

THE NuGENESIS REVOLUTION:

REALISING BLOCKCHAIN'S SURGE IN MASS ADOPTION WITH UNLIMITED SCALING, SPEED AND CROSS-CHAIN INTEROPERABILITY; and, BRIDGING WITH LEGAL AND MAINSTREAM ECONOMIC SUPPORT

PART A INTRODUCTION AND SUMMARY

INTRODUCTION

NuGenesis is a fully completed native blockchain originally built for Government and transnational corporate applications. In the context of building a blockchain for Central Bank Digital Currencies (**CBDC's**), and an exchange clearing house for settlement, limitations to scaling and speed, latency and reliance on human miners and validators had to be eliminated. Security had to be enhanced, its integrity underscored by Artificial Intelligence (**AI**) and carbon neutral in its efficiency.

We have now made the NuGenesis gasless network of cross-chain blockchains available for commercial and social application for use by modifying it to maximise its efficacy for the up-coming tidal wave of mass adoption. This has meant not only the most advanced next-generation layer 1 multi-chain blockchain configuration system that is cross-chain interoperable, but which is easy and cost effective for developers to customise their own version which can run as a parallel network and accessing explosive new potential capabilities for Smart Contracts, NFTs, virtual reality innovation.

The NuGenesis multi-cross chain network provides:

1. The Most Advanced Tech

The NuGenesis blockchain network currently consists of a quad cross chain configuration interoperability:

- (a) The NuGenesis Main blockchain, built on Substrate;
- (b) The Ledger X (Exchange) chain based on C++ that is itself a parallel processing chain made of a tri blockchain configuration;
- (c) The Ethereum chain; and,
- (d) The Bitcoin Chain

NuGenesis achieves unlimited scalability and speed through eliminating the validation bottleneck to data flow, uses consensus before packing and, currently implementing load balancers, with their own blockchain, to maximise block data, creation and speed.

There is no limit to the number of chains from diverse languages that can be bridged/cross chained that can parallel process. Indeed the more users, the faster the transaction speed.

2. The Most Advanced Eco system

NuGenesis has prioritised the user experience by removing barriers to mass adoption, provided liquidity by incorporating a fully-fledged open market exchange which has decentralised data stores for optimal security; and, has relationships with a number of countries to implement a blockchain Code that will recognise and give legal certainty to a range of crypto asset instruments, provide better governance and disclosure standards to facilitate the growth of the crypto economy.

3. The Most Advanced Community, Governance and tokenomics

Fees are not existent. A community freely interact on a decentralised social media platform (Just Social) that puts all the information possible in hands of the user. Users and projects to interact and collaborate, whether Venture Capital projects that are being reviewed; accessing expertise from the many users selling their services to providing an exchange where projects can be properly funded without the leakage that currently is drained by exchange middlemen and liquidity pools.

The Governance built into the protocols provides for funded sustainable upgrades and a continual innovation rate of the blockchain infrastructure. This includes implementing 'zero knowledge proof' innovation to maximise data privacy, offline processing through satellite technology and the implementation of a virtual reality realm ('Parallel Worlds') where blockchain interface can be made virtually through avatars.

There are no pre-created or pre-minted coins in large volumes held by founders where Coins are sold to fund the creation of a theoretical blockchain. The blockchain is already built and functioning. The native currency, NuCoin, is minted in accordance with the governance protocol rewarding the contributions made to the on-going improvement to the system.

4. The Most Advanced Philosophy and Design principles

The governing doctrine is a self-governed and self-funded continually innovating blockchain that has unlimited scalability for cryptoeconomy with mass adoption. Transaction speeds that are instant as the mainstream expects from tapping a credit card or exchanging a QR Code; interoperability with other blockchains as the mainstream expects when connecting to wifi anywhere in the world regardless of device used. A user experience where they can recover a lost wallet or mnemonics, stolen crypto assets, share custody or bequeath their crypto assets.

The innovations are designed to be user friendly to facilitate mass adoption by removing the impediments perceived in the crypto-space to give the necessary comfort, confidence and security necessary for the blockchain to be commonplace.

We valued the development of a more complete ecosphere where value can be created and maximised for unlimited future uses, including the most advanced decentralised exchange and decentralised social media platform for vibrant community development.

The NuGenesis blockchain system has been designed to be fully complimentary with, and indeed 'fit hand and glove' the legal systems of the physical world. Indeed, an important part of the complete ecosphere is that we are in the process of co-writing special Crypto-friendly laws and institutions in Special Digital Economic Zones ('SDEZ's') of a number of countries ('Co-operative Jurisdictions') to

give legal backing and support for the innovations that are now possible by virtue of NuGenesis' contribution to crypto technology.

The LAYOUT OF THIS WHITEPAPER

This paper should differ from traditional white papers. It is designed to assist incoming mass adopters. For veteran techies, the technical paper is **PART B**. As whole this white paper is pitched therefore to a sophisticated businessperson versed in traditional capital markets coming into the Cryptoverse having some knowledge of the space without any technical expertise as such.

PART A, we hope will provide an overview of the salient points. The features and benefits so that you can quickly identify the innovations that have been created.

The technical details that traditionally to be expected in White-papers' is in **PART B**, including the tokenomics concerned with miner-stakers and the minting of coin effecting a governance model written into the protocol.

PART C, is an explanation of the socio-political context in which Decentralised Ledger Technology evolves, why the mass adoption is an exponential explosion that our human linear-oriented minds struggle to fully appreciate, the difficulties that the crypto space presents to those looking at it from the traditional market perspective and why therefore we have designed the NuGenesis blockchain system in the way we have.

We discuss the importance of governance that has stalled the growth of the crypto space and the development of technical and legal infrastructure to foster mass adoption.

In **PART D**, is a legal analysis, which whilst cannot be exhaustive of all the jurisdictions in the world, is centred upon what is understood to be common approach taken by the most developed countries in the interpretation and enforcement of securities law.

In **PART E**, we provide risk disclosures and disclaimers so that the reader is alerted to the nature of risks inherent in crypto-currencies, blockchains, smart contracts and derivate technologies therefrom. We remind the reader that we are not financial advisers, do not provide financial advice and rely on the readers own due diligence.

Accordingly, in this main body we will be referring to technical and legal concepts that are important to a businesspersons' understanding of what the NuGenesis blockchain system has to offer but rely upon the reader taking such 'deeper dives' as is necessary by reference to all of the parts herein and of course, their own research and professional advice.

EXECUTIVE SUMMARY OF KEY FEATURES

Government and global enterprise applications

1. The NuGenesis blockchain has been created specifically for serious commercial and governmental applications that provides:
 - (a) freedom from reliance on POW, POS and any human validators which is considered resource and energy inefficient and insufficiently secure. (That is, to be clear, there is no resources, including electricity and carbon implications involved with NuGenesis. It is entirely zero-emission, clean and green);
 - (b) underpinning support by system validators and Artificial Intelligence ('AI') for security and system wide integrity;
 - (c) unlimited scalability with transaction speeds. A million plus transactions per second, readily comparable to VISA and MASTERCARD rates readily achievable. Likewise scalable to unlimited speeds, with the better the speeds the greater the number of parallel processing chains and parallel networks are added;
 - (d) other projects from whatever blockchain can be interoperable with, run as a para-chain or as a sovereign independent parallel blockchain network which, through the use of our blockchain load balancers and 'consensus before packing' actually improves transactional speed the more users on the combined ecosphere;
 - (e) modules for a variety of consensus systems and governance protocols. The NuGenesis blockchain consensus model is Proof of Authority with useful work AI, and Grandpa and the Ledger X consensus is Delegated Revenue Proof of Stake and Consensus before packing;
 - (f) is capable for new generation smart contracts and NFTs, called "Digital Notarised Contracts ('DNC's') and "Serialised Notarised Digital Assets ('SNDA's') wherein:
 - (i) Each coin/asset is serialised and has its own individual identifier that can allow for:
 - (A) lost mnemonic phrases or deaths etc to be recovered;
 - (B) conditions can be placed each individual coin such that it can have:
 - (aa) multi-signatures (multi-sig);
 - (bb) treasuries which, combined with multi-sig, allow for effective and meaningful use by corporate and institutions with far greater security than is traditionally available in capital markets, readily useable for small business and family accounts ;

- (cc) charges and restrictions on the Coin for building Defi applications including providing Coins as security for lending, put and call options etc;
 - (dd) allows the fragmentation and partial sale of Coins;
 - (ee) allows for conditions of vesting rights in cases of wills, trusts and other settlements;
- (ii) a DNC can interact with the physical world through RFID chips, stickers and nanotech to preserve the physical integrity and uniqueness of items useful for sports memorabilia, art, supply chain logistics, etc;
- (iii) in supplanting smart contracts, DNCs are fully fledged contracts. The System 'Notary' is the hashing function; hacking would be pointless; and, the AI would replace external oracles that are currently used, to allow for comprehensive contracts to be drawn with standard real world commercial applications;
- (iv) through the recognition of the legal status of our DNC's and SNDA's with the Cooperative jurisdictions, there is a means of arbitration and legal enforceability for the DNCs and SNDA's; and,
- (v) through the recognition of the legal status of our DNC's and SNDA's with the Cooperative jurisdictions, there will be government registries and administrative infrastructure to facilitate the utilisation of the technology in the physical world.
- (g) the limitations to the creation, attribution and/or exchange of value is not limited to tokens. NuGenesis blockchains provide the rails for Token-less exchanges of anything of value to be exchanged; and,
- (h) the NuGenesis blockchain system framework is the bedrock for the implementation of the Virtual Realty Real, "Parallel Worlds" where the interaction with the community can be through avatars in a virtual reality.

Conduciveness to mass adoption

2. NuGenesis is designed for mass adoption by providing:
 - (a) unlike a miner in other cryptos', it is not a race where the 'winner takes all'; every computational effort of Staker-miners yields NuCoin;
 - (b) Mining is done via smart phone and computer in seconds, can be delegated to a commissioned bot to do it, and every member of the community is earning NuCoin via their social media account;
 - (c) Easy to use crypto-centric social media interface (just social) through which they can readily participate actively and meaningfully in the NuGenesis community

(d) Per para [1 (f)] above, with multi-sig treasury wallets, the fragmentation of Nu coins/SNDA's and ability to add conditions to the Nu Coins/SNDA's, become friendly, safe and easy to use for every day business, entrepreneurial, family and social transactions.

(e) Existing, new or prospective blockchain projects can easily and cheaply:

(i) Design/adopt our blockchain for their own purposes which can either be:

(A) its own independent native blockchain built out of and adopted from the modular version of NuGenesis which can then be bridged as a parallel network; or,

(B) a para-network of our own NuGenesis blockchain,

with the consequence that, unlike parachains, unlimited para-networks can be created without any of them straining the resources on any other chain needing to slow the system or requiring any transaction fees whatsoever;

(ii) true collaboration can be achieved, breaking down the 'silos' of expertise trapped in various existing blockchains that cannot otherwise effectively communicate with each other. NuGenesis has cross-chain network capability allowing for different blockchains to effectively communicate. True Cross-chain interoperability can be effected, including up to our public exchange. Whilst Ethereum and Bitcoin Chains are added in our cross-chain parallel processing system, there are 29 further chains to be connected;

(iii) The NuGenesis blockchain is built on the Substrate framework and as result is readily interoperable with other ecosystems such as Polkadot and Cosmos and has the benefit that it, and all the projects using customising the NuGenesis blockchain run as a parallel network will benefit from the upgrades regularly done by Substrate.

(iv) be listed either on either:

(A) Vision to Reality ('V2R') Venture Capital Board for seeking angel investors, collaborators, expertise, and human resources; and/or

(B) directly on our fully fledged decentralised Ledger X Exchange without the loss of funding that is usually involved in the requirements for listing on fully-fledged exchanged including funding liquidity pools;

An open market exchange removes the problems associated with slippage, MEV¹ and exchange rate inefficiencies found in DEX's, SWAPS and AMM's² that

¹ Miner extracted value being the arbitrage of the price miner can sell and what is in the Swap site that is usually reflected as slippage. It is the inefficient overpricing of the trade.

² Automated market makers

fledgling projects have to deal with detracting the otherwise efficient allocation to the best projects;

- (v) those projects which lack the liquidity needed to further develop their existing projects further, can access the treasury wallets created on the NuGenesis blockchain to create a additional funding mechanism for the project without sacrificing their token price or unduly rewarding speculators.

Have access to a community of experts providing their services and ready to participate in projects all listed on the Just Social, social media site. The expertise is not limited to IT, but legal, project management, marketing and public relations, accounting and financial and range of financial expertise which projects can benefit from in their commercialisation. They can enjoy an incubator experience with wider pool of expertise and resources to draw upon.

- (f) Have access to one or more of our physical 'tech hub' communities where they can physically reside and be given residence (where also in a cooperative jurisdiction). The tech hubs will be communities of approximately 1,000 residences built around a smart city design with communal features for leisure and recreation and for offices, meeting rooms, lecture theatres, conferences, labs, audio-video facilities, and will include participating VC's and other professionals physically present to guide the projects' commercialisation.

[Add pictures of the Farley Tech Hub]

The consummate migration experience for Existing/New Projects

3. Project migration support to the NuGenesis ecosphere is facilitated by providing:
 - (a) interoperable and cross chain agnosticism to allow for easy collaboration (see para [B 6]);
 - (b) the easy and cheap establishment of native blockchains customised from a modular NuGenesis blockchain that operates as fully independent blockchain in its own ecosystem without the draining of resources that would apply in parachain network (see para [C6-C7]);
 - (c) capability for listing projects either at VC level or directly to a fully-fledged exchange;
 - (d) "treasury re-financing model" capability that will allow existing projects to raise additional funding to improve existing projects;
 - (e) an intellectual property registration system whereby scripts, solutions and even modules can be contractually patented within the NuGenesis ecosphere and able to used by others in return for micropayments and other fee earning capability;

Legal Certainty and commercial confidence to facilitate mass adoption

4. Legal Certainty and commercial confidence will be induced because:
- (a) NuGenesis is a fully functional and operational blockchain at the time of this whitepaper and no funds are being raised by a pre-sale, ICO or IDO in order to build the blockchain and thereby nullifying the threat that it could be attacked as a 'security' and imperil the enjoyment and full opportunity community members have with respect to their NuCoin;
 - (b) NuGenesis has the confidence, sophistication, scalability and security necessary to satisfy governments to launch and settle their own CBDC's and SNDA's of their Government and infrastructure bonds and capital raisings;
 - (c) the NuGenesis blockchain is useable for Government business in a number of jurisdictions and is recognised in the Special Digital Economic Zones ('SDEZ's') in the recognition of instruments given legal effect such as, for example:
 - (i) Digital Autonomous Organisations ('DAO's) involving no directors or even shareholders to up to 1m;
 - (ii) Digital Wills and Estates, particularly appropriate to provide protocols for investment and distribution and avoiding family conflicts; and,
 - (iii) Insurance Pools/DAO's for compensating for hacks or exogenous price movements of crypto;
 - (d) That the SDEZ's provide arbitration and enforcement mechanisms in the real world for these digital instruments. (The finality of transactions is not the most conducive to real world that has the expectation that obligations under a contract can be enforced and there is a court/arbitration process to clarify any dispute as to the same. We have sought to balance these competing interests by creating arbitration mechanisms, similar to Bills of Exchange and Instruments Act enforcements. SNDA's for example will be treated, subject to small exceptions, as final and enforceable whilst creating capacity for leave to be obtained where it can be shown that adjudication is appropriate, and providing the ability for cross-claims and adjustments to be made.);
 - (e) The Uniform Blockchain Code in the SDEZs will provide both voluntary and legally enforceable obligations to project registered with the SDEZ, standards for disclosure (especially on capital raises), duties on Devs/Founders/Managers/Miners, and market-driven incentives for mainstream investors to have greater confidence in crypto projects choosing to comply with some or all parts of the Code;
 - (f) There will be Digital Commerce University established in each SDEZ providing for a standardised universally recognised series of qualifications appropriate for the crypto economy. These qualifications will have the benefit of allowing for confidence in the

standards to be adopted, the skills that are forthcoming and the collaborative scholarship and innovation in the crypto-sphere.

User-friendly conducive experience

5. Upon entering the NuGenesis ecosystem, every user is in the crypto-business. We offer a more friendly and comforting end-user (especially novice) experience providing:
 - (a) automatic earning through on their smart phone or laptop (that is without the need for high-end specialised mining rigs);
 - (b) earn rewards (including in the form of NuCoin) for targeted advertising to them based on their metadata (not private information) on the Just Social, social media platform;
 - (c) ability to upgrade to a more substantial tier of miner-staker business, Silver-Miners, where it is not a race where the 'winner takes all'; every computational effort you make will yield you NuCoin;
 - (d) capability to add greater miner-staker business activity to increase earning potential in the more democratic fashion where they do not require specialised or expensive mining rigs and can rely on the common laptop or smartphone;
 - (e) ability to seek and perform governance roles remunerated through the minting process;
 - (f) through the decentralised 'just social' media platform, their business, can:
 - (i) offer their services to the community, whether administrative, marketing, technical or anything which can benefit the existing demand for support in the ecosphere;
 - (ii) access to relevant data; specialists; discussion forums; explainer videos; projects seeking expertise, collaboration, trading tips and live crypto-trading displays;
 - (iii) network and establish groups and friendships pertinent to their preferences and priorities;
 - (iv) access to ideas, crowdsourcing projects, venture capital initiatives and projects seeking expertise, collaborators and otherwise assistance;
 - (v) access to the most sophisticated exchange trading tools to participate in new projects being listed (without the inefficient, expensive and time consuming inconveniences currently experienced with DEXs, SWAPsites, AMM's etc);
 - (vi) access reviews and comments on prospective projects by other community members with the ability to regard such critique according to the authority of the source;

- (vii) earn badges³ to denote their acquired expertise (whether pre-existing, obtained through the various educational course available or Digital Commerce University) and thereby improve their business earnings on making their expertise available to the community.
- (g) users with real opportunities for active participation in the consensus and governance of the ecosystem. The founders created the infrastructure for the community to raise to positions to govern it. A comprehensive governance model is provided see para [C 5] for more active participation to take place both regional and globally:
 - (i) to reward activities that secure the integrity of the system;
 - (ii) maximise the best conditions for their individual business;

One example of the first issues to be put to the vote, being the banning of 'pump and dump' schemes on the Ledger X exchange. Numerous research studies have been conducted to demonstrate the negative impacts on the project far exceeding any benefits from purported liquidity.

 - (iii) Where a project customises their own version of the NuGenesis blockchain and is bridged as a para-network, it has the freedom to design the governance model to suits its culture. Accordingly, as we say with the DAO experience in 2017 leading to the split of Ethereum and Ethereum classic (see para [C 5.15]), para-networks can readily co-exist even with entirely antithetical cultures.
- 6. Parallel Worlds is a comprehensive, virtual reality high-resolution and high-quality Gaming-type option available on the Just Social media platform, designed to:
 - (a) enhance, through a conducive leisurely setting, networking within and general engagement with, the community for extended periods of time;
 - (b) evolve into both a social and economic mode of human interaction and engagement with the yet to be imagined potential borderless interaction through avatars will create;
 - (c) provide a means of NuCoin generation, where the rewards (in the form of NFT and our 'DNC's) are interoperable with other games and can be used for payments in the physical world and,
 - (i) as a result, because of relative micro assets and payments that are involved, ensures the discipline of an efficient and inexpensive model of minting DNCs and trading digital assets through our exchange; and,
 - (ii) is a 'recession proof' contrarian activity that thrives in a bear market.

³ Being ranks or degrees of accreditation recognised by the community as having attained a certain level of expertise commensurate with such badge.

9. USE CASES AND RECOGNITION OF VALUE

NuCoin is the native currency of the NuGenesis blockchain. NuCoin will be required for:

- (a) miner-staking for the generation of rewards at different levels of business participation.
- (b) governance participation as to the direction of the NuGenesis community;
- (c) payment of services within the NuGenesis ecosphere, such as
 - (i) accessing the services of human resources on the Just Social platform, whether administrative, technical, marketing etc,
 - (ii) such of the users' own services offer to the community for your expertise (from marketing, administration, technical etc) and projects users may wish to join or collaborate with;
 - (iii) the payment of our internally recognised intellectual property and patent system ranging from scripts to comprehensive modules in the user's suite of 'hacks', templates etc;
- (d) to exchange for other currencies such as NuCoin Investment to participate in investment opportunities such as the Farley Tech Hub community for the purchase of housing estates, or infrastructure projects in several countries including those backed by Government Guarantees etc.,
- (e) access through staking and payment to participate in V2R venture capital and crowd sourcing opportunities;
- (f) to use as the currency in any of the SDEZ's whether for Government services such as registering a DAO, electronic will and estate, attend University courses, acquire property, accommodation and everyday living expenses; and

the greatest value proposition

- (g) the largest of all value propositions is that the NuGenesis Layer 1 gasless rail network with its comprehensive legal and capital market infrastructure is the best scalable, fast, technically, economically and environmentally efficient opportunity for *existing* projects to be connected as para chains or parallel networks; for projects re-funded through our treasury services and exchange services; for new projects to frictionlessly enter the space; and for the world of dApp developers to connect and build on.

The capacity for new innovations in products as beyond linear smart contracts to parallel processing smart contracts and full DNCs; beyond NFTs to SNDAs; beyond tokens to token-less transfer; beyond crypto 'pawn-shop Defi' to fully powered Defi with serialised collateralisation; to a complete revolution in social and economic interaction in a virtual realm.

In joining the network, NuCoin will be staked (taking it out of circulation)

10. The value of NuCoin that is to be realised is a function of the collective efforts of the community. The rails have been built and paid for. The rails are continually upgrading and innovating with internal funding. What social and economic activity is done on the system is up to the user.
11. What has been built and currently fully functional at the time of writing and before any release of NuCoin by the founders, is an architectural infrastructure framework for which the blockchain and connected components ready to create and realise the maximum value for it. It is for users now to create and recognise new forms of digital assets, collaborate, attract new projects, manage the migration of the projects to the NuGenesis blockchain etc. The founders have no greater vote in the governance process than a newcoming member. It is a decentralised flat governance structure designed to incentivise those most actively participating.
11. There are endless opportunities for the creation of new assets whether in the form of SNDA's or DNC for fully fledged financial instruments, for gaming, for entertainment. The blockchain has been designed to for unlimited scalability, unlimited speed and efficiency, but it is for the community to transact upon it. The rails have been created for the evolution to tokenless social and economic reaction in and in a virtual world whose potential is open to the imagination and execution of the community. The exchange has been designed to allow new and existing projects to be listed and raise capital, but it is for the community to support those projects, hopefully with the benefit of reviews and commentary, suitably qualified expertise within the community is brought into the consideration.
12. We recommend the careful consideration of the tokenomics in para [C 13], our views on monetary policy in para [C 10], and valuation methods in para [C 11]. We submit the entire NuGensis ecosphere is designed to incentivise the creation of value by the users in the new global virtual economy financially and socially.

DESIGN FOR CONTINUOUS TECHNICAL INNOVATION IN MAINSTREAM ADOPTION

B1. Design Principles

- B1.1 In the context of working with Governments in regard to the introduction of CBDCs, NuGenesis paramount concern was for unlimited saleability, instantaneous transaction speeds, high efficiency with zero emissions that would foster the mass adoption of crypto assets for the creation, recognition and exchange of value.
- B1.2 The design philosophy was the creation of a layer 1 network of multi-language cross chains parallel processing that would provide true interoperability to harness and synergise existing expertise and propel new modes of collaborative innovation. Our focus was therefore on building the infrastructure needs to cultivate mass adoption of blockchain technology, so that:
- (a) a community of developing projects can propel the opportunities provided by our infrastructure; and,
 - (b) we maintain our focus on continuous technical innovation to that infrastructure to harness the opportunity that mainstream use of crypto technology offers,
- which means that we seek to maintain the best conditions for 3rd parties to become developers to exploit the opportunities the infrastructure provides (such as, for example, Digital Notarised Contracts (DNC's), serialisation of coin creation for the development of next generation financial instruments) whilst we continue to evolve the platform to meet the challenges of the decades ahead, continuing our work into implementing:
- (a) 'quantum resistance';
 - (b) 'zero knowledge proof' technology that maximises data privacy and personal sovereignty without compromising the legal needs for the integrity of actors;
 - (c) Off-line processing with satellite technology for those parts of the globe that are not reliably on-line;
 - (d) Transition into complete virtual reality where global interaction is beyond the keyboard, beyond messaging texts, videos and numbers to a virtual interaction where play, economic and social life are effected through avatars in our 'parallel worlds'
- B1.3 This philosophy is one where duplicative competition, information silos, are avoided in favour of harnessing the synergy from the composability that the benefits of tested iteration

of tech are continually innovated upon to meet the imperatives that the crypto revolution offers to humanity.

B1.4 Effecting the design philosophy involves implementing the cornerstone interdependent priorities:

- (a) achieving unlimited scaling capacity. Indeed, the more users, the faster the transaction speed;
- (b) achieving parallel processing of unlimited amounts of data in the order of millions of transactions per second, through simply adding the parallel processing power to meet anticipated requirements without any sacrificing data which we consider valuable in and of itself;
- (c) establishing a mechanism for continual innovation of the infrastructure, not only through the on-going upgrades and development for future needs, but ensuring the platform funds that continual innovation as an accepted principle in the governance of the blockchain;
- (d) achieving true interoperability of blockchain protocols through cross chains and hyper brides able to communicate with different languages;
- (e) effecting interoperability by parallel networks running as independent sovereign blockchains that do not burden the resources of each other; and,
- (f) provide through a fully fledged exchange protocol which is answerable to the market, the opportunity for funding to flow to the best tech, rather than having tech development influenced by the needs to access capital.

B1.5 The broader infrastructure of our ecosystem includes legal arrangements with Co-operating Countries establishing Special Digital Economic Zones that provide supporting regulatory regimes for the recognition of Crypto assets and their use; an administrative infrastructure and accreditation. These are discussed in Part C. This Part, deals with the tech.

B2. The multi-chain, cross chain network

B2.1 The NuGenesis blockchain network is a multi cross-chain ecosystem that uses 4 languages interoperability:

- (a) The NuGenesis main blockchain that is built on Substrate;
- (b) The LedgerX (Exchange) Trade chain that is based on C++ that is a parallel processing chain made of a tri blockchain configuration;
- (c) The Ethereum Chain; and,
- (d) The Bitcoin Chain.

B2.2 Any dApps built on Ether for example can be interoperable within the NuGenesis network. The 3,000 dApps and ecosystem built on Ethereum for example can work on NuGenesis and settle on the Ledger X exchange chain. The goal is that the innovations and benefits of

iteration that has occurred over the last decade can be fully interoperable with and through NuGenesis.

- B2.3 Through multiple blockchains we can also have a chain operate as an intermediate blockchain if for some unforeseeable reason that may arise, we cannot connect to the right one directly in the interim.
- B2.4 Currently being completed are the hyper-bridges necessary to bring another 28 blockchains project chains within our interoperable network in a matter of months.
- B2.5 NuGenesis blockchain can meet the scaling needs of any enterprise. It can be customised by any project cheaply and easily and bridged to the ecosphere as a parallel network.

B3. The NuGenesis main chain

- B3.1 The NuGenesis main chain(s) are build on the Substrate Blockchain builder framework. It was specifically chosen so that the issue of interoperability is standard feature. Binance, Polkadot and Cosmos are likewise built on Substrate. The NuGenesis chain upgrades as the Substrate framework upgrades and benefits from the extra functionally continually introduced.
- B3.2 As will be discussed below as to how we achieve unlimited scalability, we have chosen a 3 second block finality as the standard being the most efficient speed. The speed can be readily reduced to 200 millisecond block finality.
- B3.3 NuGenesis uses system validators and is given added integrity by a layer of AI monitoring to avoid corruption. Optimal efficiency with excess capacity has been achieved with 4 validators nodes that are super nodes and 1 simple or authority node. The network topology, P2P, uses the Aura round robin protocol to ensure randomisation between validators and integrity of the block.
- B3.4 There two consensus mechanisms:
 - (a) Proof of Authority with useful work AI (Artificial Intelligence); and,
 - (b) Grandpa, being substrate functionality to ensure block transactions are valid and the longest chain is the best chain.

We discuss the validation process below in terms of achieving scalability by removing the validation process.

- B3.5 Each block can store 5G of data, even though we typically use only 2KB. The capacity is necessary for achieving larger numbers and size of transactions, and for the file size to account for video, data streaming etc which involved with Digital Notarised Contracts ('DNC's) and Serialised Notarised Digital Assets (SNDA's) (broadly comparable to NFTs). This should be contrasted with 54Mb and less than 1 Mb for Ethereum and Bitcoin respectively.
- B3.6 Once validated, the transaction becomes timestamped and part of the blockchain. NuGenesis currently uses SHA 256. It can go to SHA 512, but SHA 256 is optimal.

ACHIEVING UNLIMITED SCALABILITY

B3.5 The constraints to scalability are:

- (a) data flow management to ensure enough data flows into the block within the finality time to seal the block;
- (b) the block size;
- (c) the block speed; and,
- (d) the bottleneck caused by the consensus mechanism.

Resolving the validation bottleneck

B3.6 The NuGenesis chains can run at 200 milliseconds, but it is currently run at 3 second block finality to maximise the block height at zero fault tolerance. This will be relevant below at para [B 7.1] where our solution to maximising the data flowing into the block is discussed.

B3.7 A bottleneck is created by the consensus mechanism. Proof of Work slowness is notorious and need not be repeated here. Even Ethereum 2, because it will be using people node validators will require communications between them, including fee auctions etc that creates at least a 4-17 second delay before reaching the point of going into the block and hence will continue the bottleneck in the validation process.

B3.8 Solutions for mitigating bottlenecks to scale include 'processing data before packing' which we use in the Ledger X blockchain and sharding. Sharding has problems for commercial enterprises because all the relevant data for that enterprise is no longer retained in the same system. It is split into different shards and cannot be merged. Each shared blockchain is its own independent body and with it also the inherent problem of duplication.

B3.9 Whatever the language used, pre-processing extrinsics (events, signed or unsigned transactions) by time ordering and verifying transactions at the event speed tends to have a more theoretical than real increase in the speed of transactions. These solutions tend to come at the cost of data retention. Any solution that seeks to limit the amount of data is not acceptable to us because we believe that data is valuable and will increasingly be so.

B3.10 In the Ledger X chain which is primarily to payment settlements, including through our off-chain payment card, settlement is instant using the liquidity pools before updating the blockchain ledger.

B3.11 On the NuGenesis main chain, we used system validators comprising the 4 super nodes and 1 authority node which is a simple node. The authority (non validator) node keeps the blockchain data. It can be transacted upon but cannot make a block. It runs the explorer, data analytics and outputs data generally, designed to keep these activities from putting pressure on the validator nodes.

B3.12 The system validator nodes run on the randomness of the round robin protocol and monitored by AI and can achieve transaction speeds in the milliseconds. There are no requests from 1000's of validators and fee actions. The streamlined validation process

through the super nodes with byzantine fault tolerance and randomness via round robin monitored by AI, makes unnecessarily superfluous broadcasting through validation networks. We have found that 4 super node validators is optimal spec efficiency to be an enterprise solution for any of the worlds current global corporations.

- B3.13 The simple node is there to be able to add more nodes to the network and to connect with other blockchains. When a project becomes a parallel network, a simple node will be configured to it giving full ledger data access (without validation capability).

B4. Parallel Processing scalability solution

- B4.1 Instead of sharding and have different data in different shards, NuGenesis has parallel processing. So instead of having a shard that has one data set, NuGenesis have a whole chain for a data set, implementing dedicated chains for:
- (a) ordinary Coin Creation;
 - (b) serialised Coin Creation;
 - (c) smart contracts/DNCs; and,
 - (d) serialised Notarised Digital Assets ('SNDA's)/NFTs
- B4.2 As these chains are developed, they will have different optimal block finalisation speeds whose optimal efficiency may vary from higher speeds 200mil/secs for coins to slower, 6 secs for DNCs. The importance for scaling purposes is that by keeping the specialised chains separate, there is no pressure to slow the network.
- B4.3 With the implementation of load balancers and consensus before packing on the load balancer discussed below at para [B 7.1], there is no limitation to the number of chains that can be bridged/cross chained parallel processing.

B5. Unlimited scalability roll-out

- B5.1 The current innovation that is being rolled out is the use of specially designed load balancers for blockchain. Load balancers are used on the internet to transact millions of transactions per second. There is no apparent limitation on the load balancer. All requests from wallets, apps etc come to the load balancer, whose role it is to send the data to the right chain.
- B5.2 The load balancers work on the hardware level (routers, switches and dedicated systems) and software level. They allocate the data according to the utilisation of the relevant chain at the relevant time with where the data is supposed to be processed.
- B5.3 NuGenesis load balancers do not require a continence chain to reconnect the data from the separate chains because they have a blockchain ledger built into them with a consensus mechanism that records what is in each block and backs up to a storage chain.
- B5.4 With parallel processing, scaling up to 1,000 chains parallel processing data is efficient. Data is sent through the load balancer which keeps track of the database and storage of where

data is sent in the storage chains. Data can be readily searched from the explorer on the load balancer.

B6. Interoperability and parallel networks

- B6.1 The NuGenesis 4 cross chain system is designed to provide for and promote interoperability. Of the 4 cross chains, the NuGenesis main chain frame is built on Substrate to take advantage of its interoperability features. The EVM Palette is installed for Eth dApps to be inserted and readily interoperable. Whilst RUST is a powerful blockchain language, existing projects use a variety of languages giving rise to multiple ways to cross chain or bridge between systems. By having multiple languages, whatever cannot be done in the Substrate framework, can be done in another framework.

Para-chains and Para-threads uses

- B6.2 The NuGenesis blockchains use relay chains and para-chains and para-threads can be created easily if required. There are situations where projects and dApps developing specific use cases justifiably benefit from avoiding the establishment of security and consensus builds of a mother chain. Nu Genesis provides for that option but offers developers a more precise cost/benefit analysis by a cheap and easy NuGenesis-based blockchain modular framework to build on that saves time, costs and distractions. The Ledger X exchange option offers developers access to liquidity so that the choice of seeking a parachain slot is not influenced by liquidity objects. Developers' architecture should be focused on optimal tech.

Parallel Networks

- B6.3 At NuGenesis, we do not believe in the concept of para-chains and para-threads for any independent project. Instead the design principle is that new and existing projects should have their own customised blockchain and ecosystem. Projects should be bridged or cross-chained as sovereign parallel networks.
- B6.4 Amongst the many difficulties with the para-chain and para-thread philosophy is the inherent limitation to scalability. That para-chain shares the same security etc of the mother blockchain. Each parachain relies on the power of the mother chain and consequently adds resource burdens upon the entire para-network.
- B6.5 Other inefficiencies arise with inherent delay from multi-node validation which increases as more nodes are necessary to support the para-chain network. The multiplication effects kicks in where the more pressure on the mother network, the more it requires nodes for each ecosystem. Para-chains inherently duplicate transactions and tend to double-count them as a transaction increase which can be misleading in the assessment of transaction speed.

Sovereign parallel blockchains, not para chains

- B6.6 Our design philosophy is that to facilitate mass adoption each project and enterprise application would desire its own sovereignty and control over its data within its own blockchain(s) and ecosystem. Existing projects which are on different programming languages and blockchain systems can be easily cross chained and/or bridged to the

NuGenesis network through the substrate palettes or the Ledger X exchange blockchains. If a new project or enterprise application desire to build a blockchain(s), even with multiple projects, they can easily use the NuGenesis framework to customise their network. They determine their own security protocols which they share with their own para-chains for their sub-projects. They can then be bridged to the NuGenesis system and be a parallel network.

- B6.7 Model applications contemplated in our design are for example, licencing or registries in a federal system. Global remittance networks are another. These types of use cases require their own security priorities in selecting their blockchain network with simple or authority nodes in local jurisdictions for example, and validator nodes at a federal or headquarters level, with such limitation to data storage access as is efficient for that ecosystem.
- B6.8 The costs inefficiencies with parachain networks are staggering to contrast. The number of nodes required Polkadot for example run into the hundreds and the discussed cost of a single para-chain slot is in the multiple millions of dollars. By contrast projects running as independent sovereign parallel networks to NuGenesis will be measured in the thousands of dollars. NuGenesis can dynamically add nodes as required. However, NuGenesis does not even need the 5 nodes it currently uses. It can operate efficiently on 3. The extra 2 is provided for additional capacity to cover the layer of Artificial Intelligence to monitor for any potential corruption. Nodes can of course be added as may be required. There are no fees charged on the NuGenesis network. Fees are unnecessary requests on the blockchain. Projects can design their own fee structure within their own ecosystem.

B7. Data flow processing, not layer 2 processing

- B7.1 With the implementation of load balancers and consensus before packing on the load balancer, the more parallel network chains that are added, the more data is injected into block creation of the connected chains. Without a validation delay (validation occurring within a 100th of a microsecond), and accordingly there are more dramatic increases in the speed of transactions. The more chains that connect with their own sovereign systems, there is no extraneous pressure on any particular system. With parallel processing, the more systems, the faster the transactions processing. Rather than having any layer 2 processing, NuGenesis opted for data flow processing.

Scalability to build liquidity and support Virtual Reality Real (Parallel worlds)

- B7.2 The emphasis on the speed of transactions in the millions per second, is not only because of the priority for remitters to on-board and off-board the crypto capital markets necessary to build up the liquidity pools for the NuGenesis ecosystem, but because this quantum leap in scalability is essential to the virtual reality realm, parallel worlds. NuGenesis will shortly be announcing major partners for the Satellite network and Virtual Reality platform.
- B7.3 The Virtual Reality Realm of 'Parallel Worlds' is an important implementation being worked on that is coming to the NuGenesis network. It will be a virtual, but actual, place of

exchange where avatars can meet, negotiate, socialise using crypto currency for services and crypto assets. A users' Avatar is created by a scan and not easily changed to prevent cheating of the system. There will be on-going 24/7 education, virtual offices, business, e-games and e-sports. The virtual realm will interact with the real world, for example a user's Avatar may purchase a pizza in a virtual shop and it is delivered to their home. Fully implemented, the network capacity must cater for millions of transactions per second, and the file size of blocks will require enormous capacity for voice messages, video streaming and digital assets created by users in virtual reality.

B8. The continuing innovation rate design doctrine

Forkless upgrades

- B8.2 At the most basic level, there is no risk that upgrades and necessary changes to adapt to technical innovation does not send the blockchain into a panic and wipe the data or tread into Layer 2 transactions. Being forkless, NuGenesis does have risks involved in upgrading the network. There are no noticeable effects on the runtime environment or downtime.
- B8.3 In para [C5], we discuss the governance system that is designed to ensure that NuGenesis projects continue their innovation rate and that the improvements in the pipeline are both provided for and also funded through the treasuries in the coin creation process that is discussed below.

B9. MINERS, STAKERS IN GREEN, ZERO CARBON

- B9.1 There are several types of stakers and Staker-Miners. Platinum, Executive and Gold Stakers are stakers only and described in the reward system. The Silver Miners are the staker-Miners who interact with the system.

Miner-stakers are minters

- B9.2 In NuGenesis, staker-miners are not validators. They have a different duty. They are minters of coin to ensure that the tokenomics run as expected. NuGenesis is focused on maintaining an innovate rate in a constantly evolving blockchain ecosphere. It did not start with a large number of created or pre-minted coin. Rather, it is based on a minting system to reward all those participating in the various roles to support the evolution of the system.

Zero energy emission

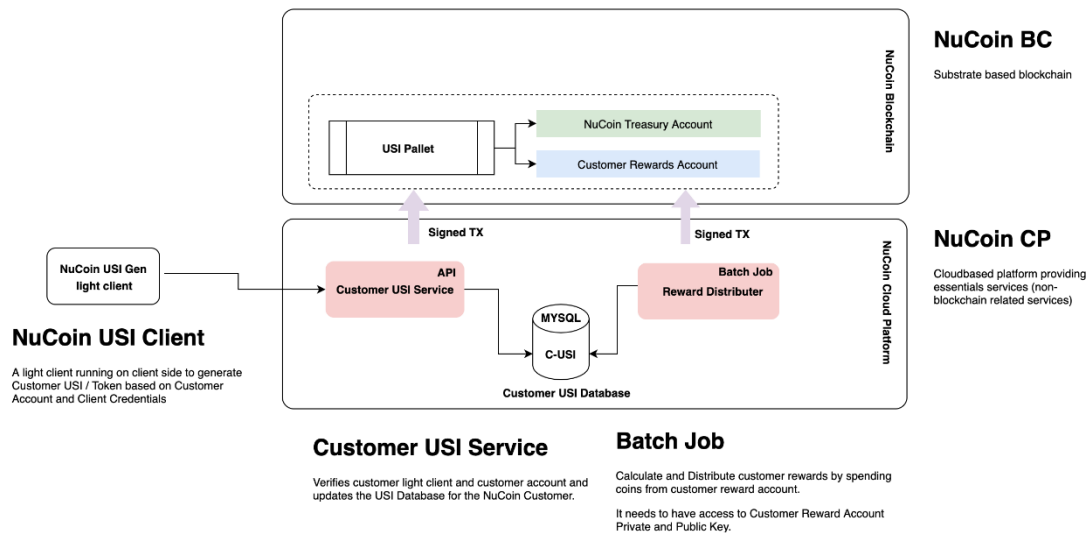
- B9.3 Furthermore, the system was designed to be Green. It was designed to eliminate unnecessary computational power required from validation and unnecessary requests on the system. Moreover, mining involves no extra energy beyond that which the chain is using anyway in running on AWS or other applicable storage service.

Creating USI's (Universal Serial Identifier)

- B9.4 In NuGenesis, the guaranteed uniqueness on any block hashing address is achieved by a randomised number known as the universal serial identifier (USI). The USI facilitates the capabilities for blockchain parallel processing, sharding, para-chains and minting. Coins are

minted with audit trackability through the USI. Each Coin, Crypto Asset whether NFT/SNDA or DNC can be serialised. This serialisation is a foundational requirement for CBDCs (Central Bank Digital Currencies) and provides the basis for the DeFi to be revolutionised. Crypto assets can have security attached for lending, can be multi-party owned etc and consequently do not have to leave a user's custody to be utilised.

The below diagram illustrates the high-level design for USI implementation:



The role of the Staker-Miner

B9.5 The role of Staker-Miners are therefore to interact with the system, activate it and direct it to:

- (a) Mint Coin; and,
- (b) Create USI

Which in the NuGenesis mainblock chain is vital because the doctrine of constant innovation rate funded through the treasuries, the overall development of the ecosystem depends upon the minting process. Moreover, the USI's are central to the serialisation of crypto assets which NuGenesis offers for the advancement of the crypto economy.

B10. Nu Genesis Layer 1 Smart Contracts/DNCs and NFTs/SNDA's

Smart Contracts/DNCs

B10.1 The NuGenesis innovation to facilitate mass adoption by the mainstream economy is to go beyond existing limitations of smart contract protocols. Digital Notarised Contracts (DNCs) allow for parties to transact with more comprehensive contracts that cater for a wide range of terms and conditions to cater for the various possibilities that can arise and consequent allocation of risks in common business practices. The AI capability will build suggested templates of contracts and instruments in an increasingly number of commercial scenarios.

- B10.2 The AI will pull the suggested templates to a contemplated transaction, fill in the data from the respective chains and wallet IDs, and the counterparties have signed the respective DNC, the system will witness and notarise the DNC by time-stamp hash it with a unique identifier.
- B10.3 Transactional scenarios may require money to be held in trust wallets, with or without multi-signs, and impose standard business customs such as for example SGC inspections for import/export contracts. At para [B12.11] below, the Ledger X blockchain system allows for smart contract developers to innovate with parallel processing in the smart contract protocols removing the limitation of linear time ordering and allowing for the flexibility for both vertical and horizontal events to be incorporated.
- B10.4 In para XX, we discuss the adoption of a Blockchain Code of Conduct and Crypto laws to recognise and provide forums for efficient dispute resolution that arise in blockchain technology. These jurisdictions can be made the forum for dispute resolution and governing law for a wider variety of templated business situations.

NFTs/SNDA's

- B10.5 Likewise, DNCs and SNDAs are discussed in part A, and para [C 3]. The DNCs and SNDAs can extend beyond digital-only object and interact with or fuse with the physical world through RFID chips, stickers and nanotech. DNCs and SNDAs are Layer 1 assets, minted and traded on the NuGenesis blockchain.

B11. COIN CREATION, AND SERIALISATION OF ASSETS

- B11.1 As identified in para [B 9.4] above, serialisation applies to blockchains that created serialised coins where there is a particular requirement for CBDCs and for blockchains dedicated to DNCs and SNDAs. Those blockchains operate on system generation rather than individual miners. Government and enterprise users do not wish to rely upon human staker-miners.
- B11.2 Serialisation is not attached to ordinary NuCoin per se because it is primarily a payment coin and not designed to be a store of value. However, NuCoin can be wrapped and effectively become a DNC or SNDA. By contrast, NUI (NuCoin Investment) that is an investment token for participation in significant investment projects will be serialised for each and every coin.
- B11.3 A system generated serialised NuCoin chain can be activated by community governance.
- B11.4 The capability is for ordinary, serialised coin and digital asset creation on their own separate blockchains. Accordingly, if it is desirable to change the block speed from 3 sec finality to 200 nano/sec finality, according to the transactional needs.
- B11.5 Ordinary NuCoins created per block are reduced in a linear algorithm by 1 every 10 years, until it reaches 0 Coin creation.

The Coin Creation Table in attached as Schedule 1

B12. THE LEDGER X EXCHANGE BLOCKCHAINS

- B12.1 Ledger X is fully fledged exchange where prices are determined by the brutality of the open market. It was designed within the NuGenesis ecosystem for capital to be allocated by the market rather than bond curves and technocratic formulae.
- B12.2 Ledger X is decentralised in that, unlike say Binance which has a central point of data storage, the data is decentralised with the 11 witness nodes across the globe. This offers a vital security advantage without compromising the instant settlement time.
- B12.3 The decentralisation is designed to encourage users to consolidate their holdings, view, monitor and manage their portfolio, apply metrics and analytics available without the risks of a centralised exchange. Assets from other blockchains can be deposited whilst remaining interoperable. With multi-sig, treasury wallets and allowing users to keep their private keys, it is intended to provide the user experience comfort needed to optimise mass adoption.
- B12.4 Ledger X is scalable and high performance designed for new projects to cheaply and efficiently create or mint coins made available to the open market, or for existing projects to obtain further liquidity through supplemental release mechanisms.

Tri blockchain configuration

- B12.4 The Leger X exchange is a parallel processing tri blockchain configuration

The three chains include:

- (1) Settlement chain;
- (2) Match chain; and
- (3) Content chain

which are running parallel together.

Consensus mechanisms

- B12.5 The consensus mechanism involves two major protocols:

- (1) Delegated Revenue Proof of Stake; and,
- (2) Consensus before packing

the combined effect of which is that the transaction has already been processed when it goes through the block. This tri-chain concurrent processing achieves a 1 second block speed creation finality.

- B12.6 The user therefore experiences a completed order within 1 second that compares with a centralised exchange.
- B12.7 The settlement chain does the 'consensus before packing' and the settlement. The content chain stores the data on finality and the match chain matches the data (order matching) when trying to resolve it or search it. An explorer search will identify the ID of multiple transactions however they are processed as between the blockchains

B12.8 Like the NuGenesis blockchain it is scalable such that parallel chains can be created and bridged. It is flexible in that it allows developers to create more vertical side-chain scenario.

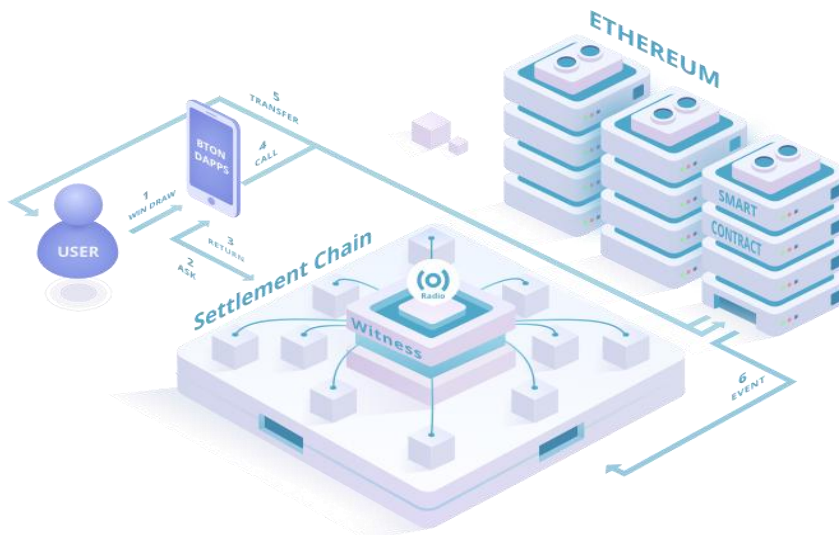
Globally dispersed super-nodes

B12.9 The 11 witness nodes are Super-nodes that are deployed in 8 countries on four continents.



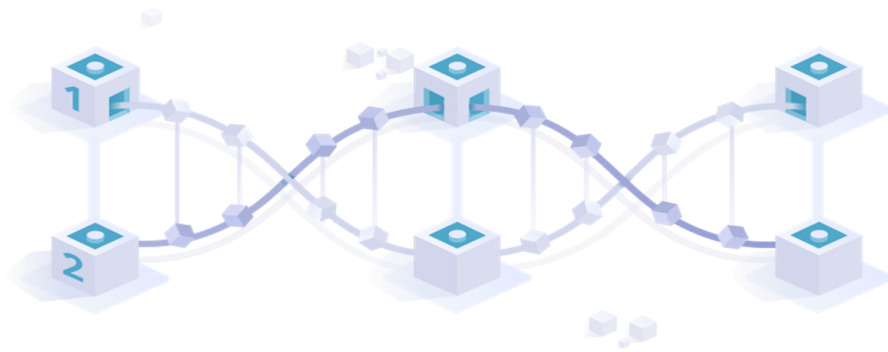
The Ledger X Cross-Chain Agreement value circulation Hub

B12.10 The cross chain protocol allows assets on other public chains to be anchored though smart contracts and scripts to create or be part of newly created crypto assets on the users' Ledger X exchange wallets.



Ledger X Side Chain protocol for smart contract parallel computing

B12.11 A current limitation of smart contracts is that they are not designed with parallel computing in mind and operate on a linear time ordering process. The Ledger X side-Chain protocol allows smart contract developers to introduce side chain mechanisms that concurrently process providing greater flexibility for vertical side chain scenarios.



B13. THE NuGenesis REWARD SYSTEM

B13.1 NuCoin was not created on masse or pre-minted for pre-sale release, IDO, IEO or ICO.

B13.2 The NuGenesis blockchain systems have been developed, are fully functional.

B13.3 NuCoin is the payment currency for the ecosystem to operate and is minted per day reducing at a linear algorithm of a negative 1 per block every 10 years over a total period of 110 years.

B13.4 The NuGenesis Reward system is tied to the minting of Nu Coin. The minted coins per day are disturbed by the treasury through a series of sub-treasuries for the following purposes:

(a) on-going funding for the NuGenesis ecosystem and continual innovation;

(This is represented by the Tech Fund Treasury, Legal Treasury and Investment Treasury)

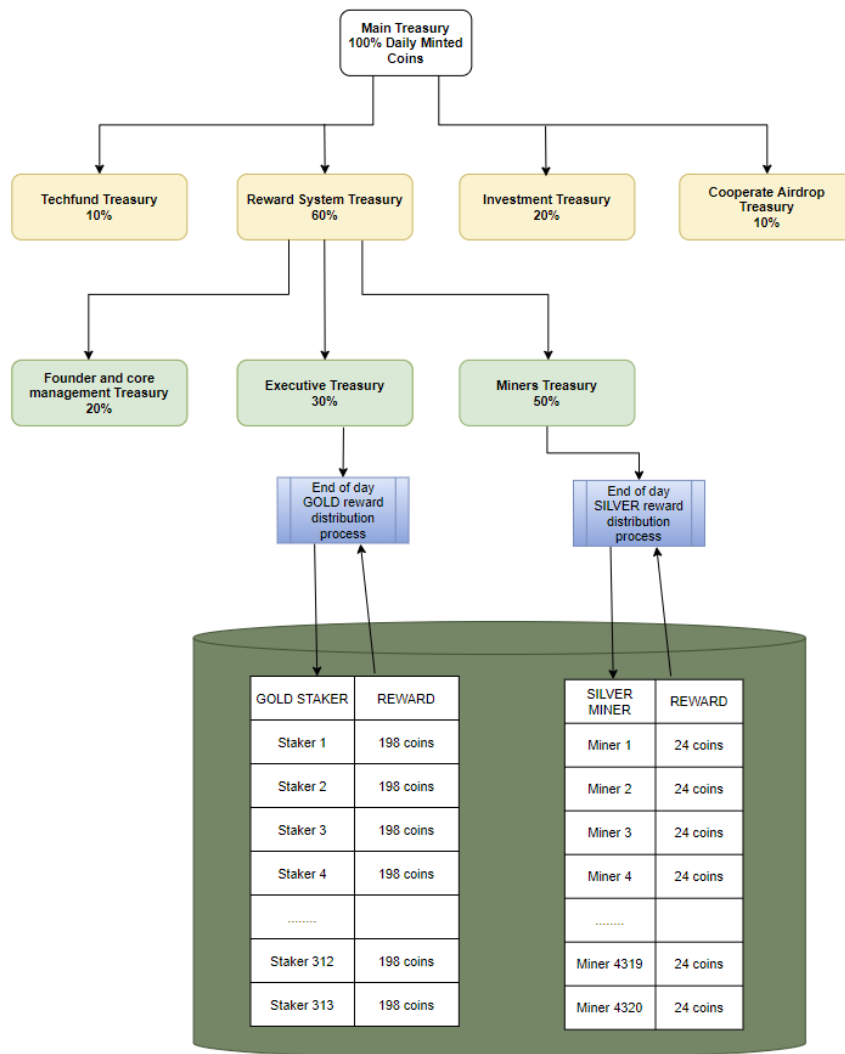
(b) on-going rewards and payments for governance and participation throughout the ecosystem which includes the 313 executive and governance positions described in the governance system;

(c) return of investment being the smaller category of reward to the early investors taking a higher risk and stakers;

(d) the Silver Staker-Miners who function it is to mint coin and create USI; and,

(e) the participant members who through their membership in the Cooperative NuGenesis Community receive free daily airdrop NuCoin rewards of 10% of all NuCoin minted each day.

A diagram of the reward allocation is as follows:



Mining: the staker-miners or Silver Miners

- B13.5 Unlike other blockchain models where Miners receive the Coin they mine, with NuGenesis the Staker-Miners or Silver Miners instead work for the system. They consequently receive a 30% reward of what NuCoin they caused to be minted each day.
- B13.6 The mining is designed to require negligible computational resources and can be done in a matter of seconds. Moreover, bots can be hired by the Miner to mine for them by paying the bot 10% of the Miner's reward.
- B13.7 The AI System does not trust miners and creates a secondary mining capacity to pick up any slack from the daily coin creation tokenomics requirement (being 34,560 Coins per day in the first 10 years). The AI System will burn off automatically anything in excess of the coin creation required.

B13.8 It is possible to 'turn off' this AI system minting back up should future governance voting decide so.

The Staking Amounts per Silver Miner membership type

B13.9 The Staking Amounts for the different levels of Staking membership are set out in **Schedule 2**
[or set out a table]

The NuCoin Treasury and Accounts

B13.10 The NuCoin System Account Types are set out in **Schedule 3**
[or set out a table]

NuCoin Pie Chart Holdings at time of White Paper

B13.11 The Pie Chart of the Allocation of Existing NuCoin is represented below:
[insert Pie Chart]

B13.12 The observable features of the allocations, it is submitted is:

- (i) the Founders and Core Devs have a relatively modest holding given the blockchain networks ecosphere development paid for to the operational state.

This is suggested to compare favourably to traditional blockchains where there are enormous pre-release creation of coins or pre-minting that are sold to investors whose funds are used to build the blockchain and hopefully bring it to an operational stake.

- (ii) the Founders and Core Devs are locked in for 2 years plus cannot sell their NuCoin where the price impact is or could be 10%.
- (iii) the Founders and Core Devs are, to the extent they contribute to on-going governance and management, rewarded through the daily minting process. Such a reward structure is designed to incentivise a team to remain committed to the longer term interests of the NuGenesis ecosystem.
- (iv) there is an allocation of NuCoin to strategically important investors that provide disproportionate economic benefit by virtue of their coin holdings than a more typical investor regardless of size of holding.

DESIGN FOR CONTINUOUS TECHNICAL INNOVATION IN MAINSTREAM ADOPTION

C1. Design Principles

- C1.1 In the context of working with Governments in regard to the introduction of CBDCs, NuGenesis paramount concern was for unlimited saleability, instantaneous transaction speeds, high efficiency with zero emissions that would foster the mass adoption of crypto assets for the creation, recognition and exchange of value.
- C1.2 The design philosophy was the creation of a layer 1 network of multi-language cross chains parallel processing that would provide true interoperability to harness and synergise existing expertise and propel new modes of collaborative innovation. Our focus was therefore on building the infrastructure needs to cultivate mass adoption of blockchain technology, so that:
- (a) a community of developing projects can propel the opportunities provided by our infrastructure; and,
 - (b) we maintain our focus on continuous technical innovation to that infrastructure to harness the opportunity that mainstream use of crypto technology offers,
- which means that we seek to maintain the best conditions for 3rd parties to become developers to exploit the opportunities the infrastructure provides (such as, for example, Digital Notarised Contracts (DNC's), serialisation of coin creation for the development of next generation financial instruments) whilst we continue to evolve the platform to meet the challenges of the decades ahead, continuing our work into implementing:
- (a) 'quantum resistance';
 - (b) 'zero knowledge proof' technology that maximises data privacy and personal sovereignty without compromising the legal needs for the integrity of actors;
 - (c) Off-line processing with satellite technology for those parts of the globe that are not reliably on-line;
 - (d) Transition into complete virtual reality where global interaction is beyond the keyboard, beyond messaging texts, videos and numbers to a virtual interaction where play, economic and social life are effected through avatars in our 'parallel worlds'

- C1.3 This philosophy is one where duplicative competition, information silos, are avoided in favour of harnessing the synergy from the composability that the benefits of tested iteration of tech are continually innovated upon to meet the imperatives that the crypto revolution offers to humanity.
- C1.4 Effecting the design philosophy involves implementing the cornerstone interdependent priorities:
- (a) achieving unlimited scaling capacity. Indeed, the more users, the faster the transaction speed;
 - (b) achieving parallel processing of unlimited amounts of data in the order of millions of transactions per second, through simply adding the parallel processing power to meet anticipated requirements without any sacrificing data which we consider valuable in and of itself;
 - (c) establishing a mechanism for continual innovation of the infrastructure, not only through the on-going upgrades and development for future needs, but ensuring the platform funds that continual innovation as an accepted principle in the governance of the blockchain;
 - (d) achieving true interoperability of blockchain protocols through cross chains and hyper brides able to communicate with different languages;
 - (e) effecting interoperability by parallel networks running as independent sovereign blockchains that do not burden the resources of each other; and,
 - (f) provide through a fully fledged exchange protocol which is answerable to the market, the opportunity for funding to flow to the best tech, rather than having tech development influenced by the needs to access capital.
- C1.5 The broader infrastructure of our ecosystem includes legal arrangements with Co-operating Countries establishing Special Digital Economic Zones that provide supporting regulatory regimes for the recognition of Crypto assets and their use; an administrative infrastructure and accreditation. These are discussed in Part C. This Part, deals with the tech.

C2. The multi-chain, cross chain network

- C2.1 The NuGenesis blockchain network is a multi cross-chain ecosystem that uses 4 languages interoperability:
- (a) The NuGenesis main blockchain that is built on Substrate;
 - (b) The LedgerX (Exchange) Trade chain that is based on C++ that is a parallel processing chain made of a tri blockchain configuration;
 - (c) The Ethereum Chain; and,
 - (d) The Bitcoin Chain.
- C2.2 Any dApps built on Ether for example can be interoperable within the NuGenesis network. The 3,000 dApps and ecosystem built on Ethereum for example can work on NuGenesis and

settle on the Ledger X exchange chain. The goal is that the innovations and benefits of iteration that has occurred over the last decade can be fully interoperable with and through NuGenesis.

- C2.3 Through multiple blockchains we can also have a chain operate as an intermediate blockchain if for some unforeseeable reason that may arise, we cannot connect to the right one directly in the interim.
- C2.4 Currently being completed are the hyper-bridges necessary to bring another 28 blockchains project chains within our interoperable network in a matter of months.
- C2.5 NuGenesis blockchain can meet the scaling needs of any enterprise. It can be customised by any project cheaply and easily and bridged to the ecosphere as a parallel network.

C3. The NuGenesis main chain

- C3.1 The NuGenesis main chain(s) are build on the Substrate Blockchain builder framework. It was specifically chosen so that the issue of interoperability is standard feature. Binance, Polkadot and Cosmos are likewise built on Substrate. The NuGenesis chain upgrades as the Substrate framework upgrades and benefits from the extra functionally continually introduced.
- C3.2 As will be discussed below as to how we achieve unlimited scalability, we have chosen a 3 second block finality as the standard being the most efficient speed. The speed can be readily reduced to 200 millisecond block finality.
- C3.3 NuGenesis uses system validators and is given added integrity by a layer of AI monitoring to avoid corruption. Optimal efficiency with excess capacity has been achieved with 4 validators nodes that are super nodes and 1 simple or authority node. The network topology, P2P, uses the Aura round robin protocol to ensure randomisation between validators and integrity of the block.
- C3.4 There two consensus mechanisms:
 - (a) Proof of Authority with useful work AI (Artificial Intelligence); and,
 - (b) Grandpa, being substrate functionality to ensure block transactions are valid and the longest chain is the best chain.

We discuss the validation process below in terms of achieving scalability by removing the validation process.

- C3.5 Each block can store 5G of data, even though we typically use only 2KB. The capacity is necessary for achieving larger numbers and size of transactions, and for the file size to account for video, data streaming etc which involved with Digital Notarised Contracts ('DNC's) and Serialised Notarised Digital Assets (SNDA's) (broadly comparable to NFTs). This should be contrasted with 54Mb and less than 1 Mb for Ethereum and Bitcoin respectively.
- C3.6 Once validated, the transaction becomes timestamped and part of the blockchain. NuGenesis currently uses SHA 256. It can go to SHA 512, but SHA 256 is optimal.

ACHIEVING UNLIMITED SCALABILITY

C3.5 The constraints to scalability are:

- (a) data flow management to ensure enough data flows into the block within the finality time to seal the block;
- (b) the block size;
- (c) the block speed; and,
- (d) the bottleneck caused by the consensus mechanism.

Resolving the validation bottleneck

C3.6 The NuGenesis chains can run at 200 milliseconds, but it is currently run at 3 second block finality to maximise the block height at zero fault tolerance. This will be relevant below at para XXX where our solution to maximising the data flowing into the block is discussed.

C3.7 A bottleneck is created by the consensus mechanism. Proof of Work slowness is notorious and need not be repeated here. Even Ethereum 2, because it will be using people node validators will require communications between them, including fee auctions etc that creates at least a 4-17 second delay before reaching the point of going into the block and hence will continue the bottleneck in the validation process.

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C3.11 On the NuGenesis main chain, we used system validators comprising the 4 super nodes and 1 authority node which is a simple node. The authority (non validator) node keeps the blockchain data. It can be transacted upon but cannot make a block. It runs the explorer, data analytics and outputs data generally, designed to keep these activities from putting pressure on the validator nodes.

C3.12 The system validator nodes run on the randomness of the round robin protocol and monitored by AI and can achieve transaction speeds in the milliseconds. There are no

requests from 1000's of validators and fee actions. The streamlined validation process through the super nodes with byzantine fault tolerance and randomness via round robin monitored by AI, makes unnecessarily superfluous broadcasting through validation networks. We have found that 4 super node validators is optimal spec efficiency to be an enterprise solution for any of the worlds current global corporations.

- C3.13 The simple node is there to be able to add more nodes to the network and to connect with other blockchains. When a project becomes a parallel network, a simple node will be configured to it giving full ledger data access (without validation capability).

C4. Parallel Processing scalability solution

- C4.1 Instead of sharding and have different data in different shards, NuGenesis has parallel processing. So instead of having a shard that has one data set, NuGenesis have a whole chain for a data set, implementing dedicated chains for:

- (a) Ordinary Coin Creation
- (b) Serialised Coin Creation
- (c) smart contracts/DNCs
- (d) Serialised Notarised Digital Assets ('SNDA's)/NFTs

- C4.2 As these chains are developed, they will have different optimal block finalisation speeds whose optimal efficiency may vary from higher speeds 200mil/secs for coins to slower, 6 secs for DNCs. The importance for scaling purposes is that by keeping the specialised chains separate, there is no pressure to slow the network.

- C4.3 With the implementation of load balancers and consensus before packing on the load balancer discussed below at para XXX, there is no limitation to the number of chains that can be bridged/cross chained parallel processing.

C5. Unlimited scalability roll-out

- C5.1 The current innovation that is being rolled out is the use of specially designed load balancers for blockchain. Load balancers are used on the internet to transact millions of transactions per second. There is no apparent limitation on the load balancer. All requests from wallets, apps etc come to the load balancer, whose role it is to send the data to the right chain.

- C5.2 The load balancers work on the hardware level (routers, switches and dedicated systems) and software level. They allocate the data according to the utilisation of the relevant chain at the relevant time with where the data is supposed to be processed.

- C5.3 NuGenesis load balancers do not require a continece chain to reconnect the data from the separate chains because they have a blockchain ledger built into them with a consensus mechanism that records what is in each block and backs up to a storage chain.

- C5.4 With parallel processing, scaling up to 1,000 chains parallel processing data is efficient. Data is sent through the load balancer which keeps track of the database and storage of where data is sent in the storage chains. Data can be readily searched from the explorer on the load balancer.

C6. Interoperability and parallel networks

- C6.1 The NuGenesis 4 cross chain system is designed to provide for and promote interoperability. Of the 4 cross chains, the NuGenesis main chain frame is built on Substrate to take advantage of its interoperability features. The EVM Palette is installed for Eth dApps to be inserted and readily interoperable. Whilst RUST is a powerful blockchain language, existing projects use a variety of languages giving rise to multiple ways to cross chain or bridge between systems. By having multiple languages, whatever cannot be done in the Substrate framework, can be done in another framework.

Para-chains and Para-threads uses

- C6.2 The NuGenesis blockchains use relay chains and para-chains and para-threads can be created easily if required. There are situations where projects and dApps developing specific use cases justifiably benefit from avoiding the establishment of security and consensus builds of a mother chain. Nu Genesis provides for that option but offers developers a more precise cost/benefit analysis by a cheap and easy NuGenesis-based blockchain modular framework to build on that saves time, costs and distractions. The Ledger X exchange option offers developers access to liquidity so that the choice of seeking a parachain slot is not influenced by liquidity objects. Developers' architecture should be focused on optimal tech.

Parallel Networks

- C6.3 At NuGenesis, we do not believe in the concept of para-chains and para-threads for any independent project. Instead the design principle is that new and existing projects should have their own customised blockchain and ecosystem. Projects should be bridged or cross-chained as sovereign parallel networks.
- C6.4 Amongst the many difficulties with the para-chain and para-thread philosophy is the inherent limitation to scalability. That para-chain shares the same security etc of the mother blockchain. Each parachain relies on the power of the mother chain and consequently adds resource burdens upon the entire para-network.
- C6.5 Other inefficiencies arise with inherent delay from multi-node validation which increases as more nodes are necessary to support the para-chain network. The multiplication effects kicks in where the more pressure on the mother network, the more it requires nodes for each ecosystem. Para-chains inherently duplicate transactions and tend to double-count them as a transaction increase which can be misleading in the assessment of transaction speed.

Sovereign parallel blockchains, not para chains

- C6.6 Our design philosophy is that to facilitate mass adoption each project and enterprise application would desire its own sovereignty and control over its data within its own blockchain(s) and ecosystem. Existing projects which are on different programming

languages and blockchain systems can be easily cross chained and/or bridged to the NuGenesis network through the substrate palettes or the Ledger X exchange blockchains. If a new project or enterprise application desire to build a blockchain(s), even with multiple projects, they can easily use the NuGenesis framework to customise their network. They determine their own security protocols which they share with their own para-chains for their sub-projects. They can then be bridged to the NuGenesis system and be a parallel network.

- C6.7 Model applications contemplated in our design are for example, licencing or registries in a federal system. Global remittance networks are another. These types of use cases require their own security priorities in selecting their blockchain network with simple or authority nodes in local jurisdictions for example, and validator nodes at a federal or headquarters level, with such limitation to data storage access as is efficient for that ecosystem.
- C6.8 The costs inefficiencies with parachain networks are staggering to contrast. The number of nodes required Polkadot for example run into the hundreds and the discussed cost of a single para-chain slot is in the multiple millions of dollars. By contrast projects running as independent sovereign parallel networks to NuGenesis will be measured in the thousands of dollars. NuGenesis can dynamically add nodes as required. However, NuGenesis does not even need the 5 nodes it currently uses. It can operate efficiently on 3. The extra 2 is provided for additional capacity to cover the layer of Artificial Intelligence to monitor for any potential corruption. Nodes can of course be added as may be required. There are no fees charged on the NuGenesis network. Fees are unnecessary requests on the blockchain. Projects can design their own fee structure within their own ecosystem.

C7. Data flow processing, not layer 2 processing

- C7.1 With the implementation of load balancers and consensus before packing on the load balancer, the more parallel network chains that are added, the more data is injected into block creation of the connected chains. Without a validation delay (validation occurring within a 100th of a microsecond), and accordingly there are more dramatic increases in the speed of transactions. The more chains that connect with their own sovereign systems, there is no extraneous pressure on any particular system. With parallel processing, the more systems, the faster the transactions processing. Rather than having any layer 2 processing, NuGenesis opted for data flow processing.

Scalability to build liquidity and support Virtual Reality Real (Parrallel worlds)

- C7.2 The emphasis on the speed of transactions in the millions per second, is not only because of the priority for remitters to on-board and off-board the crypto capital markets necessary to build up the liquidity pools for the NuGenesis ecosystem, but because this quantum leap in scalability is essential to the virtual reality realm, parallel worlds. NuGenesis will shortly be announcing major partners for the Satellite network and Virtual Reality platform.
- C7.3 The Virtual Reality Realm of 'Parrallel Worlds' is an important implementation being worked on that is coming to the NuGenesis network. It will be a virtual, but actual, place of

exchange where avatars can meet, negotiate, socialise using crypto currency for services and crypto assets. A users' Avatar is created by a scan and not easily changed to prevent cheating of the system. There will be on-going 24/7 education, virtual offices, business, e-games and e-sports. The virtual realm will interact with the real world, for example a user's Avatar may purchase a pizza in a virtual shop and it is delivered to their home. Fully implemented, the network capacity must cater for millions of transactions per second, and the file size of blocks will require enormous capacity for voice messages, video streaming and digital assets created by users in virtual reality.

C8. The continuing innovation rate design doctrine

Forkless upgrades

- C8.2 At the most basic level, there is no risk that upgrades and necessary changes to adapt to technical innovation does not send the blockchain into a panic and wipe the data or tread into Layer 2 transactions. Being forkless, NuGenesis does have risks involved in upgrading the network. There are no noticeable effects on the runtime environment or downtime.
- C8.3 In para **XX**, we discuss the governance system that is designed to ensure that NuGenesis projects continue their innovation rate and that the improvements in the pipeline are both provided for and also funded through the treasuries in the coin creation process that is discussed below.

C9. MINERS, STAKERS IN GREEN, ZERO CARBON

- C9.1 There are several types of stakers and Staker-Miners. Platinum, Executive and Gold Stakers are stakers only and described in the reward system. The Silver Miners are the staker-Miners who interact with the system.

Miner-stakers are minters

- C9.2 In NuGenesis, staker-miners are not validators. They have a different duty. They are minters of coin to ensure that the tokenomics run as expected. NuGenesis is focused on maintaining an innovate rate in a constantly evolving blockchain ecosphere. It did not start with a large number of created or pre-minted coin. Rather, it is based on a minting system to reward all those participating in the various roles to support the evolution of the system.

Zero energy emission

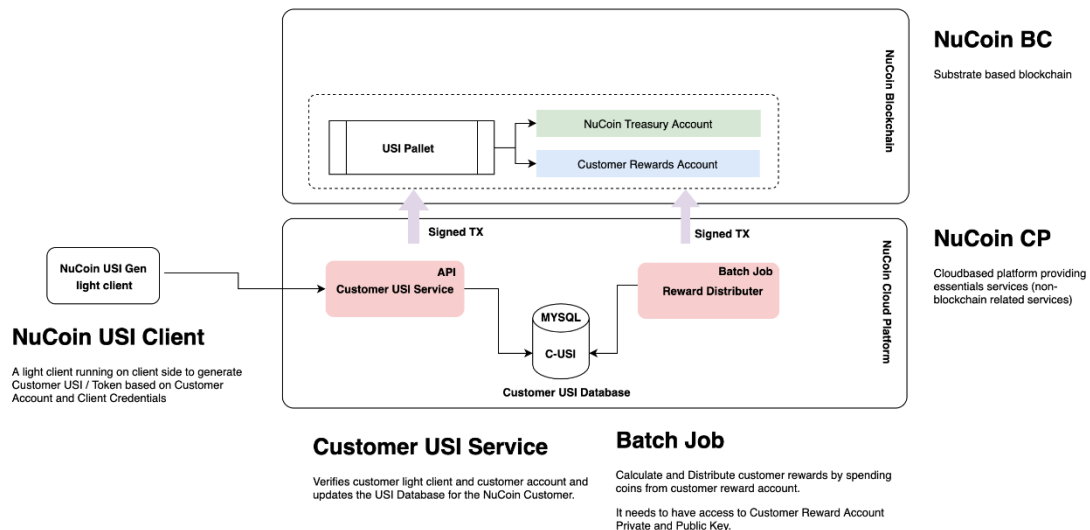
- C9.3 Furthermore, the system was designed to be Green. It was designed to eliminate unnecessary computational power required from validation and unnecessary requests on the system. Moreover, mining involves no extra energy beyond that which the chain is using anyway in running on AWS or other applicable storage service.

Creating USI's (Universal Serial Identifier)

- C9.4 In NuGenesis, the guaranteed uniqueness on any block hashing address is achieved by a randomised number known as the universal serial identifier (USI). The USI facilitates the capabilities for blockchain parallel processing, sharding, para-chains and minting. Coins are minted with audit trackability through the USI. Each Coin, Crypto Asset whether NFT/SNDA

or DNC can be serialised. This serialisation is a foundational requirement for CBDCs (Central Bank Digital Currencies) and provides the basis for the DeFi to be revolutionised. Crypto assets can have security attached for lending, can be multi-party owned etc and consequently do not have leave a users' custody to be utilised.

The below diagram illustrates the high-level design for USI implementation:



The role of the Staker-Miner

C9.5 The role of Staker-Miners are therefore to interact with the system, activate it and direct it to:

- (a) Mint Coin; and,
- (b) Create USI

Which in the NuGenesis mainblock chain is vital because the doctrine of constant innovation rate funded through the treasuries, the overall development of the ecosystem depends upon the minting process. Moreover, the USI's are central to the serialisation of crypto assets which NuGenesis offers for the advancement of the crypto economy.

C10. Nu Genesis Layer 1 Smart Contracts/DNCs and NFTs/SNDA's

Smart Contracts/DNCs

C10.1 The NuGenesis innovation to facilitate mass adoption by the mainstream economy is to go beyond existing limitations of smart contract protocols. Digital Notarised Contracts (DNCs) allow for parties to transact with more comprehensive contracts that cater for a wide range of terms and conditions to cater for the various possibilities that can arise and consequent allocation of risks in common business practices. The AI capability will build suggested templates of contracts and instruments in an increasingly number of commercial scenarios.

- C10.2 The AI will pull the suggested templates to a contemplated transaction, fill in the data from the respective chains and wallet IDs, and the counterparties have signed the respective DNC, the system will witness and notarise the DNC by time-stamp hash it with a unique identifier.
- C10.2 Transactional scenarios may require money to be held in trust wallets, with or without multi-signs, and impose standard business customs such as for example SGC inspections for import/export contracts. At para 12.11 below, the Ledger X blockchain system allows for smart contract developers to innovate with parallel processing in the smart contract protocols removing the limitation of linear time ordering and allowing for the flexibility for both vertical and horizontal events to be incorporated.
- C10.3 In para XX, we discuss the adoption of a Blockchain Code of Conduct and Crypto laws to recognise and provide forums for efficient dispute resolution that arise in blockchain technology. These jurisdictions can be made the forum for dispute resolution and governing law for a wider variety of templated business situations.

NFTs/SNDA's

- C10.4 Likewise, DNCs and SNDAs are discussed in paras XXX. The DNCs and SNDAs can extend beyond digital-only object and interact with or fuse with the physical world through RFID chips, stickers and nanotech. DNCs and SNDAs are Layer 1 assets, minted and traded on the NuGenesis blockchain.

C11. COIN CREATION, AND SERIALISATION OF ASSETS

- C11.1 As identified in para X above, serialisation applies to blockchains that created serialised coins that are particularly required by CBDCs and for blockchains dedicated to DNCs and SNDAs. Those blockchains operate on system generation rather than individual miners. Government and enterprise users do not wish to rely upon human staker-miners.
- C11.2 Serialisation is not attached to ordinary NuCoin per se because it is primarily a payment coin and not designed to be a store of value. However, NuCoin can be wrapped and effectively become a DNC or SNDA. By contrast, NUI (NuCoin Investment) that is an investment token for participation in significant investment projects will be serialised for each and every coin.
- C11.3 A system generated serialised NuCoin chain can be activated by community governance.
- C11.4 The capability is for ordinary, serialised coin and digital asset creation on their own separate blockchains. Accordingly, if it is desirable to change the block speed from 3 sec finality to 200 nano/sec finality, according to the transactional needs.
- C11.5 Ordinary NuCoins created per block are reduced in a linear algorithm by 1 every 10 years, until it reaches 0 Coin creation.

The Coin Creation Table is attached as Schedule 1

C12. THE LEDGER X EXCHANGE BLOCKCHAINS

- C12.1 Ledger X is fully fledged exchange where prices are determined by the brutality of the open market. It was designed within the NuGenesis ecosystem for capital to be allocated by the market rather than bond curves and technocratic formulae.
- C12.2 Ledger X is decentralised in that, unlike say Binance which has a central point of data storage, the data is decentralised with the 11 witness nodes across the globe. This offers a vital security advantage without compromising the instant settlement time.
- C12.3 The decentralisation is designed to encourage users to consolidate their holdings, view, monitor and manage their portfolio, apply metrics and analytics available without the risks of a centralised exchange. Assets from other blockchains can be deposited whilst remaining interoperable. With multi-sig, treasury wallets and allowing users to keep their private keys, it is intended to provide the user experience comfort needed to optimise mass adoption.
- C12.4 Ledger X is scalable and high performance designed for new projects to cheaply and efficiently create or mint coins made available to the open market, or for existing projects to obtain further liquidity through supplemental release mechanisms.

Tri blockchain configuration

- C12.4 The Leger X exchange is a parallel processing tri blockchain configuration

The three chains include:

- (1) Settlement chain;
- (2) Match chain; and
- (3) Content chain

which are running parallel together.

Consensus mechanisms

- C12.5 The consensus mechanism involves two major protocols:

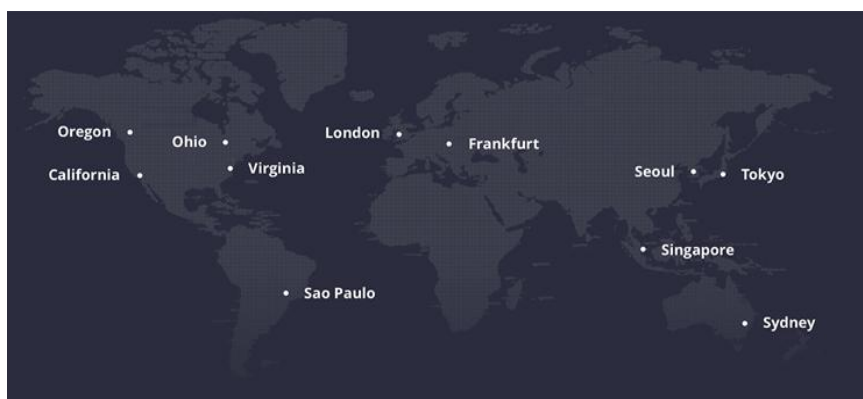
- (1) Delegated Revenue Proof of Stake; and,
- (2) Consensus before packing

the combined effect of which is that the transaction has already been processed when it goes through the block. This tri-chain concurrent processing achieves a 1 second block speed creation finality.

- C12.6 The user therefore experiences a completed order within 1 second that compares with a centralised exchange.
- C12.7 The settlement chain does the 'consensus before packing' and the settlement. The content chain stores the data on finality and the match chain matches the data (order matching) when trying to resolve it or search it. An explorer search will identify the ID of multiple transactions however they are processed as between the blockchains
- C12.8 Like the NuGenesis blockchain it is scalable such that parallel chains can be created and bridged. It is flexible in that it allows developers to create more vertical side-chain scenario.

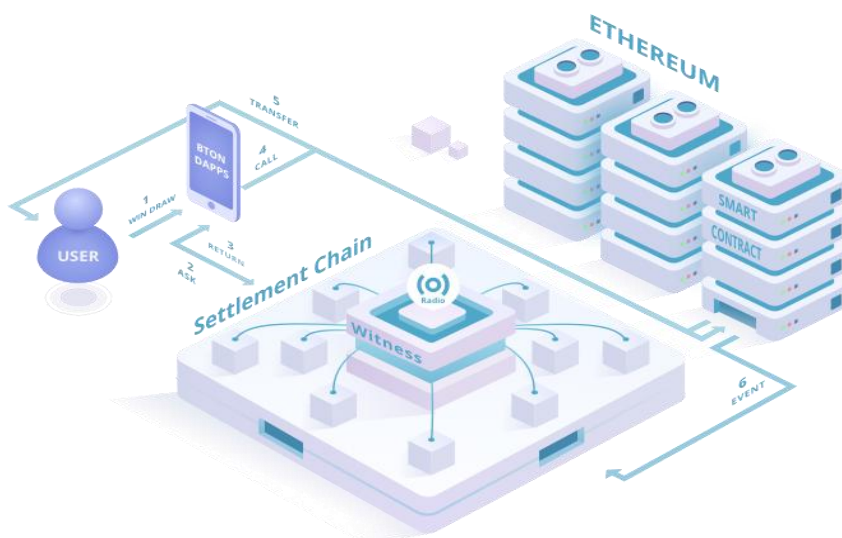
Globally dispersed supernodes

- C12.9 The 11 witness nodes are Supernodes that are deployed in 8 countries on four continents.



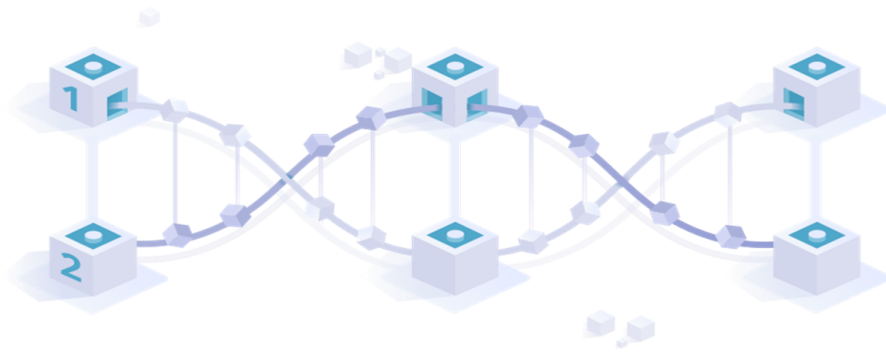
The Ledger X Cross-Chain Agreement value circulation Hub

C12.10 The cross chain protocol allows assets on other public chains to be anchored though smart contracts and scripts to create or be part of newly created crypto assets on the users' Ledger X exchange wallets.



Ledger X Side Chain protocol for smart contract parallel computing

C12.11 A current limitation of smart contracts is that they are not designed with parallel computing in mind and operate on a linear time ordering process. The Ledger X side-Chain protocol allows smart contract developers to introduce side chain mechanisms that concurrently process providing greater flexibility for vertical side chain scenarios.



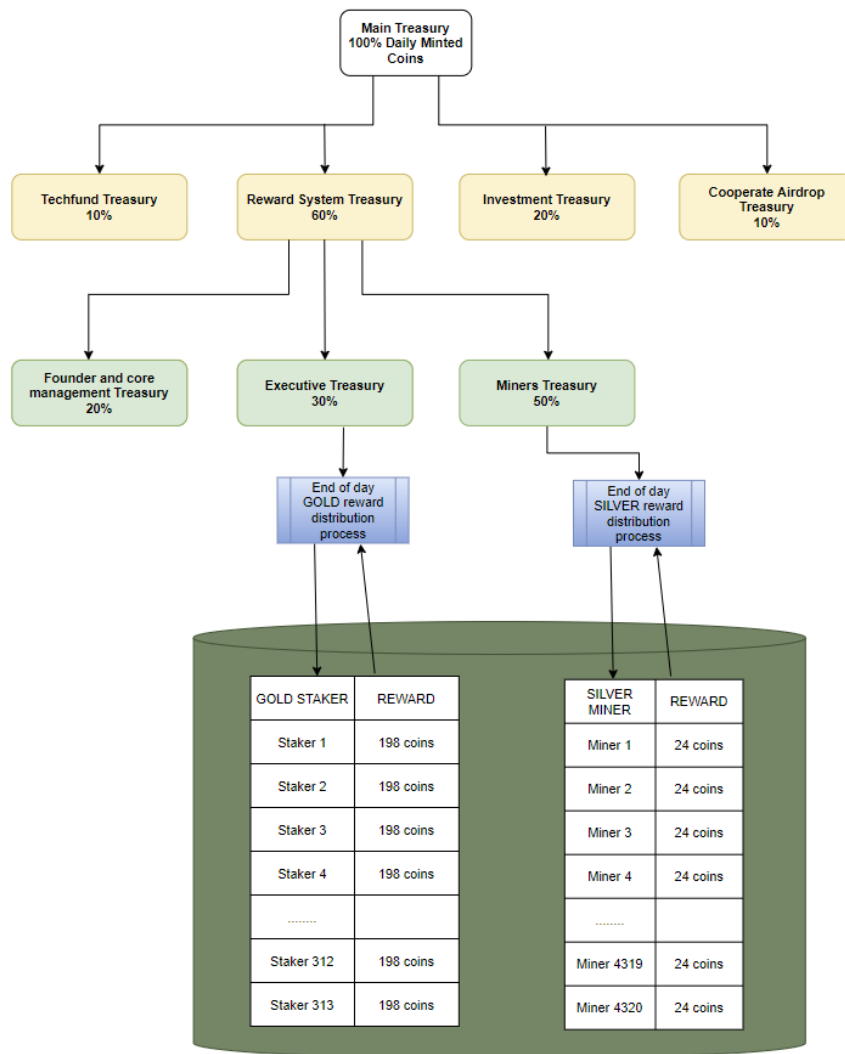
C13. THE NuGenesis REWARD SYSTEM

- C13.1 NuCoin was not created on masse or pre-minted for pre-sale release, IDO, IEO or ICO.
- C13.2 The NuGenesis blockchain systems have been developed, are fully functional.
- C13.3 NuCoin is the payment currency for the ecosystem to operate and is minted per day reducing at a linear algorithm of a negative 1 per block every 10 years over a total period of 110 years.
- C13.4 The NuGenesis Reward system is tied to the minting of Nu Coin. The minted coins per day are disturbed by the treasury through a series of sub-treasuries for the following purposes:
 - (a) On-going funding for the NuGenesis ecosystem and continual innovation.

This is represented by the Tech Fund Treasury, Legal Treasury and Investment Treasury.

- (b) On-going rewards and payments for governance and participation throughout the ecosystem which includes the 313 executive and governance positions described in the governance system;
 - (c) Return of investment being the smaller category of reward to the early investors taking a higher risk and stakers;
 - (d) The Silver Staker-Miners who function it is to mint coin and create USI; and,
 - (e) The participant members who through their membership in the Cooperative NuGenesis Community receive free daily airdrop NuCoin rewards of 10% of all NuCoin minted each day.

A diagram of the reward allocation is as follows:



Mining: the staker-miners or Silver Miners

- C13.5 Unlike other blockchain models where Miners receive the Coin they mine, with NuGenesis the Staker-Miners or Silver Miners instead work for the system. They consequently receive a 30% reward of what NuCoin they caused to be minted each day.
- C13.6 The mining is designed to require negligible computational resources and can be done in a matter of seconds. Moreover, bots can be hired by the Miner to mine for them by paying the bot 10% of the Miner's reward.
- C13.7 The AI System does not trust miners and creates a secondary mining capacity to pick up any slack from the daily coin creation tokenomics requirement (being 34,560 Coins per day in the first 10 years). The AI System will burn off automatically anything in excess of the coin creation required.

C13.8 It is possible to 'turn off' this AI system minting back up should future governance voting decide so.

The Staking Amounts per Silver Miner membership type

C13.9 The Staking Amounts for the different levels of Staking membership are set out in **Schedule 2**

The NuCoin Treasury and Accounts

C13.10 The NuCoin System Account Types are set out in **Schedule 3**

NuCoin Pie Chart Holdings at time of White Paper

C13.11 The Pie Chart of the Allocation of Existing NuCoin is represented below:

[insert Pie Chart]

C13.12 The observable features of the allocations, it is submitted is:

- (i) The Founders and Core Devs have a relatively modest holding given the blockchain networks ecosphere development paid for to the operational state.

This is suggested to compare favourably to traditional blockchains where there are enormous pre-release creation of coins or pre-minting that are sold to investors whose funds are used to build the blockchain and hopefully bring it to an operational stake.

- (ii) The Founders and Core Devs are locked in for 2 years plus cannot sell their NuCoin where the price impact is or could be 10%.

- (iii) The Founders and Core Devs are, to the extent they contribute to on-going governance and management, rewarded through the daily minting process. Such a reward structure is designed to incentivise a team to remain committed to the longer term interests of the NuGenesis ecosystem.

- (iv) There is an allocation of NuCoin to strategically important investors that provide disproportionate economic benefit by virtue of their coin holdings than a more typical investor regardless of size of holding.

PART D

LEGAL ISSUES

It is standard market practice that the issuer publishes a so-called “white paper” on its website.¹ Although some white papers are quite comprehensive, their level of detail cannot be compared with a prospectus required under securities regulation.² For example, while under securities regulation it is required that the prospectus contains detailed information about the issuer, this element is very often missing from white papers.³

+++ The intuitive difference is that is the point -that knowledge about the issuer, which is the difference is not relevant.

A second problem is that national regulators would find it particularly difficult to take action against token offers managed by entities based in a foreign country. For example, the U.K. Financial Conduct Authority (FCA) seems to be painfully aware of its limited powers, stating laconically that ICOs “might be based overseas.”⁴

Non-functional tokens have the sole function of acting as a fundraising mechanism and are offered to the public when the platform or the network has not been developed. Non-functional tokens do not contain any features that are intrinsically linked to a blockchain project; thus their value is driven only by speculation⁵. The pre-sales of tokens are not unusual. Around 70% of ICOs had been previously offered in a presale to a private investor group prior to the crowdsale.⁶

Sometimes, the features of the token will determine its legal nature. However, as shown by cases such as *Munchee*⁷, the distribution of the token may end up being the crucial factor to define a

¹ See Zetzsche, et al., *supra* note 42, at 10.

² See *id.*

³ See *id.* at 11.

⁴ U.K. FIN. CONDUCT AUTHORITY, *Distributed Ledger Technology – Feedback Statement on Discussion Paper 17/03*, at 15 (Dec. 2017), <http://perma.cc/U92Q-VVJZ>. It is not surprising that the U.K.

FCA highlights its limited competencies when stating that ICOs “might be based overseas.” ¹⁰⁵ See OICV-IOSCO, FACT SHEET, *supra* note 23.

⁵ Alfonso Delgado et al. *Towards a Sustainable ICO Process: Community Guidelines on Regulation and Best Practices* (2016), pp. 33

⁶ This percentage is based on a sample of 450 ICOs. See Dirk A. Zetzsche, Ross P. Buckley, Douglas W. Arner and Linus Föhr. *The ICO Gold Rush: It’s a scam, It’s a bubble, It’s a super challenge for regulators*. EUROPEAN BANKING INSTITUTE WORKING PAPER SERIES 2018 – NO. 18. (2018) pp. 11.

⁷ *Munchee* was a California-based company that was seeking \$15 million in capital to improve an existing iPhone app centred on restaurant meal reviews and create an “ecosystem” in which *Munchee* and others would buy and sell goods and services using the tokens. The company communicated through its website, a white paper, and other means that it would use the proceeds to create the ecosystem, including eventually paying users in tokens for writing food reviews and selling both advertising to restaurants and “in-app” purchases to app users in exchange for tokens. According to the order, in the course of the offering, the company and other promoters emphasised that investors could expect that efforts by the company and others

token as a security. Therefore, even though a functional classification of tokens can be useful for several purposes, the legal classification of the token will require a deeper analysis of the token as well as the circumstances surrounding the issuance.

Traditional valuation models that are applied to securities do not apply to cryptocurrency. empirical study that finds evidence that the long-term fundamental value of bitcoin, as of 2015, is statistically indistinguishable from zero.⁸ In fundamental valuation, the fundamental value of an asset is usually defined as the discounted expected future cash flow that the asset delivers to its holder. While the market value of bitcoin is obviously far above zero, the study suggests that the price volatility of bitcoin implies that its “true”, fundamental value is zero.

The main utility of the NuCoin currency is not to generate future cash flow but to make functional use of the blockchain ecosystem. It is to participate in other investments – from staking, specific investments, to collaborative projects and para networks established as a result of them.

NuCoin is the currency of the NuGenesis ecosystem. It is the means of exchange to access services and opportunities provided by and in the ecosphere. It is also the right to participate in the facilitation of consensus of the blockchain which recognises the digital representation of value (whether in the form of rights⁹ or otherwise) which is reliant on cryptography and distributed ledger technology for its accounting and security.

Other features: it has a scarcity determined by the formula creating it {XXXX} and can be deflationary by virtue of the capacity to burn Coins.

Opinion

the main role of the securities regulator: providing information to the market, mainly through the vehicle of disclosure requirements which, in turn helps the market assign the right price tag to the products sold.¹⁰ For example, any information about the quality of the management of the firm is expected to be included in the price of the firm’s securities as long as the information is public. If the information is positive the price of the share is expected to

would lead to an increase in value of the tokens. Based on these statements made by the company, the SEC decided to open an investigation for violation of federal securities regulation. Munchee consented to the SEC’s cease-and-desist order without admitting or denying the findings. See SEC Press Release, Company Halts ICO After SEC Raises Registration Concerns, Securities and Exchange Commission (December, 2017), available at: <https://www.sec.gov/news/press-release/2017-227>

⁸ Cheah/Fry, ‘Speculative bubbles in Bitcoin markets? An empirical investigation into the fundamental value of Bitcoin’ (2015) 130 Economics Letters 32, 35; see also Yermack, ‘Is Bitcoin a Real Currency: An Economic Appraisal’ in Lee (ed) Handbook of Digital Currency (Elsevier, 2015) 31, 36; Athey et al., ‘Bitcoin Pricing, Adoption, and Usage: Theory and Evidence’, Stanford University Graduate School of Business Research Paper No. 16-42 (1 August, 2016), <https://ssrn.com/abstract=2826674> (accessed November 2, 2017), at 3.

⁹ rights to receive a benefit or perform specific functions such as receiving new coins from staker-mining, facilitating consensus, participating in governance and taking part in opportunities.

¹⁰ HADAR Y. JABOTINSKY, FINANCIAL REGULATION in ENCYCLOPEDIA OF LAW AND ECONOMICS (2017)

increase as investors rush to purchase it. In other words, there is a hypothesis that as long as the market receives the correct and full information about a firm the market will be efficient.¹¹

The legal problem is that financial markets regulation is technology-neutral. This means that the same set of statutory rules apply to financial services and transactions, regardless of the type of technology used.¹²

While it is not surprising that various national securities law frameworks apply different terminology, the structures are highly comparable. The SEC's investigations and orders have set the tone for the debate on tokens under securities laws. The pivotal term "investment contract" is a subcategory of the general term "security." Singapore, Australia, and New Zealand follow a two-tier approach, distinguishing between tokens as securities and tokens as collective investment agreements. Ultimately because NuCoin does not involve rights to equity or dividends or voting in an Issuer, it is the collective vehicle approach that is relevant. That is, the focus of what collective investment contract or scheme amounts to a 'security'.

However, the E.U. framework focuses on the tradability of tokens on the secondary capital market, and therefore differs from the investment-based approach taken by the other jurisdictions. However where this framework is applied to NuCoin, there is a great similarity of the issues that arise.

Security is the gateway for the application of the full array of securities regulation (including, but not limited to, the obligation to publish a prospectus, the creation of prospectus liability, the prohibition of insider trading, and the authorization of financial intermediaries involved in token sales by national regulators).

Notwithstanding that jurisdictions have extremely diverse legal positions regarding crypto-currencies, there appears to be a common approach by the G7 Countries and those following them seeking to enforce existing rules (and apparently new ones coming) along the lines of treating crypto currency assets as 'securities'. Whilst 'securities' is the U.S. standard of approach, and in Australia we call it "managed investment scheme" or 'transferable securities' in the EC and leaving aside, the fundamental issue to discuss in this Part, is that designation which gives local Securities Enforcement Regulators the jurisdiction to regulate firstly by requiring prospectus type registration. Accordingly, we will use the US heading of "securities" to be the point of analysis common to the G7 lead crusade and identify any material differences in the discussion.

¹¹ Burton G. Malkiel, *The Efficient Market Hypothesis and its Critics*, 17 J. ECON. PERSPECTIVES 59, 60 (2003). Note however that this hypothesis has been criticized in many ways, as markets seem to over or under react to new pieces of information and to take into account irrelevant or plausible information JOHN ARMOUR, DAN AWREY, PAUL DAVIES, LUCA ENRIQUES, JEFFREY GORDON, COLIN MAYER & JENNIFER PAYNE, *PRINCIPLES OF FINANCIAL REGULATION* 101 (2016) at 105.

¹² See, for example, Eur. Comm'n, Directorate General Financial Stability, *FinTech: A More Competitive and Innovative European Financial Sector* 4, 5, 15 (Consultation Document), <http://perma.cc/2JRFHDBM> (regarding financial technology regulation in general). According to OICV-IOSCO, most regulators follow the neutrality approach. OICV-IOSCO, *UPDATE TO THE REPORT ON THE IOSCO AUTOMATED ADVICE TOOLS SURVEY – FINAL REPORT 4* (File No. FR15/2016, Dec. 2016), <http://perma.cc/KS6V-DKUT> (regarding the regulation of automated advice tools, specifically).

There are of course an almost inexhaustible list of legal issues regarding the jurisdictional tests and exemptions in each jurisdiction, but for the purposes of this Part, we will focus on the common thread to the G7 lead countries, the question of whether NuCoin is a 'security'.

Scholars like to use classifications like "security" token, "utility" token or "payment token" or some combinations thereof¹³, as a way to help condense the nature of the analysis.

NuCoin would generally be a payment Coin. It is intended to function primarily as a means of payment, which can be freely transferred in a peer-to-peer fashion on a distributed ledger technology or related technology, without usage of an intermediary or geographic limitation. This category of tokens aims to resemble money in its functions, as a means of exchange, a unit of account and as a store of value.¹⁴

However it is also a utility token in that the Coin is necessary for access to services, opportunities and investments in the ecosphere and to applications build upon NuGenesis, parachains or Para-Networks. What it is not, is a 'security' token that provides economic rights taking any shape comparable to equity ownership in the issuing entity, dividend rights or rights to any transaction fees on the Network¹⁵.

This broad classification may be useful, but the issue is the exact rights and benefits that are being offered, viewed in economic reality unconstrained by form¹⁶, when the public come to purchase NuCoin on an exchange.

¹³ Utility-security hybrids are tokens such as NEO and BNB, which are designed to have elements of both utility tokens and security tokens. Utility-security token is the most common form of security tokens. They are interesting as they combine elements of more traditional financial instruments with characteristics of utility tokens.

¹⁴ See for example, the frameworks of Finma, the European Securities and Markets Authority, 'Own Initiative Report on Initial Coin Offerings and Crypto-Assets' (19 October 2018) https://www.esma.europa.eu/sites/default/files/library/esma22-106-1338_smsg_advice_-_report_on_icos_and_cryptoassets.pdf, Zetsche (n. 74), European Banking Authority, 'Report with advice for the European Commission' (9 January 2019) <https://eba.europa.eu/documents/10180/2545547/EBA+Report+on+crypto+assets.pdf>, Thomas Euler, 'The Token Classification Framework: A multi-dimensional tool for understanding and classifying crypto tokens.' (18 January 2018) <http://www.untitled-inc.com/the-token-classification-framework-a-multi-dimensional-tool-forunderstanding-and-classifying-crypto-tokens/> Monetary Authority of Singapore, 'A guide to Digital Token Offerings' <http://www.mas.gov.sg/~media/MAS/News%20and%20Publications/Monographs%20and%20Information%20Papers/Guide%20to%20Digital%20Token%20Offerings%20last%20updated%20on%2030%20Nov.pdf> FINMA, 'Guidelines for enquiries regarding the regulatory framework for initial coin offerings (ICOs)' <https://www.finma.ch/en/~media/finma/dokumente/dokumentcenter/myfinma/1bewilligung/fintech/weleitungglico.pdf?la=en> Philipp Hacker and Dr. Chris Thomale, LL.M. 'Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law' (2017) eCFR (forthcoming) available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3075820

¹⁵ Cf for example NEO provides its token holders dividends in the form of another token by the name of GAS, while Binance uses a percentage of the transaction costs paid in BNB to buy back coins and 'burn' or destroy them. Although Binance's model is more comparable to a share repurchase than a dividend, the economic reality is de-facto quite similar, as a decrease in supply should lead to an increase in the value of BNB tokens.

¹⁶ many token issuers have opted to self-classify their token as a utility token (even when, aside from the provided utility, economic rights are provided to the token holder) can be explained by the systemic misunderstanding of applicable securities laws in the eyes of issuers. For some reason, many token issuers seem to have been under the impression that mere classification as a utility token would protect them from the grasp of securities regimes.

The Key features of NuCoin in this analysis are as follows:

1. The NuGenesis blockchain is fully operational and decentralised with staker-miners minting and producing NuCoin which is the currency of the NuGenesis ecosystem;
2. That is, the public is not being offered (as is typically the case) to invest in a prospective or hoped for blockchain idea where the money raised will be used to built the blockchain;
3. Where the blockchain has been built, the Founder's role has been exhausted. The ecosystem thereafter derives its functionality by the roles provided for in the ecosystem: the consensus protocols, the miners and the 313 elected executive positions for governance, and in the specific case of NuCoin, the contribution by each and every community member in the ecosystem.
4. Whether or not NuCoin has any value (profit expectation) is entirely a function of all the parts of the ecosystem working together – and the measure of success is a measure of how both independent and interdependent business actors pursuing their individual interests, collaborate and attract new projects work together to contribute to the whole.
5. To the extent that the founders, or the entity they used as the vehicle to fund the creation and establishment of the NuGenesis blockchain to the point of release, can be considered "issuers" of the offer, they do not and cannot be expected to have any on-going role in the success of the project which any participant can reasonably rely.
6. Therefore from a policy perspective, it is not disclosure that could possibly be required about the fouders or their vehicle that is important. It is not in their company or them that people are investing. It is to the blockchain, its protocols, governance system and the contribution of unknown people who may come to use and form the community that gives it growth, that a prospective participant must look.
7. NuCoin is the currency of the NuGenesis blockchain ecosystem. It has no connection or interest in the founders' company. It is used to acquire services, to participate in projects, to make investments in venture capital projects, to stake in order to ensure the integrity of the blockchain consensus, and to be used for a range of Government services in SDEZ's jurisdictions of participating countries.
8. As the prospective community member must look to the ecosystem outlined in this white paper to assess how they may benefit from participating and to what extent they may wish the purchase and utilise NuCoin beyond that which they receive for free on simply becoming a member, the financials and history of the founders are irrelevant.

For that purpose, we believe the best analysis is that Offered by Director Hinman the SEC's Director of the Division of Corporate Finance in September 2018 about the legal nature of Ethereum tokens. In his speech, Director Hinman stated that¹⁷:

¹⁷ William Hinman, 'Digital Asset Transactions: When Howey Met Gary (Plastic)' (SEC transcribed speech, 14 June 2018) <https://www.sec.gov/news/speech/speech-hinman-061418> accessed 25 December

“If a network on which the token or coin is to function is sufficiently decentralized — where purchasers would no longer reasonably expect a person or group to carry out essential managerial or entrepreneurial efforts — the assets may not represent an investment contract. Moreover, when the efforts of the third party are no longer a key factor for determining the enterprise’s success, material information asymmetries recede. As a network becomes truly decentralized, the ability to identify an issuer or promoter to make the requisite disclosures becomes difficult, and less meaningful.”¹⁸⁵

The following propositions emerge, relevant to NuCoin:

1. Where, as is the case in NuCoin, there is at the time of an offer to the public, a fully functional and decentralised blockchain in operation, the “investment” is a participation in a ecosystem

The analysis highlights, at the core, the difficulty of applying traditional jurisprudence to Distributed Ledger Technologies. The purpose of securities legislation to cure the asymmetry of information that a promoter has over the prospective investor either in the promoter company or an investment pool that the promoter is managing. By contrast, blockchain technology is about creating a trustless system based on mathematical protocols that are immutable and cannot be corrupted. The Promoter cannot change these. Hence why Satoshi Nakamoto is rightly a pseudonym. He does not control Bitcoin. His identity, financial record is completely irrelevant.

Why would an investor need information disclosures about a party that no longer has any influence on the investment which is acquired?

When an investor no longer relies on the efforts of the issuer, it makes sense to say that the token is no longer an investment contract, as the ‘reliance on the efforts of others’ part of the *Howey* test is not met.

In relation to protocol tokens such as NuCoin, the value of a protocol is derived from the usage thereof and from the applications built thereon and para networks running off it.

NuGenesis is expressly designed to be user-friendly and cost efficient for multiple existing and new blockchain projects to use it, build apps and become para-networks with it.

The “sufficiently of decentralisation test” should not become an alternative test, without realising that it is a gradual scale. decentralization is not binary, but instead a multidimensional concept that is a function of many factors, each of which has its own gradual scale of decentralization.

Maybe one way to apply traditional jurisprudence is by reference to limited partnership case law. In *Williamson v. Tucker* it was decided that a general partnership interest is presumed not to be an investment contract because of the control exercised by the general partner, therefore constituting

a lack of reliance on the efforts of others.¹⁸ This is particularly instructive case law that would be relevant to Australia's managed investment scheme characterisation because where there is little ability to control the profitability of an investment, the partnership would be considered that of a limited partnership and presumed an investment contract.

With NuGenesis, it seems futile to inquiry into relative 'voting power' possessed by amount of system validators associated with particular individuals when the entire system is underscored by AI. Any concentration of voting power that impinges on the integrity of the NuGenesis blockchain which a participant is considering joining, is neutralised by the AI.

The individual participant receives and generates free NuCoin (commonly referred to as Airdrops) by mere activation of its NuGenesis account and small effort mining on their smartphone or laptop. They can stop there. They do not have to participate any further. They control whether to participate in any of the multiple opportunities available to them in the ecosystem.

If they wish to purchase NuCoin, they do so on the exchange and presumably if this is not because they want to utilize NuCoin to undertake a particular business activity that they choose to undertake and the extent to which they choose to undertake it, it is because they believe the ecosystem will have value that increases over time - again because of the functionality that it enables.

The distinction is that the NuGenesis blockchain ecosystem is an infrastructure for which to undertake business, not itself a business for the individual participant.

Primarily however it is not NuCoin in itself that the system is designed to increase the value of, but the use which any participant puts to it. The Social Media dashboard is live with trading data about the entire crypto space, videos, forums and chats about opportunities. It is live with collaborative opportunities, services that can be acquired including educational opportunities.

The control over the participants NuCoin is primarily with the participant. It is an active environment, not a passive one. If the participant chooses to take a passive role, it is because he makes the active choice to do that.

Where decisions are required that do not threaten the integrity of the blockchain operating as it is intended to, it may be in respect of particular aspect of the eco-system. The example is a vote on whether to ban 'pump and dump' schemes on the exchange. The case is put forward based on the studies that demonstrate that evidence that 'pump and dump' schemes profit only the promoters and to a lesser extent those that manage to get out within the first 40 secs, but adversely impact on the project being pumped. Identified reading material is provided. A participant has as much voting power as the founder to accept or reject the proposal.

Another example is whether the permissioned blockchain will go fully open-sourced.

There are a majority of elected positions in the 313 executives. The new participant has as much voting power as any other participant, including the founders, as to who to vote for.

¹⁸ *Williamson v. Tucker* [1981] 645 F.2d 404, 422 (5th Cir.)

There is no particular unique expertise or ability that is beyond the participants reach to deny the actual control the participant has is less than its theoretical control by virtue of lack of expertise. Executive and Managers can be replaced including the issuers.

In respect of particular projects the participant decides to go into, the rules of that collaboration become relevant. Here the control is greater than that arising from the general functioning of the blockchain as a whole. Participants may wish to colloboate in a VC project and set conditions upon which when funds will be made available to the managers of that collaborative project. This can include requiring signature application on a multi-signature wallet.

Another useful indicator may be the extent to which the issuer's foundation and funds are necessary for the success of the project. It apparent that the whole ecosphere is designed for example:

- (a) for other persons to develop customised NuGenesis blockchains to run their own Paranetworks and parachains;
- (b) for other person to build dApps and use cases using the NuGenesis blockchain;
- (c) for investment, collaborative and technical solution opportunities to be created by others.

The apparent offering by NuGenesis is the capability to create opportunities by others. An illustration is the booming market for NFTs and Defi. The NuGenesis blockchain offers not application, but the capability through their version of these, being the "Digital Notarised Contracts ('DNC's') and "Serialised Notarised Digital Assets ('SNDA's')", for others to design and build applications and use cases in respect of.

Moreover, there is an incentive system created for maximising the network effort by creating a greater number of users. The marketing role that is traditionally assumed to be associated with the Issuer has been outsourced to the users who are rewarded for undertaking that role. Users are to be looking to each other, not the issuer.

{ Ideal situation is that Advantage is the "issuer" and it gets replaced }

A quite challenging conception for the way we traditionally think of securities, but one that also been recognized by Brian Quintenz, commissioner of the Commodities and Futures Trading Commission (CFTC):

*"[ICOs or tokens] may start their life as a security from a capital-raising perspective but then at some point -- maybe possibly quickly or even immediately -- turn into a commodity."*¹⁹

Marketing is important

Even in scenarios where a cryptocurrency or utility token does not borrow any characteristics of a security token, it might still be deemed a security in some jurisdictions, due to, for example the marketing and/or monetary and fiscal policy of the issuer and the method of issuance.

¹⁹ Jerry Brito, 'CFTC commissioner: tokens that start as securities may "transform" into commodities.' (20 October 2017) <https://coincenter.org/link/cftc-commissioner-tokens-that-start-as-securities-may-transform-into-commodities> accessed 16 December 2018

Tokens that are sold to the public in so-called ‘pre-sales’, where investors can acquire tokens before the actual ICO for a discount, are more likely to be deemed a security than tokens that are sold in an ICO.

in *Teague v. Bakker*, a case where individuals could purchase ‘Lifetime Partnerships’ from an entity known as PTL. By doing so, they were entitled to a short stay annually in a hotel at a vacation retreat constructed by PTL. However, there was also a profit element resulting from the efforts of a third party. Interestingly, it was held by the court that, because the “promotional materials allow[ed] the reader to infer that the value of the [lifetime partnerships] was enhanced by virtue of the commercial activities of the PTL facilities in catering to patrons paying full price,” there was an expectation of profits. In fact, it was deemed that the profit that was expected from this financing product was deemed to outweigh the utility aspects of the lifetime partnerships in the eyes of the investor, and for this reason, it was a security.²⁰

Similarly, concerning investments in aircraft interests, the deciding factor is whether or not the expectation of profits involved outweigh the expectation that the aircraft interests were being purchased for use solely as a means of transportation.²¹

Aside from the motivation of the investor, the promotional materials from the issuer are of importance for determination of whether there is an expectation of profits in the eyes of the investor under the third prong of the *Howey* test. In *Warfield v. Alaniz*, investors were given the opportunity to participate in charitable giving while being promised financial gain. There was again a dual motivation, but here the court concluded that “consideration of the Foundation’s promotional literature, as well as the annuity contracts themselves, demonstrates that the Foundation presented the gift annuity as an opportunity for financial gain.” In appeal, the 9th Circuit court of Appeals affirmed that courts conduct an inquiry on basis of what the purchasers were ‘led to expect.’²² Indeed, courts have frequently examined the promotional materials associated with an instrument or transaction in determining whether an investment contract is present.²³ In *SEC v. C.M. Joiner Leasing Corp.*, it was even held that while “the test rather is what character the instrument is given in commerce by the terms of the offer, the plan of distribution, and the economic inducements held out to the prospect, it “is not inappropriate that promoters’ offerings be judged as being what they were represented to be”.²⁴ This suggests that, even if the utility-element of a token clearly outweighs the token’s investment element, an expectation of profits can still be deemed to exist based on the promotional strategy and representation of the token by the issuer. Many, if not all, self-proclaimed utility-tokens target their online promotions directly at websites with audiences that mainly consist of retail investors. Often, an expectation of financial gain is also created. This is not to say that a token is much safer from the reach of securities legislation if the whitepaper says that the token is ‘definitely not a security’, as in such a case, the economic reality of the instrument and the subjective motivation of investors prevails.²⁵

In *Aldrich v. McCulloch* it was moreover held that an expectation of profits exists when the issuer represents future development plans in a manner calculated to induce investments in the project,

²⁰ *Teague v. Bakker* [2002] 213 F. Supp. 2d 571 (W.D.N.C.), upheld in *Teague II*,

²¹ *Kenneth P. Krohn*, ‘Fractional Ownership and Timeshare Programs: Are They Subject to the Securities Act of 1933 and Securities Exchange Act of 1934?’ [1999] 54 (3) TBL 1209

²² *Warfield v. Alaniz*, [2009] 569 F.3d 1018 (9th Cir.)

²³ *E.g.* *Teague* (n.149) at 990; *Edwards* (n. 139) 392; *Rice* (n. 150) 790; and *Aldrich v. McCulloch Properties, Inc.*, [1980] 627 F.2d 1036, 1039-40

²⁴ *SEC v. Joiner Leasing Corporation* [1943] 320 U.S. 344, 352-353

²⁵ Any other conclusion would be incompatible with *Howey* (n.113) 298

essentially making a contractual promise to carry through development plans to augment the value of the investment.²⁶ Of importance is whether the issuer makes a 'contractual promise' of continuous development (which logically results in an appreciated valuation).¹⁶⁴ Both the contractual promise of continuous development and investment inducing behavior is present in virtually any ICO.

Valuation:

Ken Alabi

A 2020 perspective on "Digital blockchain networks appear to be following Metcalfe's Law"
[Electronic Commerce Research and Applications](https://doi.org/10.1016/j.elerap.2020.100939) March
2020 <https://doi.org/10.1016/j.elerap.2020.100939>

The value of several blockchain assets was shown to possibly be modeled based on Metcalfe's law as well as a proposed network effects law in the original paper published in 2017. The models showed the growth in the value of the assets to be correlated to the growth in the number of daily unique addresses used on the network; data that is easily extracted from the blockchain. An update to that study is presented, extending the data from May 2017 to current, and showing the sustained correlation between current data and the models. A discussion of potential improvements to that model and its approach from a 2020 perspective is presented.

Alabi, 2017 Alabi K., Digital blockchain networks appear to be following Metcalfe's Law, *Electron. Comm. Res. Appl.* 24 (2017) 23–29, 10.1016/j.elerap.2017.06.003

Alignment of Interests

It is noteworthy that the network is designed to manage the minting and distribution of NuCoin such that the incentives of all stakeholders are aligned²⁷. There are no profits as such, but a hope by all concerned, for the appreciation of Coin value as more people acquire the Coin to access services. What can be traditionally be regarded as a 'customer' becomes effectively, a principal as the distinctions between investor/shareholder/customer don't seem to apply.

²⁶ Aldrich (n.153) at 1039; see also *Plaskin v. Bruno* [1993] 838 F. Supp. 658, 667 ¹⁶⁴ *McCown v. Heidler* [1975] 527 F.2d at 208-09

²⁷ See Chriss Dixon, 'Crypto Tokens: A Breakthrough in Open Network Design' (1 June 2017) <https://medium.com/@cdixon/crypto-tokens-a-breakthrough-in-open-network-design-e600975be2ef> accessed 12 December 2018

US Law

The most prominent parts of U.S. securities legislation are the Exchange Act of 1934 and the Securities Act of 1933. The former established the Securities and Exchange Commission (SEC) and focuses mainly on secondary transactions and the regulation of intermediaries, whereas the latter is comprised of legislation being directed towards issuers.

The applicability of the, for issuer's, quite onerous provisions found in these acts is for a large part dependent on whether the financial instrument at hand is considered to fall under the definition of 'security' or not. If yes, issuers have to comply with a number of regulatory requirements, such as the approval and registration of a prospectus with the SEC, annual reporting requirements and other disclosure requirements regarding insider trading and other financial fraud. Whether or not tokens fall under the definition of securities will therefore be the main focus of the following analysis.

Congress has always encourage a broad reading of the definition of securities in the US Securities Act of 1933 and Securities Exchange Act of 1934, and long lists of categories are found in the Acts, including stocks, notes, bonds, futures, swaps, participation in profit-sharing agreements, derivatives.²⁸ If a token closely resembles any of the defined financial instruments, there is no doubt that an ICO will be defined as a sale of securities. Therefore, many security tokens, or hybrid tokens that provide token holders with economic rights such as dividend rights or a right to the ownership of equity, will be caught by these provisions. While the definition in these acts include well-defined instruments, it also includes 'securities' of a more variable character, such as the broad catch-all category of 'investment contracts'.

The definition of an investment contract has been defined in the classic *SEC v. Howey Co* case.¹¹⁸ In its judgment, the U.S Supreme Court decided to put forward a four-pronged test. This so-called '*Howey test*' focuses on the economic reality of any 'contract, transaction or scheme' to determine whether an investment contract is deemed to fall under the definition of securities. The judgment held that at the core of an investment contract "is the presence of an investment in a common venture premised on a reasonable expectation of profits to be derived from the entrepreneurial or managerial efforts of others".²⁹

As such, a court-applied test emerged that investigates the existence of the four elements of this judgment:

- i. *A person invests his/her money*
- ii. *in a common enterprise and*
- iii. *is led to expect profits*
- iv. *resulting solely from the efforts of the promoter or a third party.*

US Case-law has illustrated two distinct approaches towards the establishment of vertical commonality by courts. *Broad* vertical commonality requires that the investor's fortunes are tied to

²⁸ US Securities Act of 1933 § 2(a)(1) and the US Securities Exchange Act of 1934 § 3(a)(10) ¹¹⁸ *Securities and Exchange Commission v. W. J. Howey Co.* [1946] 328 U.S. 293

²⁹ Ibid 298-299

the efficacy of the manager's efforts.³⁰ *Narrow* vertical commonality requires the same, but adds the additional requirement that the investor's profits are tied to the issuer's profits; meaning that they should rise and fall together.³¹

In the case of NuCoin, the 'narrow commonality test' of the common enterprise would not apply as the issuer does not own and will never own any NuCoin. The Issuer plays no part in the future of project at all.

Those NuCoins that will become available as liquidity to the exchange are the result of decentralised efforts of a number of parties including miners. As noted by by Coincenter's³² researchers as follows:

*"If there are many unaffiliated miners, transaction validations, and businesses on the network then there is, effectively, no singular promoter with which investors could have vertical commonality. All of these participants will have individuated profits and losses based on their unique business models and decoupled from the price of the token held by typical users. If, on the other hand, there is little decentralization in the development and maintenance of an altcoin network (i.e. all developers are employed by the same for-profit company and/or there are few and highly centralized transaction validators on the network), then there is a stronger case for vertical commonality"*³³

It is well established that an increase in value of the initial investment counts as profits³⁴ .:

In *SEC v. Life Partners*, for example, it was held that "For there to be an expectation of profits, the purchaser's motivation must be securing 'a financial return,' not consumption or use."³⁵ However, as we will see, an analysis of the dual-motivation that incentivizes individuals to buy this particular model of utility tokens and its relation to the third prong of the *Howey* test, is complex.

The first time such a case resulted in a judgment was in *United Housing Foundation, Inc. v. Forman*.³⁶ In this case, United Housing required tenants of their affordable apartments to buy shares of what United Housing called 'stock' which acted as representations of the requested rooms. After a dispute about a raise in the monthly rental charges, it was argued that the structure used by United Housing constituted a sale of securities. After all, it could be argued that there was an investment element to the motivation of potential tenants. An investigation of facts and circumstances however showed that the purchase of the apartments in question, arguably based on the dual motivation of utility and investment, was in fact not an investment contract. The court held that "when a

³⁰ see e.g. *SEC v. Unique Fin. Concepts, Inc.* [1999] 196 F.3d at 1199–1200; *Eberhardt v. Waters* [1990] 901 F.2d 1578, *SEC v. Continental Commodities Corp.* [1974] 497 F.2d 516 (5th Cir.), *SEC v. Pinckney* [1996] 923 F. Supp. 76, 82 (E.D.N.C.),

³¹ see e.g. *SEC v. Glenn W. Turner Enterprises, Inc.*, [1973] 474 F.2d 476, 482 n.7 (9th Cir.); *SEC v. SG Ltd.* [2001] 265 F.3d 42, 49 (1st Cir.)

³² Coin Center is the leading non-profit research and advocacy centre focused on the public policy issues facing cryptocurrency and decentralized computing technologies like Bitcoin and Ethereum. See <https://coincenter.org/> accessed 16 December 2018

³³ Peter van Valkeburgh, 'Framework for Securities Regulation of Cryptocurrencies' (Coin Center Report, January) <https://coincenter.org/wp-content/uploads/2016/01/SECFramework2.5.pdf> accessed 16 December 2018

³⁴ *SEC v. Edwards* [2004] 540 U.S. 389, 390

³⁵ *SEC v. Life Partners, Inc.* [1996] 87 F.3d 536, 547 (D.C. Cir.)

³⁶ *United Housing Foundation, Inc. v. Forman* [1975] 421 U.S. 837

purchaser is motivated by a desire to use or consume the item purchase (...) the securities laws do not apply".³⁷ In relation to utility token sales, this precedent is often used to argue that utility tokens are not securities.³⁸ However, such a conclusion is premature. In *Forman*, apartments and their representative 'stock' were subject to a number of strict resale limitations and did not provide residents with any dividends. In fact, residents were required to offer the apartments and stock back to the seller for a fixed price. The court defined profit here as "capital appreciation" or a "participation in earnings resulting from the use of investors' funds."³⁹ Due to the resale limitations imposed on tenants, both were not deemed to exist in this case. In the scenario of utility tokens described above however, there are no such limitations on resale. As such, there is definitely an expectation of capital appreciation, resulting from the very active secondary markets that have emerged around cryptographic tokens.

In *Rice v. Branigar*, the eleventh circuit concluded that a sale of housing lots did not pass the *Howey* test because purchasers bought them primarily to use them, rather than to derive profits. The court's reasoning was based on the prior *Forman* case, and the belief of the court that "people buy houses and lots in a beach-club development primarily to use them, not to derive profits from the entrepreneurial efforts of the developers."⁴⁰

Reliance on the efforts of others

A 'possible enhancement in value at resale is not within the Securities Act, where the essential element of reliance on the managerial, operational or developmental efforts of others is not present.'⁴¹

From past case law, it is well settled that the word 'solely' is not to be taken literally.⁴² In fact, the term is also interpreted to include 'significant or essential managerial or other efforts necessary to the success of the investment'.⁴³ In both *Glenn Turner* and in *Aldrich*, the test was whether the efforts made by those other than the investor are the undeniably significant ones; the essential managerial efforts which affect the failure or success of the enterprise.⁴⁴ Although courts employ a variety of formulations, the core of the fourth prong of *Howey* is the degree of reliance of the investor on the efforts of others.

Case law has shown that limited partnership interests are presumed to be securities unless the limited partners exercise effective control over the enterprise.⁴⁵ General partnership interests on the

³⁷ Ibid 852

³⁸ Marco Santori, Juan Batiz-Benet and Jesse Clayburgh, 'The SAFT Project: Toward a Compliant Token Sale Framework' p. 9 (SAFT Whitepaper, 2 October 2017) <https://saftproject.com/static/SAFT-Project-Whitepaper.pdf> p, 9 accessed 17 December 2018

³⁹ *Forman* (n. 145) 852

⁴⁰ *Rice v. Branigar Organization Inc* [1991] 922 F. 2d 788 (11th Cir.)

⁴¹ Held in *McConathy v Dal Mac Commercial Real Estate, Inc.* [1977] 545 S.W.2d 871 based upon earlier case law, such as *Polk v. Chandler* [1936] 276 Mich. 527, 268 N.W. 732; *Wardowski v. Guardian Trust Co.*, [1933] 262 Mich. 422, N.W. 908; *Busch v. Noerenberg* [1938] 278 N.W. 34

⁴² *SEC v. The International Mining Exchange, Inc.* [1981] 515 F.Supp 1062, 1067 (D. Colo.); see also *Crowley v. Montgomery Ward & Co.* [1978] 570 F.2d 877 (10th Cir.); *Hector v. Wiens* [1976] 533 F.2d 429, 433 (9th Cir.);

⁴³ *SEC v. Koscot Interplanetary, Inc.* [1974] 497 F.2d 473 (5th Cir.)

⁴⁴ *Glenn Turner* (n. 133) 478 and *Aldrich* (n. 153) 1038

⁴⁵ Stephen Jung Choi and Adam C. Pritchard, *Securities Regulation Cases and Analysis* (Fourth edition, University Casebook Series 2015) 30

other hand are clearly not investment contracts as the general partner takes an active part in the managerial efforts of the partnership.⁴⁶

In NuGenesis – every NuCoin holder is a miner-staker and participates. They cannot be passive.

In *SEC v. Life Partners, Inc.* the D.C. Circuit Court of Appeal held that the need for securities regulation is greatly diminished where “the value of the promoter’s efforts has already been impounded into the promoter’s fees or into the purchase price of the investment, and if neither the promoter nor anyone else is expected to make further efforts that will affect the outcome of the investment”.⁴⁷ If a blockchain’s utility is, after an ICO, no longer developed in any way, then the value seems to not be dependent on the managerial efforts of the issuer.

The development of the blockchain is not dependent on the efforts of the issuer.

Europe

The general environment of services related to capital markets is one of the vast areas covered by the new EU Directive on markets in financial instruments (henceforth: MiFID II).⁴⁸ The basic thrust of MiFID II is “to establish a comprehensive regulatory regime governing the execution of transactions in financial instruments irrespective of the trading methods used.”⁴⁹

In general, EU law employs three rather formal criteria and one more substantive criterion define a security.⁵⁰ The formal ones are transferability; standardization; and negotiability on capital markets (with negotiability, however, being a subcase of transferability⁵¹).

pursuant to Art. 2(1)(a) of the Prospectus Directive (Art. 2(a) of the Prospectus Regulation), EU prospectus regulation only applies to issued units that are transferable. In this context, however, transferability only means that the units can be assigned to another person at all, irrespective of whether certificates exist that register or document the existence of the units.⁵² Tokens are not evidenced by certificates, but can generally be sold on secondary markets.⁵³ Therefore, they are typically transferable.

⁴⁶ *Williamson v. Tucker* [1981] 645 F.2d 404, 422 (5th Cir.)¹⁸⁰ *United States v. Herr* [1964] 338 F.2d 607 (7th Cir.)

⁴⁷ *Life Partners* (n. 141) 547

⁴⁸ Directive 2014/65/EU of 15 May 2014 on markets in financial instruments.

⁴⁹ Recital 13 MiFID II.

⁵⁰ See below, Part IV.B.1.b)ii. in greater detail.

⁵¹ Assmann, in: Assmann/Schneider, Wertpapierhandelsgesetz Kommentar (6th ed. 2012), § 2 para. 10.

⁵² Cf. Assmann (n. 106) § 2 para. 10 et seq.

⁵³ See CryptoCoinCharts, ‘Cryptocurrency Exchanges / Markets List’, <https://cryptocoincharts.info/markets/info> (accessed on 3 November, 2017), listing 119 exchanges; Bajpai, ‘A Look At The Most Popular Bitcoin Exchanges’, Investopedia, <http://www.investopedia.com/articles/investing/111914/look-most-popular-bitcoinexchanges.asp> (accessed on 3 November, 2017); SEC Report, at 6; see also references below (n. 190).

The mere contractual restriction of the transfer of issued units (for example, a lock-up provision vis-à-vis early investors) does not deprive them of their status of transferability, however.⁵⁴ The reason is that such contractual restrictions do not hinder token holders to pass on ownership of the token in breach of the contractual provision. This may make them liable for damages vis-à-vis the issuer; but the contractual breach does not affect the validity of the transfer of ownership.⁵⁵ Implicitly, this is acknowledged by Art. 7(7)(a)(v) of the Prospectus Regulation which requires the prospectus summary to include information on any restrictions to the free transferability of securities.⁵⁶

If, however, such contractual restrictions are accompanied by technical limitations to the transfer of token ownership that render the effective assignment of tokens to third parties impossible, it must be concluded that the tokens lack transferability and therefore are not subject to EU prospectus regulation.

Securities need to be “negotiable on a capital market” pursuant to Art. 4(1)(18) MiFID,⁵⁷ to which Art. 2(1)(a) of the Prospectus Directive refers. While transferability refers to the mere fact of passing on ownership in securities, their negotiability concerns the ease with which ownership can be transferred.⁵⁸ It is easy to see that negotiability in fact implies transferability.

Scholars agree that if issued units are not sufficiently standardized, they cannot be considered securities under EU law.⁵⁹ There are two arguments advanced in favor of this. First, Art. 4(1)(18) MiFID defines transferable securities as “classes of securities” with certain qualities. This implies that the issued units must share a number of characteristics so that they can be considered a class.⁶⁰ Most importantly, the claims represented by the units must not be individually negotiated with investors.⁶¹ Second, it is argued that, from a functional perspective, non-standardized issued units cannot be easily traded on a capital market as standardization is necessary to reduce search costs for investors. One popular definition therefore holds that units must be defined by common characteristics so that it is sufficient to refer to the type and number of units to trade them.⁶²

An alternative argument could be made that many utility tokens might be deemed to fall under the category of ‘other forms of securitized debt’ under Art. 4(1)(44), indent (b). While this might sound counterintuitive at first glance, as tokens are virtually never structured to resemble bonds, it is true that a substantial amount of utility tokens confer a right to claim services from the issuer in return

⁵⁴ ESMA, Questions and Answers. Prospectuses (26th updated version – December 2016), Question N° 67, at 55; Heidelberg, in: Schwark/Zimmer, Kapitalmarktrechts-Kommentar, 4th ed. 2010, § 2 WpPG para. 5; Assmann (n. 106) § 2 para. 7.

⁵⁵ Heidelberg (n. 109) § 2 WpPG para. 5.

⁵⁶ Cf. also ESMA (n. 109), Question N° 67, at 55.

⁵⁷ The definition of a security in Art. 4(1)(44) MiFID II is identical to the one in MiFID.

⁵⁸ Note that negotiability does not require „free negotiability“ as defined in Art. 35 of the MiFID Implementation Directive 1287/2006/EC, see Assmann (n. 106) § 2 para. 8.

⁵⁹ See only, from the German commentary literature, Fuchs (n. 122) § 2 para. 14; Assmann (n. 106) § 2 para. 7; Heidelberg (n. 109) § 2 WpPG para. 5; Kumpan (n. 122) § 2 WpHG para. 18 et seq.

⁶⁰ CESR's Technical Advice on Possible Implementing Measures of the Directive 2004/39/EC on Markets in Financial Instruments, CESR/05-290b, BOX 25, at 84; Kumpan (n. 122) § 2 WpHG para. 7; Assmann (n. 106) § 2 para. 7.

⁶¹ Kumpan (n. 122) § 2 WpHG para. 7.

⁶² Voß (n. 122) 50; Kumpan (n. 122) § 2 WpHG para. 7; Fuchs (n. 122) § 2 para. 17.

for the token. In this sense, the token can be seen as a sort of liability towards the token holder, and it could arguably be deemed a form of securitized debt.

A final interesting aspect of the definition of transferable securities in Article 4(1)(44) of MIFID II is the complete exclusion of instruments of payment: when an instrument qualifies as an instrument of payment, it is by definition not a transferable security. The reason for this exclusion is that instruments of payment fall under a related, but separate regime under EU financial law: banking and payment services regulation.⁶³ While securities regulation is mainly concerned with the integrity of markets and the protection of investors, the oversight of payment instruments is aimed at ensuring the soundness and efficiency of payments made with such instruments.⁶⁴

While the definition of transferable securities under EU law is not very clear (as exemplified from the analysis above), the Second Market in Financial Instruments Directive gives even less guidance about what constitutes a payment instrument. Of course, it is widely accepted that cash, cards, credit transfers, direct debits, prepaid cards and electronic money are all payment instruments.⁶⁵ Electronic money would at first glance bear the most resemblance to cryptocurrencies. It is defined as ‘electronically (...) stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions (...) and which is accepted by a natural or legal person other than the electronic money issuer.’⁶⁶ The attentive reader will have realized that not even Bitcoin, the ‘archetype’ cryptocurrency, falls under this definition as there is no central issuer.

It is generally assumed that cryptocurrencies fall outside of the scope of EU securities legislation, due to the exclusion of instruments of payment from the definition of transferable securities. Already in 2015, in the landmark *Hedqvist* case, the Court of Justice of the European Union (CJEU) gave a ruling in relation to the classification of Bitcoin.⁶⁷ The CJEU explicitly stated that bitcoin is “neither a security conferring a property right nor a security of a comparable nature”.⁶⁸ It should be noted that this ruling was made in an analysis for purposes of an exemption under the VAT Directive. The scope of this decision may therefore be limited to the confines of tax law. So far however, we have no other decision to fall back on and there is as yet no reason to assume that ‘pure’ cryptocurrencies like Bitcoin would be classified as anything else than an instrument of payment for the purposes of application of the EU’s securities legislation. At the same time, the difference in field of law is relevant, as the CJEU can adhere to differing interpretations for one and the same term, in relation to different Regulations and Directives.

⁶³ For an overview of Directives and Regulations of EU banking and financial services law, see https://ec.europa.eu/info/law/law-topic/eu-banking-and-financial-services-law_en

⁶⁴ European Central Bank, ‘Harmonised Oversight Approach and Oversight Standards for Payment Instruments [February 2009]’ <https://www.ecb.europa.eu/pub/pdf/other/harmonisedoversightpaymentinstruments2009en.pdf?5d726b97e5ece0bb35366632d6e828b6> accessed 15 January 2019

⁶⁵ See e.g. European Central Bank, ‘Payment Instruments’ <https://www.ecb.europa.eu/paym/pol/activ/instr/html/index.en.html> accessed 15 January 2019

⁶⁶ Council Directive 2009/110/EC on the taking up, pursuit and prudential supervision of the business of electronic money institutions OJ L 267, Art. 2

⁶⁷ Case C-264/14 *Skatteverket v David Hedqvist* [2015]

⁶⁸ *Ibid.* para. 55

A definition of ‘payment instrument’ is found in the EU’s second Payment Services Directive (PSD2), which defines ‘payment instrument’ as ‘a personalized device(s) and/or set of procedures agreed between the payment service user and the payment service provider and used in order to initiate a payment order.’⁶⁹ However, in the field of (pure) cryptocurrencies (i.e. cryptocurrencies with no central issuer, issued solely through staking or mining, without a token sale), this definition is not very relevant, as there is no payment service provider²³². At the same time, stable coin issuers classifying as a payment service provider could potentially argue that their coins are excluded from MiFID’s definition of transferable securities due to classification under PSD2’s definition of payment instruments.

A more common sense based approach would suggest that there is no need for information disclosure to gap information asymmetries when it concerns pure cryptocurrencies, as cryptocurrencies in general share far more similarities to cash than to a security.

However, they could constitute “other forms of securitized debt”. A literal interpretation of the wording would suggest that tokens fit this category. These other forms of debt need not necessarily embody monetary claims, such as bonds; rather, any kind of obligation can be a debt.⁷⁰

On the face of it, securitized debt therefore covers a wide range of tradable instruments that embody any types of claims.⁷¹ As even utility tokens do confer on token holders a (typically tradable) claim against the issuer to use the product, they could indeed be considered securitized debt. For token issuers, this would be an unpleasant surprise since many to date seem to bet on the understanding that utility tokens are somehow exempted from securities regulation. In fact, we believe that this feeling is well-founded. Even though the wording of Art. 4(1)(18)(b) MiFID fits utility tokens, its spirit does not: consumption rights are too far removed from the financial and monetary structure of most other types of securitized debt.¹⁷⁷

Importantly, one further type of instrument is explicitly exempted from the definition of a security in Art. 4(1)(18) MiFID: instruments of payment. Note that it is not necessary for this exemption that currency tokens fulfill all three generally accepted economic criteria of a regular currency: unit of account, store of value, and means of payment.⁷² Rather, they only have to fall under the narrower category of instruments of payment. These include all liquid forms of payment such as cash and cheques.⁷³ In a much-noted decision, the CJEU qualified bitcoin as a “contractual means of

⁶⁹ Council Directive 2015/2366/EU on payment services in the internal market OJ L 3337 Art. 4(14) ²³² Ibid Art. 4(11)

⁷⁰ Fuchs (n. 122) § 2 para. 27.

⁷¹ The preceding discussion also has implications for investment tokens: if one wanted to reject the comparability of shares with investment tokens on the grounds that membership in blockchain-based vehicles is fundamentally different from membership in legally constituted corporations, investment tokens would likely fall under the rubric of “other forms of securitized debt” (Art. 4(1)(18)(b) MiFID). ¹⁷⁷ Cf. also AMF (n. 10) 7 et seq.

⁷² See, e.g., Mankiw, *Macroeconomics* (Worth Publishers, 9th ed. 2015) 82; Heijdra, *Foundations of Modern Macroeconomics* (OUP, 2nd ed. 2009) 319; (n. 163) 31, 36; see also below (n. 230). For the question of whether cryptocurrencies are full currencies in a legal sense, see Barsan (n. 18) 55-57; He et al., ‘Virtual Currencies and Beyond: Initial Considerations’, IMF Staff Discussion Note SDN/16/03 (January 2016), at 16.

⁷³ Assmann (n. 106) § 2 para. 12; see also the Proposal for a Law Transposing MiFID by the German Government, BT-Drucks. 16/4028, p. 54.

payment”.⁷⁴ Similar conclusions could be reached for bitcoin spin-offs such as bitcoin gold or bitcoin cash that are primarily designed for payment purposes.⁷⁵ The CJEU also explicitly held that bitcoin “is neither a security conferring a property right nor a security of a comparable nature.”⁷⁶ However, the decision concerned the VAT treatment of bitcoins, not securities regulation; the list of securities in Art. 135(1)(f) VAT Directive,⁷⁷ which the CJEU interpreted, differs from the one in MiFID. It lacks, for example, the reference to equivalents of shares in other entities, and to other forms of securitized debt. Therefore, some uncertainty persists as to whether the court would reach a similar conclusion under EU securities regulation. It seems likely, however, that it would, in the end, qualify pure currency tokens as exempt from prospectus regulation.

Cryptocoins are, furthermore, similar to another type of payment instrument: electronic money.⁷⁸ The ECB compared electronic money already in 1998 to “a prepaid bearer instrument”.⁷⁹ A bearer instrument, in turn, is similar to cash money⁸⁰ and “refers to an instrument that is payable to anyone possessing the instrument and is negotiable by transfer alone”.⁸¹ By contrast, order instruments are payable to an identified person.⁸² The new EMoney Directive⁸³ now defines electronic money in Art. 2(2) as “electronically [...] stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions [...] and which is accepted by a natural or legal person other than the electronic money issuer”.

Currency tokens, however, sit between those categories: like with order instruments, a register exists (the blockchain); however, it does not contain real identities, but only pseudonomized information about public keys and signatures stemming from private keys. Like with bearer instruments,⁸⁴ the “true identity” of token holders is not registered on the blockchain (or anywhere else); rather, they may be used for payments purposes by whoever presents the right combination of public and private key to cryptographically unlock them. However, the purpose of cryptographically securing currency tokens via public and private key is precisely to ensure that only the legitimate owner (the holder of the private key) can use them. If private keys are kept truly private, currency tokens can only be transferred by the legitimate owner. This, in turn, does liken them to order instruments which are transferred by indorsement of the registered owner. What differentiates cryptocoins from both bearer and order instruments, and from electronic money more generally, however, is that they do not embody a claim against an issuing entity (such as a bank) to make a payment to the claimant. In this sense, they resemble pieces of gold, or cash, rather than

⁷⁴ CJEU, judgment in Hedqvist, C-264/14, EU:C:2015:718, para. 42.

⁷⁵ See Alyssa Hertig, ‘Bitcoin Cash: Why It’s Forking the Blockchain And What That Means’ (CoinDesk, July 26, 2017), <https://www.coindesk.com/coindesk-explainer-bitcoin-cash-forking-blockchain/>; id., ‘Bitcoin Gold: What to Know About the Blockchain’s Next Split’ (CoinDesk, October 23, 2017), <https://www.coindesk.com/bitcoin-gold-know-blockchains-next-split/> (all accessed on 6 November, 2017).

⁷⁶ CJEU, judgment in Hedqvist, C-264/14, EU:C:2015:718, para. 55.

⁷⁷ Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax, OJ 2006 L 347/1.

⁷⁸ ECB, Payment Instruments, <https://www.ecb.europa.eu/paym/pol/activ/instr/html/index.en.html> (accessed on 24 October, 2017).

⁷⁹ ECB, Report on Electronic Money (August 1998), at 7.

⁸⁰ Choudhry, ‘The Eurobond Market’, in: Fabozzi (ed.), Handbook of Finance, Vol. 1 (Wiley, 2008) 271, 281.

⁸¹ State v. Herrera, 130 N.M. 85 (N.M. Ct. App. 2000) para. 9; see also Parameswaran (n. 128) 44.

⁸² State v. Herrera, 130 N.M. 85 (N.M. Ct. App. 2000) para. 10; Parameswaran (n. 128) 44.

⁸³ Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions, OJ 2009 L 267/7.

⁸⁴ Investopedia, ‘Bearer Instrument’, <http://www.investopedia.com/terms/b/bearer-instrument.asp> (accessed on 25 October, 2017).

cheques.²⁰⁰ One may, however, argue that holders of cryptocurrencies have at least an implicit claim against core developers, and potentially miners, to adequately maintain and develop the respective blockchain, and its payment capabilities, for example as a result of fiduciary duties. While most scholars reject the classification of bitcoin as electronic money, the developing discussion on fiduciary duties of core developers *vis-à-vis* cryptocurrencies owners could throw a different light on this discussion. At the end of the day, pure currency tokens share a number of important characteristics, such as significant liquidity and lack of the registration of the “true owner”, with bearer payment instruments. This is why recent legislation in Japan has treated cryptocurrencies not as legal tender, but as means of payment similar to prepaid payment instruments.

‘Capital markets’ require the ongoing relationship between the issuer and the investor based on the traded instrument.⁸⁵ If the Coin/token does not provide any such membership rights, comparable rights, or monetary streams, it is not a ‘transferable security’. If the possible return on investment can only stem from an increased value of the tokens in the secondary market, the respective token is not an investment token and *a priori* cannot be considered a “transferable security.”

According to Article 4(1)(44) MiFID2, “payment instruments” are not transferable securities. Similar to “capital markets,” the term is not defined by MiFID2⁸⁶ and needs to be interpreted according to the general understanding in the markets. The definition encompasses classical means of payment such as cash and checks.⁸⁷ It also applies to non-cash payment mediums such as debit or credit cards, credit transfers, direct debits, and e-money.⁸⁸ Currency tokens fall within this category because they are designed to function as a means of payment, which means that they are payment instruments and thus not transferable securities. They exhibit strong similarities to e-money,⁸⁹ which is classified as a payment instrument.⁹⁰ This view is in line with the famous *Hedqvist* decision in which the CJEU held that Bitcoins are contractual payment instruments.⁹¹ U.S. Magistrate Judge Mazzant expressed a similar view in SEC litigation against a Ponzi scheme based on a Bitcoin operation.⁹²

⁸⁵ A special case that this Article will not discuss in detail is an ICO of investment tokens without an issuer, which means that the ICO was organized in a decentralized way. The DAO token sale was one example of this type of ICO. For further discussion, see Laila Metjahic, *Deconstructing the DAO: The Need for Legal Recognition and the Application of Securities Laws to Decentralized Organizations*, 39 CARDOZO L. REV. 1533 (2018).

⁸⁶ The definition in Article 4(14) of Directive (EU) 2015/2366 (Second Payment Services Directive) referring to “personalised devices” cannot be applied because it is used in a non-capital markets context.

⁸⁷ Roth, *supra* note 171, at § 2 ¶ 41; Assmann, *supra* note 170, at § 2 ¶ 12.

⁸⁸ See *Payment Instruments*, EUROPEAN CENTRAL BANK, <http://perma.cc/YS4B-BKFJ>.

⁸⁹ *Id.*

⁹⁰ Hacker & Thomale, *supra* note 70, at 31.

⁹¹ Case C-264/14, *Skatteverket v. David Hedqvist*, 2015 E.C.R. 718. In this case, a Swedish national wanted to offer a service enabling customers to change money into Bitcoin and vice versa. Traditional currency exchanges are exempt from value added tax under Article 135(1) of Directive 2006/112/EC (VAT Directive). Thus, the issue was whether Bitcoin could be considered equivalent to a legal tender within the meaning of the Directive. Although the CJEU affirmed the application of the exemption, it is unclear if this can also apply to securities regulation because the structure and purpose differs from tax law.

⁹² SEC v. Shavers, No. 4:13-CV-416, 2013 WL 4028182, at *2 (E.D. Tex. Aug. 6, 2013) (“It is clear that Bitcoin can be used as money”).

Theory

Extraterritoriality of US Securities law

The US has vast and long-standing experience in seeking to apply national securities laws extraterritorially.⁹³

Prior to the *Morrison v. National Australia Bank Ltd.* decision handed down by the Supreme Court on June 24, 2010, the Second Circuit Court paved the way for the extraterritoriality of the securities regulation's anti-fraud provisions by using mainly two tests: a) the effects test, which examined whether the wrongful conduct had a substantial and foreseeable negative effect on the US or its citizens;⁹⁴ and b) the conduct test, which by contrast, requires the wrongful conduct to take place within the US.⁹⁵

⁹³ See the Dodd-Frank Wall Street & Consumer Protection Act, H.R. 4173, 111th Cong. §§ 929P(b), 929Y (2010) (enacted) [hereinafter Dodd-Frank Act]. See also: *Schoenbaum v. Firstbrook*, 405 F.2d 200 (2d Cir. 1968), *abrogated by Morrison v. Nat'l Austl. Bank Ltd.*, 130 S. Ct. 2869 (2010); *Leasco Data Processing Equip. Corp. v. Maxwell*, 468 F.2d 1326 (2d Cir. 1972), *abrogated by Morrison*, 130 S. Ct. 2869.

⁹⁴ Kun Young Chang, *Multinational Enforcement of U.S. Securities Laws: The Need for the Clear and Restrained Scope of Extraterritorial Subject-Matter Jurisdiction*, 9 FORDHAM J. CORP. & FIN. L. 89, 95 (2003); Junsun Park, *Global Expansion of National Securities Laws: Extraterritoriality and Jurisdictional Conflicts*, 12 U.N.H. L. Rev. 69, 70 (2014); *Berger*, 322 F.3d at 192-93; *Morrison*, 130 S. Ct. at 2879.

⁹⁵ *Park*, supra note 36, at 71; *Berger*, 322 F.3d at 192-93; *Morrison*, 130 S. Ct. at 2879.

Courts disagreed regarding the degree to which the behavior in question had to have an effect on the US or its citizens.⁹⁶ This question of degree has only become more difficult to answer with the development of the internet and other new technologies.⁹⁷ US legal scholars and practitioners felt a growing unease when considering the possibility that these tests might breach another country's sovereignty and lead to a deterioration in foreign relations.⁹⁸

In 2010, the *Morrison v. National Australia Bank Ltd.*⁹⁹ case cancelled the conduct and the effect tests. According to the court the main test that should be used in order to determine the reach of Section 10(b) of the Securities Exchange Act, which deals with fraudulent behavior, is the transactional test.¹⁰⁰ The court held that in order to qualify for the test, the fraudulent behavior must accompany the purchase or the sale of a security, whether or not it is a registered security on a national securities exchange.¹⁰¹

Australia

In Australia, the Australian Taxation Office ('ATO') considered digital currencies to be 'intangible assets'. The Australian Securities and Investments Commission ('ASIC') does not discuss digital currency's inclusion in regimes as an 'intangible asset', but focuses on whether it can constitute a financial product for the purposes of regulation¹⁰².

ASIC has stated that 'digital currencies themselves do not fit within the current legal definitions of a "financial product"'.¹⁰³ A financial product is, broadly, a facility through which a person makes a financial investment, manages financial risk or makes a non-cash payment.⁸³ For the purposes of regulation, ASIC finds that digital currency does not fall within the scope of that definition, stating that 'the definition of "making a financial investment" does not include real property or bullion and we consider that it would similarly not include digital currencies'.¹⁰⁴ Digital currencies are also generally not a facility through which a person manages risk, or makes a non-cash payment.¹⁰⁵

Comparable to the position of the ATO, ASIC considers that digital currency is not 'currency' or money. Relevantly, ASIC states:¹⁰⁶

⁹⁶ Park, *supra* note 36, at 73.

⁹⁷ George Nnona, *International Insider Trading: Reassessing the Propriety and Feasibility of the U.S. Regulatory Approach*, 27 N.C. J. INT'L L. & COM. REG. 185, 198 (2001); Park, *supra* note 36, at 73.

⁹⁸ Park, *supra* note 36, at 73.

⁹⁹ *Morrison*, 130 S. Ct. 2869.

¹⁰⁰ *Id.* at 2884.

¹⁰² Securities are broadly regulated pursuant to various provisions of the Corporations Act 2001 (Corporations Act) and the Australian Securities and Investments Commission Act 2001 (ASIC Act). ASIC is the responsible body for the regulation of Australian companies, financial markets, and financial services organisations and professionals.

¹⁰³ Australian Securities and Investments Commission, 'Senate inquiry into digital currency - Submission by the Australian Securities and Investments Commission', Submission 44 (December 2014) [5]. ⁸³ *Ibid* [46].

¹⁰⁴ *Ibid* [47].

¹⁰⁵ *Ibid* [48], [49].

¹⁰⁶ *Ibid* [50].

...digital currencies are not a currency or money for the purposes of the Corporations Act. Digital currencies such as bitcoins are more akin to a commodity. We note that this view is consistent with the views expressed by the Australian Taxation Office (ATO) that digital currencies are not a 'currency'. For this reason, we consider that contracts for the exchange of digital currency with a national currency are not foreign exchange contracts.

In providing some guidance on an appropriate definitional framework for digital currencies, ASIC notes that they could be treated in a similar manner to national currencies. This point was not discussed in great detail, concluding that it would need further consideration as such a definition could create 'a more significant issue for other Australian regulators, and so broader consideration of the impact of such a change is appropriate'.¹⁰⁷

In brief, if an ICO constitutes an managed investment scheme ('MIS') then there will be obligations under the Corporations Act with respect to reporting and disclosure. This would be relevant where the value of the Coin is a function of the management of the scheme arrangement¹⁰⁸.

As ASIC note:¹⁰⁹

...many of the obligations under the legislation ASIC administers apply to the issuers of financial products, who are responsible for the obligations to product holders under the terms of the product. On the other hand, digital currencies do not have an identifiable 'issuer', as there is no centralised authority responsible for their creation or any obligations owed to digital currency holders.

The regulatory issue with ICOs is faced with placing each ICO (after an assessment of its characteristics) into one of the existing regulatory frameworks above. While this is perhaps a more supportive attitude to digital currencies, this approach arguably increases regulatory issues with a lack of clear boundaries and compliance requirements. This then leads to a piecemeal inclusion of ICOs into different 'product' categories, each having different compliance, reporting and disclosure obligations.

Comparatively, we can see that the US approach is stricter in relation to ICOs insofar as having implemented a requirement to comply with various legislation which ensures protection of consumers with registration and reporting requirements.

While both the US and Australia have provided an arguably broader inclusion of digital currency within the securities regulatory scope, two issues become apparent. First, securities definitional structure is not in alignment with tax definitional structure within each country. Second, the definitions used by securities regulators are not necessarily specific enough to cover market activities such as ICOs. These points highlight that both securities and tax definitions, while different, do not properly cover the scope of market activity of digital currency.

¹⁰⁷ Ibid [12].

¹⁰⁸ Initial coin offerings, AUSTRALIAN SECURITIES & INVESTMENT COMMISSION (Oct. 11, 2017), <http://perma.cc/L8Z9-BNDA>.

¹⁰⁹ Australian Securities and Investments Commission, 'Senate inquiry into digital currency - Submission by the Australian Securities and Investments Commission', above n 82, [43].

OTHER COUNTRIES

Canada:

Interestingly, the Canadian Securities Administrators (CSA) released a notice on August 24, 2017, stating that they apply exactly the same test to Canadian ICOs.¹¹⁰

The Supreme Court of Canada's decision in *Pacific Coast Coin Exchange v. Ontario (Securities Commission)*, [1978] 2 S.C.R. 112; as well as the various judicial and administrative decisions that have been issued subsequent to that case.

Section 35 of the *The Securities Act*, Act prohibits anyone trading in a security in the absence of a prospectus and section 1(1) (22)xiii defines security as including “any investment contract, other than an investment contract within the meaning of The Investment Contracts Act”.

“The legislation is not aimed solely at schemes that are actually fraudulent but rather relates to arrangements that do not permit the customers to know exactly the kind of investment they are making” [para 114 per majority].

Per CJ

the policy behind the legislation in the two countries is exactly the same, so that considering the dearth of Canadian authorities, it is a wise course to look at the decisions reached by the U.S. Courts. This approach has also been adopted by the Court of Appeal of Alberta in *Re Regina Great Way Merchandising Ltd.*^[6], as well as by Nemetz, J.A., in the Court of Appeal of British Columbia in *Re Bestline Products of Canada Ltd.*^[7]

I have alluded to the policy of the legislation. It is clearly the protection of the public as was said by Hartt J. in *Re Ontario Securities Commission and Brigadoon Scotch Distributors (Canada) Limited*^[8], at p. 717:

...the basic aim or purpose of the Securities Act, 1966,

...is the protection of the investing public through full, true and plain disclosure of all material facts relating to securities being issued.

It is sufficient to refer to *SEC v. Koscot Interplanetary, Inc.*^[11] and to *SEC v. Glen W. Turner Enterprises, Inc.*^[12] As mentioned in the *Turner* case, to give a strict interpretation to the word “solely” (at p. 482) “would not serve the purpose of the legislation. Rather we adopt a more realistic

¹¹⁰ See CANADIAN SEC. ADM’RS, *Cryptocurrency Offerings* (CSA Staff Notice 46-307, Aug. 24, 2017), <http://perma.cc/NP5C-FT73>.

test, whether the efforts made by those other than the investor are the undeniably significant ones, those essential managerial efforts which affect the failure or success of the enterprise". In the same case of *Turner*, the expression "common enterprise" has been defined to mean (p. 482) "one in which the fortunes of the investor are interwoven with and dependent upon the efforts and success of those seeking the investment or of third parties".

CSA Staff Notice 46-307 Cryptocurrency Offerings: The Staff Notice suggested it is possible some kinds of Utility Tokens would not be considered securities when it said that "...if an individual purchases coins/ tokens that allow him/her to play video games on a platform, it is possible that securities may not be involved."

"distribution in Canada" – jurisdictional limit

United Kingdom

An activity is a "regulated" activity if, amongst other things, it relates to a "specified investment".

Furthermore, communicating in the course of a business an invitation or inducement to engage in investment activity is also generally prohibited, unless the relevant person is authorised or the communication is approved by an authorised person. Again, an activity is an investment activity for this purpose if, amongst other things, it relates to "specified investments" (or a specified class of investment).

For example, the FCA statement referred to "utility tokens" (which are neither transferable securities nor regulated products and only allow access to a network or product with no other legal rights attached) as generally falling outside the FCA's regulatory perimeter.

The concepts of "specified investments" and "specified activities" are defined in the Financial Services and Markets Act 2000 (Regulated Activities) Order 2001 (SI 2001/544).

Financial Markets Law Committee Paper of 2019

The Financial Markets Law Committee (FMLC) published a [paper](#) outlining issues of legal uncertainty arising from ICOs in July 2019.

Utility Tokens

2.8. Utility tokens are typically offered whilst the issuer is developing a platform. The issuer uses the funds received from the sale of the tokens towards the development of the platform. Utility tokens do not generally entitle the holder to any rights in the business.

Utility tokens can be structured in a number of different ways, but generally grant the holder (early) access to the platform or the ability to redeem the token for goods or services (or as a discount for such goods or services). In this sense, utility tokens resemble rewards-based crowdfunding, whereby the holder of the utility token retains

no ownership rights in the issue.

2.9. These cryptoassets are likely to fall outside the regulatory perimeter, although owing to their ability to be exchanged for goods or services, utility tokens could potentially be considered E-Money and therefore be subject to the E-Money Regulations. Given the limited spending potential of utility tokens, which are only intended to be used within a platform created by the issuer, however, this may be less likely. In 2017, Binance issued a utility token by way of an ICO which enabled the prospective holder to swap a range of cryptocurrencies, including Bitcoin, in return for BNB coins.

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Para 2.5 of CP 19/3: In line with the Taskforce, we have categorised cryptoassets into three types of tokens;

- Exchange tokens: these are not issued or backed by any central authority and are intended and designed to be used as a means of exchange. They are, usually, a decentralised tool for buying and selling goods and services without traditional intermediaries. These tokens are usually outside the perimeter.
- Security tokens: these are tokens with specific characteristics that mean they meet the definition of a Specified Investment like a share or a debt instrument (described in more detail in Chapter 3) as set out in the RAO, and are within the perimeter.
- Utility tokens: these tokens grant holders access to a current or prospective product or service but do not grant holders rights that are the same as those granted by Specified Investments. Although utility tokens are not Specified Investments, they might meet the definition of e-money in certain circumstances (as could other tokens), in which case activities in relation to them may be within the perimeter.

Germany

According to the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungs-aufsicht, BaFin), tokens in an ICO qualify typically as financial instruments in the form of units of accounts (Rechnungseinheiten) within the meaning of Sec. 1 para. 11 no. 7 of the German Banking Act (Kreditwesengesetz, KWG). However, the BaFin has determined that the German Stock Corporation Act (Aktiengesetz, AktG) would not apply to ICOs.

The UK's Financial Conduct Authority (FCA) has said that many ICOs will fall outside the regulated space, but each needs to be determined on a case-by-case basis. Some tokens may constitute transferable securities.

France

the French Autorité des Marchés Financiers (AMF) published a discussion paper on ICOs.¹¹¹ The AMF remarked that tokens may be classified “as equity securities if they bestow the same economic and governance rights as those traditionally attached to shares or preference shares.”¹¹² However, the AMF concluded the tokens issued in France would not be classified as securities and thus would not fall under French regulations.¹¹³

Singapore

It published guidelines in August 2017 (MAS 2017a) on how the issuance and offer of digital tokens will be regulated in Singapore. There is no direct regulation under the Securities and Future Act (SFA), unless the token is connected with an ownership or security right of the issuer's asset. Therefore, if digital tokens represent, for example, an ownership right or a claim to the assets or property of an issuer, tokens may be regarded as an offer of shares or units in a collective investment scheme as part of the SFA (MAS 2017a). In November 2017, the MAS published an additional guideline (MAS 2017b) on the implementation of Singapore's securities laws on emissions and offers of digital tokens with an analysis of six exemplary cases. The guideline (MAS 2017b) states that the offering of tokens in Singapore is subject to securities regulation when digital tokens qualify

¹¹¹ *Discussion Paper on Initial Coin Offerings*, AUTORITÉ DES MARCHÉS FINANCIERS (Oct. 26, 2017), <http://perma.cc/4BHQ-KHP7>.

¹¹² *Id.* at 7.

¹¹³ *Id.* at 8.

as capital market products within the scope of the Securities and Futures Act. Capital markets products include securities, futures contracts, and foreign-exchange trading agreements. Digital tokens that constitute capital markets products can also be shares if they grant an interest in a company, and if they represent the liability of the token holder in the company with mutual obligations with other token-holders. A token can also qualify as a debenture bond and therefore count as a capital markets product.

According to the MAS (2017b), units in a collective investment scheme (CIS) can also qualify as digital tokens if they constitute a right or a participation in a CIS or an option to acquire a right or participation in a CIS. The offer of digital tokens that offer securities or shares in a collective investment scheme must be published in a prospectus approved by the SFA and registered by the MAS (MAS 2017b).

Securities and Futures Act (SFA). defined in section 2(1) SFA, Typical examples are shares, debentures, and units in a collective investment scheme.¹¹⁴

The MAS included six case studies in its release, providing guidance for typical and non-typical token sales.¹¹⁵ Although the MAS labeled the case studies as not indicative, conclusive, or exhaustive,¹¹⁶ the case studies give an excellent idea of the MAS's views. For example, tokens comparable to shares would be considered securities (Case 2), while tokens granting access to company services would not (Case 1). The MAS did not go into detail regarding the classification of hybrid tokens. Thus, some commentators presume that the MUN token, which only granted limited investment rights, would most likely not have been classified as a security.¹¹⁷

New Zealand

the cryptoasset you are offering is a 'financial product' under the Financial Markets Conduct Act 2013 (FMC Act). Cryptoassets that are financial products are also known as "security tokens". Whether a cryptoasset is a financial product will depend on the specific characteristics and economic substance of that cryptoasset. If your ICO is offering cryptoassets that are financial products, further obligations will apply.

¹¹⁴ *Id.* at § 2.3.

¹¹⁵ *Id.* at § 4.

¹¹⁶ *Id.* at § 4.1.

¹¹⁷ See Rohr & Wright, *supra* note 22, at 94 ("Although the guidance is limited, it appears that Muncie tokens would not have been treated as securities under Singapore's laws...").

A close analysis of many tokens often reveals that they look more like a software or a commodity, which do not historically trigger securities regulations.¹¹⁸

Securities regulation governs the public issue of securities, the secondary markets, asset management products and market intermediaries. The purpose of legislation in this area is to both facilitate businesses in accessing capital, and to protect the investors who provide the money.⁶⁵

Investors are deemed to require protection against issuers on the basis that the offeror has more information about what is being offered than the buyer. This is compounded by the fact that the value and quality of the security lies primarily in the future, and in the issuer's control.¹¹⁹

The informational asymmetry between buyer and issuer, in addition to a general lack of factual information, is so extensive that the law deems it inappropriate to place the onus of inquiry and investigation solely on the purchaser.¹²⁰

argue that the blockchain technology on which ICOs are based intrinsically limits any asymmetries of information.¹²¹ Data stored on a blockchain is decentralised, open-source, and updated by consensus mechanisms. It could be possible that these properties provide more transparency and availability of information in comparison to traditional companies, such that the rationale for regulation does not apply. In contrast to companies that do not store their financials on a blockchain and only report once per year, in decentralised networks the storage and movement of funds can be viewed in real time. Because token holders can see how their contribution is being used, the structure arguably lends itself to enhanced peer-to-peer governance.¹²² Further, the code (which

¹¹⁸ Thomas Gibbons "Purpose and Principles of Securities Regulation" in Stace (ed) *Financial Markets Conduct Regulation a Practitioner's Guide* (LexisNexis, Wellington, 2014) 3 at 4-5.; *R v Moses* [2011] NZHC 646 at [35].⁶⁵ Stace and others, above n 24, at v.

¹¹⁹ Ross Grantham and C. E. F. Rickett *Company and Securities Law: Commentary and Materials* (Brookers, Wellington, 2002) at 876.; and generally, A. C Page, R.B Ferguson *Investor Protection* (London, Weidenfeld and Nicholson, 1992) at 36-38.

¹²⁰ At 876.

¹²¹ See for example Alex Tarrock and Tyler Cower "The End of Asymmetric Information" (6 April 2015) <<https://www.cato-unbound.org/2015/04/06/alex-tabarrok-tyler-cowen/end-asymmetric-information>>.

¹²² Note the immediate weakness in this argument – only aggregated data reveals the health of a company.

often contains everything from the way funds can be directed, to the bylaws and governance of the issuer) is publically available and accessible to all participants, enhancing transparency.¹²³

3 Managed investment product

An MIP is an interest in a managed investment scheme (MIS). An MIS means a scheme to which each of the following applies:¹⁵⁰

- (a) the purpose or effect of the scheme is to enable persons taking part in the scheme to contribute money, or to have money contributed on their behalf, to the scheme as consideration to acquire interests in the scheme; and
- (b) those interests are rights to participate in, or receive, financial benefits produced principally by the efforts of another person under the scheme (whether those rights are actual, prospective, or contingent, and whether they are enforceable or not); and
- (c) the holders of those interests do not have day-to-day control over the operation of the scheme (whether or not they have the right to be consulted or to give directions).

The elements of the MIP and associated MIS in substance align with those set out in the *Howey* Test.

¹²³ Lior Zysman “DAOs and Securities Regulation” (30 September 2016) Smith and Crown <www.smithandcrown.com/daos-securities-regulation/>.

PART E RISK AND LEGAL DISCLAIMERS

DISCLAIMERS

- E1.1 The information provided on this whitepaper does not constitute investment advice, financial advice, trading advice, or any other sort of advice and you should not treat any of the website's content as such.
- E1.2 The NuGenesis team (expressly defined as including any 'issuer', 'founder', 'miner', 'core developer' or any team member or seller of NuCoin to you) does not recommend that any cryptocurrency should be bought, sold, or held by you. Do conduct your own due diligence and consult your financial advisor before making any investment decisions. By purchasing NuCoin, you agree that:
- (a) you are not purchasing a security or investment and you agree to hold the team harmless and not liable for any losses or taxes you may incur.
 - (b) the team is presenting the native Coin "as is" and is not required to provide any support or services. You should have no expectation of any form from NuGenesis and its team. Although NuCoin is an EXPERIMENTAL Coin for social experiment and not a digital currency, the team strongly recommends that United States persons do not purchase it because the team cannot ensure compliance with United states regulations. Always make sure that you are in compliance with your local laws and regulations before you make any purchase.
- E1.3 Please note that there are risks associated with smart contracts. Please use at your own risk any NuGenesis technology. The NuGenesis team and any company groups are not registered financial advisers. Everything provided therein is for informational and educational purposes and we rely upon you using this material to seek and obtain such professional advice as you require. We expect that all information herein contained will be independently verified and confirmed. The NuGenesis teams and persons associated are not responsible for any losses or damages that may be suffered whatsoever or howsoever arising from any reliance on information herein contained. Any trading that you may do involves risks in any financial markets – the crypto markets are particularly immature, lack liquidity that you may be used to in traditional markets and involve a layer of additional technical risk. Do not invest or speculate and certainly not with money that you cannot afford to lose.
- E1.4 For the purposes of the forgoing discussion summarising and expanding on particular aspects of risks, "we" and "our" is used in the collective sense. That is, "our" platform means:
- (a) all participants in the platform including major component entities within it; and,
 - (b) the platform which you, as a prospective user of NuCoin, are a part and one which we are assuming and relying, to be an active participant therein. .

Likewise, “We” means all the community members and includes major component entities within it.

- E1.5 We note again that no reader should be looking to any NuGenesis company as some sort of manager, promoter or controller for the success or otherwise of the platform. That will always be a function of the entirety of the collective community that adopts it, contributes to it and uses it.

FURTHER DISCLAIMERS AND REITERATIONS REGARDING WHAT IS NuCOIN

- E2.1 It cannot be over-emphasised that the nature of the NuGenesis blockchain ecosystem is protocol based social experiment. Within this ecosystem, NuCoin may be considered the equivalent of the Oil that runs system of organisation of business, social and personal relationships that given the infrastructure upon which to develop activity with open participation. The activity is not limited economic activity but is rather a digital, virtual society with all its facets.
- E2.2 The value of any NuCoin is a function of how it is adopted and utilised in the ecosphere of this virtual society including such collaborations and applications built upon and/or parachained or networked with NuGenesis, and with increased emphasis on virtual relationships and means of expression and exchange that will occur in virtual reality may be increasingly token-less.
- E2.3 NuCoin is not a security in that, on any acquisition of NuCoin or derivative thereof, you do not:
- (a) acquire or can expect to ever acquire a shareholding, legal, beneficial or membership stake in any equity of any investment vehicle expressly including any ‘issuer’, ‘founder’, ‘miner’, ‘core developer’ or any team member or seller of NuCoin to you whether separately or collectively (“the NuGenesis Team”) howsoever and in any way;
 - (b) acquire or can expect to ever acquire any right to fees, income, dividends, bonus issues in a NuGenesis team person;
 - (c) acquire or can expect to ever acquire any to vote, direct, control or influence a NuGenesis team person;
 - (d) become an object or purpose of any foundation, trust or investment vehicle related to a NuGenesis team person; and,
 - (e) have any rights to payment in money or kind or compel the performance of work or provision of services by any NuGenesis team person.
- E2.4 If you acquire or utilise any NuCoin, you declare and any issuer’, ‘founder’, ‘miner’, ‘core developer’ or any persons referred to as a NuGenesis team member or seller of NuCoin to you whether separately or collectively rely(ies) upon you acknowledging, declaring and understanding that by the act of acquisition or utilisation, that you:
- (a) do so for your own business and social use;
 - (b) do so fully cognisant that you do not rely upon the management or efforts of any counterparty howsoever but entirely your own active participation and efforts;
 - (c) do not consider nor rely upon any representations express or through omission the financial or other history of any NuGenesis team member or associated entities to be relevant howsoever to your decision-making;

(d) that the evolution of the NuGenesis ecosphere is a function of the participation of yourself and persons yet unknown to you that cannot be predicted or foreseen; and, that a NuGenesis team member changes their position in reliance upon your acknowledgement, declaration and understanding.

E2.5 NuCoin will not be the exclusive cryptoasset used throughout the NuGenesis ecosystem. Separate tokens or Coins or digital assets may be created for 'Just Social', the NuGenesis Ledger X exchange, the V2R Launchpad or for any protocol that may be necessary or convenient in the development of the ecosphere including for example any 'rebase protocol' to adjust the liquidity and supply of NuCoin.

E3 SUMMARY OF RISK FACTORS

E3.1 Any blockchain technology is subject to numerous risks and uncertainties. Some of these risks include:

- price for NuCoin can significantly fluctuate due to the highly volatile nature of crypto.
- the NuCoin price is substantially dependent on the prices of crypto assets generally and volume of transactions conducted on the platform.
- A major indicator of market sentiment is derived from transactions in Bitcoin and Ethereum. If demand for these crypto assets declines and is not replaced by new crypto asset demand, the overall financial condition could be adversely affected.
- The future development and growth of crypto is subject to a variety of factors that are difficult to predict and evaluate. If crypto does not grow as we expect, the financial condition could be adversely affected.
- Cyberattacks and security breaches of the platform, or those impacting our customers or third parties, could adversely impact the brand and reputation and consequently financial condition.
- We are subject to an extensive and highly-evolving regulatory landscape and any adverse changes to, or our failure to comply with, any laws and regulations could adversely affect the platforms' brand, reputation and financial condition.
- We operate in a highly competitive industry and we compete against unregulated companies and companies with greater financial and other resources, and the platform may be adversely affected if we, as a community, are unable to respond to our competitors effectively.
- As we continue to expand and localize our international activities, our obligations to comply with the laws, rules, regulations, and policies of a variety of jurisdictions will increase and we may be subject to investigations and enforcement actions by regulators and governmental authorities.
- We may continue be subject to material litigation, including individual and class action lawsuits, as well as investigations and enforcement actions by regulators and governmental authorities, which may adversely affect our financial condition.

- If we cannot keep pace with rapid industry changes to provide new and innovative products and services, the use of our products and services and, consequently, our financial condition could be adversely impacted.
- A particular crypto asset's status as a "security" in any relevant jurisdiction is subject to a high degree of uncertainty and if we are unable to properly characterize a crypto asset, we may be subject to regulatory scrutiny, investigations, fines, and other penalties, and our financial condition may be adversely affected.
- We currently rely on third-party service providers for certain aspects of our operations, and any interruptions in services provided by these third parties may impair our community's ability to support our community members.
- Loss of a critical banking or insurance relationships could adversely impact our financial condition.
- Any significant disruption in our products and services, in our information technology systems, or in any of the blockchain networks we support, could adversely impact our brand and reputation and financial condition.
- Our failure to safeguard and manage our customers' fiat currencies and crypto assets could adversely impact our financial condition.
- The loss or destruction of private keys required to access any crypto asset held in custody for our own account or for our community users may be irreversible. If we are unable to access our private keys or if we experience a hack or other data loss relating to our ability to access any crypto assets, it could cause regulatory scrutiny, reputational harm, and other losses.
- None of our founders are party to any contractual lock-up agreement or other contractual restrictions on transfer. Following our listing, the sales or distribution of substantial amounts of NuCoin, or the perception that such sales or distributions might occur, could cause the market price of NuCoin to decline.

Other risks that many of which are unpredictable and in certain instances are outside of our collective community control, include:

- our dependence on projects that are dependent on crypto asset trading activity, including trading volume and the prevailing trading prices for crypto assets, whose trading prices and volume can be highly volatile;
- our ability to attract, maintain, and grow our community base and engage our community members;
- changes in the legislative or regulatory environment, or actions by governments or regulators, including fines, orders, or consent decrees;
- regulatory changes that impact our ability to offer certain products or services;
- our ability to diversify and grow our subscription and services;
- pricing for our collectively offered products and services;
- investments we make in the development of products and services as well as technology offered to our ecosystem partners, international expansion, and sales and marketing;

- adding and removing of crypto assets on our platform;
- macroeconomic conditions;
- adverse legal proceedings or regulatory enforcement actions, judgments, settlements, or other legal proceeding and enforcement-related costs;
- the development and introduction of existing and new products and services by our collective community or our competitors;
- increases in operating expenses that we expect to incur to grow and expand our operations and to remain competitive;
- system failure or outages, including with respect to our crypto platform and third-party crypto networks;
- breaches of security or privacy;
- inaccessibility of our platform due to our or third-party actions;
- our ability to attract and retain talent; and
- our ability to compete with our competitors.
- unpredictable social media coverage or “trending” of crypto assets;
- the ability for crypto assets to meet user and investor demands;
- the functionality and utility of crypto assets and their associated ecosystems and networks, including crypto assets designed for use in various applications;
- consumer preferences and perceived value of crypto assets and crypto asset markets;
- increased competition from other payment services or other crypto assets that exhibit better speed, security, scalability, or other characteristics;
- regulatory or legislative changes and updates affecting the cryptoeconomy;
- the characterisation of crypto assets under the laws of various jurisdictions around the world;
- the maintenance, troubleshooting, and development of the blockchain networks underlying crypto assets, including by miners-stakers-validators, and developers worldwide;
- the ability for crypto networks to attract and retain miners or validators to secure and confirm transactions accurately and efficiently;
- ongoing technological viability and security of crypto assets and their associated smart contracts, applications and networks, including vulnerabilities against hacks and scalability;
- fees and speed associated with processing crypto asset transactions, including on the underlying blockchain networks and on crypto platforms;
- financial strength of market participants;
- the availability and cost of funding and capital;
- the liquidity of crypto platforms;
- interruptions in service from or failures of major crypto platforms;
- availability of an active derivatives market for various crypto assets;

- availability of banking and payment services to support crypto-related projects;
- level of interest rates and inflation;
- monetary policies of governments, trade restrictions, and fiat currency devaluations; and
- national and international economic and political conditions.

in addition to the factors impacting the broader cryptoeconomy, NuCoin may be adversely affected if the markets for Bitcoin and Ethereum deteriorate or if their prices decline, including as a result of the following factors:

- the reduction in mining rewards of Bitcoin, including block reward halving events, which are events that occur after a specific period of time which reduces the block reward earned by miners;
- the development and launch timeline of Ethereum 2.0, including the potential migration of Ethereum to a proof-of-stake model;
- disruptions, hacks, splits in the underlying network also known as “forks”, attacks by malicious actors who control a significant portion of the networks’ hash rate such as double spend or 51% attacks, or other similar incidents affecting the Bitcoin or Ethereum blockchain networks;
- hard “forks” resulting in the creation of and divergence into multiple separate networks, such as Bitcoin Cash and Ethereum Classic;
- informal governance led by Bitcoin and Ethereum’s core developers that lead to revisions to the underlying source code or inactions that prevent network scaling, and which evolve over time largely based on self-determined participation, which may result in new changes or updates that affect their speed, security, usability, or value;
- the ability for Bitcoin and Ethereum blockchain networks to resolve significant scaling challenges and increase the volume and speed of transactions;
- the ability to attract and retain developers and customers to use Bitcoin and Ethereum for payment, store of value, unit of accounting, and other intended uses;
- transaction congestion and fees associated with processing transactions on the Bitcoin and Ethereum networks;
- the identification of Satoshi Nakamoto, the pseudonymous person or persons who developed Bitcoin, or the transfer of Satoshi’s Bitcoins;
- negative perception of Bitcoin or Ethereum;
- development in mathematics, technology, including in digital computing, algebraic geometry, and quantum computing that could result in the cryptography being used by Bitcoin and Ethereum becoming insecure or ineffective; and
- laws and regulations affecting the Bitcoin and Ethereum networks or access to these networks, including a determination that either Bitcoin or Ethereum constitutes a security or other regulated financial instrument under the laws of any jurisdiction.

The future development and growth of crypto is subject to a variety of factors that are difficult to predict and evaluate. If crypto does not grow as we expect, our financial condition could be adversely affected.

Crypto assets built on blockchain technology were only introduced in 2009 and remain in the early stages of development. In addition, different crypto assets are designed for different purposes. Bitcoin, for instance, was designed to serve as a peer-to-peer electronic cash system, while Ethereum was designed to be a smart contract and decentralised application platform. Many other crypto networks—ranging from cloud computing to tokenized securities networks—have only recently been established. The further growth and development of any crypto assets and their underlying networks and other cryptographic and algorithmic protocols governing the creation, transfer, and usage of crypto assets represent a new and evolving paradigm that is subject to a variety of factors that are difficult to evaluate, including:

- Many crypto networks have limited operating histories, have not been validated in production, and are still in the process of developing and making significant decisions that will affect the design, supply, issuance, functionality, and governance of their respective crypto assets and underlying blockchain networks, any of which could adversely affect their respective crypto assets.
- Many crypto networks are in the process of implementing software upgrades and other changes to their protocols, which could introduce bugs, security risks, or adversely affect the respective crypto networks.
- Several large networks, including Bitcoin and Ethereum, are developing new features to address fundamental speed, scalability, and energy usage issues. If these issues are not successfully addressed, or are unable to receive widespread adoption, it could adversely affect the underlying crypto assets.
- Security issues, bugs, and software errors have been identified with many crypto assets and their underlying blockchain networks, some of which have been exploited by malicious actors. There are also inherent security weaknesses in some crypto assets, such as when creators of certain crypto networks use procedures that could allow hackers to counterfeit tokens. Any weaknesses identified with a crypto assets could adversely affect its price, security, liquidity, and adoption. If a malicious actor or botnet (a volunteer or hacked collection of computers controlled by networked software coordinating the actions of the computers) obtains a majority of the compute or staking power on a crypto network, as has happened in the past, it may be able to manipulate transactions, which could cause financial losses to holders, damage the network's reputation and security, and adversely affect its value.
- The development of new technologies for mining, such as improved application-specific integrated circuits (commonly referred to as ASICs), or changes in industry patterns, such as the consolidation of mining power in a small number of large mining farms, could reduce the security of blockchain networks, lead to increased liquid supply of crypto assets, and reduce a crypto's price and attractiveness.
- If rewards and transaction fees for miners or validators on any particular crypto network are not sufficiently high to attract and retain miners, a crypto network's security and speed may be adversely affected, increasing the likelihood of a malicious attack.

- Many crypto assets have concentrated ownership or an “admin key”, allowing a small group of holders to have significant unilateral control and influence over key decisions relating to their crypto networks, such as governance decisions and protocol changes, as well as the market price of such crypto assets.
- The governance of many decentralized blockchain networks is by voluntary consensus and open competition, and many developers are not directly compensated for their contributions. As a result, there may be a lack of consensus or clarity on the governance of any particular crypto network, a lack of incentives for developers to maintain or develop the network, and other unforeseen issues, any of which could result in unexpected or undesirable errors, bugs, or changes, or stymie such network’s utility and ability to respond to challenges and grow.
- Many crypto networks are in the early stages of developing partnerships and collaborations, all of which may not succeed and adversely affect the usability and adoption of the respective crypto assets.

Various other technical issues have also been uncovered from time to time that resulted in disabled functionalities, exposure of certain users’ personal information, theft of users’ assets, and other negative consequences, and which required resolution with the attention and efforts of their global miner, user, and development communities. If any such risks or other risks materialise, and in particular if they are not resolved, the development and growth of crypto may be significantly affected and, as a result, our business, operating results, and financial condition could be adversely affected.

Cyberattacks and security breaches of our platform, or those impacting our customers or third parties, could adversely impact our brand and reputation and our business, operating results, and financial condition.

Our collective Platform involves the collection, storage, processing, and transmission of confidential information, customer, employee, service provider, and other personal data, as well as information required to access customer assets. Indeed it is a legal requirement for KYC/AML purposes. The platform’s reputation will be built on the premise that our platform offers customers a secure way to purchase, store, and transact in crypto assets. As a result, any actual or perceived security breach of us or our third-party partners may:

- harm our reputation and brand;
- result in our systems or services being unavailable and interrupt our operations;
- result in improper disclosure of data and violations of applicable privacy and other laws;
- result in significant regulatory scrutiny, investigations, fines, penalties, and other legal, regulatory, and financial exposure;
- cause us to incur significant remediation costs;
- lead to theft or irretrievable loss of our or our customers’ fiat currencies or crypto assets;
- reduce customer confidence in, or decreased use of, our products and services;
- divert the attention of management from the operation of our business;
- result in significant compensation or contractual penalties from us to our customers or third parties as a result of losses to them or claims by them; and

- adversely affect our business and operating results.

Further, any actual or perceived breach or cybersecurity attack directed at other financial institutions or crypto companies, whether or not we are directly impacted, could lead to a general loss of customer confidence in the cryptoeconomy or in the use of technology to conduct financial transactions, which could negatively impact us, including the market perception of the effectiveness of our security measures and technology infrastructure.

An increasing number of organisations, including large merchants, businesses, technology companies, and financial institutions, as well as government institutions, have disclosed breaches of their information security systems, some of which have involved sophisticated and highly targeted attacks, including on their websites, mobile applications, and infrastructure.

Attacks upon systems across a variety of industries, including the crypto industry, are increasing in their frequency, persistence, and sophistication, and, in many cases, are being conducted by sophisticated, well-funded, and organised groups and individuals, including state actors. The techniques used to obtain unauthorized, improper, or illegal access to systems and information (including customers' personal data and crypto assets), disable or degrade services, or sabotage systems are constantly evolving, may be difficult to detect quickly, and often are not recognized or detected until after they have been launched against a target. These attacks may occur on our systems or those of our third-party service providers or partners. Certain types of cyberattacks could harm us even if our systems are left undisturbed. For example, attacks may be designed to deceive employees and service providers into releasing control of our systems to a hacker, while others may aim to introduce computer viruses or malware into our systems with a view to stealing confidential or proprietary data. Additionally, certain threats are designed to remain dormant or undetectable until launched against a target and we may not be able to implement adequate preventative measures.

Although we have developed systems and processes designed to protect the data we manage, prevent data loss and other security breaches, effectively respond to known and potential risks, and expect to continue to expend significant resources to bolster these protections, there can be no assurance that these security measures will provide absolute security or prevent breaches or attacks. We have experienced from time to time, and may experience in the future, breaches of our security measures due to human error, malfeasance, insider threats, system errors or vulnerabilities, or other irregularities. Unauthorised parties may attempt to gain access to our systems and facilities, as well as those of our customers, partners, and third-party service providers, through various means, including hacking, social engineering, phishing, and attempting to fraudulently induce individuals (including employees, service providers, and our customers) into disclosing usernames, passwords, payment card information, or other sensitive information, which may in turn be used to access our information technology systems and community members' crypto assets. Threats can come from a variety of sources, including criminal hackers, hacktivists, state-sponsored intrusions, industrial espionage, and insiders. Certain threat actors may be supported by significant financial and technological resources, making them even more sophisticated and difficult to detect. Further, there has been an increase in such activities as a result of the novel coronavirus, or COVID-19, pandemic. As a result, our costs and the resources we devote to protecting against these advanced threats and their consequences may continue to increase over time.

If we cannot keep pace with rapid industry changes to provide new and innovative products and services, the use of our products and services, and consequently could adversely impact our financial condition.

Our industry has been characterised by many rapid, significant, and disruptive products and services in recent years. These include decentralized applications, DeFi, yield farming, staking, token wrapping, governance tokens, innovative programs to attract customers such as transaction fee mining programs, initiatives to attract traders such as trading competitions, airdrops and giveaways, staking reward programs, and novel cryptocurrency fundraising and distribution schemes, such as “initial exchange offerings.” We expect new services and technologies to continue to emerge and evolve, which may be superior to, or render obsolete, the products and services that we, collectively, can provide. We cannot predict the effects of new services and technologies on our community platform. However, our ability to grow our member base and net revenue will depend heavily on our ability to innovate and create successful new products and services, both independently and in conjunction with third-party developers. In particular, developing and incorporating new products and services into our business may require substantial expenditures, take considerable time, and ultimately may not be successful. Any new products or services could fail to attract customers, generate revenue, or perform or integrate well with third-party applications and platforms. In addition, our ability to adapt and compete with new products and services may be inhibited by regulatory requirements and general uncertainty in the law, constraints by our banking partners and payment processors, third-party intellectual property rights, or other factors. Moreover, we must continue to enhance our technical infrastructure and other technology offerings to remain competitive and maintain a platform that has the required functionality, performance, capacity, security, and speed to attract and retain customers, including large, institutional, high-frequency and high-volume traders. As a result, we expect to expend significant costs and expenses to develop and upgrade our technical infrastructure to meet the evolving needs of the industry. Our success will depend on our ability to develop and incorporate new offerings and adapt to technological changes and evolving industry practices. If we are unable to do so in a timely or cost-effective manner, our platform and our ability to successfully compete, to retain members, and to attract new members may be adversely affected.

E5: Unfavourable media coverage could negatively affect our business.

We can expect to receive a high degree of media coverage in the cryptoeconomy and around the world. Unfavourable publicity regarding, for example, our product changes, product quality, litigation or regulatory activity, privacy practices, terms of service, employment matters, the use of our products, services, or supported crypto assets for illicit or objectionable ends, the actions of our customers, or the actions of other companies that provide similar services to ours, has in the past, and could in the future, adversely affect our reputation. We have stress-tested our blockchain, its on-ramps and off-ramps with a number of ‘black hats’ and those expert in identifying hacks, loopholes and defects generally. Any of these people may find themselves in the media and an association may be drawn with our platform. Further, we may in the future, be the target of social media campaigns criticizing actual or perceived actions or inactions that are disfavoured by our customers, employees, or society at-large, which campaigns could materially impact our customers’ decisions to trade on our platform. Any such negative publicity could have an adverse effect on the size, activity, and loyalty of our customers and result in a decrease in net revenue, which could adversely affect our business, operating results, and financial condition.

E6: SPECIFIC RISK FACTORS EXPANDED UPON

Our intellectual property rights are valuable, and any inability to protect them could adversely impact our business, operating results, and financial condition.

Our platform's business activity depends in large part on our collective proprietary technology and our brand. We expect to rely on, a combination of trademark, domain name, copyright, and trade secret and laws, as well as confidentiality and licence agreements with our employees, contractors, consultants, and third parties with whom we have relationships, to establish and protect our brand and other intellectual property rights. However, our efforts to protect our intellectual property rights may not be sufficient or effective. Our proprietary technology and trade secrets could be lost through misappropriation or breach of our confidentiality and licence agreements, and any of our intellectual property rights may be challenged, which could result in them being narrowed in scope or declared invalid or unenforceable. There can be no assurance that our intellectual property rights will be sufficient to protect against others offering products, services, or technologies that are substantially similar to ours and that compete with our platform.

Subject to consensus change, the current view is that the platform does not intend to monetise our intellectual property rights or attempt to block third parties from competing with the platform by asserting our patents offensively against third parties, but our ability to successfully defend intellectual property challenges from competitors and other parties may depend, in part, on our ability to counter-assert our patents defensively. Effective protection of patents, trademarks, and domain names is expensive and difficult to maintain, both in terms of application and registration costs as well as the costs of defending and enforcing those rights. Further, intellectual property protection may not be available to us in every country in which our products and services are available. For example, some foreign countries have compulsory licensing laws under which a patent owner must grant licences to third parties. In addition, many countries limit the enforceability of patents against certain third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit. We may also agree to license our patents to third parties as part of various patent pools and open patent projects. Those licenses may diminish our ability, though, to counter-assert our patents against certain parties that may bring claims against us.

We may be, sued by third parties for alleged infringement of their proprietary rights however unfounded.

In recent years, there has been considerable patent, copyright, trademark, domain name, trade secret and other intellectual property development activity in the cryptoeconomy, as well as litigation, based on allegations of infringement or other violations of intellectual property, including by large financial institutions. Furthermore, individuals and groups can purchase patents and other intellectual property assets for the purpose of making claims of infringement to extract settlements and some important parts of our network may be attacked. Our use of third-party intellectual property rights also may be subject to claims of infringement or misappropriation. Whilst we predominantly use our own developed software, we cannot guarantee that our internally developed or acquired technologies and content do not or will not infringe the intellectual property rights of others. From time to time, our competitors or other third parties may claim that we are infringing upon or misappropriating their intellectual property rights, and some parts of our network may be found to be infringing upon such rights. Any claims or litigation could cause us to incur significant expenses and, if successfully asserted against major parts of our network, could require that we pay

substantial damages or ongoing royalty payments, prevent us from offering our products or services or using certain technologies, force us to implement expensive work-arounds, or impose other unfavourable terms. We expect that the occurrence of infringement claims is likely to grow as the crypto assets market grows and matures. Accordingly, our exposure to damages resulting from infringement claims could increase and this could further exhaust our financial and management resources.

We may be adversely affected by natural disasters, pandemics, and other catastrophic events, and by man-made problems such as terrorism, that could disrupt our platforms' business operations, and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster.

Natural disasters or other catastrophic events may also cause damage or disruption to our operations, international commerce, and the global economy, and could have an adverse effect on our business, operating results, and financial condition. Our platform's operations are subject to interruption by natural disasters, fire, power shortages, and other events beyond our control. In addition, our global operations expose us to risks associated with public health crises, such as pandemics and epidemics, which could harm our business and cause our operating results to suffer. For example, the ongoing effects of the COVID-19 pandemic and/or the precautionary measures that we have adopted have resulted, and could continue to result, in difficulties or changes to our customer support, or create operational or other challenges, any of which could adversely impact our platforms' business activity. Further, acts of terrorism, labour activism or unrest, and other geo-political unrest could cause disruptions in our platform's business or the businesses of our partners or the economy as a whole. In the event of a natural disaster, including a major earthquake, blizzard, or hurricane, or a catastrophic event such as a fire, power loss, or telecommunications failure, we may be unable to continue our operations and may endure system interruptions, reputational harm, delays in development of our platform, lengthy interruptions in service, breaches of data security, and loss of critical data, all of which could have an adverse effect on the business activity done on our platform.