



By Worldfree

Business White Paper

Market and Value Proposition

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Contents

Executive Summary: the FreeMark, a Cryptocurrency Engineered for Global Use	3
Overview	6
The Worldfree Team	7
The FreeMark Market and Value Proposition.....	8
A Good-Case Scenario	12
A Better Economic Design.....	14
Nodechain vs Blockchain	17
Value in the Digicurrency World	18
Are Currencies Securities?	19
Promise-backed Securities Make Better Currencies.....	20
Designing the Very Best Digicurrency	20
Regulatory Issues	21
Use of Funds.....	22
Timeline	23
Conclusion.....	23

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Executive Summary: the FreeMark, a Cryptocurrency Engineered for Global Use

Blockchain technology has been recognized as an opportunity to improve the global financial system, which is often accused of being biased or poorly functioning. Yet, in spite of its innovative nature, the blockchain suffers from:

- lack of scalability
- extreme volatility
- excessive energy requirements, and
- costly transactions.

Worldfree's experienced team has re-engineered the core idea of a digital cryptocurrency, both economically and technologically, to overcome the above challenges.

Worldfree's **FreeMark**[®] facilitates global, peer-to-peer transactions at breath-taking, order-of-magnitude greater speed than the current blockchain versions, no matter how large the network becomes. This scalability is a necessary yet distinct advantage of the FreeMark, which also provides greater privacy and a better financial foundation, thanks to its unique asset-backing and exchange rate stability, using automatic pegging of its price to a basket of commodities.

These two qualities decisively set the FreeMark apart from any other cryptocurrency. **Asset-backing** and **pegging to a basket of commodities** are distinct features making it a more legitimate medium of exchange as well as a more stable one, thus far better suited for any payment transactions.

Being asset-backed, the FreeMark is greatly superior to the floating government currencies, which have minimal or no asset-backing, and is also more credible than generally unbacked cryptocurrencies.

Each FreeMark shall be legally connected to an actual value, rather than just a digital blip or a piece of paper. The asset-backing is held in a regulated and audited fund of investments in income-earning financial securities called the FreeMark Reserve Endowment, which is managed prudently to provide liquidity and growth of the asset-backing as the money supply of FreeMarks grows.

The FreeMark is more stable, more secure, more private, asset-backed, and earns additional FreeMarks for savers who hold it—that is why it is a better medium of exchange than other traditional currencies or cryptocurrencies.

In the early 1970's, with the demise of the fixed-exchange rate of the Bretton Woods Agreement, traditional currencies relinquished their gold-backing, and became free-floating. "Since the collapse of the Bretton Woods system, IMF members have been free to choose any form of exchange arrangement they wish (**except pegging their currency to gold**)", as explained by the [IMF](#). Thus, the FreeMark has a distinct, competitive advantage over fiat currencies.

Importantly, asset-backing is different than the stability provided by pegging. As demonstrated by fiat currencies, pegging in itself does not require or imply asset backing. The assets underpinning the FreeMark are not generally commodities, but mostly income-earning investments, long/medium/short-term and many with liquidity. The growing asset backing of FreeMarks originates from the funds exchanged from buyers of the digicurrency in the ICO and subsequent uptake of FreeMarks by the market.

The FreeMark owners do *not* earn money in proportion to the performance of the asset-backing—that would be a collective investment scheme. Instead, the ever-increasing asset-backing facilitates liquidity. Investing the assets allows increases in the money supply while retaining the backing.

Another innovative aspect of the FreeMark is that **owners are automatically paid royalties on money supply expansion**, working in a way opposite to modern government currencies.

According to Coindesk, “Stablecoins” are cryptocurrencies, generally not asset-backed, that are “engineered to adjust their supply as the market shifts, issuing when prices rise and retracting when they drop, in an effort to keep their prices steady”. But this is not how the FreeMark functions, thus it is not a stablecoin. It is pegged instead automatically to a price set to a basket of 20 commodities, more specifically, a basket that gives greater weight to those that are less volatile on their 6-month moving average. Because goods are fabricated from raw materials, many of which are the most highly traded commodities, these provide a “natural” peg for a medium of exchange between goods.

The FreeMark is thus based upon an entirely new crypto-economic model that is better than the current paradigm. The invention of cryptocurrencies allows practically unlimited freedom to design a digicurrency the way we want, therefore it makes sense to engineer the most effective kind of currency. Worldfree has patents pending on its new design, which is engineered both economically and technologically to be the very best currency possible.

Stability means that using the FreeMark as a medium of exchange is less risky. For instance, if you commit to import some item at some time, and receive delivery later, your business will have risks because of exchange rate fluctuations of 1-5% per week that are common for traditional currencies, or 20% or more in as little as a few hours for blockchain currencies. These unnecessary risks undermine successful business results, requiring greater time and monetary resources, consequently reducing your productivity.

The FreeMark is held stable by automatic buying and selling through a distributed system, called the **Atomic Central Bank®**, that is functional on every Worldfree Network member’s computer or mobile device. The currency is automatically pegged to commodities with the highest trading volume, weighted according to their volatility (least volatile 4 commodities: 7%, middle 12 commodities: 5%; most volatile 4 commodities: 3% out of 100%). The price of the FreeMark is derived from a combined 6-month Moving Average of each of the below 20 commodities in proportions as explained:

<u>Food</u>	<u>Clothing</u>	<u>Metals</u>	<u>Energy</u>
Coffee	Cotton	Aluminium	Brent Crude
Corn	Rubber	Copper	Heating oil
Oats	Wool	Gold	Natural gas
Rice		Iron ore	WTI Crude Oil
Soybean		Nickel	
Sugar		Zinc	
Wheat			

An additional 5 commodities (Propane, Tin, Palladium, Palm Oil, and Silver) can be added to or removed from the list above automatically when any of the above becomes excessively volatile over a time period.

How Owners of FreeMark Make Money

The FreeMark derives value in another way because it can make its owners more FreeMarks simply by holding them. The FreeMark is engineered to produce more FreeMarks as its commercial use increases and the money supply therefore grows. Because the price is automatically pegged to a basket of commodities as discussed above, increasing the money supply does not affect the price. Savers are paid 5-10% of the money supply growth rate (for the first year 7.5%), which is automatically adjusted to keep the asset-backing stable or growing, while paying out as high rewards as possible.

Other cryptocurrencies tout that they are valuable because they are scarce. But no one derives functionality from an object just because it is scarce—the two aspects are not strictly causally related.

Why will people use the FreeMark

If every day you are paid to own digital cash, it makes sense to own it versus other currencies that pay nothing. It also makes sense to do transactions in a way that is both secure, capable of escrow and shipment tracking and that is stable in order to eliminate currency exchange risks.

Traders who buy and sell financial instruments, producers/importers/exporters who value the low transaction fees and stable exchange rates, and people who just want their savings to earn income before they spend them are natural FreeMark owners.

Subsequent to a successful Worldfree ICO, we plan to have a Direct Public Offering (DPO) through the Worldfree Network distributed exchange. Worldfree plans to list other securities, including equities and bonds, on explicit standards that provide transparency and accountability to buyers, and expect banks and fund managers in the future to denominate some securities they issue in FreeMarks. This also will expand the FreeMark's use as a cryptocurrency. Many trillions of dollars in financial securities exchange hands each day sitting idle between trades, and we expect some part of this trade to migrate to the FreeMark in order to earn more FreeMarks while waiting for the next trade.

Overview

Why buy a cryptocurrency? Or specifically, why buy in Worldfree's new FreeMark? This Business White Paper is written to answer those questions—technical and economic details of the FreeMark implementation are discussed in the more general Worldfree [White Paper](#).

The next section, The FreeMark Market and Value Proposition, gets right to the point by explaining the intended (but not guaranteed) upside of owning FreeMarks. Every human endeavor involves a risk: even to open a consumer store, for example, requires taking a chance that the inventory chosen will meet the needs of future buyers. This risk-taking is necessary for achieving world economic progress. Thus, a healthy understanding of risk and its connection to reward is required and discussed. Financial securities and specifically currencies are simply a manifestation of these risks in a more explicit form.

The discussion will help you grasp why the FreeMark has the *best* currency design, digital or traditional. You will also acquire knowledge that will allow you to distinguish the merit of any currency, so that you can begin to think about which digicurrency you will prefer to use for your future transactions.

With your support and ownership, the FreeMark may one day become the world's leading digicurrency. That's ultimately what is at stake—cryptocurrencies are challenging today's other mediums of exchange. We are all about to step into a revolution in finance, where the future world will look quite different than the world we have today. Change should be better: in order for it to be so, we have to ask deep questions, and search for optimal solutions. That's exactly what Worldfree has done by engineering the FreeMark both economically and technologically.

Worldfree's FreeMark, since it is a new currency, begins with a small money supply. But the utility of a currency derives from the "network effect", which means the more people who are using it, the more value it provides for existing users. You want to use 'money' that is accepted by as many merchants as possible—it's easier.

Thus, one of Worldfree management's jobs is to expand the money supply. Because government fiat currencies harm savers with money supply expansion, we have had to solve the problem of over-inflation. Worldfree has done this with a novel and patent-pending method of paying currency owners a royalty based upon money supply expansion—**for every increase in the money supply, existing owners are paid 5-10% (7.5% in the first year) on that growth rate, automatically**. This is one of many other incentives to reward owners to use the FreeMark for saving, and also to encourage others to use it—clients, friends, associates—for what we hope to be a viral growth of the FreeMark money supply.

The section Value in the Digicurrency World, addresses how to assess economic value in a more general way. Here you will acquire an understanding of why *any* currency has a value, not just a cryptocurrency. An historical and economic backdrop for modern currencies is presented in the main White Paper, but this section covers more precisely, in business and financial terms, the basis of that value, by comparison to investment securities in general. Understanding this will make you a better investor. If you are a capable investor, Worldfree management thinks you will be a FreeMark owner.

The section Use of Funds explains the distribution of the proceeds of the forthcoming ICO, both in FreeMarks and funds from their sale. After that, the Timeline provides our planned development and delivery schedule.

The Conclusion explains how we are making sure that the innovative financial system and approach we are building is going to stand the test of time. Worldfree hopes this will allow you to understand the risks and the challenges, and have enough information to take a chance, in return for the upside potential, and join us in our digital adventure.

The Worldfree Team

Worldfree has a global team with great experience in developing world-class application and network software and delivering it to G500 clients, as well as a group of experienced business advisors who have been invaluable in structuring and presenting our project, as well as providing future guidance.

Worldfree's team has designed and developed innovative new software products that were then sold, installed, enhanced and maintained for some of the world's leading companies. To do this implies being the best in a particular marketplace. Worldfree's management has thus already demonstrate that capacity, and now offers an entirely new, leading technology in the cryptocurrency space. This technological leadership is important for any person who owns FreeMarks.

Worldfree management's long history in the software field is the basis for a solid understanding of future directions, investor motivations and market forces—facilitating better judgement and generally helping to make higher quality decisions for long-term capital allocation and planning. The biographies of the team members are presented below and on the LinkedIn links.

Executive Team:

CEO—Kevin Kirchman <https://www.linkedin.com/in/kevin-a-p-kirchman/>

- Spent more than a decade to discover an underlying order in the nature of knowledge, founding a basis for a new science of knowledge, including new theories of deduction, induction, validation, lexicology and grammatical representation, which was then validated with commercial applications in a company he founded that were sold to many G500 clients.
- Founded a software company that grew to 30+ people, achieving significant enterprise sales to many G200 clients, including P&G, Northrup, and Baxter Healthcare, which was the subject of an acquisition offer by a major tech firm. Experience building world-class teams and delivering innovative technology to major clients
- Began programming at 14 with his family's business, the Kirchman Corporation (founded in 1968), which was at one time the world's largest banking software firm, with more than 6,000 banks globally as clients. Mr. Kirchman thus has extensive experience in both fintech and AI software development, as a second-generation software entrepreneur.
- 6th-generation and 3-time entrepreneur with 30+ years in software and engineering
- BS CS, BS MAE Cornell University, graduate studies at the London School of Economics
- Author of [OutThinking](#), and of the forthcoming *The New Science of Knowledge*.
- Additional background is on the Blog [Open Source for Fintech? Bad Idea](#), as well as an [interview](#) with Fintech Review magazine posted on Worldfree's YouTube channel.

CFO—the Company is interviewing a number of well-qualified candidates for this position.

CTO—it is likely that one of our current team members below will have this role, after we fulfil our pre-Sale funding objectives.

Nodechain development:

Theodosis Mourouzis <https://www.linkedin.com/in/theodosis-mourouzis-phd-58556a15/> cryptologist and information security professional. PhD, CS, University College London, BA, M Mathematics, University of Cambridge.

Guillaume Goutaudier <https://www.linkedin.com/in/guillaumegoutaudier/> 12 years with major firms as a product and project manager, network security, C++ expert. MS, CS, Université Nice & Sophia Antipolis, MS, CS, Eurecom Institute, MS, CS, Telecom Bretagne.

Sorin Basca <https://www.linkedin.com/in/sorin-basca-5094582b/> software engineer with blockchain development experience, BA CS, University of Cambridge.

Incorporating deep learning parsing with Worldfree’s natural language reasoning:

Nikolas Markou <https://www.linkedin.com/in/nikolasmarkou/> software engineer with expertise in Machine Learning, natural language processing. MSc CS, Imperial College London; BEng, MEng Computer Engineering, University of Patras.

Stylianios Kampakis <https://www.linkedin.com/in/dr-stylianios-kampakis/> expertise in Natural language processing, Neural networks. PhD, CS, University College London, MSc Informatics, University of Edinburgh.

Knowledge Engineering:

Saskia van der Elst <https://www.linkedin.com/in/svdelst/> 2 years as Worldfree Senior Knowledge Engineer, 15 years Information Systems, Big Data Consultant. MS—Book and Information Science.

Web Development:

S.M. Ataul Karim R., <https://www.linkedin.com/in/smriad/> Full-stack software engineer. BSc CS/CEng., International Islamic University Chittagong.

Advisors:

Paul Kristensen, <https://www.linkedin.com/in/kristensenpaul/> Worldfree investor and “Expert angel investor and serial entrepreneur with a passion for turning unique technology into successful business”. A former chairman of an AIM-listed public tech company, and chairman of a West Australia venture capital firm.

Simon Cocking, <https://www.linkedin.com/in/simon-cocking-20540135/> PR/ICO advisor, Editor-in-Chief of CryptoCoin.News, “Company founder / writer / journalist / content creator / digital marketing advisor Winner of Irish Web Awards 2014, best Science & Technology category Winner 2016 Littlewoods Best Ireland Blog for Digital & Tech”.

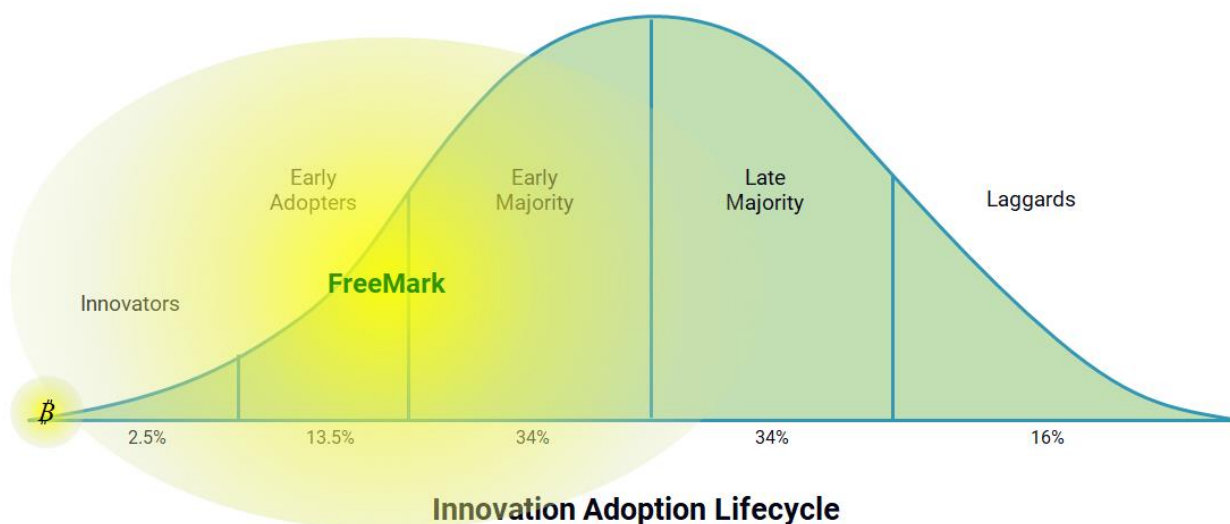
Dr George Tian, <https://www.linkedin.com/in/dr-george-tian-972b109b/> a Senior Lecturer at the Faculty of Law, the University of Technology Sydney (UTS), Australia, and a Research Associate of the Cyberspace Law and Policy Centre at the University of New South Wales (UNSW) Law School (since 2003).

Marius Lohri, <https://www.linkedin.com/in/mariuslohri/> Worldfree investor, fintech mentor, product manager and angel investor.

Richard Berman, <https://www.linkedin.com/in/bermanpr/> PR specialist and former National NBC News Editor, President, Berman & Associates.

The FreeMark Market and Value Proposition

The purpose of the FreeMark is to serve as a better medium of exchange, as discussed earlier. It competes with government currencies and other cryptocurrencies. The latter are not used very much for exchange: less than 0.1% of global transactions are in cryptocurrencies. There has been a lot of press regarding cryptocurrencies, but at this point they are not mainstream. Worldfree is pursuing the second wave of users after the Innovators and Early Adopters, as below. These are objective markets.



Bitcoin has a tiny piece of the market for cryptocurrencies, as shown on the left as “B”. The Bitcoin and other altcoins such as Ethereum are marketed to techies, by techies, using a language best described as “Crypto-Harry-Potter”—full of jargon and arcane terms identifying distinctions of debatable merit.

In order to provide worth-fullness as a medium of exchange, clearly Worldfree must expand FreeMark ownership and usage to the Early Majority market above. Worldfree’s FreeMark provides lower cost and much faster cross-border and interpersonal transactions, with a stable currency. These transactions are peer-to-peer, and using the Nodechain enables them to occur much faster—in milliseconds.

Providing transactions across borders for traders, importers and exporters has been the basis of success for firms like Alibaba and PayPal. Delivering stable, local and global currency transactions directly between market participants—eliminating conversion time and cost between fiat currencies—is the basis of Worldfree’s opportunity.

Worldfree’s approach to banking is likewise important. Banks today provide online access to accounts, but those accounts do not incorporate or easily facilitate financial management analysis or professional accounting—functionality that should be incorporated. Our product offering in this space is well-defined—simple, easy to add functionality with minimal learning requirements. Our distributed trading platform will likewise integrate with this functionality, providing a one-application, intelligent trading platform. Our roll-out plan for these functions is discussed later in the [Timeline](#) section.

Another way to encourage market adoption is to provide an incentive to reward people for helping to promote and expand its use. Without giving away our marketing plan in a public document as is this Business White Paper is, it is fair to say that we have a very good marketing plan, that we have worked on for many thousands of hours, with actual testing of the approach with market participants, defining our user profile and user persona, and working toward a fundamental understanding of particular market needs that will allow us to enter and expand in the larger market for cryptocurrencies.

McKinsey & Company has stated that over 90% of international payment costs stem from efforts to manage counter-party bank relationships in the back office. Worldfree dramatically reduces costs, using peer-to-peer transactions for this \$155 trillion annual market for cross-border payments. Traxpay has stated that “about 60% of business-to-business (B2B) payments require some kind of manual intervention, each taking at least 15 to 20 minutes.” That can be eliminated with cryptocurrency technology.

Other non-banks are pursuing this large market, but with traditional currencies. Worldfree's FreeMark offers unparalleled transaction speed, security and ease of adoption. There are challenges, to be sure, as international transactions must conform to various regulatory standards for each country. However, given smaller transaction costs and the ability of processing unlimited, high-volume transactions for consumers and small businesses, there is an opportunity for market entry and attainment of a market share significant enough to establish a FreeMark beach-head. Two thirds of cross-border merchants are unhappy with speed and 80% would change providers if it cost less, as Worldfree's solution does.

The Worldfree plan includes "leading" regulators by incorporating technologies that will respect governments' need to generate tax revenues, while providing users with anonymity. For example, many governments introduced VAT-type flat taxes, which are intended to replace draconian income taxes. Instead of replacing them (which was presented as their purpose in order to gain support for their implementation), politicians just appended them, increasing taxes overall. These kinds of flat taxes have the advantage of not requiring information about the payer, his or her assets or income, only their transactions. Entire systems for monitoring people could be abandoned if flat taxes completely replaced other types of taxation, simplifying life and reducing government costs. Worldfree utilizes other methods to make the FreeMark more palatable to both governments and the general marketplace so that it will be a currency of choice, for those who act within the law.

The FreeMark is a digital currency built with the latest cryptographic techniques and the most advanced transaction technology, as discussed below. We are building a safe place to keep and transact with money, where you earn a return tied to the growth of the FreeMark's use. The FreeMark is also better protected against hacking than other cryptocurrencies.

Because it uses Nodechain technology, every FreeMark bill or coin has a unique ID, which is a fundamental difference compared to blockchains. Thus, **if a hacking were to occur, the stolen funds can easily and quickly be identified and restored to their rightful owners**, unlike transaction-based blockchain systems. Just the fact that they can be identified is a deterrent—each owner of FreeMarks has an unalterable record on their own system, plus the ownership (not the transactions) is stored in a random, blind way on numerous nodes of the network. This is another important distinction that will make the FreeMark possible for mainstream use: it is insurable against hacks and theft.

For cryptocurrency advocates, the FreeMark, using the patent-pending Nodechain technology, is practically impenetrable to hacking or privacy violation. The code operates in secure hardware enclaves, and is not open source, as discussed in the Worldfree blog on the website. No one in the network system knows where any particular FreeMark is (redundantly) stored—addressing is blind and basically random through functions of hash pointers.

Verifying nodes, where the particular FreeMark in a transaction is stored, do not know who owns the FreeMarks in a transaction—it is hidden from them. They process each transaction for a 0.25% transaction fee. The recipient's system contacts the verifier (without the user knowing their location or identity) to confirm the FreeMark ownership, and the sender is subsequently contacted by the verifying node, again blindly, to gain the sender system's consent. There is no record left on the web of the transaction—only one on each participant's computer, where it is stored on an unalterable and private blockchain. Escrow processing occurs over time in collaboration with verifying nodes, while smart contracts are created by users with only natural language, benefitting from Worldfree's advanced technology in this field.

The FreeMark presents an opportunity for everyone as a better currency that also functions as a potential reward-earner for money held before it is spent (for instance while it is in escrow). For financial traders especially, trading on the Worldfree Distributed Network Exchange allows opening

and closing positions while earning royalties on inactive amounts FreeMarks. No matter how big or small an investor's trading bankroll, whether \$fm100 or \$fm500,000, they can earn inter-trade royalties.

One of Worldfree's patents pending is on its novel method of providing the backing and additional revenue for savers by letting them earn royalties in proportion to their holdings as the money supply expands. As the money supply grows in the course of daily business (as people buy and sell the currency, if there are more buyers than sellers, then the money supply is increasing).

For the earliest buyers of FreeMark, as for every venture, the upside is not guaranteed, and the worst-case downside is a loss of funds, thus the reason for the reward is to compensate for the risk—as the practice for every investment that offers a potential return. Even a large bank can go bust, a government default on its payments, or a meteor hit the Earth that destroys all our plans, thus the correlation between risk and reward is established. If you hold your own money in cash or gold, it can be inflated away or stolen, respectfully, so the FreeMark provides an advantage as a currency.

In this way, it is possible to incentivize early adopters to buy and use the currency. Importantly, it establishes a different relationship between money supply expansion and the value of a currency. **Instead of savers suffering inflation, or currency devaluation when a currency supply increases, they can instead benefit**, and thus have a reason to encourage its use with their business associates, clients and other relations. A money supply can ethically increase as people pay for new money, which is the rational method the FreeMark is designed to facilitate. Government over-inflation, such as that which happened in the Weimar Republic of Germany after World War One, is not the same, as money was printed without asset-backing.

Worldfree uses the income from selling the cryptocurrency FreeMark to establish a fund that is invested under legal obligation as FreeMark backing to deliver a return that over time will restore the funds to provide a fully-backed and stable medium of exchange.

This FreeMark methodology compares favorably to other currencies. For instance, cryptocurrencies like Bitcoin create artificial scarcity through software, spending billions in continuous use of electrical energy to maintain credibility for a currency that has no actual real-worth backing. Other cryptocurrencies are themselves “backed” by government “fiat” currencies, which in turn have no backing. Only a few cryptocurrencies have any asset backing, and not in as sophisticated or fundamentally sound way as the FreeMark. Many currencies are novel, but novelty is not an advantage unless it is better.

To create a global currency with 100% backing that pays consistent royalties is an achievement—it is not easy. Worldfree begins by using the already existing method of selling the currency through an initial coin offering (ICO), using part of the funds raised to establish the currency and its operational platform governed by Digital Prerogative (*rules* in the virtual world), and then using the rest of the ICO funds to back the currency.

This will therefore provide the currency with less than full-backing initially. By investing the FreeMark Reserve Endowment funds with the goal to achieve endowment-standard objectives, and some other methods such as transaction fees, the FreeMark can feasibly achieve the intended 100% backing over a projected 3-year time-period. University endowments, by comparison, generally aim for a long-term average of about 7% as a return. For example, in 2017, the average return on endowments in the US was 12.2% after fees. The FreeMark Reserve Endowment for the projections assumes 6% annual returns beginning in the second and following years, after fees, and 3% in the first year. This investment strategy recognizes the nature of risk and reward and the time value of money, working within the regulatory environment.

The FreeMark Reserve Endowment is to be established as a trust, where no funds can be spent legally to purposes other than providing liquidity to the FreeMark cryptocurrency. The funds are to be locked in a managed fund, with a formal board and investment team managing for long-term growth. Fees are set at 2%/20%, and should be reasonable so that fund managers do not have to take unnecessary risks to earn market-attractive compensation, with an upside for performance. The fund covers commodity price inflation exposure and increases assets by utilizing financial instruments to hedge against the various individual commodity exposures. For instance, should there be a large exposure of users in a fiat currency that is experiencing high inflation, then the types of investments that are rewarded in inflationary environments can be made in the same jurisdiction to hedge the exposure. In this way the FreeMark Reserve Endowment provides an economy of scale performance and advantage for small businesses globally who cannot afford the cost and time to do this.

Furthermore, 1.25% transaction fees (capped at \$fm5), small in comparison with today's transactions in other mobile-based financial services such as bCash, Mpesa, or PayPal, are incorporated into the Digital Prerogative through the Atomic Central Bank, providing yet another way to not only restore and maintain 100% backing, but to earn savers in the currency income on their savings. Of that 1.25%, 0.25% is paid directly and automatically to the users who perform the verification of the FreeMarks transferred in the transaction. There are other means of attaining revenue to increase backing that are going to be implemented, but not discussed here for proprietary/competitive reasons.

FreeMark owners will likely derive immense benefits from its stability as a currency. The FreeMark is expressly designed and engineered to be a freely tradable, peer-to-peer currency for global transactions. Naturally, as a global currency, the question arises whether it has a limited supply. But why should it, since it has real backing with an asset? The FreeMark asset backing is engineered to grow along with the money supply.

The Atomic Central Bank exercises automatic market-making—it satisfies the demand for **stable-value** FreeMarks, whether reducing the supply through buying them back, or increasing the supply as more users want them for trading or saving. It does this automatically—thus controlling supply in another manner than done with fiat currencies, substituting an alternative means of reducing the supply of FreeMarks, and a plan to increase them without adversely affecting the earlier buyers, in fact rewarding them as non-inflationary FreeMark supply expands.

During subsequent secondary FreeMark offerings, existing owners of FreeMarks will be compensated automatically by the Atomic Central Bank. During secondary coin offerings, existing coin owners will receive a percentage of new coins sold while maintaining the value of the coin, as explained next.

A Good-Case Scenario

Again, the FreeMark pays **Growth Rate Royalties** to savers based upon money supply growth. This novel, patent-pending capacity makes the currency different than all others. The FreeMark is also asset-backed, meaning that most of the funds raised selling it are put into a fully-regulated, audited and professionally managed fund, called the FreeMark Reserve Endowment, that is legally tied to the currency for FreeMark owners. This provides the ability of the fund to earn a return on investments, facilitating increasing asset-backing, as funds are paid out in royalties to FreeMark owners, as well as providing daily liquidity needs for people doing transactions with the FreeMark and other currencies.

But these important two differences—asset-backing and money supply growth royalties—come with a degree of risk: we have to use the assets that back the currency to earn the rewards to pay the Growth Rate Royalties and maintain the asset-backing. This is financially feasible with a capably managed fund.

Once again, there is risk involved with every potential reward—that is a fact of life. But before we take aim at the risk, consider that *most other currencies, whether crypto or traditional, do not have any asset-backing*. So even though we have to risk funds to earn returns, so that we can reward savers while maintaining and increasing asset-backing, at *least the FreeMark has asset-backing*, which makes us a better currency than others. The FreeMark Reserve Endowment is not tied directly to owners of FreeMark, as that would be a collective investment scheme. FreeMark owners are not rewarded based upon the performance of the fund.

With those details in mind, what is the upside for each \$1 in FreeMarks? If acquired during the Pre-Sale of \$fm6 million, upon Worldfree attaining the initial ICO objective of \$fm25 million, the growth-rate royalty is calculated below for different stages of the raise. The earlier the FreeMarks are purchased, the better the rewards if the ICO goal is reached, although all pay at the same 7.5% of growth rate (which after the first year will vary between 5-10% to maintain asset-backing growth):

How much invested		\$ 100,000			7.50%				
Investment tranche			\$1,000,000						
				Growth Rate					
Money Supply	Investment	Tranche	Growth Rate	Royalty	ROI	Ownership	Xs		
\$fm 10,000,000	\$ 100,000	\$1,000,000	10.0	0.75	\$fm 75,000	\$fm 175,000	1.75		
\$fm 15,000,000	\$ 100,000	\$1,000,000	15.0	1.13	\$fm 112,500	\$fm 212,500	2.13		
\$fm 20,000,000	\$ 100,000	\$1,000,000	20.0	1.50	\$fm 150,000	\$fm 250,000	2.50		
\$fm 25,000,000	\$ 100,000	\$1,000,000	25.0	1.88	\$fm 187,500	\$fm 287,500	2.88	Goal	
\$fm 50,000,000	\$ 100,000	\$1,000,000	50.0	3.75	\$fm 375,000	\$fm 475,000	4.75		
\$fm 100,000,000	\$ 100,000	\$1,000,000	100.0	7.50	\$fm 750,000	\$fm 850,000	8.50		
\$fm 150,000,000	\$ 100,000	\$1,000,000	150.0	11.25	\$fm 1,125,000	\$fm 1,225,000	12.25		
\$fm 200,000,000	\$ 100,000	\$1,000,000	200.0	15.00	\$fm 1,500,000	\$fm 1,600,000	16.00		
\$fm 250,000,000	\$ 100,000	\$1,000,000	250.0	18.75	\$fm 1,875,000	\$fm 1,975,000	19.75	1-year Goal	
\$fm 300,000,000	\$ 100,000	\$1,000,000	300.0	22.50	\$fm 2,250,000	\$fm 2,350,000	23.50		
\$fm 350,000,000	\$ 100,000	\$1,000,000	350.0	26.25	\$fm 2,625,000	\$fm 2,725,000	27.25		
\$fm 400,000,000	\$ 100,000	\$1,000,000	400.0	30.00	\$fm 3,000,000	\$fm 3,100,000	31.00		
\$fm 450,000,000	\$ 100,000	\$1,000,000	450.0	33.75	\$fm 3,375,000	\$fm 3,475,000	34.75		
\$fm 500,000,000	\$ 100,000	\$1,000,000	500.0	37.50	\$fm 3,750,000	\$fm 3,850,000	38.50		

Thus, for every \$fm100k purchased early in the pre-Sale when less than \$fm1 million FreeMarks have been sold, the buyer receives for his higher risk 2.88-times the purchase amount, or \$fm288k plus of course keeping the original \$fm100k. Clearly, if Worldfree attains its subsequent 1-year objective, a buyer of FreeMarks can earn an outstanding result on the order of 20Xs their investment.

How much invested		\$ 100,000			7.50%				
Investment tranche			\$3,000,000						
				Growth Rate					
Money Supply	Investment	Tranche	Growth Rate	Royalty	ROI	Ownership	Xs		
\$fm 10,000,000	\$ 100,000	\$3,000,000	3.3	0.25	\$fm 25,000	\$fm 125,000	1.25		
\$fm 15,000,000	\$ 100,000	\$3,000,000	5.0	0.38	\$fm 37,500	\$fm 137,500	1.38		
\$fm 20,000,000	\$ 100,000	\$3,000,000	6.7	0.50	\$fm 50,000	\$fm 150,000	1.50		
\$fm 25,000,000	\$ 100,000	\$3,000,000	8.3	0.63	\$fm 62,500	\$fm 162,500	1.63	Goal	
\$fm 50,000,000	\$ 100,000	\$3,000,000	16.7	1.25	\$fm 125,000	\$fm 225,000	2.25		
\$fm 100,000,000	\$ 100,000	\$3,000,000	33.3	2.50	\$fm 250,000	\$fm 350,000	3.50		
\$fm 150,000,000	\$ 100,000	\$3,000,000	50.0	3.75	\$fm 375,000	\$fm 475,000	4.75		
\$fm 200,000,000	\$ 100,000	\$3,000,000	66.7	5.00	\$fm 500,000	\$fm 600,000	6.00		
\$fm 250,000,000	\$ 100,000	\$3,000,000	83.3	6.25	\$fm 625,000	\$fm 725,000	7.25	1-year Goal	
\$fm 300,000,000	\$ 100,000	\$3,000,000	100.0	7.50	\$fm 750,000	\$fm 850,000	8.50		
\$fm 350,000,000	\$ 100,000	\$3,000,000	116.7	8.75	\$fm 875,000	\$fm 975,000	9.75		
\$fm 400,000,000	\$ 100,000	\$3,000,000	133.3	10.00	\$fm 1,000,000	\$fm 1,100,000	11.00		
\$fm 450,000,000	\$ 100,000	\$3,000,000	150.0	11.25	\$fm 1,125,000	\$fm 1,225,000	12.25		
\$fm 500,000,000	\$ 100,000	\$3,000,000	166.7	12.50	\$fm 1,250,000	\$fm 1,350,000	13.50		

Likewise, if acquired during the second tranche before \$fm3 million are sold, a FreeMark owner receives for risk compensation an additional \$fm1.63 in Growth Rate Royalties for each \$fm owned. As the funding grows, each subsequent investment of the same amount benefits from a slower growth *rate*, because its tranche begins at a higher number.

This makes sense because as more funding has been attained, the project has less risk. Growth Rate Royalties will continue indefinitely on an owner's balance. In addition, 3% of the funds received in the sale of FreeMarks that expand the money supply, will be distributed to the savers in proportion to their holdings, on an annual basis. This ensures that money supply growth will continue to be an incentive driving the FreeMark's use. These saver allocations are incorporated into the financial models and allow for the attainment of 100% asset-backing over a 3-year time-frame, with money supply expansion projections, on a best-efforts basis.

The FreeMark is thus unlike other cryptocurrencies that rely on the (assumed) price increase of the token to give owners a return. The FreeMark is stable, so the price doesn't go up or down, as the Worldfree system pegs it to a basket of commodities. You cannot make money by waiting for the FreeMark to go up—it will unlikely increase unless the overall basket of commodities increases in price. Instead, **you make a return with FreeMarks by automatically receiving more of them.**

A Better Economic Design

It makes no sense to get too excited about a particular design just because it has great potential, if we don't endeavor to understand just what the possibilities are in practical economic terms. To understand what is possible, we have to ask deep questions, and look at the history of currencies in all their forms.

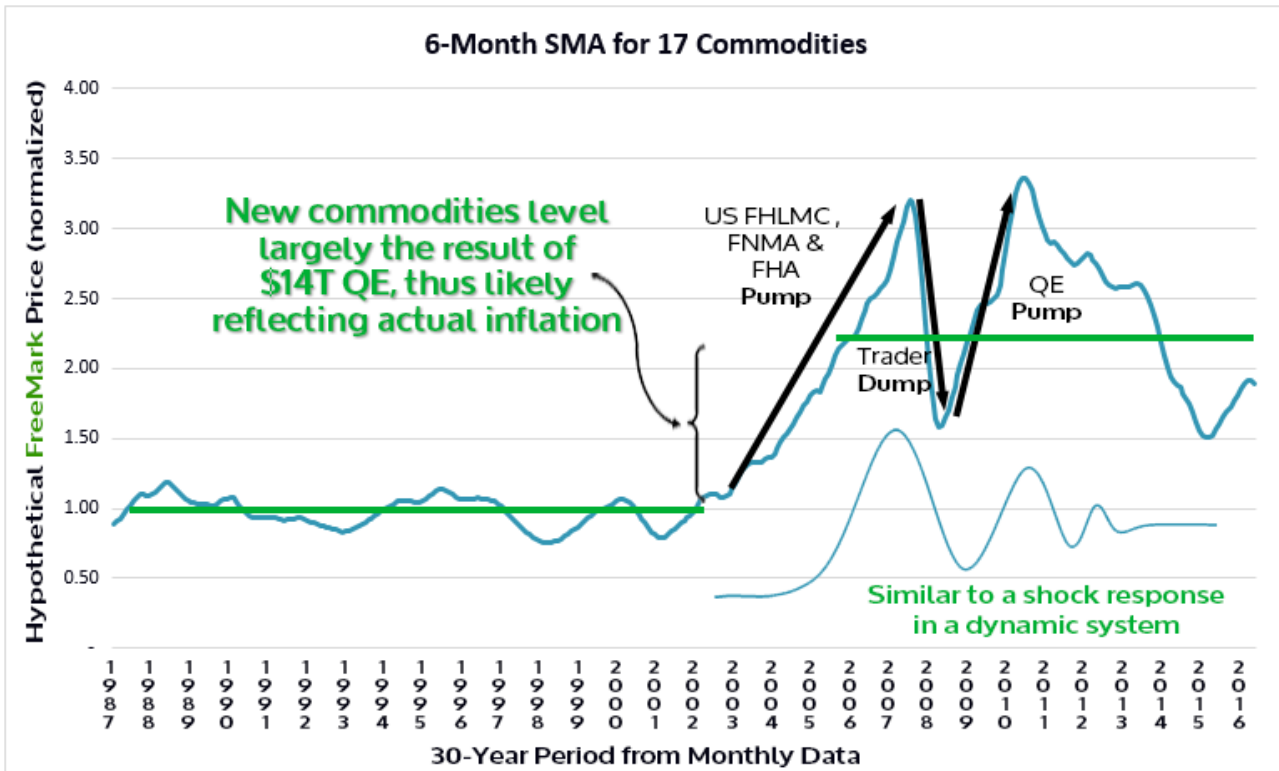
Looking at the economic performance of blockchain-type digicurrencies today, we see for one that they are wildly unstable. Cryptocurrencies can change in price 20% or more in as little as 2 hours—that is extreme volatility.

At Worldfree, we have recognized that the *primary* function of a genuine currency is to serve as a medium of exchange. How good is a currency for that purpose if it's value in relation to goods and services swings 20% in 2 hours? If you are a taxi driver, can you accept payment in a currency that started out at one price, and by the end of a ride has a 5% or greater difference than when you picked up your passenger? How are you to price your rides—do you update them constantly—which currency will you use? If you cannot convert a payment into a currency that you can transact in quickly, by the time you return home at night, you may have made less money than required to support your family, or even maintain your vehicle.

If you are buying and selling equities on an open stock market, and the equities themselves are volatile, how convenient and intelligent would it be for you to use cryptocurrencies of today to buy and sell them? The volatility would compound, making determination of underlying value and thus smart investing practically impossible.

So before we all get too excited about the potential of blockchains to replace existing financial systems, we have to ask some serious questions about what we are replacing them with—if these new paradigms will improve the present systems, or make them less practical, and our efforts in them less successful. This is called engineering—new systems have to be designed so that they are better than the systems they replace—not better arbitrarily, but better fundamentally—they must improve speed, reliability, ease of use, provide greater functionality, etc. Otherwise new technologies should not be invested in.

Understanding the next graph will help you grasp the FreeMark's advantages. Below is a 30-year history of 17 of the 20 commodities (3 were not included because they did not span the full 30 years):



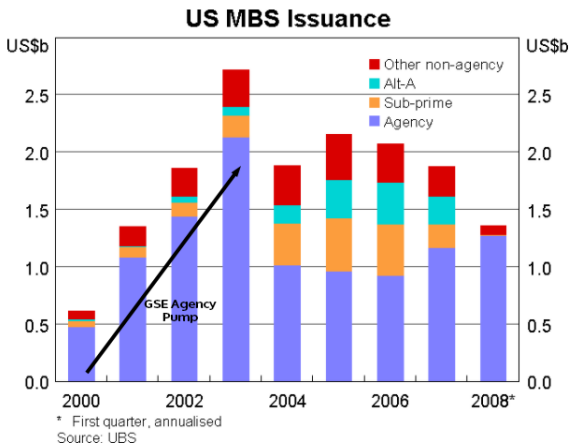
As shown above, from 1987 to ~2003, the beginning of the financial crisis, the commodities were relatively stable. Understanding what caused the volatility since then helps to understand another the genuine value the FreeMark offers owners, which is **inflation resistance**.

Prior to the crash of 2008, international market participants, many of whom were investing in MBSs (Mortgage-Backed Securities) packaged, were given a faux guarantee and subject to promotion by the 3 US government sponsored enterprises (GSEs) FHLMC and FNMA (“Freddie Mac”, “Fannie Mae”) and the FHA which are basically government monopolies. Buyers of MBSs benefitted from artificially inflated financial asset prices. As Dr. Alan Greenspan, then Fed Chairman said in 2004, in a warning well before the financial crisis of 2008,

“Unlike many well-capitalized savings and loans and commercial banks, Fannie and Freddie have chosen not to manage risk by holding greater capital. Instead, they have chosen heightened leverage, which raises interest rate risk... Without the expectation of government support in a crisis, such leverage would not be possible without a significantly higher cost of debt.”

Alan Greenspan, Federal Reserve Board Chairman, 2004

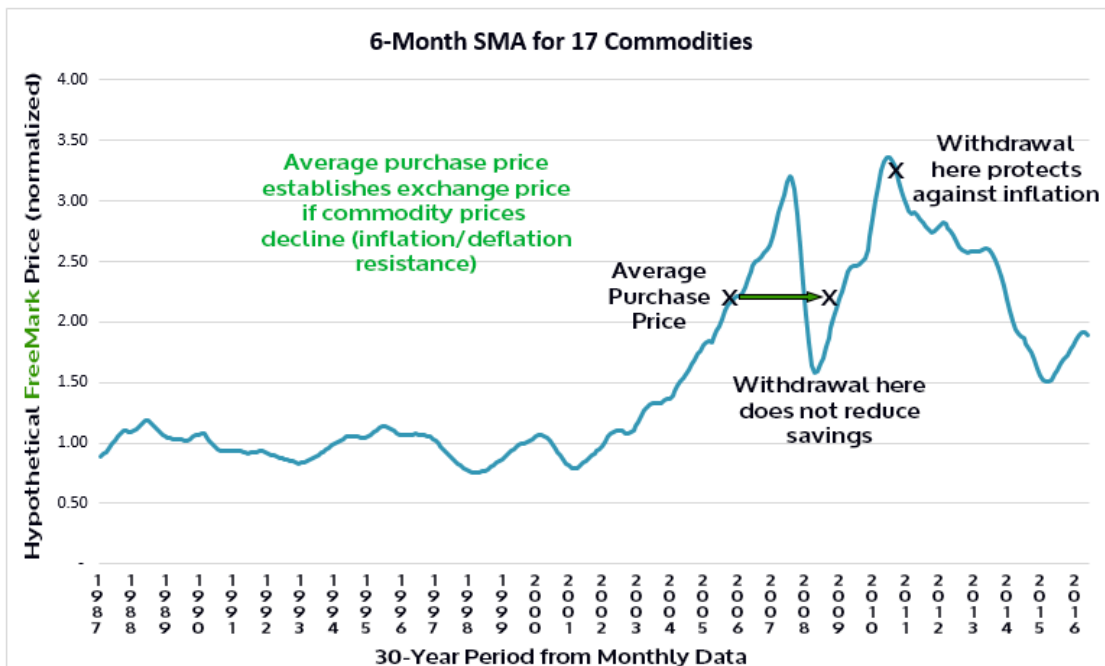
Investors, because the MBSs were backed by the three GSEs, assumed the MBSs were backed by the US government. This caused an inflated confidence in the creditworthiness of the MBSs. The GSE agencies pumped in the MBSs, as shown below on the left. This resulted in a big increase in the value of this huge class of assets, shown below on the right, spilling over into commodities prices, as well as prices of global financial assets generally.



This artificial (and ungrounded) increase in both assets as well as asset prices provided the impetus for the rise in commodities prices beginning in 2003 (in the first graph of this section), where it breaks out from its long-term range. Again, a primary cause of the financial collapse and the prior boom in housing prices shown on the chart on the above right, a \$23 trillion asset class, spilled over into other global asset prices as owners took out low-interest secondary mortgages, and this fed a bubble driving up commodity prices globally.

The earlier graph above shows further reactions when traders dumped the MBSs after the crash, which produced a knock-on effect on commodity prices, and then when QE entered to re-inflate the market, looks amazingly like a classical shock to a dynamic system, where the value swings back and forth before settling on a new equilibrium value. In this case it is about twice as much as before the MBS pump-and-dump cycle. Worldfree management considers this to be genuine inflation, hidden or latent because general commodities price increases—in time—affect end goods prices.

The conclusion is that, had the FreeMark existed prior to the pump up of the mortgage-backed securities, holders of FreeMark would have enjoyed inflation resistance, as their FreeMark would be worth more than twice as much today as they were worth before, protecting them against central bank and government interventionist foibles. The next graph, a copy from above, explains the way the FreeMark hedges against inflation (would have), and protects savings against deflation.



Importantly, if a buyer of FreeMarks acquires them at one price, and the price of the basket of commodities drops, they will not lose money—they can exchange them for currency at the average price they paid for them. **Worldfree will cover them for the downside of a commodities price decline**, yet they will still have the upside inflation hedge when commodity prices increase. This is shown above with the “X”s, the first showing some average FreeMark purchase price, the second showing some withdrawal price, and the third alternative withdrawal price. If the price of the FreeMark drops below your average purchase price, when you withdraw it in the currency you deposited it in, you will not receive a lower price than the average price you first acquired FreeMarks in the currency that you bought them with.

For example, if you buy \$fm1 in FreeMarks for US\$1.10 at some future date, and the price goes to US\$1.20, you will receive \$1.20 when you exchange your FreeMarks. If, on the other hand, the price of commodities declines, so that a FreeMark is valued at US\$0.90, you will receive US\$1.10, because that is the average price you paid for them. Consequently, FreeMarks have in addition to inflation resistance, as mentioned above, deflation resistance, so they can be more secure that their savings are not being eroded. Savers do not have to worry as much about government printing-induced inflation if they save with the FreeMark model.

The question of course is how does the FreeMark recover its exposure to inflation in order to maintain asset backing? Firstly, some prudent hedging with options, which provides a reward if inflation occurs. These options cost something, which is the risk, otherwise they do not risk further capital. Secondly, since the FreeMark saver has already put funds in at the average price, Worldfree has already received and invested them—no reason to worry on that count from the endowment's perspective. Thirdly, investing the endowment for 6-7% returns (higher during inflationary times when endowments earn more on their investments) will cover low but rising inflation, and is expected to provide an upside to replenish the asset-backing to replace the royalties paid.

There is risk, yes, but a reward. Again, consider that government currencies have no backing. A bad year or two can be recovered, just as many universities have restored their endowments to pre-crash levels, and replenishment also occurs with transaction fee funds. Importantly, this can happen with economies of scale that benefit FreeMark savers.

Nodechain vs Blockchain

A digital currency does not necessarily need to use a “blockchain”, which is a particular kind of *data structure* that can be utilized in a *distributed* network system. That is a presumption held commonly, but that simply does not hold.

In time, the blockchain as we know it today, will likely come to be seen as the “Ford T” model of cryptocurrency technologies. The blockchain is an early technology useful for digital currencies, but it is not the final say. That there are groups making international standards around it only means that it has a following, not that it is the best design. Technologies come and go—today's automotive solid-state fuel injectors replace yesterday's most advanced carburetors.

The problem with a Blockchain in any of its many forms is a premise: that every user's transaction data must be kept in public for verification and system integrity. The idea is that all the transaction data is encrypted, therefore it is safe from prying eyes. But that is risky—there are many ways to steal people's private keys, such as with malware key-loggers or using acoustic cryptanalysis tools.

Once a person's private keys are stolen, then potentially many years of private transactions could be made public. That risk is not just bad, but a threat to the adoption of digicurrencies in general, as it will discourage mainstream use. Most banks, for instance, will explicitly not use public ledgers for value exchange. In addition, putting all transactions in public is an ever-growing memory storage

problem, making the Blockchain fundamentally not scalable, and thus introducing another problem deterring its widespread adoption. Someone has to pay for all that wasted storage, which at least theoretically has to be made available for transaction verification and integrity.

The digital world affords even more opportunity for improvement and redesign than the physical world. Software can take any form—physical products are limited by the laws of physics, but virtual ones can have practically infinite form and function. Meshing the possibilities with very real human needs is the basis of a market opportunity.

That is why when Worldfree management decided to build the best currency, we could not rationally select the Blockchain as its foundation, even if that choice would lead to lower development costs and faster speed to market. The Nodechain, which stands for **No Data Chain**, is Worldfree's proprietary and patent-pending technology that solves the above problems, taking the transaction data off the public network, while still facilitating auditing and transaction verification of a quality comparable to that of the blockchain—actually using a variant of blockchain technology on each user's private computer only. The Nodechain is completely scalable, massively parallel and thus as fast for a thousand people as it is for a billion, as described more thoroughly in the full, Worldfree White Paper.

Value in the Digicurrency World

We look at the emergence of cryptocurrencies such as Bitcoin and wonder why do they have any value at all. We are told that their supply is limited: but why would that cause them to have any particular value to anyone?

You cannot eat a digital currency, you cannot wear it, you cannot live in it, and you can't drive it to work. Except for an indistinguishable and momentary voltage potential that exists somewhere to symbolize it, it does not even have a physical existence. So why would anyone pay thousands of dollars, euros or pounds sterling for this ephemeral, symbolic nothingness?

The purpose of the question is to identify the origin of the value it has—for clearly it is a very real value to the more than 10 million people who trade and own cryptocurrency. If we can discover the basis for this value, then we might design the very best digital currency possible, inextricably tied to this foundation of worth-fullness.

Fundamentally, a virtual currency is similar to a security—it is a symbolic representation of a financial asset. But a currency is treated as a commodity by many regulators, rather than a security. Its historical origin is mostly as a promise to pay a value in exchange for it—for instance as a gold-backed note that was utilized for many centuries, which could be redeemed for a set amount of gold. In this other sense it is similar to a security, as a promissory note, like a mortgage that represents someone's commitment to pay as they've agreed or relinquish a particular asset.

However, through a twisted and opaque path in the 1970s, governments severed the connection between the currencies that they sanctioned as legal tender and the assets that formerly had backed them. Details of these events are discussed more thoroughly in the main Worldfree White Paper.

The somewhat derogatory term “fiat” is now used to describe most modern government currencies. But even cryptocurrencies such as Bitcoin are also basically “fiat” based, lacking assets to back them.

A security such as an equity or bond, on the other hand, has a share in revenues or a formalized commitment to pay behind it. So let's call all symbolic financial instruments “fiat securities” if they have no actual promise to pay attached to them. They are asserted to have a value—decreed to have a value by arbitrary order without further effort or justification. Bitcoins or Ethers have a value by the decree of those who sell them, which is acceded to by those who buy them.

Yet it is an attached asset or commitment to pay on explicit terms that is the basis intelligent investors use to calculate the *price* of a security. Investors are generally seeking to ascertain the **net present value** of a security as the basis for its price—the sum of all future income from the security under its terms, discounted at an interest rate over the term of the security, because the interest has not been paid yet. There is necessarily some debate as to how much interest an investor in a security should expect, as this reflects the riskiness of the issuer to fulfill their obligations. It is this potential for default that buyers negotiate over when they are making their investment decisions on financial markets. This is the basis for the prices of financial securities.

Are Currencies Securities?

Thus, the revenue from the assets behind the security (or potential revenue), is the origin of the proceeds through which investors can be paid a return for the capital they put at risk when they invest in a security. Equities are judged, for instance, on their issuer's forward-earnings projections, their price-to-current earnings ratio, or even as a multiple of revenue or underlying assets of the issuer of the security. Anticipated dividends likewise provide a base of income that bonds, from which an intelligent investor can determine their value.

Importantly, investors *choose* which method of valuation they use to decide what they are willing to pay for a security. They are and should be free to select how to value a security they want to invest in. They are free to buy a bond because they like the design of the border on the security, or the number it has been assigned to identify it. They decide, and even silly suggestions like these may in actuality deliver returns that outperform other, more quantitative methods of ascertaining value. There is luck in life, and luck in investment, and that is part of the risk inherent in investing. Clearly, however, as successful investors have shown, there is a basis for evaluating investments that is better—more rational and better grounded financially—than other approaches.

Thus, if the public wants to assume that old Ford Model T bearings are worth millions each, they are free to do so. Clearly, sellers of bearings would like this, just as governments who pay people worthless paper appreciate that the recipients consider it a value. Bitcoin miners can only be pleased that people think the electricity they spend solving math problems that have no real-world purpose are worth the \$7 million buyers recently paid each day for newly-minted ones.

Thus fiat “securities” really only have a value as mediums of exchange—their only real value—but they are lousy mediums because they are so volatile. Producers incur greater risk purchasing supplies and pricing goods and services, as do savers who must demand more interest to cover the risk imposed by this volatility. Extra risk raises costs and requires greater efforts and time to manage competently. People are so used to this inconvenience that they do not realize it's a problem, but it is one Worldfree is seeking to solve.

In opposition to fiat securities are “promise-backed securities”, the term we will use to describe securities that symbolize legally committed income streams or assets. Because there is income-producing potential represented by promise-backed securities, they can be assessed rationally to determine an approximate objective value. This value still must reflect a given security's risk, which is a question of an unknowable future, of events and probabilities as well as unknown possibilities. Governments almost deride promise-backed securities, while simultaneously accepting unquestionably the inherent value of their fiat currencies. That is not rational. They would be more justified to limit the use of fiat currency by people if they use risk as the determinant, than for promise-backed securities.

Promise-backed Securities Make Better Currencies

We should ask, when faced with a new type of financial instrument, such as a cybercurrency, whether it is fiat or promise-backed. Fiat securities suffer from inflation or high volatility because they cannot be easily or legitimately valued—they have no income stream backing them, or formal commitment on particular terms that might provide an asset basis to price them rationally. They are often valued only in relation to other fiat securities, which is called “floating”.

Fundamentally, we *should* expect fiat securities, whether created by the dictate of a government or a group of programmers, to have price volatility, as there is ultimately no legitimate grounds for determining their economic value in relation to usable goods and services. Presently it depends upon the almost arbitrary whim of the buyers and sellers, who try to figure out what everyone else thinks a currency is worth as global events unfold. Is a pound sterling worth \$1.30 or \$1.3002? Why the difference? Because a buyer (or trading bot) is willing to pay it at a given moment. It is not connected to any explicit physical good, service or event, or anything that would establish an absolute value. It is a value established by relative standards, not objective ones.

It begs the question of why would rational people choose as mediums of exchange fiat securities whose value was volatile, knowing that such varying prices would only cause problems for producers and traders trying to value their goods and services in them. Intelligent societies *should* be choosing mediums of exchange that have intrinsic value.

Designing the Very Best Digi-currency

When Worldfree approached the challenge of engineering the *best* digi-currency, driven by the infinite possibilities of the virtual world, it was clear that we needed to provide it the objective basis that fiat securities were lacking—we had to provide our currency the FreeMark with a solid financial foundation. If we wanted a *stable* currency, which has a greater value for a medium of exchange, then we had to derive both a way to maintain the price relative to other assets automatically and on a periodic basis. Worldfree also had to figure-out a way to legally establish and *maintain* asset-backing, even as the money supply grows, as it must necessarily if Worldfree is going to be successful introducing the FreeMark and expanding its use to *create* its value as a medium of exchange.

Modern currencies fluctuate in value in response to all kinds of stimuli—random political events, economic performance indicators, or news of those same effects of other currencies they are measured against. Worldfree recognized, as others have, that a stable currency would be a great value for individuals and companies of all sizes because it is more feasible to plan long-term in a more stable exchange-rate environment, especially for international business, which is a growing market because of internet marketing and distribution advances.

In addition, **most governments could never afford to practically back their primary currency with genuine assets**, giving Worldfree’s approach a competitive advantage. Venezuela and the few oil-rich nations have oil reserves they can in theory back currencies with, but they must have demonstrated integrity with fiat currency, and ultimately even an asset-backed currency requires integrity and competence in order to maintain the connection and commitment to the terms of its backing—for instance getting the asset out of the ground at a cost low enough to have a value when sold on open markets. Assets can only be pledged to one obligation, and how can that be determined if a government’s integrity is at issue? A country such as Norway, with a large sovereign wealth fund, could use the fund to back a currency, but that would essentially be giving the fund away.

Worldfree also recognized the innovative idea that the FreeMark can also be more competitive than fiat currencies if it *pays it savers as the money supply expands*—thus doing the opposite of those

governments that introduce inflation, or the long-term erosion of savings by expanding the money supply for political or fiscal purposes.

Of course, a law of investment is that risk and reward are (or should be) proportional. Any attempt to reward savers when the money supply expands must necessarily involve risk. Thus, Worldfree designed into the FreeMark a means of managing that risk, by both investing the assets backing the currency in an audited, regulated reserve endowment, and generating fees from transactions, because each member of the Worldfree Network has the option to verify transactions with a few milliseconds of time by their computer processor for each transaction.

This provides the currency marketplace an incentive to buy and hold FreeMarks, perhaps to use them as a primary trading currency, as they are always earning a return on their holdings, as long as the FreeMark money supply is growing, which they can encourage by asking for buyers of their products to pay in the currency.

The derivation and implementation of the Worldfree plan and business model thus requires economic as well as business acumen. It is not easy, but by paying a reward as the money supply expands, early investors can earn a much higher return on their savings because the money supply starts out as a small fraction of what it could potentially become.

In essence, the Worldfree challenge is how to improve our asset-backing from our initial ~50-75% to 100% over a few years, using returns on the Reserve Endowment and part of the transaction fees. Understanding how Worldfree intends to do that is how to discover our business model. About 25% of the initial revenue from sales of the FreeMark currency will be used for system and company establishment costs, with another ~25% for early incentives and marketing costs, reducing to 10% with future secondary offerings on our distributed exchange application platform, as discussed in the next section, Use of Funds.

When we later post continually our asset-backing percentage on the trading application, Worldfree will set the standard for cryptocurrency monetary management. Again, today's major cryptocurrencies do not even attempt any asset backing. For instance, Bitcoin has 0% asset backing, just as the US dollar or UK sterling. Members of the Worldfree Network will thus know how we are advancing towards our unique and historic goal, which we begin well past the halfway point, when our "competitors" have not yet found the race track.

Regulatory Issues

The question naturally arises as to whether governments will allow private-sector currencies. There is lots of support, both within and outside of governments, to allow cryptocurrencies to evolve, as they are seen as a potentially good thing.

Worldfree's FreeMark, being asset-based and pegged "naturally" to commodities, is fundamentally a more responsible approach to digital currency. Advocates of blockchain cryptocurrencies with no asset-backing will have a hard time arguing against the novel Nodechain, just because it is different. They may take issue with its proprietary nature, but because it is not open-source, it is *more* financially secure, not less.

The FreeMark Reserve Endowment is the source of asset-backing for the FreeMark. Most of the funds raised go into this fund, unlike for other cryptocurrencies. This is to be a regulated fund, which will be set up in the Cayman Islands during Worldfree's pre-sale/ICO, under their regulatory regime, with lower taxes, which benefits FreeMark owners. It is not a collective investment scheme. It will be legally obligated to the FreeMark as currency backing, excepting management fees, and audited by a 3rd party professional services firm, such as PwC, Deloitte, or EY. These firms are experienced, and—although not without occasional mistakes and ethical failures—are in the main trustworthy

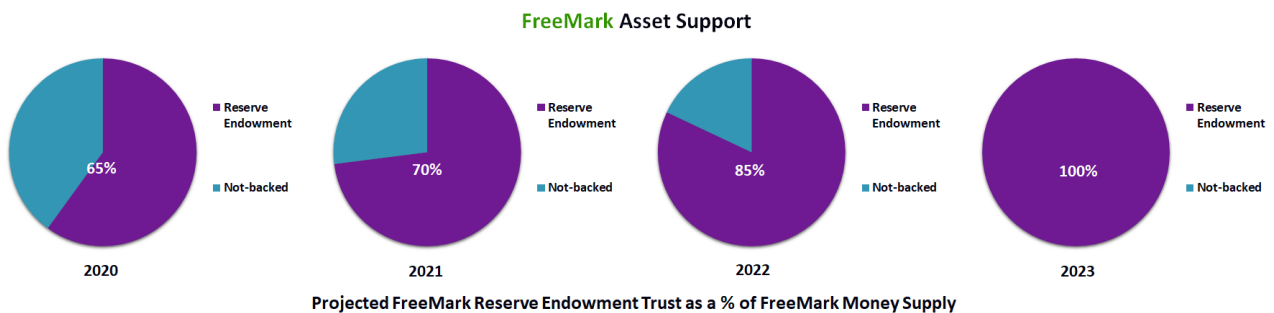
professional firms, providing a practical method of ensuring conformity to the terms their clients are obligated to. Worldfree plans to choose blindly from a group of 3rd parties using sortition, or random selection, to provide an additional assurance of integrity in the fund’s oversight.

The two, government regulation and 3rd party professional services firm, are a pretty effective method of maintaining the integrity of the operation and disbursements of the FreeMark Reserve Endowment. Both have an interest in maintaining legal and ethical standards for their reputations. Die-hard crypto-theorists may object, but their presumption that virtual currencies, because they are “theoretically” mathematical-based, have greater integrity is fundamentally incorrect.

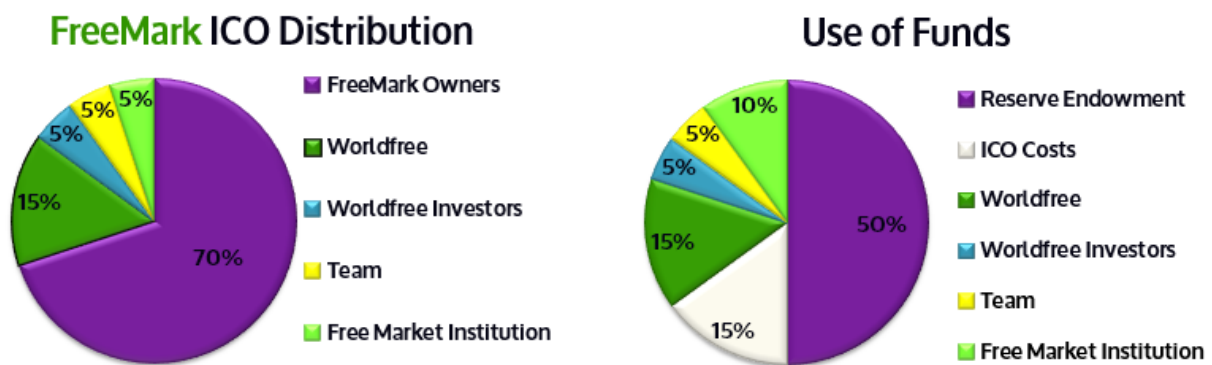
There is and always will be a very human connection between a digital representation of a physical asset/value and the asset itself. For instance, every physical asset has a state, as well as a value and ownership, and the state changes constantly. It will be a long time before that state will be accurately and continually maintained and kept consonant with the virtual representation of it. Who is going to check? Even if the check is done under digital direction, are we sure? It is unrealistic to think that people will abnegate responsibility for their own wealth to computers entirely at any time in the foreseeable future. Trustworthy 3rd parties will provide credible oversight.

Use of Funds

The graph below shows the projected growth of asset backing from the pre-sale through 2023, when we plan to attain 100% asset-backing, all while paying out royalties and developing the technologies that will make the FreeMark the world’s most widely used cryptocurrency.



Again, this full asset-backing occurs by prudent investing of the FreeMark Reserve Endowment, along with earning transaction fees and other fees, for instance those the Atomic Central Bank earns for low-interest loans. In addition, the graph below shows how funds that are earned from the sale of FreeMarks will be apportioned to the various interested parties, as well as the distribution of tokens from the ICO sale. We are seeking to sell \$fm6 million in the pre-Sale, and \$fm25 million in the initial ICO.



These allocations are approximate. PwC will be auditing both the pre-sale and the ICO, so that funds are allocated and managed according to the above standards.

Timeline

Worldfree is currently building an iOS/Android app with an MS application, demonstrating the Growth Rate Royalty functionality that will be released by the end of the second quarter of 2020, on a secure, stable but normal or centralized database, accessible through secure means incorporating two-factor authentication.

A second step in this timeline will be the development and tuning of the Nodechain, following the first demonstration. When it is certifiably stable, the above applications will be disconnected from the centralized database and the Nodechain only will remain. This is a straightforward, safe and secure method of delivering demonstration of our technology. Concurrently with Nodechain development will be the development of a fully-distributed trading system, working with a 3rd party using mature orderbook technology, which will then become functional upon the Nodechain technology. The Nodechain will be secure, have redundancy and facilitate recovery for each node on the network.

In the second quarter of 2020, the FreeMark currency with a fully-functioning Atomic Central Bank will be introduced, so that transactions of all kinds can occur peer-to-peer, in a roll-out with many different parties, in a plan already conceived that should provide plenty of interest and excitement for all involved. The commodities pegging will be fully functioning, as well as basic banking functionality. Worldfree intends to establish a regulated bank in a favorable jurisdiction during this time, and have already selected 3rd parties to assist us with this. **The FreeMark will be trading live.**

Further incorporation of the Worldfree's proprietary natural language reasoning will occur in the late 2nd and early 3rd quarter. This is intended to ultimately give users of FreeMark the option to conduct transactions, simply using verbal communication with their computers and mobile devices. Also included in the system will be the ability for a remote user on a mobile to make local transactions that are later picked up for global transaction network, and a rollout of the FreeMark debit card.

Later in 2020 Worldfree plans to have an equity DPO, or direct public offering, via its distributed trading platform. This will coincide with the release of a more sophisticated marketing functionality, allowing each user to market their goods or services within the Worldfree Network. Greater banking functionality, including low-interest loans, escrow and letters-of-credit for international trading, will expand the performance of the FreeMark platform so that it will be valued by businesses of all sizes. At this time Worldfree implements a plan to engage major global vendors to start using the FreeMark.

In 2021, Worldfree will begin its next phase introducing greater natural language reasoning functionality for rational, voice interface and complex problem solving, using technology that has already been tested in commercial applications.

Conclusion

Worldfree's task is to build a software economic environment with a monetary foundation more substantial than any other in existence today—but automated and enforced through the Digital Prerogative created by distributed processing (the rule of law instituted by programmed compliance on a system for consenting members). The benefit to our user base will be a better global business environment—one where they can enjoy long-term monetary stability, rather than massive instability or continual erosion of the value of their savings, and reduced transaction speed and cost, as well as advanced yet easy-to-use financial and marketing tools integrated in one environment.

Our journey is truly an exciting one, as we enter this *new age of financial stability*. To understand how important monetary stability is, consider societies that lack it. The nightmare that was World

War 2 was built upon the calamity of the Weimar Republic, ravaged by inflation, driving its people to go to war to steal from other countries in order to survive. The people of Zimbabwe, Venezuela, or pre-euro Italy all suffered financial hardship because of inflationary monetary policy. By contrast, consider Switzerland, one of the wealthiest countries on Earth, partially thanks to maintaining a remarkable monetary stability. The correlation between stable monetary policy and increasing societal wealth is consistently supported by historical evidence. The rest of the world can go its own way: we have a rational plan that will give an advantage to FreeMark users.

Ultimately, the Worldfree adventure is a challenge to climb a monetary mountain that humans have never scaled before. We are seeking to build a currency that is a rock—that will be the most used digicurrency that ever existed, because it is engineered from the outset to be a *better* global medium of exchange.

Importantly, Worldfree is built upon a foundation of mutual respect for one-another's interests. Worldfree is not a slave to clients' needs, nor is any client a slave to ours. We are building a successful organization that serves our employees' and investors' interests by providing genuine value in free exchange for value, which we deliver to consenting adults who are our clients. Like us, they own FreeMarks and want the currency to be 100% asset-backed, while still paying high Growth Rate Royalties as the money supply and user base expand.

The idea that people are to serve as sacrificial victims for others is false: in a free society, people can trade and treat others as equals, with each acknowledging the other's right to pursue their own welfare and happiness, and achieve and grow their own wealth in free exchange for value. **For value creators, it is not a zero-sum world.** That statement is theoretically and economically sound, and what Worldfree stands for. The Worldfree Network was founded to facilitate global economic liberty in a world that seems increasingly opposed to it.

The Worldfree Network will give you tools to fight for your success in a world where many want to steal the products of your efforts. When collectivist tout “equality”, what they really mean is “slavery”. The classical concept of egalitarianism is “equal rights under the law”. The modern misrepresented alternative, “material equality” is a enticement that provides justification for theft—it is only a bait—you cannot trust criminals to deliver on a promise. That so many do trust the faux equality promises of collectivists is truly a tragedy.

The protection against inflation and deflation as explained earlier has a cost. The FreeMark Reserve Endowment and part of the fees for transactions and loans must provide that hedging against inflation for the owners of FreeMarks, as well as grow the asset-backing as a percentage of the money supply, plus produce enough additional asset-backing to cover the cost of money supply Growth Rate Royalties. Not easy, but once again, other currencies have no asset-backing at all, so our challenge is to introduce and grow the backing of one to 100% over time to provide a better medium of exchange for FreeMark users.

This task has a real value for individuals, traders and businesses who simply do not have the bandwidth to manage international exchange rate volatility, thus introducing a level of risk into their path as they pursue taking advantage of global opportunities. Worldfree can proudly deliver prudent financial and **monetary policy**, using the economic foresight discussed above, operating with economies of scale for the benefit of our global community, reducing or eliminating this risk, while providing long-term business growth possibilities.