

methods joined with establishing a universal event bus using firefly-inspired heartbeat synchronization

8. Supreme Court Alice Corp Vs CLS Bank compliant universal memes describe sync delta cyclic changes: describes linear sequential, geo-spatial temporal intensity radius hop count econometric metrics and meters where closer is shorter and closer is faster – eco sustainable

9. 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 $\langle /108 \rangle$ heartbeats, heartbeat messages organic to all systems.

10. Supporting 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 statistical means

11. Big Data as the "Next Oil": Establishing a consistent $\langle \text{tag} \rangle$ context library / lexicon and time stamping data by organization $\langle \text{Org_ID} \rangle$ 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

12. Universal meme metaphor for coders, programmers given all things internet are formed using time cycles / syntax as instructions i.e., universal Bitcoin blockchain meme mediation

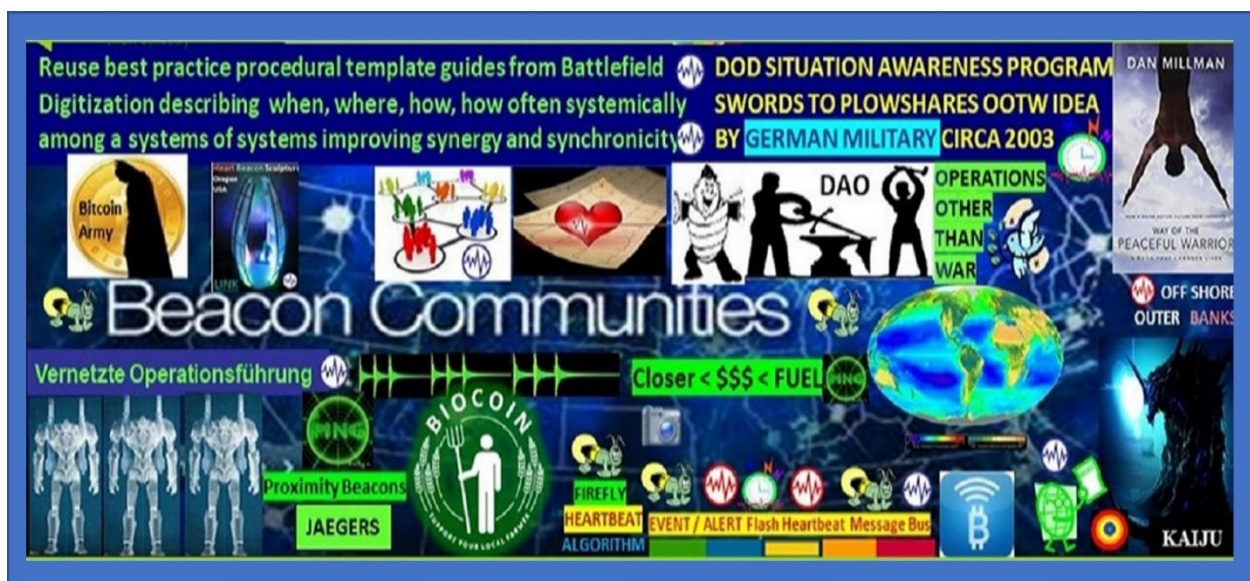


Figure 3: German Army's 2003 recommendation to reuse Battlefield Digitization for OOTW



Fig 6: NIST Quantum Random Number Beacon / USPTO 13/573,002

The programmable #economy will be anchored by quantum computing NIST's Quantum Random Number Beacon combined with the Heart Beacon Cycle Time – Space Meter Adaptive Procedural Template checklist. Non-repudiation of events / transactions at any time, space, place in the future will be expected and required by end users and governments.

Programmable #money / #economy... gold, #Bitcoin as “digital gold” — fool’s #gold? How will programmable money for the programmable economy be coded? A one world #currency needs a stochastically harmonized, synchronized Universal Time Zone UTZ / event bus

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: here the two states are vertical polarization and horizontal polarization. In a classical system, a bit would have to be in one state or the other. However, quantum mechanics allows the qubit to be in a superposition of both states at the same time, a property that is fundamental to quantum computing. QUBIT: <https://en.wikipedia.org/wiki/Qubit>

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 to obtain information about past pulses. A randomness beacon produces timed outputs randomness.



Figure 7: NIST Quantum Random # Beacon / Heart Beacon Time-Space meter

Use cryptocurrencies based on quantum computing (Quantum Random Number Generator) rather than being “quantum computing resistant” or designed in the blind of quantum computing: “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>

The Department of Commerce funding NIST QRNB Quantum Random Number Beacon in Boulder Colorado’s purpose: provide a non-repudiation service of events / transactions at any place, time in the future. This is an absolute must have for any digital currency in my opinion.

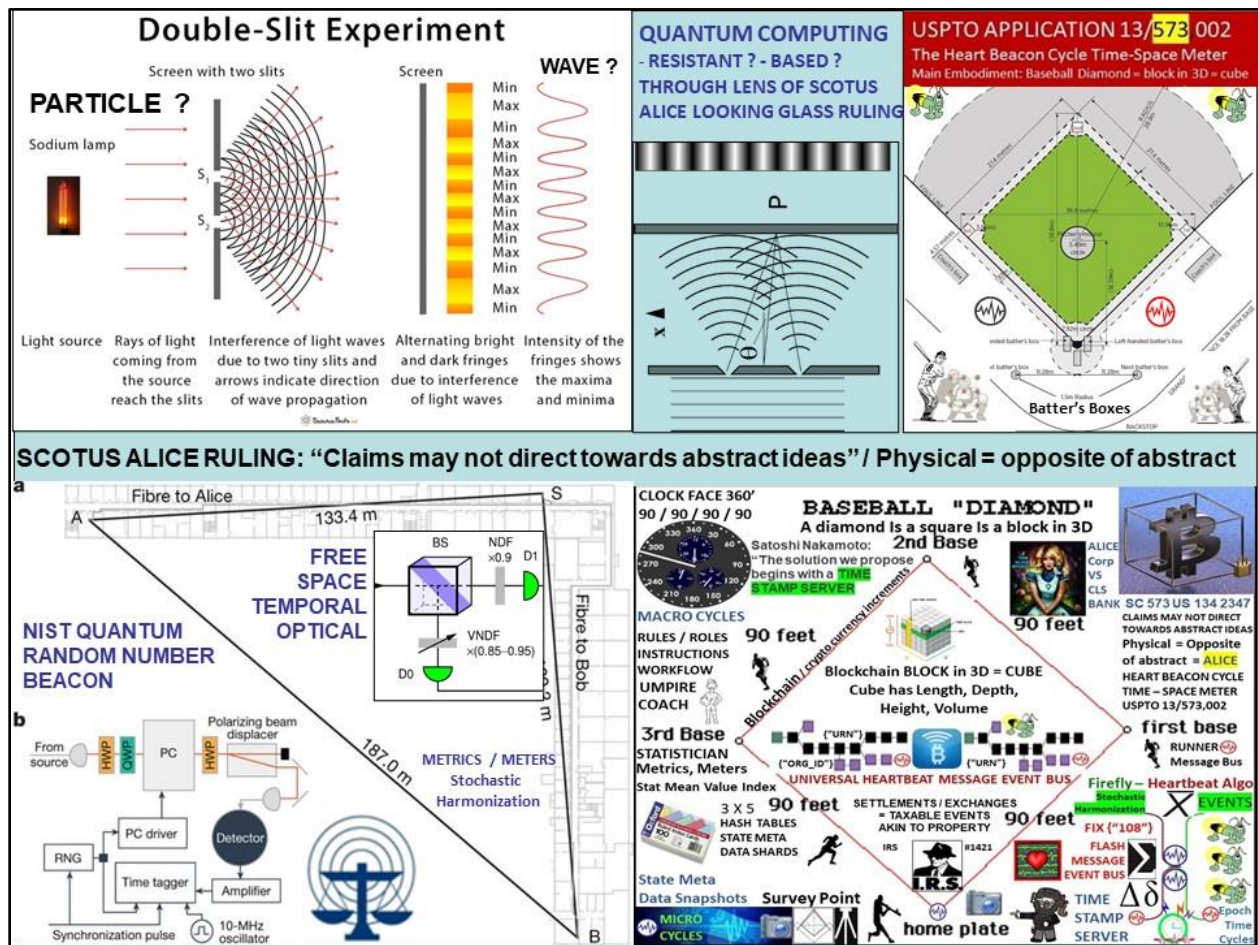
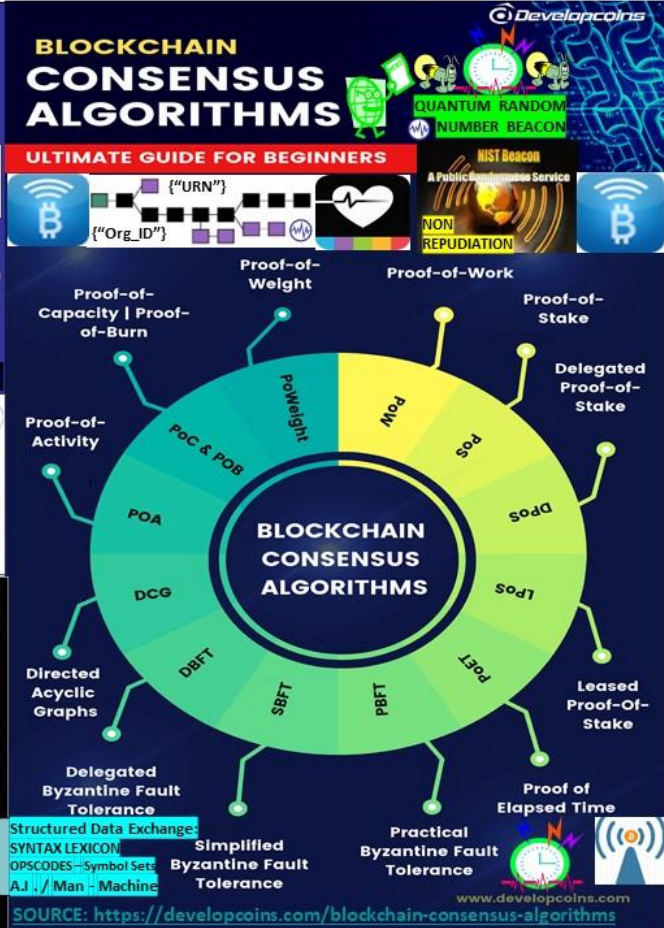
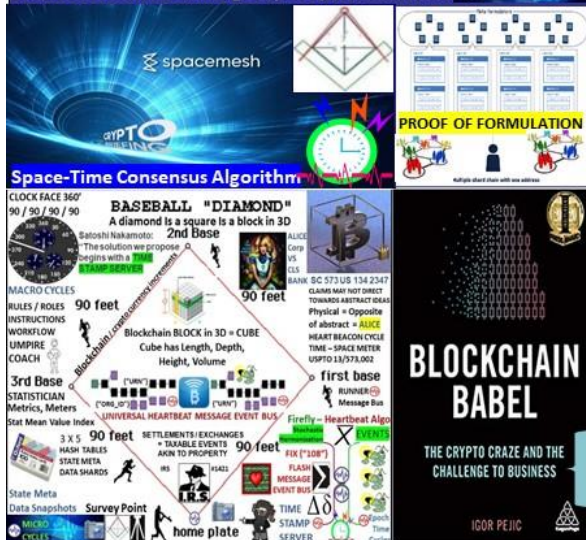


Fig 8: Quantum Physics / Computing; Quantum resistant or Quantum Computing based – both

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. 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. Given the dual slot phenomenon, why not use waves and wave diffusion upon interacting on an object within the field synonymous with an event at room temperature for power, synchronization efficiencies?

Blockchain Consensus Algorithms & Mechanisms
In the world of blockchain consensus algorithms, consensus is the **HEART OF THE BLOCKCHAIN NETWORK**. It's main purpose is to achieve agreement on transactions among a distributed system (s)
Proof of Formulation: PoF: generation / propagation of blocks using a previously agreed sequence between participants of the generation of blocks, formed by two groups: a generator group and/or Formulator and a group of synchronization.



Bitcoin blockchain blocks, agents, motes, bots, heartbeat, beacon are metaphors for intervals, time cycles available to process / not process SYNTAX. The internet is coded, programmed using time cycles to process instructions, commands etc. It follows that the key to achieving consistency, interoperability among myriad memes and establishing a consistent, systemic one world economic system of systems is to focus on two main common building blocks—time cycles and syntax parsed as instructions.

<http://en.wikipedia.org/wiki/SIMPLE> (military communications protocol)



FIGURE 11: FIREFLY HEARTBEAT SYNCHRONIZATION / World Economic Heartbeat

Firefly inspired Heartbeat Synchronization: in a paper entitled Firefly-inspired Heartbeat Synchronization in Overlay Networks by the University of Bologna 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. 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.

Use Case: Economic Reset solution: form economic trade federations incentivizing environment friendly business practices leveraging Bitcoin's micro-payment capabilities supporting the TERRA Trade Reference Currency TRC demurrage handling charge. Closer is cheaper, less fuel, < C02 carbon emission in smart contract Service Level Agreements.



FIGURE 12: TERRA Trade Reference Currency / Crypto micro payment Demurrage fees

Nobel Prize winning Economist Milton Friedman's K% rule is what I call an "economic heartbeat" K-Percent Rule. DEFINITION of 'K-Percent Rule'. The K-Percent Rule was a proposal by economist Milton Friedman that 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 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>

Economic RESET is a mathematical certainty. Do we **RESET** the global system of systems as is or do we re-engineer our world using NATO / DOD system of systems engineering framework standing on the shoulders of giants (Edison, Lietaer, Friedman) swords to plowshares?

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 chaos by not leveraging proven system of systems & tactics



FIG 13: ECONOMIST MILTON FRIEDMAN'S K % RULE / Algorithmic Regulation

Satoshi Nakamoto's Bitcoin key building block is a time stamp server. Satoshi Nakamoto: "Bitcoin is intended to be paired with the market place" "the blockchain stores references to market indexes"

Demurrage: term used in currency trading to denote cost of currency ownership and/or storage. cost of carrying money... considered superior to interest payments, as it stimulates currency circulation and economic growth. "In a physical sense, demurrage represents a delay that occurs during the transportation of goods via truck. When this happens, the trucking firm delivering the product can opt to pay a flat fee to the receiver to cover any loss incurred as a result of the delay. This fee can be assessed on an hourly basis. Or in the case of gold, demurrage is simply the costs associated with storage of bouillon. [LINK](https://investopedia.com/terms/d/demurrage.asp)

Thomas Edison's Monetary Option:

[LINK: https://www.supermoney.com/2014/06/thomas-edisons-view-money/](https://www.supermoney.com/2014/06/thomas-edisons-view-money/)

Economist Milton Friedman predicted the rise of a computer capable of automatically adjusting the inflation rate of money. This is precisely what we see in the case of bitcoin, as a regulatory algorithm intelligently adjusts the mining difficulty to make the issuance of

blocks more or less easy depending on the demand for network hashing power. No money system we have seen to date can claim it is chronologically regulated. The universal construct of time is the backbone of the cryptocurrency digital economy. Investopedia K % Rule [Source: https://investopedia.com/terms/k/k-percent-rule.asp](https://investopedia.com/terms/k/k-percent-rule.asp)

FROM		ALPHA-NUMERIC BREVITY CODES				CODE GUIDE		Information Elements Roles	
ASAS	GCCS-A	C002 C203	C002 C203	C002	ATDS	MCS	• COI Determination Org Interaction • Search and Discovery • Ontologies STANDARDS • Taxonomies REFERENCE • Metadata Attributes / Filters (‘Org_ID’) {‘URN’}		
	C002 C203	F002 F014	F002 F014	F002	F014 F541	F002 F014			
	F015 F541	F015 F541	F015 F541	F015	F541 S309	F541 S309			
	S201 S309	S201 S309	S201 S309	S201	S309 S507	S309 S507			
		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				INFOCON 5 4 3 2 1 INFORMATION CONDITION		FFUDN: Field Format Unit Designator # FFIRN Field Format Index Reference #	
MCS	A423 C203 C505 F002 F014 F015 F541 S201			Rosetta Stone M2M C002 F002 C505 F015 F014 F541 S201		"SYMBOLS RULE THE WORLD"		Structured military messaging ID's messages, message sets, data element, symbol fields BY Form Field Position & NUMBER	
									
MESSAGE CATALOG 300 + Use Cases		Data Elements: entity, attribute, relationship equivalents				HEARTBEAT MESSAGE = K00.99		PROCESS MESSAGE BY PRECEDENCE UNIVERSAL EVENT / ALERT MESSAGE BUS	
		Information Categories and Examples				OPERATIONAL NODES / ACTIVITIES			
OOB	SYNTAX LEXICON	Location	Movement	Identify	Status	Activity	Intent	DATA SYSTEM FUNCTIONS PERFORMANCE	
		lat/long	spd/hdg	country / alliance, type/class	readiness	targeting, reconitering	COA {"Java JS"}	11.4 - Classification 11.4.1 - Category 11.4.1.1 - Confidence Level 11.4.1.2 - Estimate Type 11.4.1.2.1 - Alternative 11.4.1.2.2 - Evaluated D 11.4.1.3 - Value 11.4.1.3.5 - Surface 11.4.2 - Platform / Point / Feature Type 11.4.3 - Specific Type 11.4.4 - Type Modifier 11.4.5 - Unit	
Infrastructure	Comm, power, transportation, water/sewer	network, grid	throughput, flow rates	name, part-of relationships	BDA, op levels	repair, threats/acts	expansion plans	11.8 - Kinematics 11.8.1 - Pos / Vel / Acc (PVA) 11.8.1.1 - Acceleration 11.8.1.1.1 - Angular	
Sociological	Culture, religion, economic, ethnic, government, history, languages	temples, historic structures	ER Model	Class Diagram	Relational Database	Object DBMS	XML DTD / Schema	TADILS	MTF
Geophysical	Terrain, weather, climatology, oceanography, astrometry	feature lat/long, alt/dpth	Entity	Class	Table	Class	Element	Message	Message
		Domain Value	Attribute	Attribute	Field / Column	Attribute	Child Element or Element Attribute	DFI	FFIRN / FFN / FFUDN
		PURCHASE CODES				FEDERATE		BUY	

Figure 14: Syntax Lexicon Library Rosetta Stone adapted swords to plowshare from NATO

Common syntax library of various Message Text Formats MTF to enable universal signaling / telemetry among a system of systems is ESSENTIAL. Decades of research at the taxpayer's expense into structured messaging / structured data exchange where the location, type of data identified by table number will help accelerate the process of organizing syntax into categories from disparate systems into data set reference repositories. Many semantic, syntax tags will be reusable. The rules, roles and logic developed by years of research involving of thousands of subject matter experts solving real world issues is the value to be extracted from 300+ message sets. NATO stays synchronized across many languages and cultures so why reinvent the wheel?

MESSAGE CATALOG: The USMTF message library has over 300 messages to choose from to facilitate information exchange requirements. MTFs presenting data in a logical, well specified and unambiguous layout. MTFs are transmission medium neutral. The content of the Message

Catalogue has been developed by military operators over the last 20 years. Messages are regularly maintained to keep pace with the latest tactics and doctrine.

Military brevity codes and stock exchange codes are similar. security Identifier used in financial markets are: SYMBOL, CUSIP, ISIN, SEDOL, RIC Code, Syntax Lexicon Library



Fig 15: Heart Beacon Cycle Time — Space Meter USPTO 13/573,002 is an Adaptive Procedural Template: Use Case: Eco Economic Epoch Heartbeats for the programmable economy.

Globalization involves multi-national corporate entities vying for control of regional resources. It follows that a proven strategy to identify, track, and monitor resources regionally within the global economic matrix is needed. Bitcoin cryptocurrencies as programmable money and the internet's heartbeat, heartbeat messages timed to harvest data during micro economic cycles then aggregated into a composite economic heartbeat pulse which is a clear and present opportunity to implement a simple SLA Service Level Agreement: closer is cheaper given closer = less fuel, carbon consumed promoting produce and consume locally. / Heart Beacon Cycle Ecologically Sustainable Economic Epochs for trade equity, ecologic sustainability, economic stability.

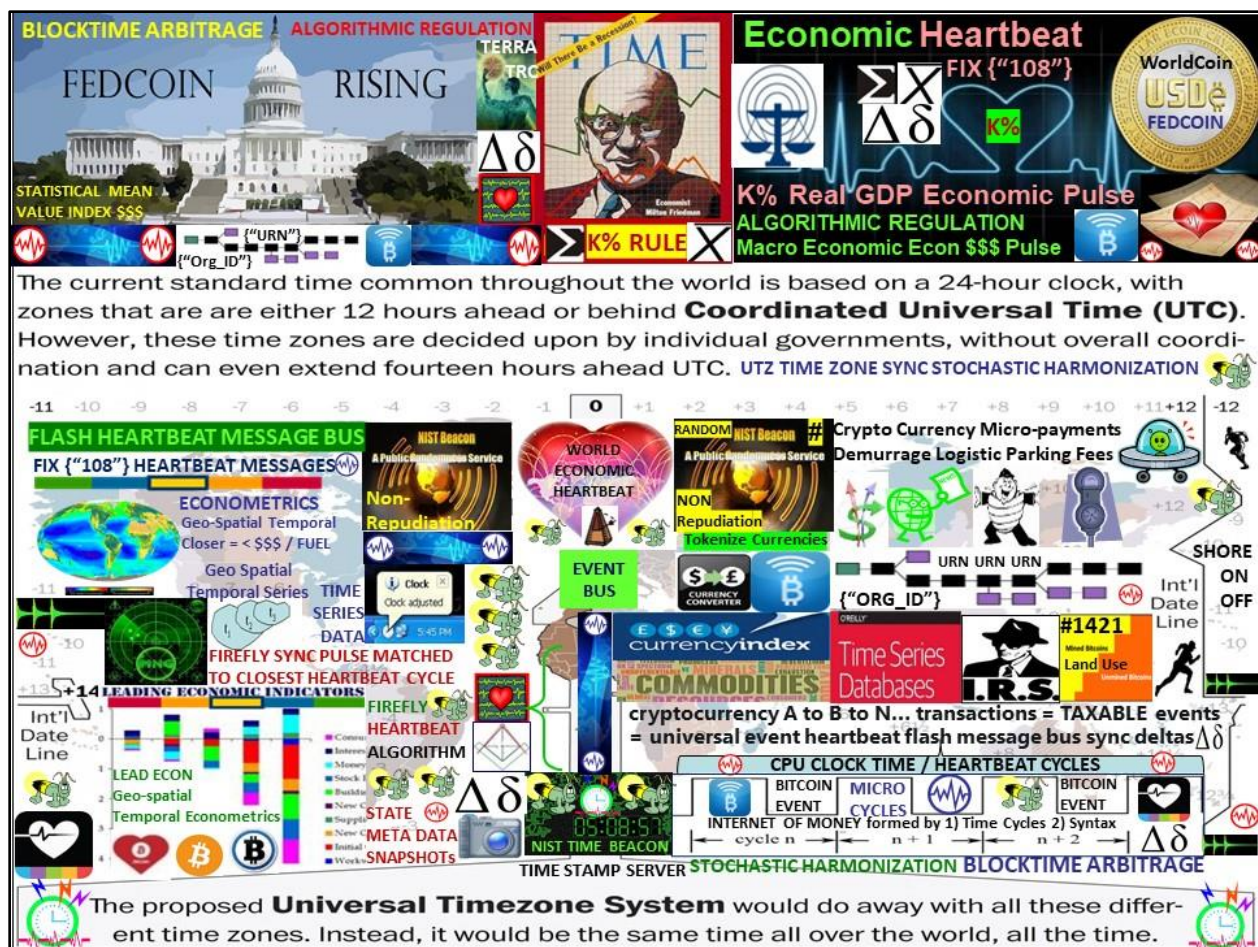


Figure 17: FEDCOIN / WORLD COIN Synchronization / stochastic harmonization

One world currency for the one world government will require financial events stochastically synchronized, harmonized across the world's time zones and will need to represent a value index of the world's GDP Gross Domestic Product METHOD: Use Thomas Edison's commodity backed index recommendation 1921, Milton Friedman's K % rule, Economist Bernard Lietaer's TERRA TRC Trade Reference Currency concepts in concert with the firefly-heartbeat algorithm developed by the University of Bologna, University of Hungary. Economic Reset solution: form economic trade federations incentivizing environment friendly business practices leveraging Bitcoin's micro-payment capabilities supporting the TERRA Trade Reference Currency TRC demurrage resource handling charge. Closer is cheaper, < fuel, less CO2 carbon emissions.

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

Angel List: <https://angel.co/heart-beacon>

Maven: <http://app.maven.co/profile/SHfEKnA9>

LINKEDIN: <https://www.linkedin.com/in/ecoeconepochs/>

Proton Email (secure) ecoeconicepochs@protonmail.com

FLOTE: https://flote.app/user/Heart_Beacon