

Simana Whitepaper

Simani Nakardano
simanin@proton.me
v232a

1 Introduction

1.1 Background

The rise of the Internet marked the beginning of the Information Age, but it also brought with it challenges such as biased information sources and corporate exploitation of user data. In response to these challenges, the Decentralized Age emerged, using blockchain technology to incentivize good behavior and immediately flag malicious activity at the transaction level. However, even the Decentralized Age has not been immune to exploitation by unscrupulous individuals and new financial whales.

As the limitations of the Decentralized Age become increasingly apparent, the Ethic Age has arisen. This new era is characterized by a focus on moral principles and values, building resilient ecosystems based on layer 1 infrastructures that can withstand or eliminate the shocks caused by impostors who talk the decentralized narrative but act in a centralized authoritarian manner.

Simana is at the forefront of this Ethic Age, creating a secure marketplace that acknowledges the contributions of all participants and operates in a virtuous cycle of prosperity and self-realization. With its focus on ethics, Simana aims to build a sustainable ecosystem for all.

1.2 The Information Age

The information age is about the rise of Internet, of Web 1.0 and its evolution to Web 2.0. The history of the Internet begins in the 1960s with the development of the ARPANET, a precursor to the Internet. The first email was sent in 1971 between two computer scientists at MIT, making it one of the earliest applications of the Internet.

The first web browser, called WorldWideWeb, was developed in 1990 by Sir Tim Berners-Lee. The first three web browsers were:

1. WorldWideWeb (1990)
2. Mosaic (1993)
3. Netscape (1994)

Web 1.0, which was prevalent in the 1990s, was characterized by a limited, read-only web where users could only view information on static web pages.

Today, the three most used web browsers are:

1. Google Chrome (2008)
2. Safari (2003)
3. Mozilla Firefox (2002)

As we can see, the most used web browsers today were all developed well after the first three web browsers. The rise of Google Chrome, Safari, and Mozilla Firefox can be attributed to their focus on user experience, performance, and security. These browsers have also been able to keep up with the evolving needs of the web, offering features such as extensions and cross-device synchronization but most importantly a level of interaction enabling Software as a Service, Platform as a Service and subtle mechanisms of "free" social but centralised services like google search, facebook, twitter, instagram and so on.

Web 2.0, which emerged in the early 2000s, saw the rise of user-generated content and social media. Web 2.0 allowed for greater interactivity and collaboration, and enabled users to create, share, and connect with others online.

Despite the many benefits of web 2.0, its centralization has also led to several significant problems. One of the major issues is the exploitation of user creativity. Many "free" service providers have taken advantage of the abundance of user-generated content to misappropriate copyrights and intellectual property. This has had a detrimental effect on the creative industries and has hindered the growth of new and innovative businesses.

Another problem with web 2.0 is the mass manipulation of content. By filtering and prioritizing certain content, these service providers have been able to polarize mass thinking and influence public opinion. This has led to a decrease in the diversity of opinions and has created a less informed and more polarized society.

Lastly, the centralization of web 2.0 has also led to the deliberate distribution of inaccurate information and the over-abundance of gossiping and frivolous content. This has had a negative impact on society, as it has become increasingly difficult to separate fact from fiction and to find reliable sources of information. The centralization of web 2.0 has led to a decrease in the quality of content and has had a detrimental effect on the overall user experience.

Summarising, while web 2.0 has brought about many positive changes and has made the internet a more accessible and user-friendly place, it has also led to several significant problems. The centralization of "free" service providers has led to the exploitation of user creativity, mass manipulation of content, and the deliberate distribution of inaccurate information. These problems highlight the need for a more decentralized and equitable web 3.0, which will prioritize user privacy and control over data.

1.3 The Decentralised Age

The Decentralised Age is about the rise of blockchain technology and the development of web 3.0

Blockchain technology and the emergence of bitcoin have transformed the way we think about the digital world. The blockchain is a decentralized and distributed digital ledger that records transactions across a network of computers. The technology provides a secure and transparent way to transfer data, assets and information without the need for intermediaries. This has resulted in the creation of a new digital economy and has opened up new opportunities for businesses and individuals.

One of the main pillars of blockchain technology is decentralization. This means that the network is not controlled by any central authority or intermediaries. Instead, it is maintained by a network of computers that validate and process transactions. This creates a more secure and transparent system, as no single point of failure exists.

Another key aspect of blockchain technology is the traceability of output. Transactions on the blockchain are recorded in a public ledger and are transparent to all parties involved. This means that every transaction can be traced and audited, which enhances the overall security of the system.

Disintermediation is another important aspect of blockchain technology. This means that intermediaries such as banks, payment processors and other financial institutions are no longer needed in many transactions. This results in a more efficient and cost-effective system, as users can transact directly with each other without the need for intermediaries.

Transparency is a key aspect of blockchain technology. Transactions on the blockchain are public and can be audited by anyone. This helps to increase trust in the system and makes it more difficult for fraudulent activities to take place. The transparency of the blockchain also makes it easier for regulators to monitor and control the system, which helps to ensure that it operates within the bounds of the law.

Easy validation is another important aspect of blockchain technology. Transactions on the blockchain are validated by the network of computers, rather than by a central authority. This makes it easier for individuals and businesses to verify transactions, which increases the efficiency of the system.

Immutability of past transactions is another important aspect of blockchain technology. Once a transaction has been recorded on the blockchain, it cannot be altered or deleted. This ensures the integrity of the system and prevents fraud and other malicious activities.

Web 3.0, which is still in development, aims to create a decentralized and more intelligent web, powered by artificial intelligence and blockchain technology. Web 3.0 promises to create a more personalized and secure web experience, with a greater emphasis on user privacy and control over data. The combination of these two technologies will create a more efficient and secure digital world, with greater opportunities for businesses and individuals.

Undoubtedly, the rise of blockchain technology and bitcoin has transformed the digital world. The blockchain offers a secure, transparent and decentralized way to transfer data, assets and information, which has opened up new opportunities for businesses and individuals. The future of the digital world lies in Web 3.0, which promises to create a more intelligent and personalized web experience, powered by artificial intelligence and blockchain technology.

However, while blockchain technology has many benefits and has the potential to revolutionize various industries, it is not without its challenges and risks.

The cryptocurrency industry has seen several high-profile failures that serve as a warning about the potential risks associated with this technology. The collapse of Mt. Gox in 2014 resulted in a loss of \$450 million and highlighted the dangers of centralization in cryptocurrency exchanges. The Ethereum DAO breach, which resulted in \$50 million in losses and caused a hard fork in the Ethereum network, showed that even decentralized systems can be vulnerable to exploitation.

The Terra-Luna ecosystem collapse in May 2021 had a far-reaching impact, resulting in losses of over \$50 billion for the cryptocurrency ecosystem and triggering multiple bankruptcies. The fall of centralised exchange FTX alone accounted for at least \$5 billion in losses, and the entire cryptocurrency market cap was also affected.

These events demonstrate that while blockchain technology holds great promise, it also requires a high level of caution and care to ensure its responsible use. Decentralized governance and a culture of

transparency, accountability, and trust must be fostered to mitigate the risk of exploitation and prevent similar failures from happening in the future.

The narrative surrounding blockchain has been exploited by impostors who have built malicious schemas, or ill designed tokenomics schemas (aka how and when to print money) leading to multi-billion dollar losses. Furthermore, weaknesses in the centralised governance of decentralised systems have also been exploited to drive losses and even failure of the whole system. This demonstrates that technology alone is not sufficient to guarantee that a system is used for proper purposes.

Ethics and decentralised governance are essential to drive and protect the culture of all stakeholders, particularly the culture of governing bodies. Both Ethics and decentralised governance are crucial to mitigate the risk of the whole system being exploited by malicious individuals to defraud communities. The success of blockchain technology will depend on the ability of stakeholders to work together to ensure that it is used in a responsible and ethical manner. A culture of transparency, accountability, and trust and a clear policy aimed at preserving wealth creation immune to inflation must be fostered to ensure the long-term success and viability of blockchain technology.

1.4 The Ethic Age

Ethics refers to a branch of philosophy that deals with moral principles and values. It involves studying and understanding what is right and wrong behavior, and making moral decisions based on those principles. Ethics helps individuals and society to determine what is considered good and bad behavior, and provides guidance on how to make decisions that are in line with these moral principles. It is a discipline that examines human values and beliefs, and how they should guide behavior in various situations. Ethical principles are used to guide personal and professional conduct, and to evaluate the actions and decisions of individuals and organizations.

Web 3.0 is a promising new era in the world of technology and the internet, with advancements in decentralization and blockchain technology leading the way. However, without a proper ethical framework in place, the potential of web 3.0 may go unfulfilled.

Cryptocurrencies like Bitcoin, Ethereum, and Cardano have provided decentralized infrastructures, but they have left the issue of ethics to be addressed in higher layers of application. Ethical considerations, such as those related to tokenomics and inflation, are not addressed by the underlying blockchain technology, but are crucial to the overall functioning of the ecosystem.

The issue of inflation, in particular, is a prime example of where ethics intersects with technology. Bitcoin, for instance, is deflationary, meaning that there is a finite number of tokens in circulation and the purchasing power of the currency increases over time. However, this also means that those who hold onto their tokens without contributing to the ecosystem will accumulate wealth, while those who work hard and add value to the ecosystem will see their purchasing power decline.

Ethereum, on the other hand, is inflationary, with a set amount of new tokens being minted over time. This approach has proven to be problematic, with hard forks required to control inflation. Neither approach is entirely fair, and both lead to an economy that is not in line with ethical principles.

A truly ethical ecosystem should promote wealth creation and preserve wealth. The amount of tokens in circulation should match the wealth being created in real-time, without leading to either inflation or deflation. The solution to this and other ethical problems can be embedded into a layer 2 solution, providing a decentralized framework that is guided by ethical principles.

It is time for the Ethic Age to begin. We must take the opportunity to embed ethics into the fabric of web 3.0 and create a truly decentralized and equitable digital economy. With the right focus and dedication, web 3.0 can live up to its full potential and deliver on its promise to revolutionize the way we live, work, and interact with technology.

1.5 Simana

The introduction of Simana marks a new era in the world of decentralized systems, where ethics and values take center stage. As a layer 2 solution built on top of Cardano and Ethereum blockchains, Simana prioritizes the protection of customer privacy and ensures that transparency, traceability, and accessibility are maintained in a way that does not compromise the privacy of its users. In addition to this, Simana also prioritizes the fair distribution of compensation for goods and services, and the preservation of individual wealth. These principles serve as the foundation for building a decentralized ecosystem that is truly ethical and responsible.

2 Problem Statement

Web 3.0 has come a long way, but it still faces several significant challenges. These challenges can impact the adoption and effectiveness of blockchain technology and limit its potential impact on the global economy. Some of the problems with web 3.0 are as follows:

1. **Difficulty in Learning, Easy to Make Costly Mistakes:** Blockchains can be difficult to understand and use, particularly for those who are not technically savvy. This makes it easy to make costly mistakes, such as falling prey to middle man attacks or losing assets due to misplacing private keys.
2. **Managing Private Keys:** The management of private keys can also be a major challenge, as they are the keys to accessing digital assets. Misplacing or losing a private key can result in the permanent loss of assets, which can be extremely costly.
3. **Linking to the Real Economy:** Blockchains are not linked to the real economy, so oracles are required to place data from the real economy on the blockchain. This can be difficult to do effectively and can introduce errors or inaccuracies in the data.
4. **Coupling Real and Digital Assets:** Blockchains also face challenges in coupling real assets with digital assets. Guardians are required to ensure that the coupling is secure and effective, but this can be difficult to do and can also introduce security risks.
5. **High Barrier to Entry for Semi-Fungible Tokens (SFT) and Non-Fungible Tokens (NFT):** There is also a high barrier to entry for creating and using SFT and NFT, as the process can be complicated and user-unfriendly. This can limit the adoption of these technologies and the creation of valuable digital assets.
6. **Absence of Ethics:** Layer 1 of blockchains is usually agnostic to ethics, as it is driven by technical efficiency. This means that there is a lack of ethical considerations in the underlying blockchain technology, which can be a problem for some applications.
7. **Absence of Responsible Decentralized Counterparties:** In layer 1, all counterparties look alike, making it difficult to identify responsible and trustworthy counterparties. This can impact the security and reliability of the blockchain and limit its use in certain applications.
8. **Difficulty in Identifying Quality:** Layer 1 also lacks a focus on the value chain, which makes it difficult to identify the quality of goods and services offered on the blockchain. This can impact the trustworthiness and value of the blockchain and limit its use in certain applications.
9. **Implementation of Crowdfunding:** Implementing crowd funding can also be challenging due to regulatory impediments and the lack of straightforward mechanisms for doing so. This can limit the ability of the blockchain to support and finance new and innovative projects.
10. **High-Frequency Trading and Speculation:** Blockchains can also incentivize high-frequency trading and speculation, which can impact the stability and reliability of the blockchain and limit its use in certain applications.
11. **Lack of Circuit Breakers:** Finally, there are no circuit breakers in place to prevent sudden and catastrophic falls in the value of digital assets, such as the sudden fall of Terra Luna. This can impact the stability and reliability of the blockchain and limit its use in certain applications.

In conclusion, while blockchains and their applications have great potential, web 3.0 still faces several significant challenges that need to be addressed to make the technology more accessible and useful for the global economy.

3 Solution

3.1 Simana Ethically Driven Community

In the current state of blockchain technology and its applications, numerous challenges and problems arise that hinder the potential for a truly decentralized and efficient ecosystem. From the difficulties in managing private keys to the lack of ethics embedded in the underlying blockchain layer, it is imperative that we address these challenges in order to fully realize the potential of blockchain technology. To address these issues, we propose growing a community of individuals who share our ethical principles and values and who will collaborate to manage a decentralized layer 2 infrastructure on established blockchains, such as Ethereum and Cardano, which support Turing complete smart contracts. By fostering this community, we aim to create a more secure, transparent, and ethical blockchain ecosystem that truly serves the needs of all its participants.

3.2 Simana Principles and Values

At Simana, we believe in building an ethical ecosystem for blockchain technology. Our commitment to ethical principles guides all of our actions and implementations. In line with this commitment, we prioritize the following principles in all of our endeavours:

1. The lower the carbon foot print the better.
2. Embedding resilience.
3. Protecting customer privacy and opposing all forms of surveillance and profiling.
4. Enhancing transparency and traceability of goods and services offered, while maintaining the privacy of our customers.
5. Promoting global accessibility to goods and services, while also upholding the first four principles.
6. Ensuring fair distribution of compensation for a good or service to all contributors, while maintaining transparency, privacy, and accessibility.
7. Preserving individual wealth, while adhering to our ethical principles.
8. Implementing circuit breakers to mitigate the impact of market fluctuations.
9. Opposing all forms of high frequency trading and speculative schemas, promoting a fair and sustainable ecosystem.

At Simana, we strive to create a decentralized infrastructure that supports these principles and values, building a community of like-minded individuals who share our commitment to ethical blockchain technology.

3.3 Ethereum

Ethereum, created by Vitalik Buterin in 2013, was launched in 2015 as the world's first decentralized, open-source, blockchain-based platform with support for Turing complete smart contracts. The platform was initially built on a Proof of Work (PoW) consensus mechanism, which required a vast amount of computational power and energy to maintain the network's security and validate transactions. This, however, resulted in a high carbon footprint, which was an issue for the growing concern for environmental sustainability.

In recent years, Ethereum has undergone significant changes to address these sustainability concerns. The switch to a Proof of Stake (PoS) consensus mechanism, called Ethereum 2.0, has dramatically reduced the platform's carbon footprint by requiring much less computational power and energy compared to PoW. This transition has also improved the overall efficiency of the network and increased its scalability, allowing for more transactions to be processed per second.

Ethereum's longest standing in the smart contract arena, combined with its reduced carbon footprint, has solidified its position as one of the most credible platforms to develop layer 2 applications. In particular, Ethereum's robust and well-established infrastructure makes it an ideal platform to develop Simana, a layer 2 solution supporting SFT, NFT and prioritizing privacy, transparency, accessibility, fair compensation, wealth preservation, circuit breakers, and preventing high-frequency trading and speculative schemas.

With its commitment to sustainability, security, and scalability, Ethereum continues to set the standard for blockchain technology and will play a critical role in the development and success of Simana.

3.4 Cardano

Cardano, founded by mathematician and blockchain expert Charles Hoskinson, is a unique blockchain platform that was developed from scratch with a strong emphasis on security, mathematical rigor, and correctness. Unlike many other blockchain platforms that evolved over time, Cardano was built from the ground up with a PoS consensus mechanism and was developed through a rigorous academic peer review

process, ensuring that its smart contracts are mathematically certified and written with correctness in mind.

The choice of the programming language, Plutus, based on the pure functional language Haskell, also reflects Cardano's commitment to security and rigor. Plutus is a programming language designed specifically for use in the financial sector, with a focus on blockchain and smart contract development. It is based on the functional programming language Haskell.

Haskell is a widely-used, general-purpose programming language that is known for its strong emphasis on functional programming and type safety. The choice to base Plutus on Haskell was made because of Haskell's strong reputation for reliability and security, which are key considerations for a language used in the financial sector.

By leveraging the strengths of Haskell, Plutus provides a secure and reliable platform for developing blockchain-based financial applications. This makes it an attractive choice for developers looking to build solutions in this space, and has helped to establish Plutus as a key player in the ecosystem of blockchain-based financial technologies.

The development of Cardano has been a collaborative effort led by a community of academic experts from around the world, all sharing a common vision of creating a secure and robust financial system. With its proof of stake consensus mechanism and its emphasis on security, Cardano is well-positioned to be a key player in the development of layer 2 solutions, such as Simana. And by bridging Cardano to Ethereum, we will ensure that Simana is built on a resilient and secure foundation that can support a world-wide secure and fast financial system for the Simana Community.

3.5 The Simana Alliance

The Simana Alliance is a group of individuals and businesses that believe in the values and principles of the Simana ecosystem. This alliance is made by the Simana developers and the first buyers of the Simana utility token, that is, the buyers at the beginning of the Fibonacci era (18-26 March 2023). Members of the Simana Alliance work together to promote the ecosystem and provide the necessary infrastructure and training to make the adoption of Simana more accessible and user-friendly.

At the core of the alliance is SimanaDoc, a Platform as a Service that provides a single, accessible interface for all Simana features. This platform makes it easier for users to take advantage of the benefits of blockchain technology, including time stamping, anchoring of documents, and the adoption of SFT and NFT.

Through the efforts of its members, the Simana Alliance strives to increase the accessibility and adoption of blockchain technology, while maintaining the privacy and security of its users. The alliance is committed to supporting the development and growth of the Simana ecosystem, and ensuring that it remains true to its ethical principles.

3.6 Responsible Providers (ResPro)

The Simana ecosystem is built on the principles of responsibility and transparency, and that is reflected in the concept of Responsible Providers, or ResPros. These anonymous members of the ecosystem hold a special role in ensuring the smooth functioning of the Simana network. They are appointed by the Simana Alliance, a group of merchants who have bought the Simana utility token, SIMA, at the beginning of the Fibonacci era.

Each Responsible Provider holds one of the different SFTs, or Smart Contract Tokens, that correspond to the various services available within the Simana ecosystem. The ResPro smart contract, which governs the behavior of Responsible Providers, ensures that the compensation for their services is fair and paid for by the entire Simana community.

The ResPro smart contract also ensures that the formation of Responsible Providers bodies is done through nomination by the Simana Alliance, and that their members are appointed by a vote of at least 61.8% of the body or of the whole Simana community. This figure of 61.8% is based on the growth of the golden ratio, which is a recurring constant in the design of the Simana ecosystem.

The Responsible Providers play a crucial role in maintaining the stability and functionality of the Simana network. Their services are essential for users who want to couple real assets with SFT or NFT or wish to secure their digital secrets in a recoverable way.

In other words, the Responsible Providers of the Simana ecosystem are a reflection of the values and principles that underpin the network. They provide a crucial link between key Simana features and the wider community, and are key to ensuring that the Simana network remains secure, accurate and trustworthy for all.

3.7 Custodians, Guardians, Oracles

The Simana ecosystem is an innovative platform that has found a solution to bridge the gap between web 3.0 and the real world. To ensure this, the Simana Alliance creates at start three classes of Responsible Providers (ResPros), known as the Custodians, Guardians, and Oracles.

The Custodians are responsible for storing secrets in a secure and recoverable manner. They do this by implementing the Shamir's Secret algorithm, where a secret is split into parts, each secured with a different custodian, and such that no single part may provide meaningful hints to the secret. This provides the mechanism to safely secure any digital secret including private keys, SFTs and NFTs.

Guardians take care of real assets and may give the real assets to a new assigned Guardian or owner. They are responsible for ensuring the coupling between real assets and NFTs, allowing owners to trade NFTs while leaving the underlying real assets undisturbed. This increases the efficiency of the entire economy.

Oracles certify and publish to layer 1 (the underlying blockchain) the status of real assets, as well as the status of the real economy, like market prices or indexes. They play a crucial role in the Simana ecosystem by providing the necessary information to keep the system updated.

Together, the Custodians, Guardians, and Oracles resolve the gap currently existing between web 3.0 and the real world. They support a secure and efficient platform for the trade of NFTs and real assets, and ensure that the Simana ecosystem operates in a trustworthy and transparent manner.

3.8 Non-Fungible Token (NFT) and Semi-Fungible Token (SFT)

Non-fungible tokens (NFTs) are a type of digital asset that are unique and distinguishable from one another, unlike fungible tokens like cryptocurrencies which are interchangeable and equal in value. NFTs can represent ownership of digital or physical assets, like art, music, and real estate, or they can be used to represent unique in-game items or collectibles.

Notably, NFTs are native to the Cardano blockchain. This means that Cardano was specifically designed with NFTs in mind and has features and capabilities that make it an ideal platform for NFTs. For example, Cardano has a rich and expressive smart contract language, Plutus, which allows for the creation of complex NFTs with unique properties and rules. This language is also mathematically verified, which provides a high degree of confidence that the code will function as intended.

Cardano also has a focus on privacy and security, making it an ideal platform for NFTs that represent sensitive or valuable assets. With its cutting-edge cryptography and privacy-preserving technology, Cardano provides the necessary safeguards to ensure the protection of NFT owners and their assets.

Although NFTs are not native to Ethereum, they have been widely adopted and implemented as smart contracts based on the ERC 721 and ERC 1155 standards.

The Ethereum community has established the Ethereum Request for Comment (ERC) standard, which serves as a set of guidelines for Ethereum developers. ERC 20 is the standard for all cryptocurrency-like tokens in Ethereum and it represents the standard for fungible tokens. On the other hand, ERC 721 represents the standard for non-fungible tokens, which are unique and indivisible digital assets. This standard allows for the creation of NFTs such as digital art, collectibles, and other unique items.

In addition to the ERC 721 standard, the ERC 1155 standard has also been established. This standard supersedes both ERC 20 and ERC 721 and enables the creation of semi-fungible tokens. The ERC 1155 standard enables the creation of digital assets that can be partially unique and partially interchangeable, giving developers greater flexibility in their token design.

NFTs and SFTs are a revolutionary and versatile digital asset existing in both Cardano and Ethereum and are the key paradigm in Simana to implement quality and value chains.

3.9 Quality and Value Chains

The Simana ecosystem uses SFTs to implement value chains. A family of SFTs is created, with a different type of SFT for each component of the value chain. As real assets such as products or services move up the value chain, the SFT type moves up the ladder to the highest value type, recording the change of ownership (if any) at each change of type.

The ultimate level is reached when the product or service has been consumed, and at that point the SFT turns into an NFT memorabilia. The NFT records all the transitions through the value chain and the last payment may be distributed fairly to all contributors. This results in the traceability of transitions of the SFT type and enhances the quality of the assets.

The end user can validate all passages and contributors at once because the entire history is recorded on the blockchain for everyone to see. This makes the Simana ecosystem transparent and accountable, ensuring the reliability and authenticity of the assets.

Overall, the implementation of value chains in the Simana ecosystem through the use of SFTs and NFTs provides a secure and efficient way of tracking the journey of assets and ensuring fair compensation to all contributors.

3.10 No Inflation, No Deflation but the right mix

The Simana utility token, SIMA, is structurally immune to both inflation and deflation.

Inflation refers to a sustained increase in the general price level of goods and services in an economy over a period of time. It results in a decline in the purchasing power of a currency, and if left unchecked, it can cause significant economic damage.

Deflation, on the other hand, is the opposite of inflation and refers to a sustained decrease in the general price level of goods and services in an economy over a period of time. It results in an increase in the purchasing power of a currency, but if excessive, it can lead to economic contraction and reduced demand for goods and services.

SIMA is designed to overcome these problems by being only and exclusively issued at a fixed ratio to the gross domestic product (GDP) of the Simana economy. This means that the number of tokens in circulation is directly proportional to the size of the economy and its value. As the economy grows, the number of tokens in circulation increases, keeping the purchasing power of SIMA constant.

In contrast to traditional cryptocurrencies, SIMA does not have a fixed supply cap, and its supply can increase in line with the growth of the Simana ecosystem. This feature makes SIMA the first and only token with structural immunity to both inflation and deflation.

This mechanism is completely new and unheard of in the realm of cryptocurrencies. Simana is the sole ecosystem that offers a solution to the problems of inflation and deflation by creating a token that is structurally immune to these forces. SIMA offers a stable and secure means of exchange in a rapidly growing and expanding economy.

3.11 Summary

The Simana ecosystem is a unique and innovative platform that combines the strengths of both Ethereum and Cardano to deliver a secure, sustainable, and accessible environment for trading real assets and Non-Fungible Tokens (NFTs).

The Simana Alliance, composed of enthusiastic individuals, forms the foundation of the ecosystem's governance and ensures its initial value. The three key components of the Responsible Providers - Custodians, Guardians, and Oracles - work together to provide accessibility, safety, and reliable updates of the real economy to the underlying blockchains.

The ecosystem's use of Semi-Fungible Tokens (SFTs) and NFTs supports quality and value chains and ensures traceability of transitions throughout the value chain.

Lastly, the unique tokenomics structure of Simana ensures a structural immunity to both inflation and deflation, making it a valuable addition to the world of utility tokens.

4 Simana Tokenomics

4.1 Introduction

At the core of the Simana ecosystem there is the utility token SIMA.

An utility token is a type of cryptocurrency that represents access to particular applications or services offered, to start with, by the Simana Alliance. SIMA can be used to access specific functionalities, particularly but not exclusively functionalities within a blockchain-based platform (both Ethereum and Cardano), such as the right to use a decentralized application, access premium content, or participate in a loyalty program.

Unlike security tokens, which represent ownership in a company or investment in an asset, SIMA like all utility tokens do not provide ownership or promise returns on investment. Their value is derived solely from their utility within the ecosystem for which they were created.

Tokenomics refers to the study of the design and implementation of a cryptocurrency's economic system, which includes the issuance, distribution, and management of tokens within an ecosystem. It encompasses all aspects of a token's financial and economic model, such as the total supply, inflation rate, distribution methods, transaction fees, and the incentives for token holders. Tokenomics also defines the rules and incentives for participating in the network, and can have a significant impact on its success and adoption.

The Simana ecosystem has been designed with the golden ratio in mind. The golden ratio, also known as the divine proportion, is a mathematical concept that has been observed in many natural systems and is considered to be at the core of growth and balance.

In the design of Simana's tokenomics, the golden ratio is incorporated as a guiding principle. The idea is to create a balanced and sustainable system that aligns the interests of all stakeholders.

Indeed, the golden ratio is felt throughout the entire ecosystem. The use of this mathematical concept reinforces the idea that Simana is a well-designed and sustainable system that prioritizes growth and balance.

4.2 The Golden Ratio

The golden ratio, also known as φ , is a fascinating concept in mathematics with numerous intriguing properties.

With its roots in nature, the golden ratio has been found to be present in a variety of systems, from the growth of plants to the proportions of the human body. This is well illustrated in so many fascinating books, and images and articles over the Internet. In here we merely present some notation needed in later sections.

In Simana's tokenomics, the golden ratio is used as a guiding principle for the design of a sustainable ecosystem. The golden ratio is approximately 1.618, and notably, as a piece of poetry of Mathematics,

$$\varphi^{-1} = \varphi - 1.$$

We refer to this number, φ^{-1} , as γ (approximately 0.618 or 61.8%) which represents the inherent growth of systems with the golden ratio.

To bring this concept into a practical context, the growth of a system with the golden ratio can be modeled over 7 cycles, such as 7 years or 7 seasons. The $\sqrt[7]{\varphi}$, or ρ , is approximately 1.0712, representing a growth of 7.12% per cycle. This growth rate is referred to as ε , with ε equal to ρ minus 1.

In Simana, the initial value of the SIMA utility token is set to ε EUR, or 7.12 cents of EUR, reflecting the inherent growth principles inherent in the golden ratio. These fundamental principles are not just a mere notation, but serve as a cornerstone for the design of the sustainable and thriving Simana ecosystem.

4.3 SIMA Distribution and Burning

The distribution of SIMA, the utility token of the Simana ecosystem, undergoes three distinct phases, each with its own characteristics and objectives. These phases are Launch, Expansion, and Maturity.

The Launch phase is split into three eras, namely the Fibonacci, Galois, and Euler eras. During this phase, SIMA tokens can be purchased at a discount and redeemed for services provided by the Simana Alliance at the epsilon price. This phase represents the starting point of the Simana economy and provides an opportunity for early adopters to get involved and support the growth of the ecosystem. Purchasers of SIMA in the Fibonacci era automatically become members of the Simana Alliance.

The Expansion phase, known as the Cantor era, lasts seven calendar seasons. During this phase, SIMA tokens can be bought and redeemed at the epsilon price and are issued at a ratio of epsilon with respect to

the Gross Domestic Product (GDP) of the Simana economy. This phase represents the growth of the Simana ecosystem, as the value of the economy expands and more tokens are issued to accommodate this growth.

Finally, the Maturity phase, known as the Gödel era, represents the non-speculative free market phase. During this phase, SIMA tokens are in a non-speculative free market and their value is determined by supply and demand. At this stage, the Simana ecosystem has reached a level of maturity and stability, and the SIMA tokens have become widely accepted as a means of exchange and store of value.

The three-phase distribution of SIMA tokens is designed to facilitate the growth and development of the Simana ecosystem, from its inception to maturity. By providing opportunities for early adopters to support the ecosystem and later for tokens to circulate freely in the market, SIMANA aims to create a sustainable and valuable ecosystem for all participants.

4.3.1 The Fibonacci Distribution

The Fibonacci era begins with the first phase of the Simana token distribution and is set to take place from March 18 to March 26, 2023. During this period, Simana will issue between 6 million and 9 million SIMA tokens, priced at 2 cents each in EUR for the first 6 millions SIMA. The requests for these tokens will be served in a First-In-First-Out (FIFO) order.

For issuance between 6 million and 9 million SIMA, the requests will be served in descending order of the daily bids above 2 cents.

The total number of SIMA being so issued is the Fibonacci Issuance. All participants of the Fibonacci Issuance will automatically become members of the Simana Alliance.

On March 31, 2023, the Simana developers will be issued the γ portion of the Fibonacci Issuance in non-vested SIMA. These tokens will vest equally on a daily basis starting on March 27, 2030, with all SIMA so issued being vested in 7 calendar seasons by December 31, 2031. Non-vested SIMA are valid for voting but may not be transferred.

This approach to SIMA distribution aims to ensure a fair and transparent distribution process while encouraging early adoption, development and support of the Simana ecosystem.

Referrals of the Fibonacci Issuance will attract the ε commission fee (roughly 7.12%).

4.3.2 The Galois Distribution

The Galois era begins with the second phase of the Simana token distribution and is set to take place from June 1 to June 11, 2023. During this period, Simana will issue between 6 million and 9 million SIMA tokens, priced at 4 cents each in EUR for the first 6 millions SIMA. The requests for these tokens will be served in a First-In-First-Out (FIFO) order.

For issuance between 6 million and 9 million SIMA, the requests will be served in descending order of the daily bids above 4 cents.

The total number of SIMA being so issued is the Galois Issuance.

On June 12, 2023, the Simana Alliance will be issued the γ portion of the Galois Issuance in non-vested SIMA. These tokens will vest equally on a daily basis starting on June 30, 2030, with all SIMA so issued being vested in 7 calendar seasons by March 31, 2032. Non-vested SIMA are valid for voting but may not be transferred.

Referrals of the Galois Issuance will attract the ε commission fee (roughly 7.12%).

4.3.3 The Euler Distribution

The Euler era begins with the third phase of the Simana token distribution and is set to take place from September 9 to September 17, 2023. During this period, Simana will issue between 6 million and 9 million SIMA tokens, priced at 6 cents each in EUR for the first 6 millions SIMA. The requests for these tokens will be served in a First-In-First-Out (FIFO) order.

For issuance between 6 million and 9 million SIMA, the requests will be served in descending order of the daily bids above 6 cents.

The total number of SIMA being so issued is the Euler Issuance.

On September 18, 2023, the Simana Alliance will be issued the γ portion of the Euler Issuance in non-vested SIMA. These tokens will vest equally on a daily basis starting on September 30, 2030, with all SIMA so issued being vested in 7 calendar seasons by June 30, 2032. Non-vested SIMA are valid for voting but may not be transferred.

Referrals of the Euler Issuance will attract the ε commission fee (roughly 7.12%).

4.3.4 The GDP Distribution

the GDP distribution mechanism helps ensure that the Simana ecosystem remains in balance and immune to inflation and deflation.

Starting from 1 April 2023, each bill sent to the Simana Decentralised Treasury (deTes) by a supplier, will attract the ε part of its value in new SIMA which will be distributed between the supplier and the client in the ratio chosen by the supplier for that bill. For example, on a bill of 100 EUR (excluding VAT/GST/IVA) with a chosen ratio of 80/20, and at all times before the Gödel era, the bill will trigger an issue of 80 SIMA to the supplier and of 20 SIMA to the nominated client because each SIMA is valued ε EUR until the start of the Gödel era.

The distribution of new SIMA in proportion to the value of the bill promotes a stable growth in the economy, avoiding the potential for either inflation or deflation. This system also provides a mutually beneficial relationship between the supplier and client, as both parties receive a portion of the new SIMA in accordance with the chosen ratio. It encourages a fair distribution of wealth within the ecosystem, it encourages customer loyalty and ensures that the Simana economy continues to thrive and flourish.

4.3.5 Burning

The process of destroying tokens in a cryptocurrency system is commonly referred to as "burning." It is an important concept in the crypto world as it helps to regulate the supply of tokens and maintain their value. When tokens are burned, they are permanently removed from circulation and can no longer be traded or used.

Starting from the Euler era, SIMA may be sold to deTes for Euro. Each SIMA sold to deTes will be destroyed because this is value that has exited the Simana ecosystem. By destroying the SIMA obtained through the sale, deTes is reducing the total supply of SIMA and maintaining the scarcity of the utility token. This helps to ensure that the value of the remaining SIMAs is protected and remains stable.

4.4 Governance

Governance refers to the process by which decisions are made and policies are established regarding the development, maintenance, and usage of the Simana ecosystem. It involves the participation of stakeholders such as developers, investors, users, and community members in setting the direction and priorities of the ecosystem. Effective governance is important for the long-term success and stability of Simana, as it helps to ensure that the ecosystem remains secure, transparent, and in line with the vision of its community.

The governance of Simana is a dynamic system, carefully crafted to ensure the best outcome for the ecosystem as a whole. This system is orchestrated by three main players: the Developers, the Alliance, and the Community.

4.4.1 The Simana Community

The Community is made up of all owners of the SIMA utility token, each SIMA representing one vote. This allows for a democratic decision-making process, giving all SIMA holders an equal say in the direction of the project.

4.4.2 The Simana Developers

The Developers play a crucial role in the governance of Simana. They are appointed or removed by Samani Nakardano until the end of the Cantor era. However, starting with the Gödel era, Developers are appointed or removed by at least a golden ratio γ vote (>61.8%) from both the Developers themselves and the Alliance. This ensures that the Developers are working towards the goals and vision of the project, while also providing a check and balance system.

4.4.3 The Simana Alliance

The Alliance is made up of the Developers and buyers of SIMA at the beginning of the Fibonacci era. Starting with the Galois era, appointment or removal to the Alliance is made by at least a γ vote of the Alliance members. This allows for a fluid and dynamic Alliance, ensuring that it continues to represent the original interests of the Simana ecosystem.

4.4.4 White Paper

This white paper is a dynamic document which purpose is to capture in a blueprint the intent, the goals and the essentials of the implementation of the Simana ecosystem.

Additions, enhancements, amendments to the white paper require at least a γ vote of the Developers until the end of the Euler era, require at least a γ vote of the Alliance during the Cantor era and require at least a γ vote of the Alliance and at least a γ vote of the Community, both votes to agree starting with the Gödel era.

4.4.5 ResPro Governance

In the governance of Simana, the formation of bodies of Responsible Providers is either by at least a γ vote of the Alliance until June 2030 or, starting from the Gödel era, by at least a γ vote of the Community.

Responsible Providers play an important role in the functioning of the system, and the appointment or removal of these providers is decided by either at least a γ vote of the related body or by at least a γ vote of the Community.

It is important to note that any Responsible Provider who is found to be in breach of their duties will be immediately removed from their position. This ensures the smooth functioning and stability of the Simana governance system.

5 Roadmap

Date	Era	Price (0.01€)	Issuance	Infrastructure
18 Mar 2 Jun	Fibonacci	2	18 Mar to 26 Mar 6m - 9m	deTes : decentralised Treasury for financing and distributions to developers (ADA, de€); Accounting ; SimanaDoc : time stamp, anchoring on layer 1;
3 Jun 8 Sept	Galois	4	3 Jun to 11 Jun 12m - 18m	deTes : sale, GDP; SimanaDoc : NFT from documents, images; ResPro : Custodians, oracles; deLoy : decentralized loyalty programs;
9 Sept 30 Nov	Euler	6	9 Sept to 17 Sept 18m - 27m	deTes : buy and burn; SimanaDoc : SFT; ResPro : Postmans, food and beverage; deLoy++(Q) , deLoy++(NFT)
Dec 2023 Jun 2025	Cantor 7 Seasons	ε 7,116...	Bid and GDP	ResPro : Guardians, Artists; deLoy++(SFT) deFi : development of fundamentals of defi, loans, depositi, funding (SFT);
Jul 2025	Gödel Maturity	Non speculative Free market	Bid and GDP	deTes : trading in free market with circuit breakers; deSoc : development of decentralized Social Platforms including search engines, messaging, emails, chatting.