Eco Economic Epochs: Eco sustainable  incentives for the programmable Economy - It's about TIME

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

Time epochs / syntax: two main building blocks in creating the Artificial Intelligence A.I. powered global economic system of systems / Earth Intelligence Network EIN / Web 3.0 and the programmable economy in terms of temporal consistency, interoperability, and consensus.

PROPOSAL: Code Eco sustainable incentives into programmable economic system of systems engineering framework reusing / leveraging NATO systems of systems engineering best practice.

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.

NATO has invested 30 years of mapping OPSCODE brevity codes to symbology / symbols / symbol sets contained in 300 plus message set / use cases as part of Battlefield digitization, Net Centric Warfare NET Enabled Operations NEO NETOPS. Blockchain, crypto currency developers are recreating, reinventing  this decades old, tedious, time intensive, labor intensive, expensive... wheel.

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 diverse peoples speaking many different languages through the universal language of symbols into Distributed Autonomous groups organized in time - space to achieve common goals.

**PROJECT BEACON**: Reuse NATO's system of systems syntax lexicon OPSCODE brevity code structured data exchange, heartbeat micro to macro cycle Universal Time Zone UTZ sync to support an EIN Earth Intelligence Network neural net emulation. We have a clear and present opportunity and responsibility to improve temporal, geo-spatial, syntactic - semantic consistency, interoperability among myriad programmable money memes among a federated, distributed system of systems.

The Heart Beacon Cycle Time - Space meter is a distributed system of systems engineering signaling -telemetry temporal, geo-spatial, semantic - syntactic sync and consensus foundation framework. A an adaptive procedural template checklist of tools, algorithms, cryptographic modules, it supports DAAE Distributed Autonomous Automated Economy Eco - Economic Heartbeat.

The Heart Beacon Cycle is an adaptive procedural template checklist of things, processes, tools, building blocks useful to form, maintain Eco-responsible trade federations. Each item in the procedural template checklist links to a detailed treatise.

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

The Heart Beacon Cycle Time - Space meter is a swords to plowshares DAO Distributed Autonomous Organization project using NATO's Situational Awareness system of systems engineering framework, processes, procedures and internet building blocks to establish an Ecologically sustainable Economic Heartbeat, neural network emulation for the EIN Earth Intelligence Network and heartbeat sync pulse for a Universal Time Zone UTZ supporting a one world currency. It's syntax lexicon library of OPSCODE brevity codes used in programmable money, the programmable economy is descriptive of all things internet, internet of money down to the quantum computing, quantum blockchain level.

This course of action in challenging times  involves reuse of over 300 NATO cases supported by hundreds of message sets further 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 virtually every good, item, commodity with it's host nation. Why reinvent the syntax lexicon Rosetta Stone wheel? Think of this as a system of systems tool to accelerate an EIN Earth Intelligence Net – see Project #UNRIG for mor information.

The Heart Beacon Cycle Time - Space meter is a signaling, telemetry distributed systems engineering framework improving temporal, geo-spatial, semantic - syntactic sync & consensus among DAAE Distributed Autonomous Automated Economy system of systems reusing Battlefield Digitization, Net Enabled Operations engineering swords to plowshares.

Eco sustainable incentives integral to an Economic system of systems SoS engineering framework used by NATO for decades. Digital Nations need an (Eco sustainable) Economic Heartbeat & a consistent syntax lexicon library. Crypto 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 supporting an Earth Intelligence Network EIN see Robert David Steele's #UNRIG proposal @ http://robertdavidsteele.com

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?

 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?

**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/

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

System of Systems Engineering Framework: Crypto 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 supporting an Earth Intelligence Network EIN. It is time to build a new economic system of systems framework.

All things internet, net of money blockchain cryptocurrencies are formed by unicast, multicast, anycast. Programmable money's improvements are in cryptography. The term DAO Distributed Autonomous Organization was coined by the RAND Corporation circa 2000.

Nobel Prize winning Economist Milton Friedman's K% rule is 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

HEARTBEAT SCOP Administrative Interface as an Internet, net of Money configuration tool. SCOP is a tool that exemplifies how the internet really works. There are no levels, layers, packets, frames, bits, ether gas, hashgraphs, bytes motes, block chain blocks, pings, packets... There are only 1) epoch time intervals, 2) syntax used as if, then, else instructions. Time epoch time cycles used / not used to parse, process syntax as instructions are the only building blocks available to scale the blockchain. Blockchain scaling usually involves a discussion of "layers" when the reality is that parsing, processing syntax (OPSCODE brevity codes, shards, hashes) is passed from the genesis Epoch Time Cycle 1 to a temporal follow on epoch time cycle often involving geo-spatial, temporal separation.

Project Task: form federations of Distributed, Autonomous Organizations DAO communities, states, sovereign nations using an adaptive procedural template checklist promoting 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.

Heart Beacon Cycle Time – Space Meter: One method fits many not one size fits all

Fig 1: Eco sustainable Economic Epochs coded into a systems framework



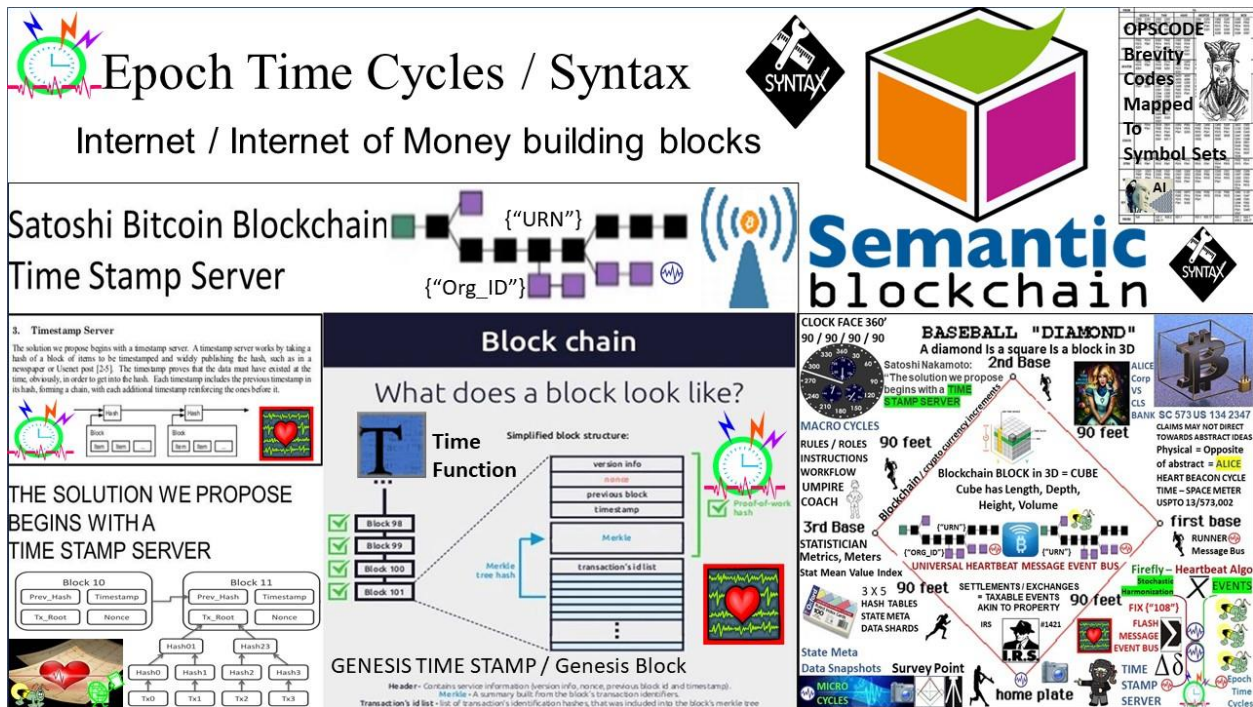Fig 2: Eco sustainable incentives  coded into a system of systems economic framework

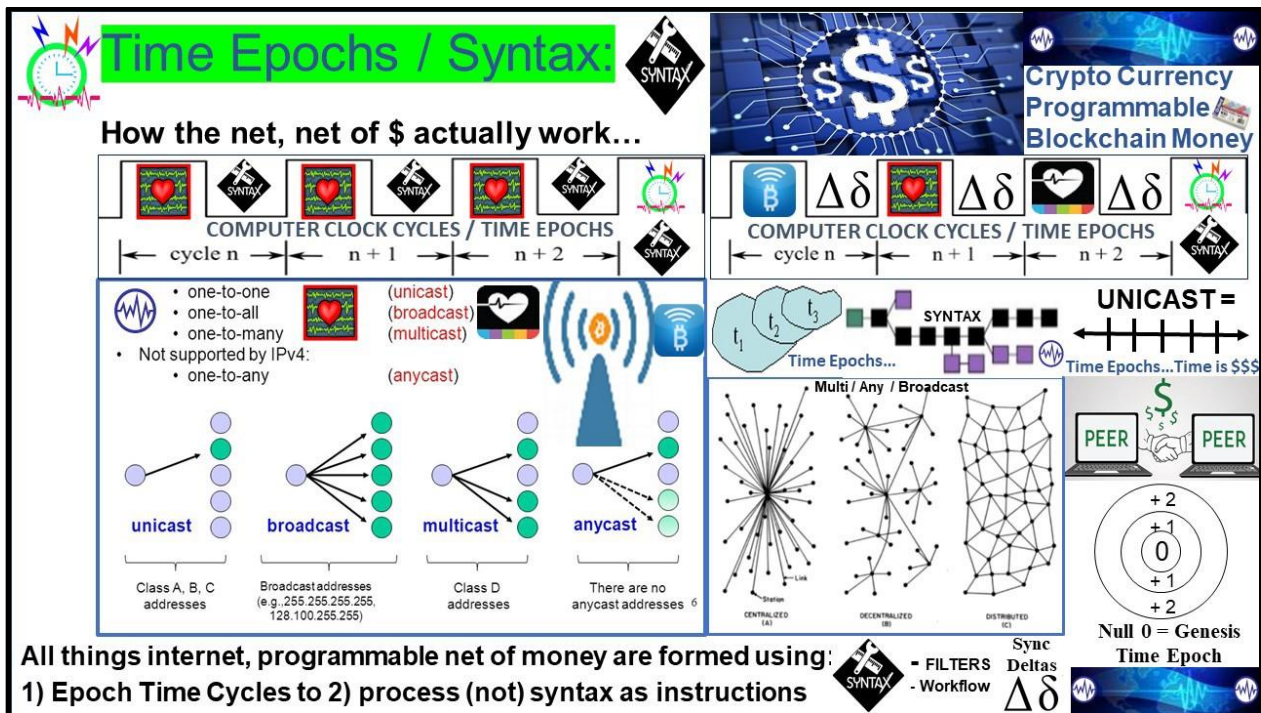Figure 3: Epoch Time Cycles / Syntax two main building blocks for web, web of $$$



Figure 4:Time Epochs / Syntax: how the internet actually works: Unicast / Multicast IP
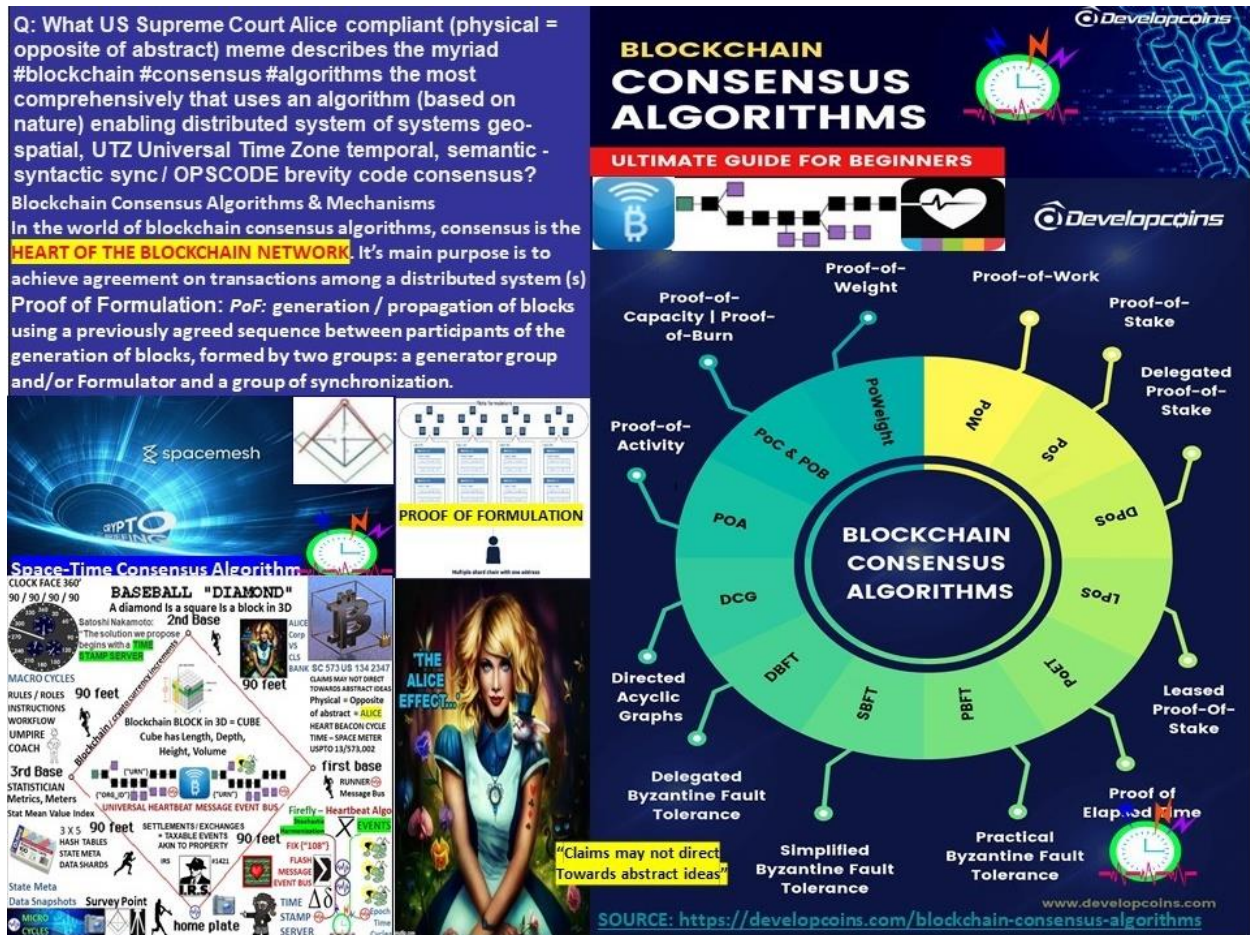
Figure 5: Heart of the cryptocurrency / blockchain world: consensus algorithms



Figure 6: Building blocks of an adaptive procedural template checklist

**FROM**

**ALPHA-NUMERIC BREVITY CODES**

**CODE GUIDE**

GCCS-A

| | |
|---|---|
| C002 | C203 |
| F002 | F014 |
| F015 | F541 |
| S201 | S309 |

ASAS

NATO FMN — FEDERATED MISSION NETWORKING — FEDERATE ★ SHARE ★ WIN

C002  C203   |   C002  C203   |   C002

USMTF / XML MTF FORMATTED MESSAGE CATALOG = 300 + messages info exchange sets using common, CONSENSUS Message Text Formats MTFs. MTFs specify </CONTENT> / info agreed by group consensus presenting information in a logical, well specified unambiguous layout resulting in a highly efficient info payload to overhead ratio

ATDS

| | |
|---|---|
| C002 | C203 |
| F014 | |
| F541 | |
| S305 | |
| S309 | |
| | |
| F002 | C203 |
| F015 | D630 |
| S201 | F002 |

MCS

| | |
|---|---|
| C002 | C203 |
| E400 | F002 |
| F014 | F015 |
| F541 | S201 |
| S309 | S507 |
| | |
| C203 | C400 |
| D630 | E500 |
| F002 | F014 |

INFOCON — 5 4 3 2 1 — INFORMATION CONDITION

| | |
|---|---|
| A423 | C203 |
| C505 | F002 |
| F014 | F015 |
| F541 | S201 |

MCS

SIOP

Rosetta Stone

BLOCKCHAIN STANDARIZATION

M2M

Coder's Guide

| | |
|---|---|
| A423 | C400 |
| C505 | F002 |
| F014 | F015 |
| F541 | F014 |

"SYMBOLS RULE THE WORLD"

HEARTBEAT
MESSAGE = K00.99

**Information Elements Roles**
- COI Determination Org Interaction
- Search and Discovery
- Ontologies STANDARDS
- Taxonomies REFERENCE
- Metadata Attributes / Filters
  ('Org_ID') {"URN"}     FILTERS

FFUDN: Field Format Unit Designator #
FFIRN Field Format Index Reference #

Structured military messaging ID's messages, message sets, data element, symbol fields
BY Form Field Position & NUMBER

NDN

Firefly-Heartbeat Flash Messages

PROCESS MESSAGE BY PRECEDENCE
UNIVERSAL EVENT / ALERT MESSAGE BUS

**MESSAGE CATALOG 300 + Use Cases**

**Data Elements:** entity, attribute, relationship equivalents

**Information Categories and Examples**

| Object Categories | Examples | Location | Movement | Identify | Status | Activity | Intent |
|---|---|---|---|---|---|---|---|
| OOB | SYNTAX LEXICON | lat/long | spd/hdg | country / alliance, type/class | readiness | targeting, reconitering | COA {"Java JS"} |
| Infrastructure | Comm, power, transportation, water/sewer | network, grid | throughput, flow rates, | name, part-of relationships | BDA, op levels | repair, broadcasts | expansion plans |
| Sociological | Culture, religion, economic, ethnic, government, history, languages | temples, historic structures | | | | | |
| Geophysical | Terrain, weather, climatology, oceanography, astrometry | feature lat/long, alt/dpth | | | | | |

STRUCTURED DATA EXCHANGE Message Sets
Machine Trust Language MTL
CDL Contract Description Language
YAML

| | E-R Model | Class Diagram | Relational Database | Object DBMS | XML DTD / Schema | TADILs | MTF |
|---|---|---|---|---|---|---|---|
| | Entity | Class | Table | Class | Element | Message | Message |
| | Attribute | Attribute | Field / Column | Attribute | Child Element or Element Attribute | DFI | FFIRN / FFN / FUDN |
| | Domain Value | PURCHASE CODES | Instance Value | FEDERATE | | DUI | FUD |

**OPERATIONAL NODES / ACTIVITIES**

| DATA | SYSTEM FUNCTIONS | PERFORMANCE |
|---|---|---|
| 11.4 - Classification | 11.8 - Kinematics | |
| 11.4.1 - Category | 11.8.1 - Pos / Vel / Acc (PVA) | |
| 11.4.1.1 - Confidence Level | 11.8.1.1 - Acceleration | |
| 11.4.1.2 - Estimate Type | 11.8.1.1.1 - Angular | |
| 11.4.1.2.1 - Alternative | 1.1.2 - Linear | |
| 11.4.1.2.2 - Evaluated D | PURCHASE | 1.2 - Estimate Type |
| 11.4.1.3 - Value | CODES | 1.2.1 - Estimated |
| | | 1.2.2 - Observed |
| | | 1.2.3 - Predicted |

| SYMBOL | Friend | Neutral | Hostile |
|---|---|---|---|
| 2525C | Partner | | Competitor |

| | |
|---|---|
| 11.4.1.3.5 - Surface | 4 - Velocity |
| 11.4.2 - Platform / Point / Fea...ture Type | 1.4.1 - Horizontal |
| 11.4.3 - Specific Type | 1.4.2 - Vertical |
| 11.4.4 - Type Modifier | V/A Confidence |
| 11.4.5 - Unit | 1 - Bearing Angle |
| | 2 - Bearing Angle Rate |
| | 3 - Covariance Matrix |

Fig 7: Syntax Lexicon library 300 + message sets / data elements mapped to symbols

NATO has invested 30 years of mapping OPSCODE brevity codes to symbology / symbols / symbol sets contained in 300 plus message set / use cases as part of Battlefield digitization, Net Centric Warfare NET Enabled Operations NEO NETOPS. Blockchain, crypto currency developers are recreating, reinventing this decades old, tedious, time intensive, labor intensive, expensive structured data exchange... wheel.

PROJECT BEACON: Reuse NATO's system of systems syntax lexicon OPSCODE brevity code structured data exchange, heartbeat micro to macro cycle Universal Time Zone UTZ sync to support an EIN Earth Intelligence Network neural net emulation. We have a clear and present opportunity and responsibility to improve temporal, geo-spatial, syntactic - semantic consistency, interoperability among myriad programmable money memes among a federated, distributed system of systems.
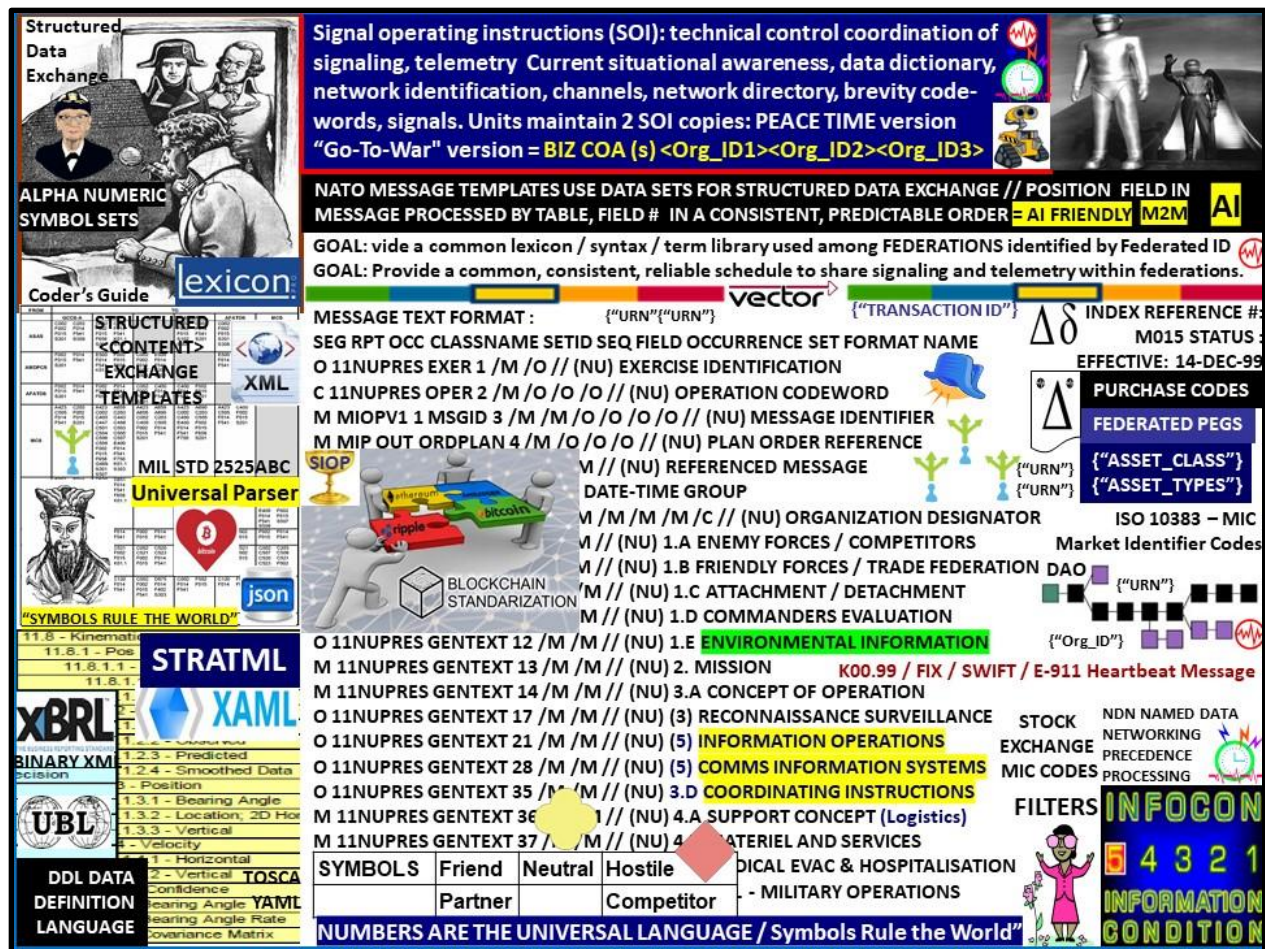
Fig 8: Syntax Lexicon library 300 + message sets / data elements mapped to symbols

The Heart Beacon Cycle Time - Space meter is a swords to plowshares DAO Distributed Autonomous Organization project using NATO's Situational Awareness system of systems engineering framework, processes, procedures and internet building blocks to establish an Ecologically sustainable Economic Heartbeat, neural network emulation for the EIN Earth Intelligence Network and heartbeat sync pulse for a Universal Time Zone UTZ supporting a one world currency. It's syntax lexicon library of OPSCODE brevity codes used in programmable money, the programmable economy is descriptive of all things internet, internet of money down to the quantum computing, quantum blockchain level. Reuse 300+ NATO cases supported by hundreds of message sets further 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 virtually every good, item, commodity with it's host nation. Why reinvent the syntax lexicon Rosetta Stone wheel

Figure 9: Proof of Stake / Eco Economic Epoch Heartbeat Cycles Time – Space Meter

Proof of stake is a type of consensus algorithm by which a cryptocurrency blockchain network aims to achieve distributed consensus. In PoS-based cryptocurrencies the creator of the next block is chosen via various combinations of random selection and wealth or age.

Proof of Stake (PoS) concept states that a person can mine or validate block transactions according to how many coins he or she holds. This means that the more Bitcoin or altcoin owned by a miner, the more mining power he or she has.

Bitcoin miners mine or validate block transactions based on the amount of coins a miner holds. When a transaction is initiated, the transaction data is fit into a block with a maximum capacity of 1 megabyte, and then duplicated across multiple computers or nodes on the network. The nodes are the administrative body of the blockchain and verify the legitimacy of the transactions in each block.
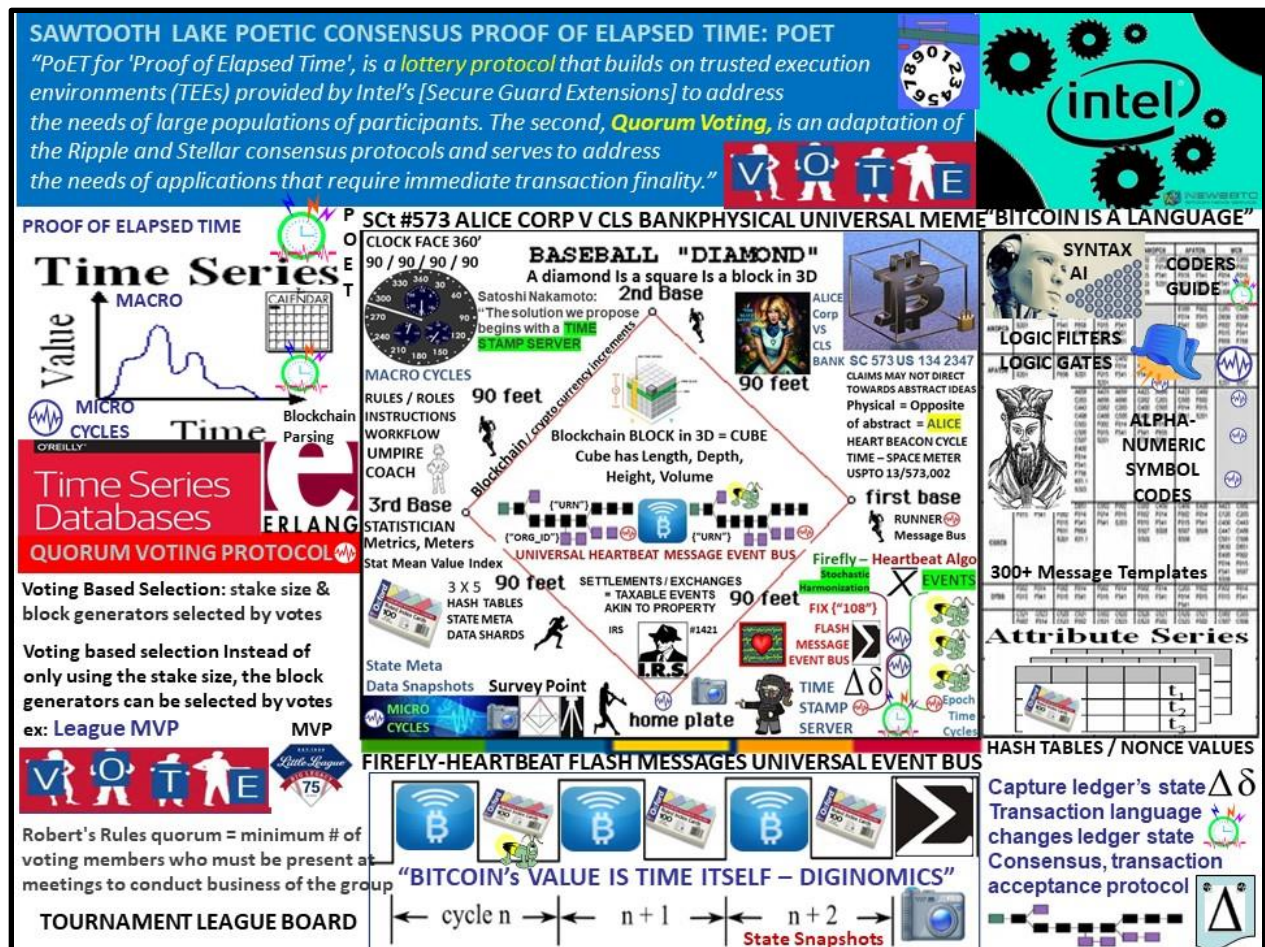
Figure 10: Proof of Elapsed Time POET / Epoch Heartbeat Cycles Time – Space Meter

Proof of elapsed time (POET) is a blockchain network consensus mechanism algorithm that prevents high resource utilization and high energy consumption and keeps the process more efficient by following a fair lottery system. Based on the principle of a fair lottery system where every single node is equally likely to be a winner, the POET mechanism is based on spreading the chances of winning fairly across the largest possible number of network participants.

POET algorithm working mechanism: Each node in the network is required to wait for a randomly chosen time period. The first one to complete the designated waiting time wins the new block. Each node in the blockchain network generates a random wait time and goes to sleep for that specified duration. The one to wake up first – that is, the one with the shortest wait time – wakes up and commits a new block to the blockchain, broadcasting the necessary information to the whole peer network The process repeats for next block discovery.

Figure 11 Proof of Work / Eco Economic Epoch Heart Beacon Cycle

A **proof-of-work** (PoW) system (or protocol, or function) is a consensus mechanism. It deters denial-**of**-service attacks and other service abuses such as spam on a network by requiring some **work** from the service requester, usually meaning processing time by a computer. The way that users detect tampering in practice is through hashes, long strings of numbers that serve as proof of work. Put a given set of data through a hash function (bitcoin uses SHA-256), and it will only ever generate one hash. Due to the "avalanche effect," however, even a tiny change to any portion of the original data will result in a totally unrecognizable hash. Whatever the size of the original data set, the hash generated by a given function will be the same length. The hash is a one-way function: it cannot be used to obtain the original data, only to check that the data that generated the hash matches the original data.

Figure 12: Project Lightning / Segregated witness / Heart Beacon Cycle

**Lightning** is a decentralized **network** using smart contract functionality in the **blockchain** to enable instant payments across a **network** of participants. The **Lightning Network** is dependent upon the underlying technology of the **blockchain**. Lightning Bitcoin/**blockchain** transactions uses a native smart-contract scripting language Lightning is a "Layer 2" payment protocol that operates on top of a **blockchain**-based cryptocurrency

SegWit is the process by which the block size limit on a blockchain is increased by removing signature data from Bitcoin transactions. When certain parts of a transaction are removed, this frees up space or capacity to add more transactions to the chain.

Segregate means to separate, and Witnesses are the transaction signatures. Hence, Segregated Witness, in short, means to separate transaction signatures.

QUANTUM COMPUTING / HBC TIME – SPACE METER / METRICS

A particle 'P' in a 3-dimensional box, representing a simple quantum mechanical system.

Harmonic oscillator potential and wavefunctions

cycle n → n + 1 → n + 2 →

#QuantumComputing USct Alice Corp Vs CLS Bank compliant memes:
In quantum computing, a qubit (or quantum bit (sometimes qbit) is a unit of quantum information—the quantum analogue of the classical binary bit. A qubit is a two-state quantum-mechanical system, such as the polarization of a single photon: the two states are vertical polarization and horizontal polarization. In a classical system, a bit has be in one state or the other. Quantum mechanics allows a qubit to be in a superposition of both states at the same time, a fundamental quantum computing property

US Sct Alice Corp Vs CLS Bank Physical memes
Linear sequential "Paul Revere" meme = horizontal polarization
Vertical polarization vectors from a known point 0 null Sonar Hop meme
particle representation / samples

Instead of each bit having two potential states — on or off — a quantum bit or qubit has three. It can be on, off, or both, and you only know which one it is once you look at it. How can you tell if a bit of data is correct if looking at it might change its state?

STATE CHANGE EVENT

$\leftrightarrow |1\rangle$     $\leftrightarrow |0\rangle$
universal gate set   STATE CHANGE EVENT

$\leftrightarrow |0101\rangle \leftrightarrow |5\rangle$
quantum gates   qubits initialized to arbitrary values

$\leftrightarrow |4\rangle + |5\rangle$

qubits can be in a superposition of all the clasically allowed states

$|00\rangle = \begin{bmatrix}1\\0\\0\\0\end{bmatrix}$  $|01\rangle = \begin{bmatrix}0\\1\\0\\0\end{bmatrix}$  $|11\rangle = \begin{bmatrix}0\\0\\0\\1\end{bmatrix}$

$|0\rangle$  $|\psi\rangle$  $\theta$  $\phi$  $\hat{y}$  $\hat{x}$  vector
BLOCH SPHERE
$-\hat{z} = |1\rangle$

Microwave pulses like sonar ping...

silicon device movement is controlled through use of microwave pulses. As an electron spins up, a binary value of 1 is generated, when the electron spins down, a binary value of 0 is generated.

Fock state number state quantum state that is an element of a Fock space with a well-defined number of particles (or quanta)

SEQUENTIAL HOP COUNTS   113   T TIME   126   1 2 3 4 PRECEDENCE
123
108   112
RUNNER 108   HEARTBEAT GET / PUT   HEARTBEAT TIMESTAMP   SECTION 3 FIELDS
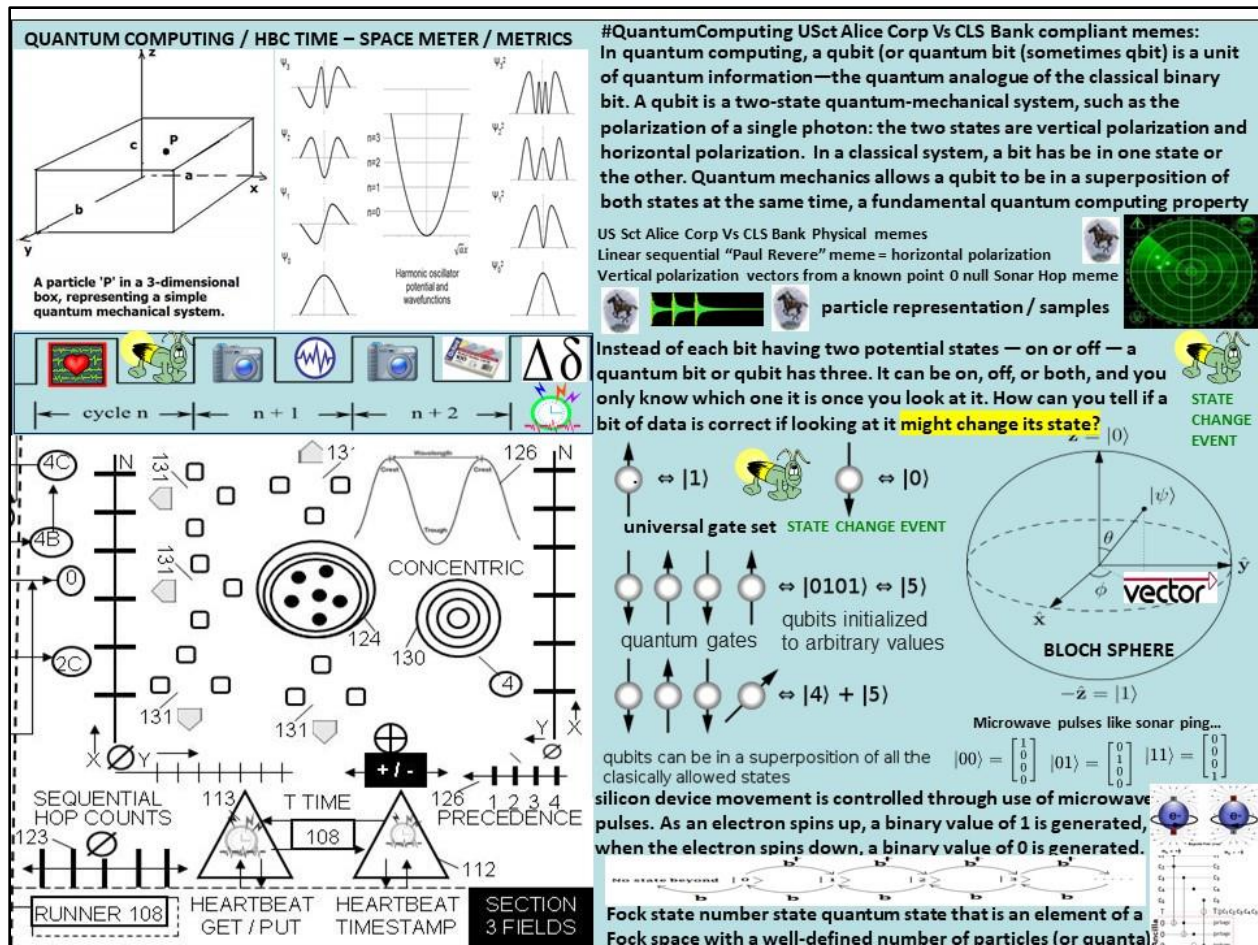
CONCENTRIC
124   130

Figure 13: Quantum Computing / Heart Beacon Cycle Time – Space Meter

Quantum computing is the use of quantum-mechanical phenomena such as superposition and entanglement to perform computation. Computers that perform quantum computations are known as quantum computers. Quantum computers are believed to be able to solve certain computational problems, such as integer factorization, substantially faster than classical computers.

In a **quantum** Turing machine, the difference between it and the original tape Turing machine 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.

Fig 14: NIST Quantum Randomness Beacon / Heart Beacon Cycle Time – Space Meter

**NIST's quantum**-based **random number** generator, on the other hand, creates **random numbers** by shining an intense laser into a crystal that converts laser light into pairs of photons that are entangled, a **quantum** phenomenon that links their properties. These photons are then measured to produce a string of truly **random numbers**. Source: PDF **The NIST Randomness Beacon 2**

This prototype implementation generates full-entropy bit-strings and posts them in blocks of 512 bits every 60 seconds. Each such value is sequence-numbered, time-stamped and signed, and includes the hash of the previous value to chain the sequence of values together and prevent even the source to retroactively change an output package without being detected. NIST Randomness Beacon LINK

Heart Beacon Cycle Time – Space Meter GITHUB: http://github.com/Beacon-Heart

Business card

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

REFERENCES / LINKS

GITHUB Documents: LINK https://github.com/Beacon-Heart

MEDIUM ARTICLE: "The blockchain needs a killer use case" (climate change / population increase)

LINK: https://medium.com/coinmonks/blockchain-needs-a-killer-use-case-2f4def841883

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/

Angel List: https://angel.co/heart_beacon

Patreon: https://www.patreon.com/beacon_heart

FACEBOOK: https://www.facebook.com/beaconheart

MINDS: https://www.minds.com/beaconheart/

TWITTER: @Heart_Beacon https://twitter.com/Heart_Beacon

PAYPAL: PayPal.Me/EcoEconHeartbeat

#internet #money #blockchain #cryptocurrencies #economics #sustainable #ecology #sustainability #climate change #econometrics #time-space meter, #metrics, #geospatial temporal #intensity

Business Card / Eco Economic Epochs

"One method fits many – not one size fits all"

"A day will come when the only fields of battle will be markets opening up to trade and minds opening up to ideas". **Victor Hugo**