time. While a normal Turing machine can only perform one calculation at a time, a quantum Turing machine can perform many

calculations at once. The programmable economy will be anchored by quantum computing -for example, NIST's Quantum Random Number Beacon

USPTO 13/573,002 The Heart Beacon Cycle Time - Space Meter is descriptive to the quantum computing level and SCOTUS Alice in Wonderland Alice Corp Vs CLS Bank ruling... waves (USPTO 13/573,002 water drop in pond meme) single photon shifts (USPTO 13/573,002 Paul Revere meme)

The NIST Randomness Beacon Broadcasts a randomness pulse every 60 seconds Each pulse commits to a fresh 512-bit random string Each pulse is time-stamped and signed. Beacon periodically outputs a pulse containing 512 fresh random bits, time-stamped, signed and hash-chained. For example, each pulse also pre-commits to the randomness to be released in the next pulse. The latter enables users to securely combine randomness from different beacons. The Beacon protocol also specifies the interface for users to interact with the Beacon, in order to obtain information about past pulses. A randomness beacon produces timed outputs of fresh public randomness. Each output, called a pulse, includes metadata / cryptographic elements. The main goal of the NIST Random # Beacon is to serve as a baseline for deployment of many interoperable beacons NIST: <https://csrc.nist.gov/CSRC/media/Presentations/The-NIST-Randomness-Beacon-2-0/images-media/SciDay18-poster-beacon-v20181022.pdf>

The BIG Bell Test: In 2015, NIST BOULDER | Colorado was one of the first groups to carry out a complete test of Bell theorem using quantum states of light, and conclusively show the presence of Einstein's "spooky action." However, in that experiment the decisions about how to carry out the measurements were made by random numbers generated from different physical processes. <https://thebigbelltest.org/team/nist-boulder/>

Quantum Random Number Generator: The NIST method generates digital bits (1s and 0s) with photons, or particles of light, using data generated in an improved version of a landmark 2015 NIST physics experiment. That experiment showed conclusively that what Einstein derided as "spooky action at a distance" is real. Researchers process the spooky output to certify and quantify the randomness available in the data and generate a string of more random bits. LINK

NON-REPUDIATION: Cryptocurrency units of value events, transactions non-repudiation at any time – space, place in the future will be expected required and will be derived from a physical (photonic) light process generated by a Quantum Random Number Beacon QRNB. The QRNB provides a method and means to prevent repudiation of any event, transaction at any point in time – space.

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>

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.

"Schroedinger's equation at it's heart describes energy and looks similar to describing the action of waves in water" so, if an (observed) event can appear as a particle or a diffusion pattern in a wave, why not use diffusion patterns in waves at room temperatures Vs liquid cooled silicon computer chips chilled to near absolute zero for efficiencies in energy and accuracy at different temperature zones / elevations given temperature drops every 1000 meters / feet in altitude? Source: Einstein's nightmare: <https://youtu.be/-hxljpxTaiA?t=211>

QUANTUM COMPUTING STOCK / COMMODITY MARKETS USE CASE: 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? How will market trade sessions be mitigated, moderated among quantum haves and have nots? i.e., QCCS Quantum Computing Control System <https://tinyurl.com/e4h5wxk>

IEEE Article: Quantum Computing Error Correct QEC is getting practical February 25th 2021: Quantum Error Correction QEC, in combination with the theory of fault-tolerant quantum computing, suggests that engineers can in principle build an arbitrarily large quantum computer that if operated correctly would be capable of arbitrarily long computations. This would be a stunningly powerful achievement. The prospect that it can be realized underpins the entire field of quantum computer science: Replace all quantum computing hardware with "logical" qubits running QEC, and even the most complex algorithms come into reach. For instance, Shor's algorithm could be deployed to render Bitcoin insecure with just a few thousand error-corrected logical qubits. LINK: <https://spectrum.ieee.org/tech-talk/computing/hardware/quantum-computer-error-correction-is-getting-practical>

QFS Quantum Financial System ground station data center in Las Vegas Nevada to my knowledge does not make use of the Department of Commerce's NIST National Institute of Science and Technology's QRNB Quantum Random Number Beacon. Cryptocurrencies need to be quantum computing based rather than simply quantum resistant and use light waves at room temperature Vs particle detection given the particle - wave duality twin slot phenomenon using liquid nitrogen for Ecological energy consumption and economic (less energy, less expensive) efficiencies. In other words, a quantum computing, quantum financial system for the 99 %

Time crystals, first proposed by physicist Frank Wilczek in 2012, is a phase of matter which repeats in time, similar to how a regular crystal's structure repeats in space. What that means is that the particles in the crystal perpetually switch between two states without requiring the input of more energy and without losing any energy. These crystals are the first objects to break what is known as "time-translation symmetry," a rule in physics that states that a stable object will remain unchanged throughout time. Time crystals avoid this rule, being both stable and ever-changing. Scientists from Stanford and the Max Planck Institute for Physics of Complex Systems, as well as scientists at QuTech, a collaboration between the Delft University of Technology and the Netherlands Organization for Applied Scientific Research (TNO), figured out for the first time how to create these theoretical crystals.

Law of Time dot org: 13 MOONS OF PEACE Math: The 13 Moon calendar is a solar-galactic cycle that meshes the 365-day third-dimensional solar cycle with the 260-day fourth-dimensional galactic cycle (Tzolkin) every 52 years. The 365-day orbit of Earth around the Sun naturally divides into thirteen 28-day sequences ( $13 \times 28 = 364$ ) which correspond to the thirteen lunations occurring during one solar year, plus one extra day, July 25, the Day Out of Time, a day to practice time is art and peace through culture. Its daily use helps entrain the mind into the threshold of galactic consciousness. The 13 Moon/28-day calendar embraces and synchronizes all true calendrical and mathematical systems, from lunar calendars, to the Mayan long count, to the Elder Futhark runes, to the I Ching hexagrams. In other words, this system reveals a master matrix, which contains all other systems. In the Gregorian calendar there is little cyclic or periodic order. Months are uneven; the length of months does not correlate with number of seven-day weeks, and the numbers change every month. <https://lawoftime.org/education/>

"One people, one Earth, one Time": "The times we are living in require higher thinking. There has never in the history of the Earth been a time like this. We are now participating in what is called the biosphere-noosphere transition. "Only by lifting our minds to planetary consciousness and beyond can we realize solutions to the multiple challenges facing our planet today. With a new consciousness we can effectively educate



and mobilize humanity to an unprecedented level of creative problem solving and realize a positive future." Source: <http://lawoftime.org>

SPACE / TELEPATHY / A.I., ARTIFICIAL INTELLIGENCE: 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 memes, metaphors... Given space travel risks, navigation based on consciousness / telepathy (use of symbols not words), a consistent syntax lexicon to communicate with #UFO EBO's that are likely Artificial Intelligence AI drones is reuse of DARPA - NATO's structured data exchange that maps data element OPSCODES to symbol sets. Trade with E.T. / EBO's (will) requires a consistent syntax ,symbol set lexicon library where OPSCODE brevity codes are mapped to symbol sets representing tokenized (crop) commodities

Corporations and now countries: Nigeria / Algorand / Developing Africa Group UK are establishing federations - coalitions to express IP Intellectual Property rights and therefore claims that their #IP establishes FOUNDATION (framework) technology in preparation for the rapidly approaching programmable \$\$\$ wars

THESIS: Internet programmable money is dependent and derivative of internet foundation technology, processes, procedures

#supremecourt #technology #quality #money #africa

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: 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", "notes", ... 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.

The above cited memes made up terms are non - compliant US Supreme Court SCOTUS Alice Corp Vs CLS Bank 2014 ruling "claims may not direct towards abstract ideas", Note: Physical is the opposite of abstract considering SCOTUS Alice 2014 ruling and in light of



the fact that NIST's National Institute of Standards and Technology QRNB Quantum Random Number Beacon is based on light photonics.

#### ABSTRACT / ABSTRACTION:

1. existing in thought or as an idea but not having a physical or concrete existence. thought of apart from concrete realities, specific objects, an abstract idea
2. expressing a quality or characteristic apart from any specific object or instance
3. theoretical; not applied or practical: abstract science.
4. difficult to understand; abstruse:

EXAMPLE: Nigeria to Launch Major Crypto Initiative, IP Exchange Marketplace and Wallet, on Algorand in Partnership with Developing Africa Group and Koibanx

YAHOO FINANCE: <https://finance.yahoo.com/news/nigeria-launch-major-crypto-initiative-233000248.html> #IP#intellectual property#Cryptocurrency#crypto economy#cash#money

The Heart Beacon Sculpture, Portland Oregon USA:

LINK <https://codaworx.com/project/heart-beacon-city-of-portland>

#### APPENDIX E: REFERENCES / SOCIAL MEDIA LINKS

GITHUB PROJECT DESCRIPTION, DOCUMENTS: <https://github.com/Beacon-Heart>

Quantum Computing / Quantum Financial System QFS for the 99 % / NEXGEN Foundation baseline tech for DeFi / crypto / <https://youtu.be/ZfR1Jc6Zglo>

We Heart It: [https://weheartit.com/steven\\_mcgee\\_1/collections](https://weheartit.com/steven_mcgee_1/collections)

GETTR: [https://gettr.com/user/heart\\_beacon](https://gettr.com/user/heart_beacon)

Maven: <https://app.maven.co/profile/SHfEKna9>

REDDIT: <https://www.reddit.com/user/EcoEconomicEpochs>

DISCORD: GDP\_Index\_Economy#6495

Skype: Steven McGee

Gravatar: <https://en.gravatar.com/ecoeconheartbeat>

SLIDESHARE PAPERS: <https://www.slideshare.net/StevenMcGee2/>

MEDIUM: <https://medium.com/@heart.beacon.cycle>

MEDIUM ARTICLE: Digital Nations need an Ecologically sustainable Economic Heartbeat  
LINK: <https://medium.com/@heart.beacon.cycle/eco-sustainable-economic-heartbeat-43e4e30246da>

MEDIUM ARTICLE: Deep Thought pondering the crypto blockchain through Alice's Looking Glass: LINK <https://medium.com/@heart.beacon.cycle/deep-thought-pondering-the-bitcoin-blockchain-f20ad6112d7>

MEDIUM ARTICLE: "Delusional Bitcoin Vs Fool's Gold":  
LINK: <https://medium.com/@heart.beacon.cycle/delusional-bitcoin-vs-fools-gold-e4bea26afba8>

PIN INTEREST: <https://pinterest.com/mcgee3077/eco-economic-heartbeat/> // <https://www.pinterest.com/heartbeaconcycle/eco-economic-heartbeat/> Angel

List: [https://angel.co/heart\\_beacon](https://angel.co/heart_beacon) MeWE: <http://mewe.com/i/stevenmcgee2> Maven: <http://app.maven.co/profile/SHfEKna9> WordPress: <http://ecoheartbeat.wordpress.com>  
Patreon: [https://www.patreon.com/Heart\\_Beacon](https://www.patreon.com/Heart_Beacon) FACEBOOK: <https://www.facebook.com/heartbeat> FACEBOOK: <https://www.facebook.com/HeartBeacon/> MINDS: <https://www.minds.com/heartbeat/> TWITTER:

@Heart\_Beacon [https://twitter.com/Heart\\_Beacon](https://twitter.com/Heart_Beacon) Subscribe

Star: [https://www.subscribestar.com/eco\\_econ\\_epochs](https://www.subscribestar.com/eco_econ_epochs) LINKEDIN: <https://www.linkedin.com/in/ecoeconepochs/> BEHANCE: Project site: <http://be.net/heartbeat02eb7> Gitter

EcoEconHeartbeat/Lobby: <https://gitter.im/EcoEconHeartbeat/Lobby> via @gitchat

Proton Email (secure) [ecoeconomicepochs@protonmail.com](mailto:ecoeconomicepochs@protonmail.com) EIN Earth Intelligence

Network: Robert David Steele's #UNRIG proposal @ <http://robertdavidsteele.com> IPFS Interplanetary File

System: [https://ipfs.io/ipfs/QmT3NEZfkgoHiTFon5CVECpbFAhWcBhaWXUWcrgRfEC6LH?filename=Eco\\_Economic\\_Heartbeat\\_paper.docx](https://ipfs.io/ipfs/QmT3NEZfkgoHiTFon5CVECpbFAhWcBhaWXUWcrgRfEC6LH?filename=Eco_Economic_Heartbeat_paper.docx) FLOTE: [https://flote.app/Heart\\_Beacon](https://flote.app/Heart_Beacon) P

arler: <https://parler.com/user/Ecoeconomicepochs> Law of Time

Math: <https://www.lawoftime.org/lawoftime/synchronicmathematics.html>

A Simple, Efficient Artificial Bee Colony Algorithm Yunfeng Xu,1,2 Ping Fan, 3, Ling Yuan

We can synchronize ourselves, our cities, towns, cyber-communities in time — space for a common purpose: shared, common, ecologically sound, equitable... econometrics.

(Attributed to the Law of Time Founder RIP Dr. Jose Arguellos) see Law of Time dot org

#economic collapse #economic reset #econometrics #programmable economy  
#programmable money #blockchain #cryptocurrencies #sustainable development  
#internet #money #blockchain #cryptocurrencies #economics #sustainable #ecology  
#sustainability #climate change #econometrics #time-space meter, #metrics,  
#geospatial temporal #intensity #random number beacon #random number blockchain

#### APPENDIX F: BRIEF DESCRIPTION OF GRAPHICS

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