



SPARTOS™



## SPARTOS WHITE PAPER

This White Paper is provided for information on the Spartos project only, and is current to 17th September 2018.

The information contained herein may be subject to frequent changes.

Always consult the latest version of this document which is available at [www.spartos.com](http://www.spartos.com)

*This document provides a general overview of the Spartos project (“the Project”). This document shall not and cannot be considered as an invitation to enter into an investment or any other transaction in relation to the Project. It does not constitute, nor relate in any way, nor should it be considered an offering of securities in any jurisdiction. We do not provide any warranty as to the accuracy and completeness of this information, which may also change in future as the Project progresses. Principal risks related to this project are detailed under “Risk Factors”.*

## Abstract

Spartos aims to revolutionise the trillion dollar industry of sports betting and online gambling by introducing trust, transparency, and guarantee of winnings.

Spartos decentralises the entire sports betting supply-chain with an elegant new blockchain-based betting protocol that guarantees immutable, fair and transparent bet placement, settlement, payment, and governance to all stakeholders involved.

Spartos has strategically partnered with world leading sports betting technology providers - the most notable of whom is SBTech, the world's largest B2B sports betting provider.

This and various other partnerships enable direct and effective access to over 50% of the regulated sports betting market from day one of integration.

## Intro

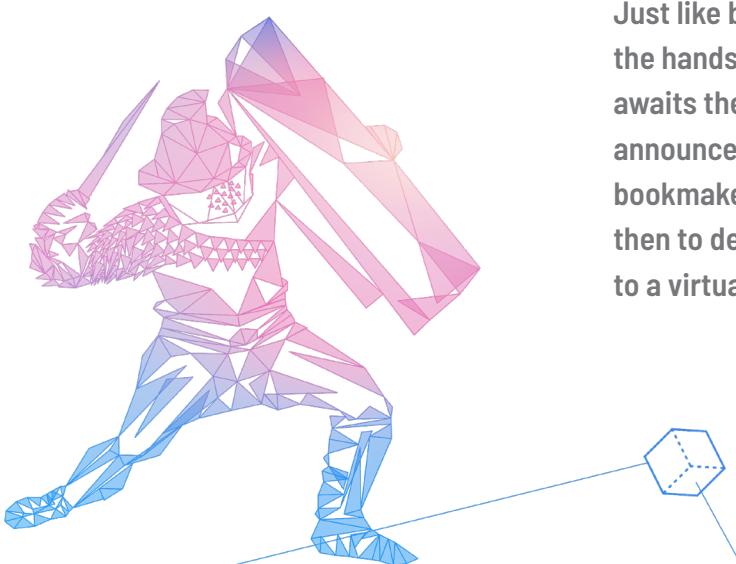
Over 2,000 years ago the first sports bets were officially recorded during the Olympic games and gladiator fights.

A player would trust his funds within the hands of a sharp bookie, await the match result to be officially announced, and then wait once again for the bookie to agree to the results (if at all) and decide how and when to pay the winnings.



Surprisingly, although the betting industry has grown closer to 1 trillion USD in annual betting wagers, this rigorous process remained virtually unchanged for thousands of years. Innovative efforts in sports betting were primarily concerned with increasing the number of bets, and had never addressed the deeply ingrained imbalance at the heart of the process, nor ever attempted to streamline the process itself. In fact, additional hurdles have been added, especially in the area of fund withdrawal.

Just like before, a player trusts his funds within the hands of an online bookmaker (sportsbook), awaits the match result to officially be announced, and then waits once again for the bookmaker to agree to the results (if at all) and then to decide how and when to pay the winnings to a virtual account.



**The Withdrawal process** is encumbered by many obstacles and security measures that apply only to winning players and do not occur upon depositing the funds or placing the bet - making this an inherently imbalanced process:

#### Extended KYC

Requiring winning players to submit additional documents that would not have been required if they were to lose their bet

#### Fraud checks & delays

Winning players undergo additional checks to ensure they are not involved in fraudulent activities

#### Withdrawal limitations

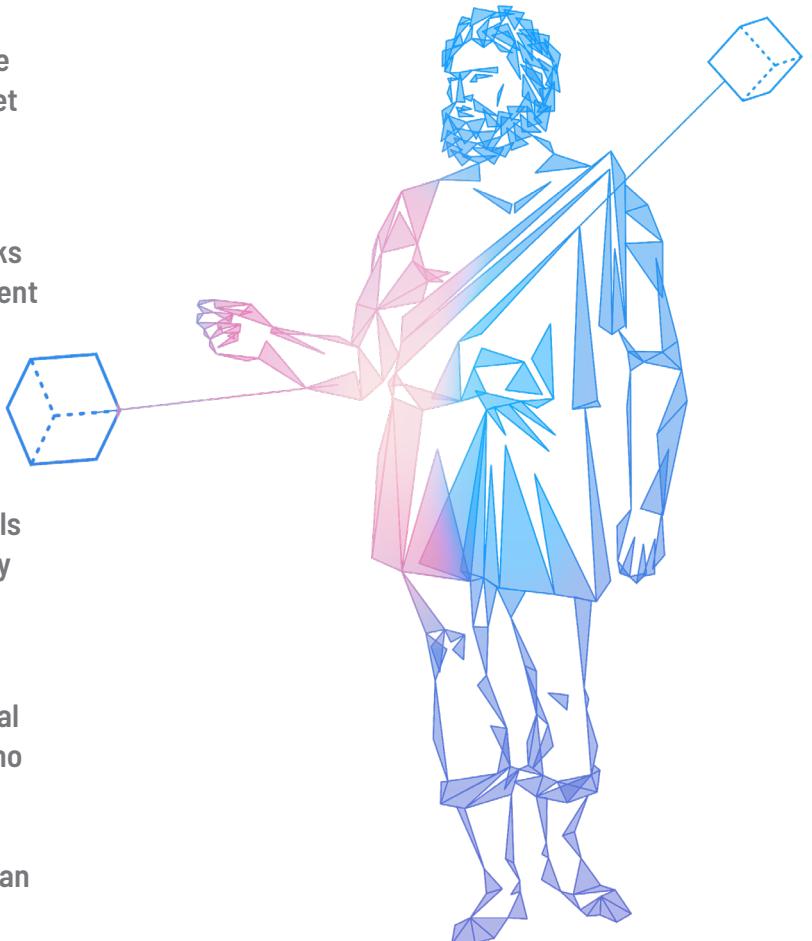
while the amount of money a player may deposit is relatively unlimited, withdrawals are often limited in amount and frequency

#### Retention department

Players are targeted during the withdrawal process by an experienced sales team who aggressively offer them incentives and bonuses to encourage them to keep their funds in their gambling account rather than withdraw them

#### Unexpected Withdrawal Terms

Bonuses given are voided upon request for withdrawal and in some cases withdrawals are delayed until bonus terms (often themselves unclear) are met



It is not surprising that the most common customer complaints today relate to withdrawals and settlements.

The decentralised blockchain technology has the potential to balance this asymmetrical playing field, allowing smart contracts to act as an independent escrow, without 3rd party involvement, governing the agreed bet terms and handling the collection and distribution of funds; thus eliminating the excessive control operators have over players' funds.

**In this paper we outline Spartos' unique promise, starting with both the potential and shortcomings of the global sports betting market (see "The Global Sports Betting Market").**

**We then introduce Spartos (see "Meet Spartos"), with its dramatically improved betting capabilities and standards and its greater promise for the betting world. The following chapters further detail the means to achieve this vision: a powerful blockchain platform foundation and mechanisms (see "Spartos Technology"), paired with a vibrant Token Economy that fuels the Spartos ecosystem (see "Spartos Token Economy").**

**Finally, we introduce our network's governing body (see "The Foundation"), our plan to conquer the market (see "Scaling the Ecosystem"), our token offering strategy, and our outstanding team, partners, and advisors.**

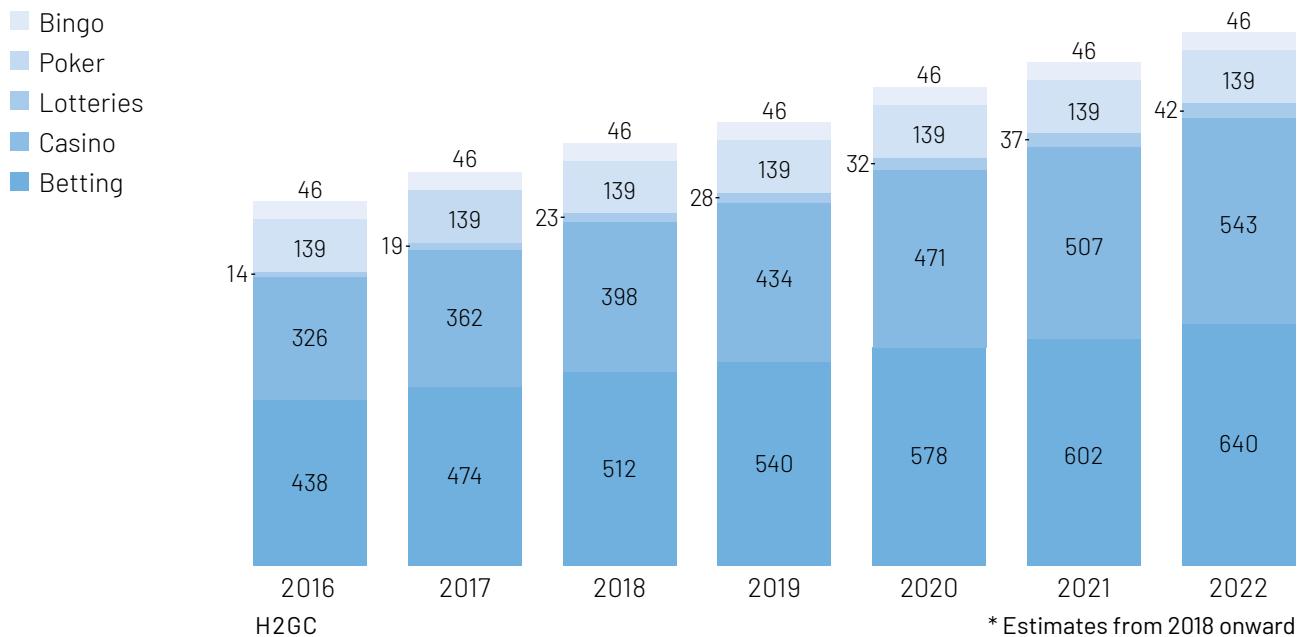
# Table of Contents

---

<b>01   The Global Sports Betting Market</b>	<b>07</b>
<b>02   Meet Spartos</b>	<b>10</b>
2.1 Masters of our Crafts	10
2.2 The Spartos Protocol	10
2.3 Disrupting the Sports Data Industry	13
<b>03   The Technology/Protocol</b>	<b>18</b>
3.1 Sports Betting Industry's Technical Requirements	18
3.2 Existing Blockchain Constraints & Limitations	19
3.3 Our Non-functional Targets and Objectives	20
3.4 Our philosophy behind Spartos Architecture	21
3.5 Architecture Overview	22
3.6 Key User Flows	25
3.7 Our Decision-Making Roadmap	28
<b>04   Token Economy</b>	<b>29</b>
4.1 Ecosystem Overview	29
4.2 Token Properties	30
4.3 Token Holders	30
4.4 Token Usage	30
4.5 Increasing Demand for Spartos Tokens	32
<b>05   The Foundation</b>	<b>33</b>
5.1 Structure and governance	33
5.2 Roles	33
5.3 Funding	33
<b>06   Scaling The EcoSystem</b>	<b>34</b>
6.1 Regulation	34
6.2 Adoption	35
6.3 Partnerships	37
<b>07   Token Allocation &amp; Use of Proceeds</b>	<b>38</b>
<b>08   Team, Advisory, Partners</b>	<b>39</b>
<b>09   Disclaimer</b>	<b>45</b>
<b>10   Glossary and Endnotes</b>	<b>47</b>

# 01 | The Global Sports Betting Market

## Global Online Turnover by Product Vertical (€B)



Within the trillion dollar gambling industry, sports betting is the largest and fastest growing online gambling vertical, driven by an increasing variety of bet types, engaging data analytics and a consistent growth in the number of jurisdictions regulating the industry. It's as quick and simple as messaging a friend or even ordering food delivery, with a myriad of Apps available to use on any device providing simple and painless fun.

The ecosystem that underpins this growth is finely balanced and made up of seven main participants, all with individual needs and often unaligned in their requirements and commercial models but working in a symbiotic manner with each other.

## Players

The consumers who bet on sporting events, driven by value and product offering but mainly looking for clarity and ease of transaction in order to be comfortable to place bets consistently. Players usually place bets on multiple sports and market types and hold funds with multiple Operators at the same time. **Players profit through winning bets.**

## Sports Betting Operators

The Brand owners who offer, manage and settle bets dictating their terms, determining the outcome of bets and fully controlling the release of funds as and when they feel their terms and conditions and other requirements have been met. Players interact and place bets with Operators through their betting websites and mobile apps and deposit their funds into accounts controlled entirely by the Operator. **Operators profit through losing bets and by maximizing operational efficiency.**

## Data Feed Providers

The resellers who collect, analyse, and communicate data from sporting events to operator platforms, where they are used to determine results and deliver visualisations to the Operator to drive increase in betting by the Player. A huge amount of event data ranging from match results and player and ball positions processed through real-time play by play reports that determine bet settlement, all funded by the Operators. **Data feed providers profit from fees charged for data provision and services.**

## Regulators

Regulators shape and police the legal framework governing Sports Betting, acting as legislators, enforcers, and occasionally adjudicators of disputes. The Regulator is charged with keeping Operators compliant, honest and trustworthy, guarding players and their interests, protecting vulnerable players, ensuring the collection of fees, and in conjunction with other regulators - preventing money laundering, protecting privacy, etc. **Regulators are funded through public funds and licensing fees.**

## Technology Providers

Platform providers for Operators, often purely B2B business with no consumer facing brands of their own, focused on delivering reliable and scalable technology implementations to multiple operators. Working against stringent KPIs and accountable for the availability of reliable, attractive and fast-paced services for to Player, the Technology Providers are pivotal in the EcoSystem. **Technology Providers profit from fees collected for use of their technology, through various remuneration models.**

## Payment Service Providers

Process deposits and withdrawals between Players and Operators. Payment service providers monitor and maintain the credit card / currency portals, acting as the transmitters of funds between Operators and Players, through integration with the Technology Providers' platforms.

**Payment Service Providers profit from fees collected per transaction.**

## Marketing Affiliates

Provide Operators with prospective Players through lead generations utilising their base of loyal customers in social media, marketing banner placement and promotional campaigns. Affiliates are compensated by operators for new user sign ups and ongoing user loyalty, through a variety of compensation models. **Marketing Affiliates profit from fees paid for successful lead generation and client retention.**

The Ecosystem relies on the Players and their continued engagement, but so often fails them because of the inherent imbalance in the existing system. Whilst the Operators hold all the funds, determine the outcome of bets, and administer winnings, they also incur great costs and are overly exposed to fraud and abuse. At the same time, the whole supplier chain lacks transparency for Players and Regulators. **All of these deficiencies ultimately impact the Player.**



## 02 | Meet Spartos

### *Trustworthy Sports Betting By-Design*

#### **2.1 Masters of our Crafts**

Spartos is an alliance of the most experienced executives from the top companies in sports betting and finance - Paddy Power, Betfair, SBTech, Playtech, Deutsche Bank, and more - providing us with superior professional insight into the industry's pains and the pivotal position needed to revolutionise the sports betting industry. Spartos is already securing partnerships with many of the industry's leading firms to ensure adoption of its innovative solution across the market.

One such notable achievement is the partnership secured with SBTech, one of the world's leading technology provider in the regulated market. SBTech will integrate the Spartos protocol within its platform, and offer it to its 50+ partner operators - among them are Betway, Skybet, Mansion, and even state lotteries such as Sazka, Danske Spill, Ithuba, and more. SBTech are committed to working exclusively with Spartos in the Crypto/Blockchain world, and will therefore actively promote the Spartos Protocol to ensure a strong adoption rate from day one. Similar partnerships are now being negotiated with several similarly prominent entities, with the goal of reaching millions of players within the first 24 hours of the mainnet go-live date.

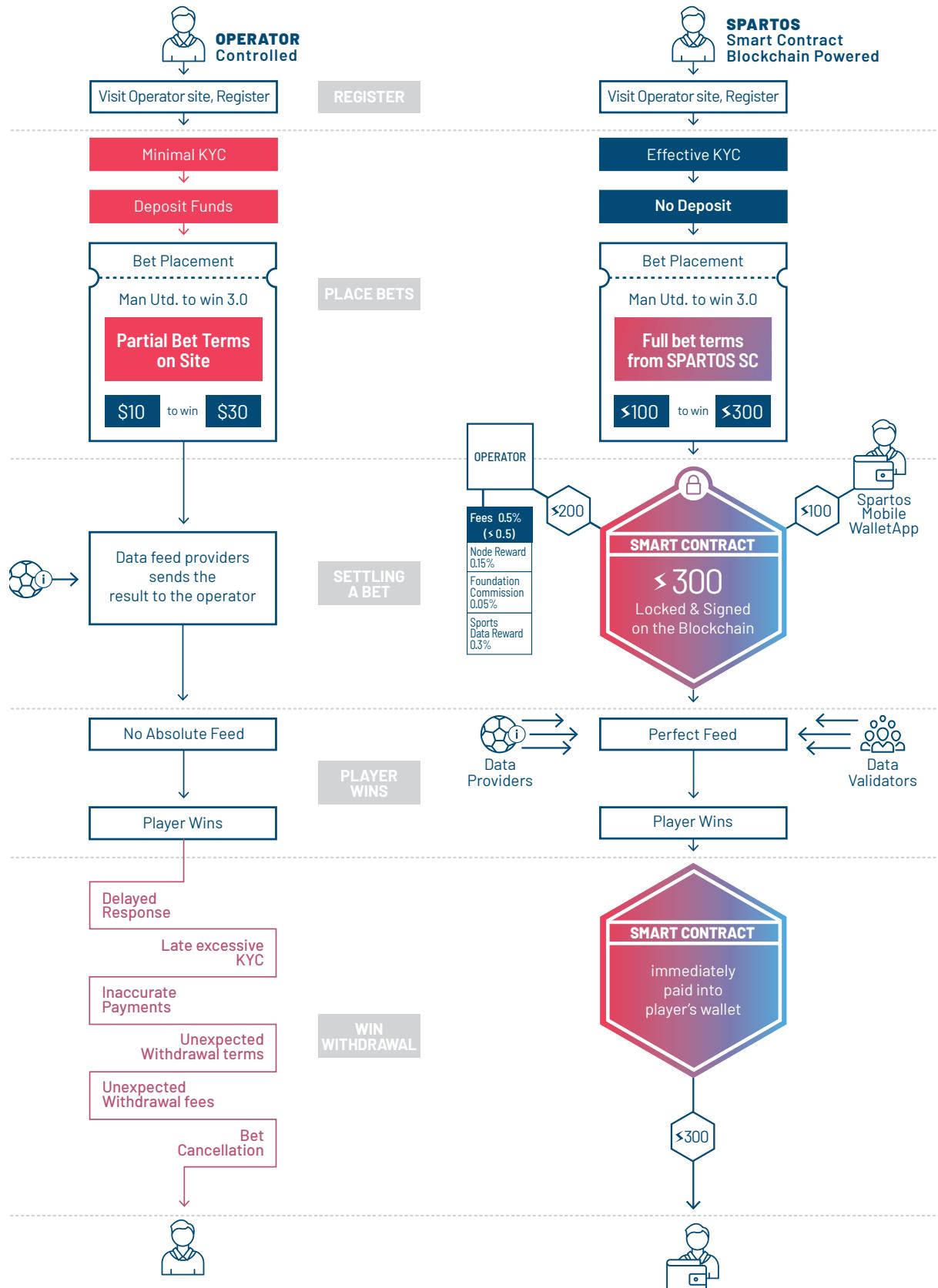
#### **2.2 The Spartos Protocol**

We intend for the Spartos protocol to be the world's most powerful and trustworthy technological solution for sports betting, aspiring to overcome the global challenges of the industry with trust, transparency, accuracy, and fairness.

The Spartos protocol is being designed to offer a safer, fairer betting experience on the blockchain, decentralising the entire industry's value-chain with an innovative, open-source protocol, and a highly impactful and proactive foundation.

The Spartos protocol will revolve around its own native utility token: **SPT** a means of placing bets, receiving winnings, paying fees and obtaining rewards, which will be used by every participant across the entire Spartos ecosystem and throughout every aspect of every bet.

The Spartos protocol is being designed as a decentralised, transparent, and immutable blockchain that will allow players to bet without the need to deposit funds in accounts controlled by operators (subject always to regulatory requirements in each jurisdiction), receive winnings directly to their own wallet immediately at the end of a match or a betting incident without the need for a one-sided Operator-controlled withdrawal process and always maintaining full transparency throughout the entire process.



Based on a trustworthy-by-design blockchain protocol, the Spartos protocol is being designed to address some of the major issues plaguing the sports betting industry, while **striking a powerful balance between the needs and desires of all the ecosystem's participants**.

## All Bets Are Covered

Too often, operators accept bets regardless of their financial ability to cover them, causing delayed payments, and in some cases entirely defaulted payments. With the Spartos protocol, all bets will be covered by design, automatically “locking” the potential winnings whenever a bet is placed. This is designed to ensure that payouts are always guaranteed.

## Automated, Accurate & Immediate Win Payouts

While operators often condition or delay the withdrawal of funds in order to encourage players to place more bets in the system, with the Spartos protocol, players will instantly receive their winnings, which should drive more bet turnover for operators. All bet terms and conditions will be embodied in a smart contract that will automatically determine the bet’s result, calculate the winnings and immediately transfers the funds due to each party’s account/wallet.

## Players Own Their Betting Wallet, No Deposits Needed

Today, players must open an account with each individual operator with whom they want to place bets and deposit money into it - losing control of their funds immediately. With the Spartos protocol, players will be able to bet directly from their wallets and receive winnings directly to their wallet without having to go through rigorous withdrawal process, additional checks and a commercial retention department. This feature may be subject to availability due to specific regulatory requirements in the jurisdictions in which the service will be offered.

## Transparent Terms When Placing Bets

Players are not always made entirely familiar with the terms of the bets they are placing, leaving ample room for aggravation, especially in live bets where time is short and in cases where there are additional commercial terms for the bet such as turnover tax, rollover requirement or bonuses. With the Spartos protocol, players will always be made fully aware of the terms and conditions for every bet placed through the protocol. The terms outlined in the smart contract for each and every bet will immediately be presented to the user during bet placement. Furthermore, every bet placed and settled through the Spartos protocol will be immutably linked to a specific version of its respective betting type smart contract on the blockchain, so that even if the bet type properties (i.e. terms & conditions, regulation) are changed later on, every stakeholder (player, operator, regulator, service providers) will be able to track and retrieve the exact original properties for each bet placed.

## The “Perfect Feed” – Undisputed Bet Outcome Resolution

Decision reversals, made more and more common in the age of VAR and advanced analytics, inflict financial damage on both players and operators - who either have to withdraw wrongfully paid winnings from players, or pay winnings to retroactively winning bettors.

The betting incident results in the Spartos protocol will be driven from a "Perfect Feed" that combines:

1. Reputation system of data feed providers based on quality and speed per league
2. Independent and distributed data validators who correct any errors in data in real time
3. Autonomous dispute systems

The Data Feed Providers will be incentivised to provide the most accurate results, while the Data Validators will be incentivised to identify mistakes, making the Spartos protocols' feed far more reliable, thus the coined term - "Perfect Feed".

### **Accurate & Immediate Commissions To Service Providers**

It's difficult to quantify most service providers' contribution, resulting in industry-wide flat rate compensations. With the Spartos protocol, performance based compensation will be embedded in the terms of every single bet. Every stakeholder involved will automatically be compensated for their efforts and paid their due commissions, making it an automatically "fair" mechanism.

### **Immutable Audit-trail**

Today's lack of official record is the source of constant friction between players and operators, often overloading operators' customer support with unverifiable complaints. Operators who are in the wrong are often able to hide behind complex transaction logs, while honest operators might compensate wrongful complaints just to protect their reputation. The Spartos protocol and blockchain ledger will automatically keep a transparent history of all bets, terms, conditions and payments - all available for audit, inspection and dispute settlement. Consequently, both players and operators can definitively access data and settle disputes without 3rd party involvement, enabling better cooperation between operators and their governing regulatory bodies. This feature will also give regulators better oversight over operations, where needed.

## **2.3 Disrupting the Sports Data Industry**

The Spartos protocol will do more than treat the symptomatic problems of sports betting - it will address some of the industry's deeper issues, setting out new sports betting standards, incentives and operating models.

### **The Importance of Sports Data Feeds**

In order to facilitate sports betting, operators must have immediate and accurate data from the events they offer. As an example, in football - goals, corners, penalties, cards, attacks, and every single incident in the game need to be reported in real time if they are to be used as a basis for betting activity.

The faster and more accurate the data feed is, the better the user experience provided by the operator, offering more bets and faster bet settlement.

Data feed providers are, in essence, the operator's "eyes and ears" at events by reporting all incidents in real time and supplying details back to the operator.

Data feed providers can be roughly divided into two categories:

#### **Official Feed Providers:**

Those who have obtained exclusive or non-exclusive rights to the official data from the league/sports organisation. These rights are often acquired in multi-million dollar deals. Just recently, the NBA sold its data rights for over \$250 million through a 6-year contract with Sportradar and Second Spectrum.

#### **Non-Official Feed Providers:**

Provide data from sporting events despite not having obtained the rights, through access to "eyes on" data input.

While the existing system allows the official feed providers to differentiate themselves through a significantly more reliable feed (charging premium rates), distributed ledger systems don't differentiate between the official and non official providers - data is data. Spartos is therefore designing a way to distinguish official data providers from non-official ones. The Spartos protocol offers a comprehensive, reputation-based system of mechanisms for the differentiation and optimisation of the data feed, providing data providers (and the entire ecosystem) with new, tangible benefits.

### **Reputation System**

The Spartos protocol's innovative reputation system will rank feed providers per league, based on their speed and accuracy. The official feed providers will, by default, provide the fastest and most accurate feed as they have front row access, exclusive high speed internet, and advanced tracking technologies. For example, IMG provides data feed for ATP tennis matches with a computed ball tracking technology that no human can beat on speed or accuracy. On the other hand, non official feed providers have inferior visibility of the match, may rely on 3G internet connection (which further slows in a stadium with 10s of thousands of people), or even scouts from a TV broadcast, which introduces an additional 10+ seconds delay.

Thus, a reputation system based on the fastest and most correct feed will rank the official feed provider higher by default.

---

<sup>1</sup> <https://www.forbes.com/sites/darrenheitner/2016/09/22/the-nbas-six-year-250-million-data-deal>

## Errors and Reversals

It's not uncommon today for feed providers to experience errors in their data or for official data to be reversed (for instance, due to VAR technology) leading to several operational implications:

- It encourages operators to slow down their settlement and fund withdrawal processes even further in order to minimize their exposure to losses and complications due to wrongful bet settlements.
- Even operators that allow fast withdrawals restrict the amount available for withdrawal. Players who have substantial winnings still face a rigorous withdrawal process, providing operators with ample time to reverse wrongful settlements.
- Operators who have already paid winning players end up paying twice the winnings for reversed decisions (i.e. goal disqualification), as wrongful winners may have already withdrawn the winning funds, leaving the operator unable to retrieve them – inflicting great losses on operators on a weekly basis.

Since the Spartos protocol's settlement mechanism is self-governed and irreversible, regardless of the winning sums, the system must have a way to assure the data it is fed is as accurate as possible and can therefore be treated as final.

This can only occur when using all of the 3 methods below:

- Using multiple feed providers, as showcased in the below outlined Sport Data Tokenomics, to achieve a data feed with high speed and quality.
- Changing the bet rules to redefine event results – severing the connection between bet resolution and the actual match the resolution was based on after 120 seconds. The vast majority of reversals happen within the first 90 seconds, meaning the few late reversals will not affect bet settlement, although they will affect the official league records.
- Creating a decentralised, reputation-based error correction process, incentivising any user on the network to correct data feed inaccuracies.

## Reaching Consensus – Decentralising Data Validators

The Spartos protocol will utilise a “Real-time Resulting Monitor”, through which users in the network will be able to view and dispute results within the first 120 seconds, in exchange for a reward. The decentralised dispute mechanism will also contain a reputational scoring system to promote quality and limit abuse.

## Sports Data Tokenomics – The “Perfect Feed”

The operator will be charged 0.3% of the bet stake for every bet placed through the Spartos protocol. The proceeds will be used to fund the “Perfect Feed” reward incentive system.

Where feed providers have reached a consensus, and no data validators have disputed the results within 120 seconds, the feed reward will be distributed in the following manner, according to league-specific reputation:

- 1st Feed Provider - 85% of the reward
- 2nd Feed Provider - 10% of the reward
- 3rd Feed Provider - 5% of the reward

Based on the above, the official feed provider should always receive 85% of the feed reward, while other feed providers (who provide the ecosystem with important additional validations) are to receive 10%-5% of the feed reward.

If the feed providers have not reached consensus, or if the validators have disputed the result, the Spartos protocol will initiate a consensus process that involves several validators and a reallocation of some/all of the reward from the feed provider to the data validators in the case that the feed provider's data was inaccurate.

All input from feed providers will be stored on a distributed ledger, as a side chain. Once an event result has been provided to the system by a certain provider, and consensus has been reached, the provider's reputation will be recalculated according to Spartos' data reputation formula.

The data reputation formula will be a stateless formula, based on staking and a decay function.

**Parameters:**

- 1. Existing reputation score** - will start at zero, with the provider's score rising as its reputation grows
- 2. Stake of current event** - the more bets that rely on this event, the higher the weight is
- 3. Time gap from fastest** - the faster the provider is, the higher the score. The fastest correct provider gets 100 points; second best gets 90, third best 80; all the rest, zero
- 4. Accuracy of observation** - accurate observations will increase reputation, inaccurate observations will reduce score (negative sign)

**The maximum weight a single event can have on a provider's score is 3%.**

This reputation mechanism has a built in decay function - the newer the event is, the larger its weight in the existing score.

The general function:

$$((1-\text{weight})*\text{old score})+(\text{weight}*\text{event score})$$

For example, a provider with an existing score of 90, who was the fastest reporter, with an accurate score on a very large scale event, will have a new score of

$$(0.97*90) + (0.03*100) = 90.3 \text{ (increase of 0.3 from previous score)}$$

If the provider provided a wrong result, the new score would be

$$(0.97*90) + (0.03*-100) = 84.3$$

Reporting a wrong result in a less important (1%) event

$$(0.99*90) + (0.01*-100) = 88.1$$

### The "Tower of Babel" of the Sports Data Industry - Event Mapping (Numbering) Standard

Sports betting is a siloed domain - most operators independently and individually map and manage over 60,000 events per month, adding to the operators' operational costs and technological infrastructure requirements. One clear event mapping standard can optimize interoperability between different technology providers and governmental bodies - from data feed providers, streaming, and affiliates, to regulators and other authorities.

## 03 | The Technology/Protocol

Spartos' premise of better, fairer sports betting, will be realised through its blockchain protocol: an open-source, sophisticated yet easy-to-adapt code, that can be integrated into any existing sports betting and online gambling platform by either operators or technology providers. The protocol builds on the inherent transparency and immutability of blockchain technology to create a robust solution that can effectively withstand the intensity, complexity, and dynamicity of sports betting.

### 3.1 Sports Betting Industry's Technical Requirements

Our 10+ years of experience in the sports betting and online gambling industry have led us to identify the following unique, non-functional requirements:

#### Performance/Scalability

- **High Transaction Volumes** - sports betting and online gambling platforms accept several hundred bets, and settle several thousand bets, per second.
- **True Real Time Experience** - 85% of bets are placed during the match itself, during the course of a few-hours-long sporting event.
- **High Density** - most popular sport events take place in the evening or over the weekend, creating a disproportionate load on the application and infrastructure. The gap between Tuesday morning and Saturday night may reach 400 - 600 percent.
- **True Global Distribution** - sport events physically take place in different locations around the globe, while bettors are scattered, watching from different locations worldwide. Therefore, while data feed providers need to be as close as possible to the action, operators must position themselves at the closest point of presence for their players. The distance between the two makes it harder to provide minimal latency.

#### Innovations

- **Great Variety** - the average sportsbook and online gambling operator offers 100-200 betting markets during the course of an in-play event.
- **Constant Updates** - providers aim to differentiate themselves and offer something special, resulting in frequently updated offerings.
- **Fast Innovations** - Operators/providers are constantly inventing new bet markets and updating the existing ones (most recent innovations include fast markets, pulse betting, cashout and edit-my-bet abilities).

## Privacy/Security

- **Secure Payments** - payments in existing, predominantly fiat-based, sports betting and online gambling platforms must be secured to avoid fraud and protect player accounts.
- **Anonymity of Players** - apart from in the (increasingly popular) social betting scene, the majority of players prefer to maintain a certain level of discretion, especially when it comes to their families and close friends (subject, of course, to regulatory requirements related to KYC).
- **Social Responsibility and Regulatory Compliance** - increasingly, more countries regulate sports betting and online gambling, this leads to a wide variety of regulatory requirements such as filtering certain events and markets, profiling players through KYC and verification routines, and sophisticated audit and reporting requirements. In some extreme cases (e.g. in Italy), the regulator is required to authorise each and every bet.

## 3.2 Existing Blockchain Constraints & Limitations

Blockchain is an expanding technology that delivers transparency, trust, and auditability. However, as early adopters started leveraging the technology to build use cases, multiple limitations of the technology emerged, highlighting **the following limitations** as a major concern for enterprise scale adoption.

### Performance

- **Transactions Per Second (TPS)** - Ethereum (ETH) mainnet offers 11TPS\*, Bitcoin (BTC) offers 7 TPS\*, and the others offering significantly higher TPS like EOS (reached up to 3,000 TPS in recent testing\*) haven't been field tested yet. Some of the new features and concepts that are designed to improve efficiency and scalability of Ethereum mainnet, such as Plasma Project\*, and Casper Protocol\*, are still in "stealth mode".
- **Latency** - Latency between submission and commitment of transactions - Most platforms today have a large enough latency duration (ETH mainnet is 15-30 seconds, BTC is 10-20 minutes) while some new arrivals promise significant latency reduction (e.g. EOS is 1 second).

### Versioning

- **Smart contract versioning** is possible on most blockchain 3.0 ecosystems, but these require some complex coding patterns (e.g. Ethereum proxy contracts patterns for versioning). There isn't a single approach to versioning that can work across multiple platforms, making the move between blockchains a major challenge.

## Efficiency/Cost

- **Node inefficiency** Setup costs - some platforms are not truly enterprise ready. The development cost to spin off nodes, connect them together, or deploy them in different regions, may be significant. Scaling at production level require seamless node deployment.
- **Cost structure for mass transaction** - Blockchain transactions can have a significant cost on the public Blockchain. The consensus mechanism of BTC and ETH, proof of work, enforces a limit to the transactions that the network can handle. Therefore private networks and alternative consensus algorithms should be considered.

\*For further details, please see the [Glossary and Endnotes section](#).

### 3.3 Our Non-functional Targets and Objectives

Considering the sports betting and online gambling industry's technical requirements, alongside existing blockchain limitations and considerations, Spartos' design will incorporate the following non-functional requirements for Spartos' Technical Protocol.

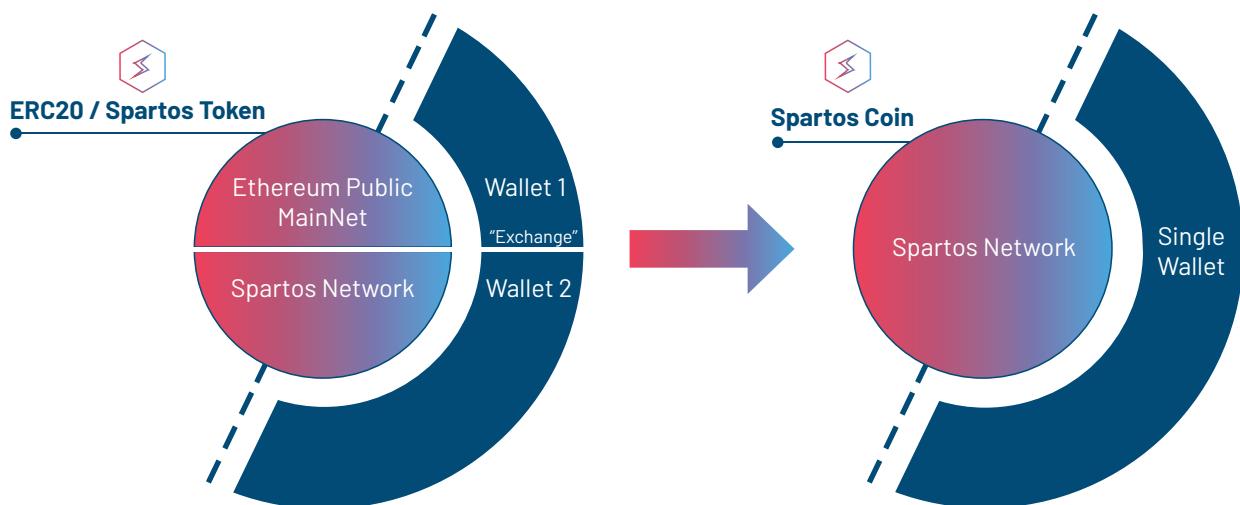
1	Reach a throughput of <b>up to 1,000 TPS</b> per network (equivalent of 90 million bets a day) and ensure optimal betting <b>at scale</b> on the blockchain, by switching to new and more advanced blockchain protocols with better TPS and/or through sharding.
2	Achieve minimum transaction submission to commitment speeds and block publishing propagation latencies of even <b>less than 1,000 milliseconds</b> .
2	<b>Create a "betting contracts" factory and utilities library</b> - Simplify the creation and versioning of new or existing betting contracts, enabling the industry to keep up with ongoing industry innovations and new bet markets. This cultivates an open source community that can contribute and innovate what is still a very restricted domain.
4	<p><b>Support player privacy</b> - We intend to secure players' privacy in two ways:</p> <ol style="list-style-type: none"> <li>1. Create a single, universal player wallet for each player, performing all required KYC verifications only once. To use the wallet, players will need to give a consent to sharing their private data with the operator upon their initial sign up with any betting app/site on the Spartos network. The consent will be recorded on the blockchain and can later be retracted by the player.</li> <li>2. Use different player accounts from the same wallet per sign up with Operator to prevent the player's primary wallet from being traced. It is crucial the Operator can see the player's account but is not able to see bets placed with other Operators.</li> </ol>
5	<p><b>Set a reliable and efficient consensus mechanism</b> - Since we need to balance decentralisation and network contribution with speed, we will not use a POW mechanism, but rather start with a Proof of Authority (POA)* consensus and migrate to a Proof of Stake (POS)* consensus later.</p> <p>Node owners and transaction approvals will involve operators, regulators, and other stakeholders. The node owners will be incentivised to contribute to the consensus protocol, while others can benefit from joining the network and using the platform without having to do so and with full confidence augmented by regulatory oversight.</p>

\*For further details, please see the [Glossary and Endnotes section](#).

### 3.4 Our Philosophy Behind the Spartos' Architecture

#### Dual blockchain first, swap later

We intend to issue the Spartos Token(ERC20/ERC223) on the Ethereum public mainnet for the purposes of the TGE, and later seamlessly fork Spartos private network into Ethereum, EOS or another blockchain infrastructure that will match our non-functional requirements. We eventually intend to turn the Spartos Token into a Spartos Coin at a determinably stable point in the future.



The above approach will allow Spartos to be blockchain agnostic while experimental with different protocols to find the one that best suits. Spartos may even use different networks side-by-side in order to stress-test the performance and user experience of different systems under real life conditions.

A dual chain model will also enable protection for users until a decision on the optimal solution for player wallet privacy, by which time we will be capable of performing the exchange off-chain.

#### Decentralised vs "by Foundation"

In Spartos' partly decentralised solution, nodes will be run by parties in the ecosystem. The network will launch with pilot operators/platforms in multiple jurisdictions, meaning the majority of the nodes will initially be run by Spartos. Spartos strives that following growing adoption, it will eventually run no more than 10-15% of the nodes.

Spartos aims to balance between achieving true decentralisation (by incentivising node operation) and protecting the ecosystem from intentional or unintentional malicious actions. We must therefore initially set up a private blockchain in order to utilise the most appropriate consensus algorithm (which might influence our technology choice for the fork) as well as economic incentives for the node operators, which will be implemented into the tokenomy.

## On Chain vs. Off Chain

Using the team's experience in the online gambling industry and blockchain expertise, Spartos has outlined its blockchain priorities, enabling the migration of several key process onto the chain.

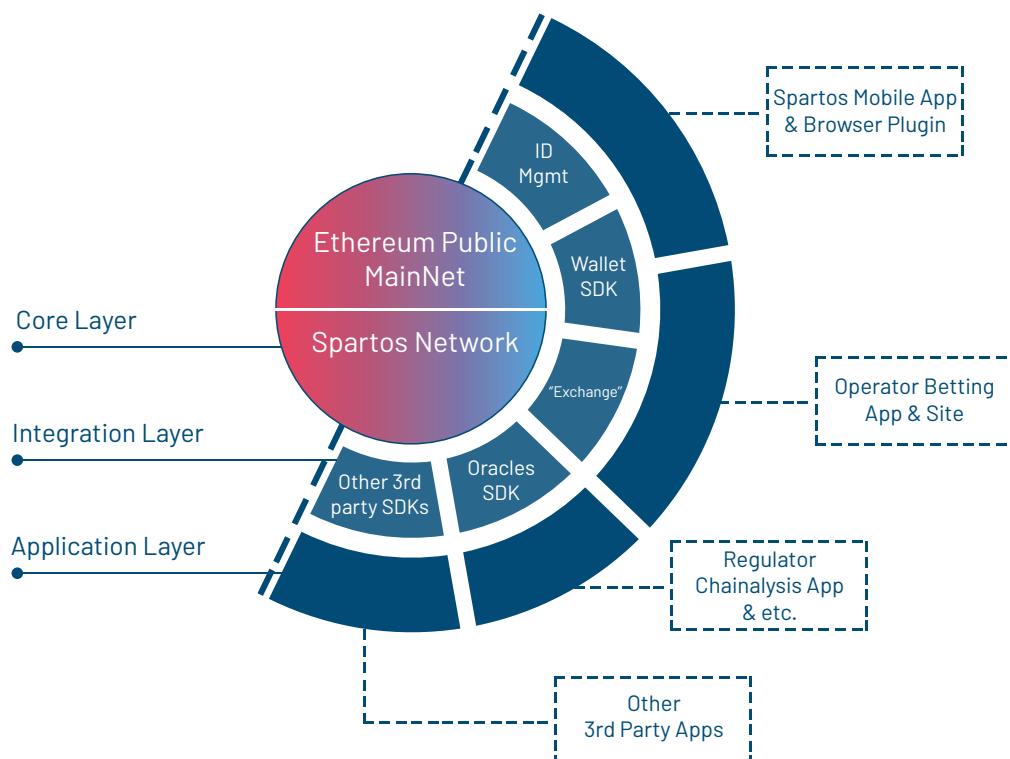
The following are key user flows that will be migrated on-chain, namely

- **Player Sign up** with Spartos Wallet and consent to sharing privacy information with Operators.
- **Bet Placement** via smart contract and players consent on locking the funds from the wallet.
- **Bet Settlement** via trusted oracles that trigger smart contracts that settle and resolve the distribution of funds between players and operators.

Other flows that are key for sports betting - player profiling, segmentation, odds calculation, and personalised offering - will stay off chain, alongside sophisticated bonuses and loyalty points, as simply there is no business or technical justification to on-chain them.

It is important to note that some of the existing flows will be eliminated, including deposit/withdrawal and applicable fiat-specific KYC routines.

## 3.5 Architecture Overview



### 3.5.1 Core Layer

The core layer is the heart and soul of our solution. As outlined in the section above, we will launch the protocol on a dual blockchain model - Ethereum public mainnet and the Spartos Network - switching to a single blockchain at some stable point in the future.

We intend to run a set of smart contracts on the core blockchain:

- **Betting smart contracts** - Betting smart contracts will be created and easily versioned through the smart contract factory by deriving or extending a base contract's capabilities or functionality using a variety of utility libraries provided. This will enable Spartos and its adjacent community to independently create hundreds of new betting contracts and encourage industry innovation.
- **Operator multi-signature wallets** - While consent is required for the transferring of funds between Player and Operator accounts (or more accurately, for entering into betting smart contracts), the sheer volume of betting transactions will prevent operators from individually consenting to each and every transaction, therefore the multi signature wallet will allow operators to delegate their consent and trading rooms privileges to service providers via managed services, utilizing a multi-layered bet approval process (consent on allocation fund per bet).
- **Risk management and bet segregation** - Risk management calculation is an essential part of the basic betting contract. Spartos aims to maximise the amount of bets an operator can take and cover by an offsetting mechanism that minimises the operator's de-facto exposure. If the operator does not have sufficient funds to cover the bet, an additional smart contract will suggest to segregate the bet through other operators for an affiliate commission (See the technical white paper for more details).
- **The Perfect Feed** - Network is a satellite blockchain (might be same or different based on TPS considerations) ecosystem that will rank different providers based on speed and quality of their data. Outcomes can be disputed by the community, providing another opportunity to engage sports fans from all over the world, creating the best possible aggregated feed in the process.
- **Additional service smart contracts** - Supplementary functionalities, such as the immutable bet registry, will be likely be developed to answer any industry needs - both pre-existing and blockchain-derived.

### 3.5.2 Integration Layer

The open sourced integration layer mediates between the application layer and the blockchain (core layer). The integration layer translates the complexities of blockchain and smart contract logic into real-world applications. We aim to simplify development on the Spartos Protocol by providing an essential set of SDKs for anyone to use. Most of the SDKs will have extension points that will facilitate innovation and development by the industry, the community, and the Spartos Foundation itself.

- **Identity management** - Will facilitate a simple sign up process through the Spartos wallet manage the player's data sharing and privacy preferences (Player data sharing consent). It will also enable Spartos's single sign-on (SSO) solution for any betting app/site.
- **Wallet SDK** - Will simplify access to wallet/account transactions and manage player consent for the transfer and locking of funds on a per-bet basis. The Spartos Wallet App is heavily reliant on this SDK.
- **Oracle SDK** - Will enable the integration of alternative data feed providers. The foundation will implement said SDK in the "Perfect Feed" mechanism, detailed above. This SDK will allow Spartos to provide sports betting operator platforms with an aggregated feed from feed providers specialising in various particular sports and/or leagues. This SDK will also enable direct integration to any specific data provider feed or any "perfect" feed fork in the future.

### 3.5.3 Application Layer

The integration layer is being designed to facilitate several types of applications:

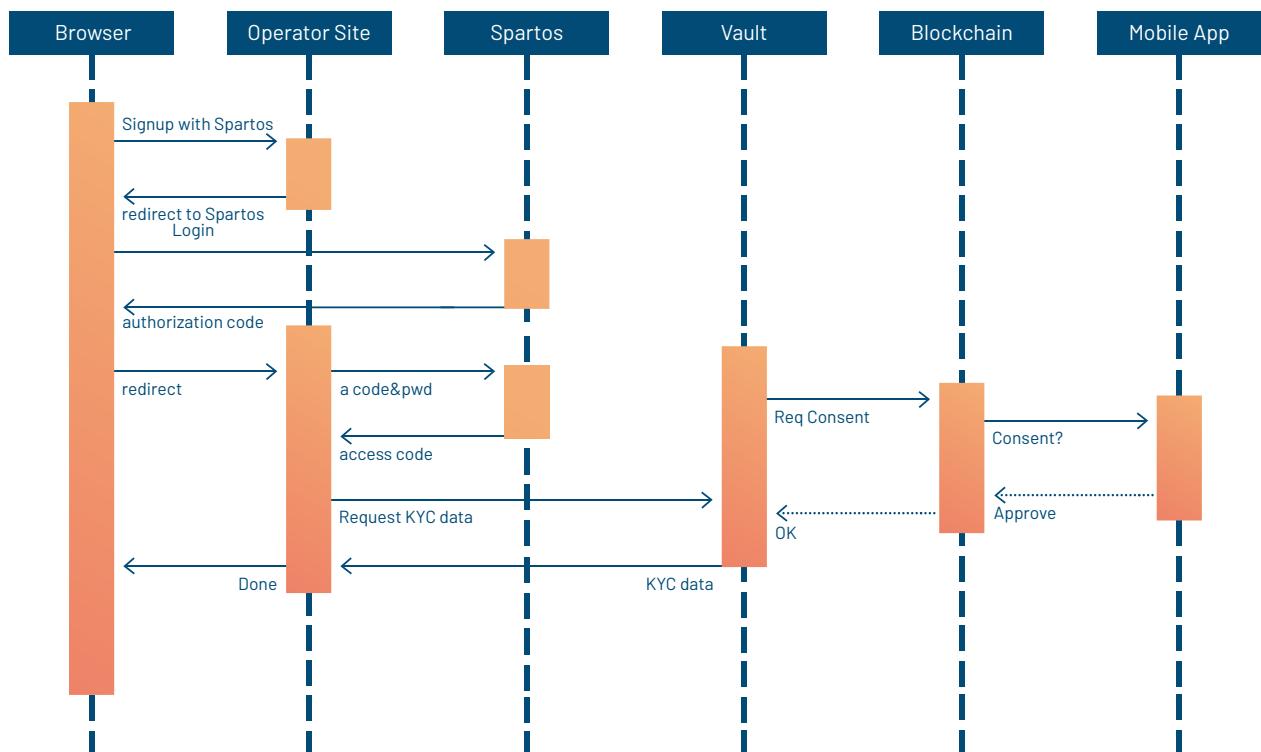
- **Player-centered Apps** - Spartos intends to build the Spartos Wallet Mobile App using the SDKs mentioned in the previous layer to give players a single, universal wallet/account through which they can place bets and collect winnings in every betting site on the Spartos network (subject to regulatory constraints). Decisions concerning browser plug-ins are subject to the roadmap development and the changes in "mobile vs desktop" traffic trends for the betting apps.
- **Operator-centered Apps** - SBTech (and other technology providers) will seamlessly be able to integrate Spartos capabilities (such as the universal sign-in and betting functionality) into their existing platforms. Alternatively, operators can develop their own apps using Spartos SDKs.
- **Feed Provider-centered Apps** - Spartos envisions a couple of chain analysis applications that will supply feed providers with business intelligence about the quality and speed of their data streams across different sport verticals and leagues, aiming to improve the feed itself and the feed provider's ROI.
- **Regulator-centered Apps** - Spartos will promote integration with the protocol by Regulatory bodies. We intend to develop a number of chain analysis application that will significantly improve the reporting services regulators utilise nowadays.

### 3.6 Key User Flows

#### 3.6.1 Player Sign up

The player's journey with any betting app starts with the Sign Up process. An average UK player has 5-6 accounts with different UK betting brands. We aim to create a single sign-on and a remote Spartos wallet to be used on every betting site on the Spartos Network, similar to "Sign up with Facebook" or "Sign up with Google". This will allow players to place bets directly from their wallet and eliminate the need for deposits.

The following diagram illustrates the envisioned sign up flow:

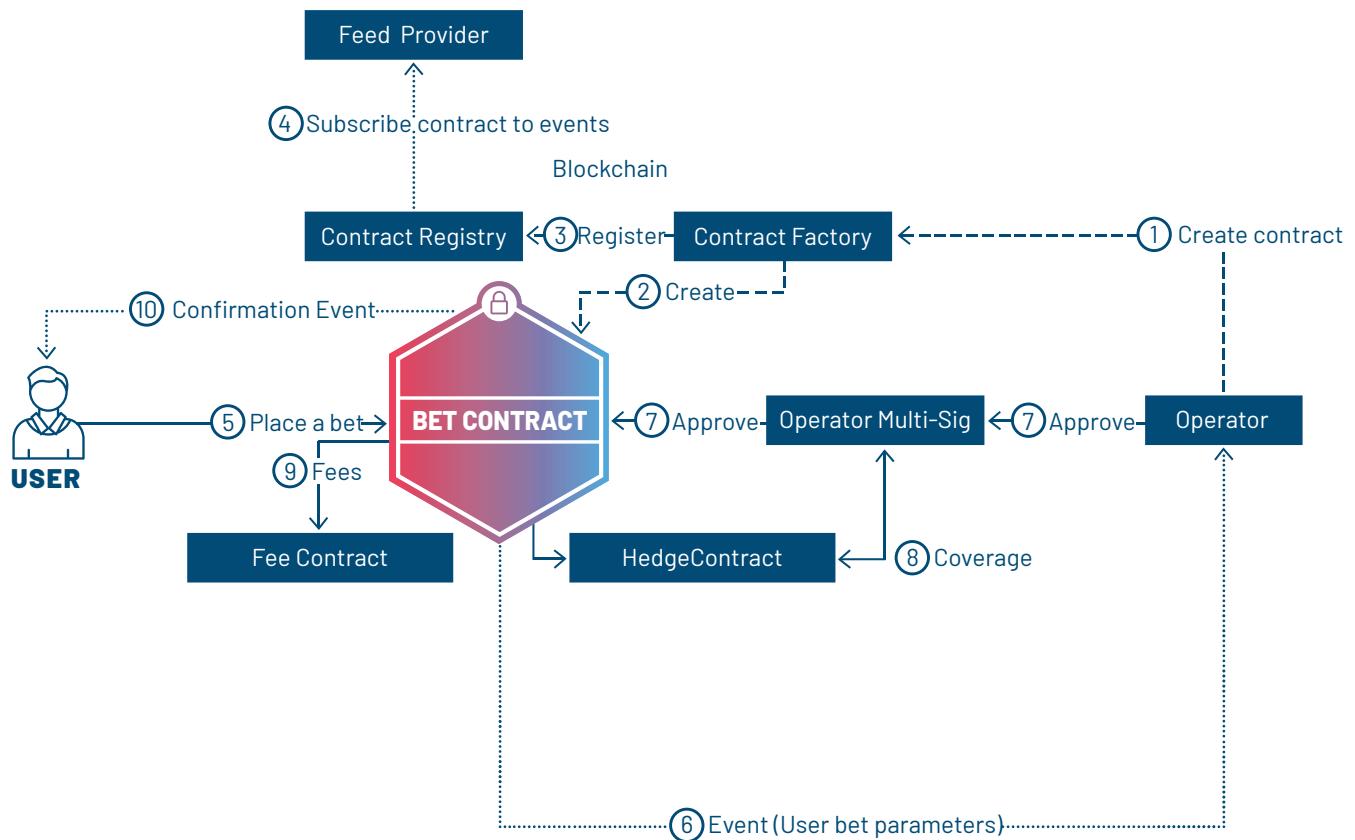


### 3.6.2 Bet Placement

Bet Placement is probably the most important flow in sports betting and online gambling. Spartos is not aiming to change the existing UI/UX at all, but simply to add a per-bet consent request for fund allocation through the Spartos Wallet App. It's like a multi-factor authentication process.

Under the hood, the process significantly digresses from common sports betting practices.

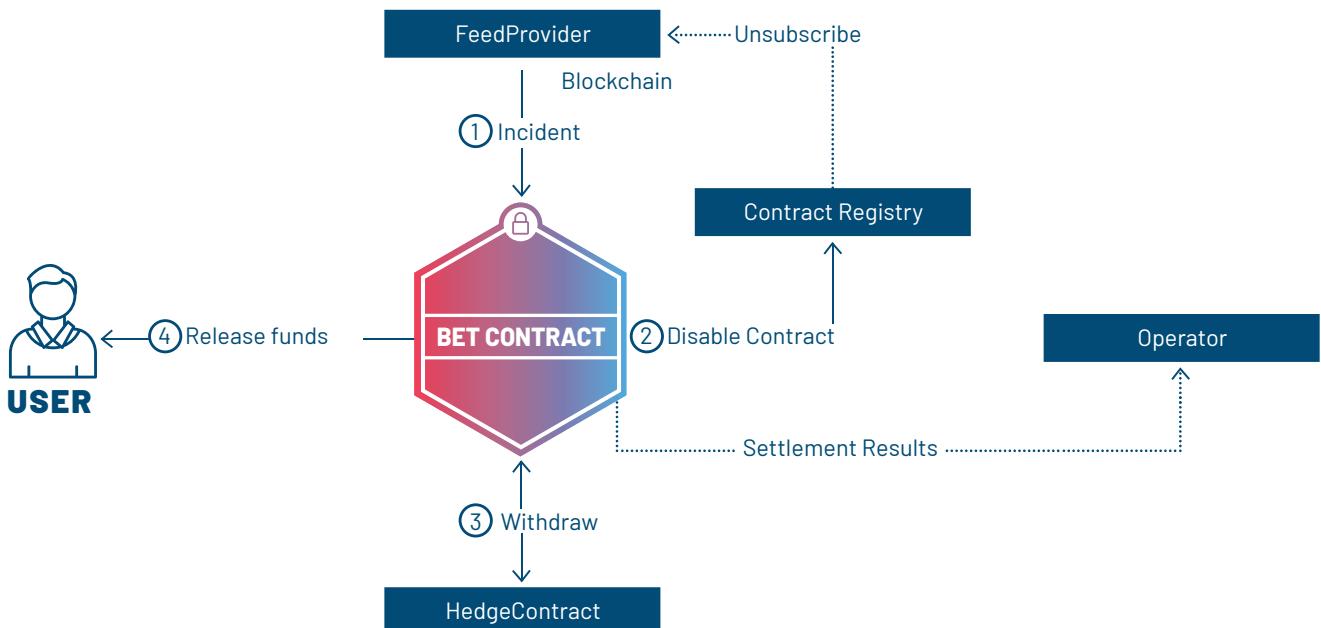
The diagram below outlines the bet flow. Please see the technical white paper for details on the implementation of various components within the flow.



### 3.6.3 Bet Settlement

Fast settlement and efficient fund rollover are essential for a good user experience. Nevertheless, accuracy is also important to avoid unnecessary resettlement (also an issue for blockchain based systems due to its immutability). That's probably the key strategic imperative for Spartos' "Perfect Feed" solution, and the key non-functional requirement for blockchain selection when it comes to TPS considerations.

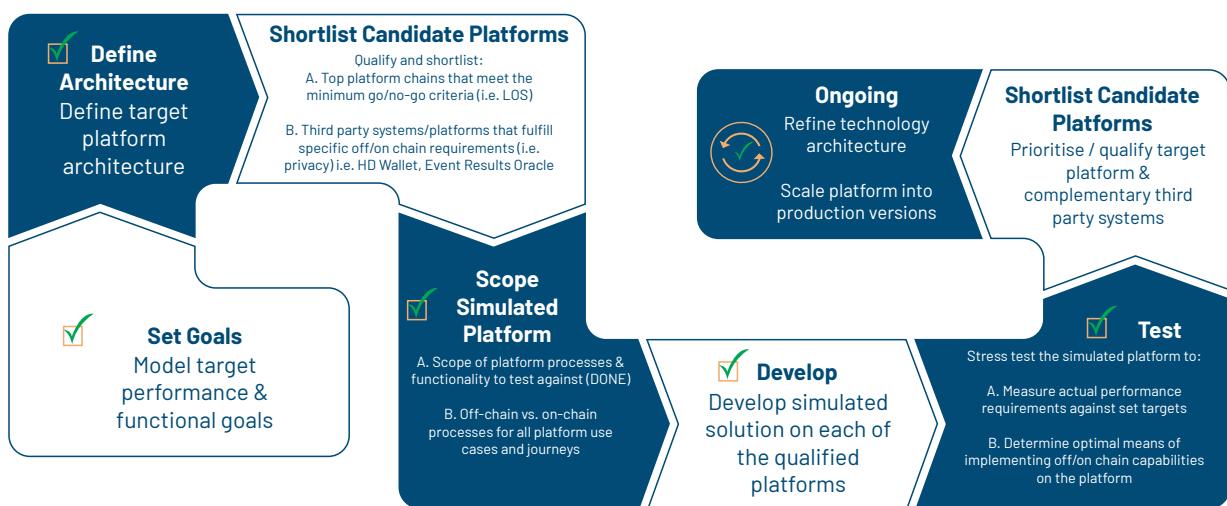
Apart from the Perfect Feed, the settlement flow and user experience are very similar to the existing common practices.



### 3.7 Architecture Evolution and Our Decision-Making Roadmap

Spartos is evaluating multiple leading chain platforms against this set of target requirements, simulating anticipated load, stress, use-cases etc. Professional implementation requires a professional development roadmap and responsible decision making, thus we have built a sustainable roadmap that is based on agile blockchain implementation methodology.

The roadmap includes 8 main phases as follow:

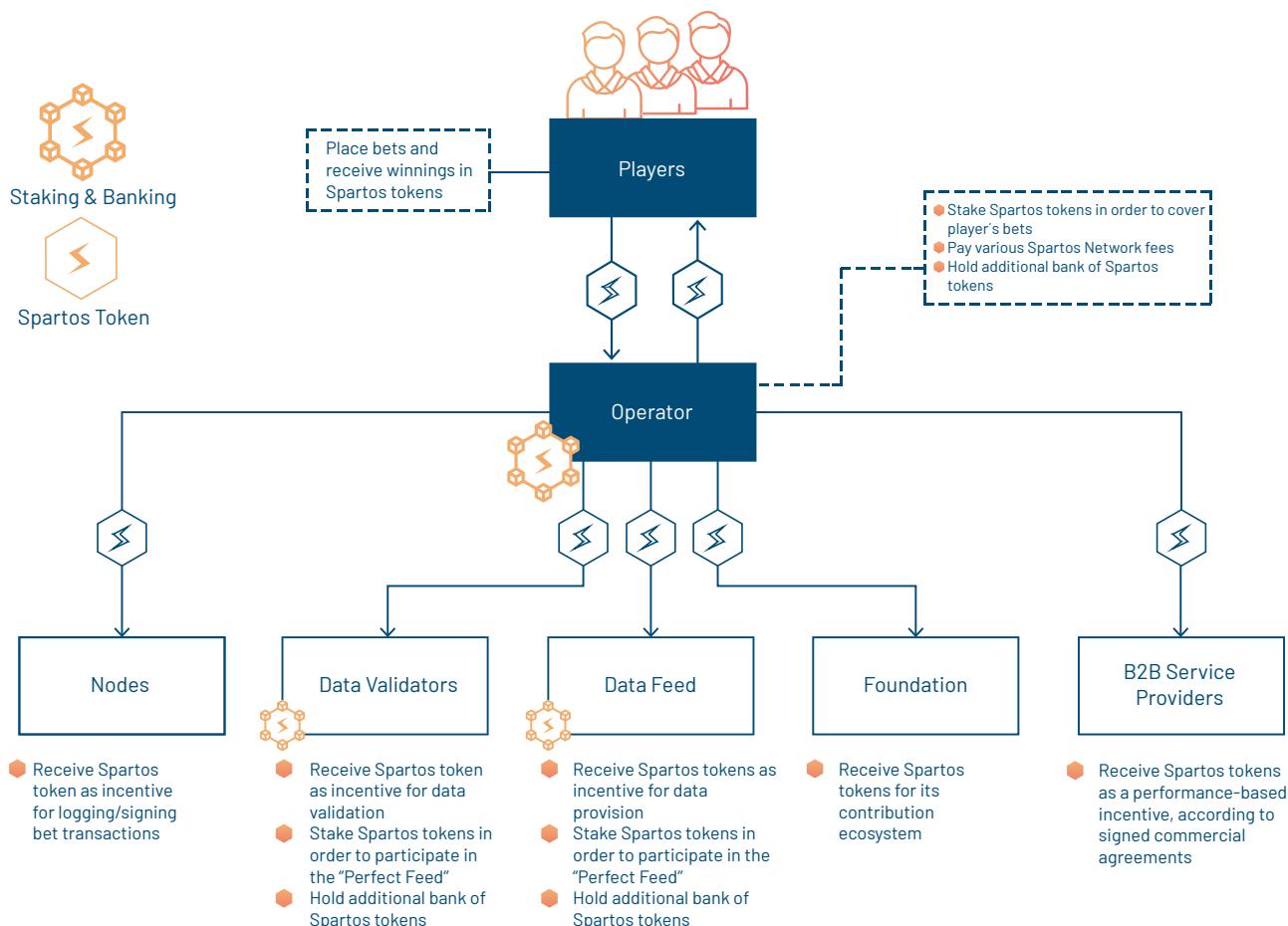


## 04 | Token Economy

The Spartos Token is the fuel of the economy, driving all activities on the Spartos Blockchain Network. This chapter will elaborate on the Spartos Token's properties, holders, and primary use cases.

### 4.1 Ecosystem Overview

This diagram presents a high-level overview of the relationships between the various ecosystem participants, illuminating how the Spartos Token both facilitates transactions between them and acts as the fuel that powers all activities on the protocol.



## 4.2 Token Properties

### Utility

Spartos has signed strategic partnerships with industry-leading crypto-payment service providers (i.e Cubits, Safecharge, etc) to enable the Spartos ERC-20 Token (initially and Spartos Coin later) to perform as a means of betting via multiple operators offerings, prior to the protocol's launch.

After launching the protocol, the Spartos Coin will also enable access to a wide variety of services on the Spartos Network, including allowing players to place bets, and operators to cover them, while also providing a means of payment for various network usage fees (typically referred to as "gas").

### Finite Supply

There will be a finite number of Spartos ERC-20 Tokens (initially and Spartos Coins later), pre-minted and issued during the Token Generation Event (TGE). No further tokens will be created after this point.

### ERC-20

The Spartos token will have an interim phase as ERC-20 from the TGE until the protocol is launched, at which point a swap between the existing token and a new coin dedicated to the Spartos protocol will occur.

## 4.3 Token Usage

### Placing Bets

All players place bets with the Spartos Coin.

### Operator's Bet Staking & Hedging

For an operator to accept a bet, they must cover 100% of their potential exposure via the Spartos Coin.

#### Staking

Operators are required to stake a sufficient amount of Spartos Coins according to the odds ratio, from bet placement through to settlement.

#### Hedging

The Spartos Network enables operators to accept bets from players and redirect them to another operator, by way of a hedged bet. An operator would consider hedging a bet if they currently do not have sufficient coins to stake this bet.

#### Banking

Over time, operators are likely to maintain a growing bank of coins in order for their reserve to be large enough to optimise and streamline the bet placement process and avoid the (otherwise) frequent need to purchase coins each time a bet is placed.

## Data Feed Provider/Validator Staking & Banking

### Staking

Since the Spartos protocol's network requires a predetermined staking of coins to offer live results or data validation, data feed providers and validators will need to hold staking pools in order to ensure they have a sufficient amount of coins to participate.

The staking model is capped at a dynamic amount based on a combination of two fundamental criteria:

**1. League Ranking** - Every league (such as Premier League, NBA, NFL, "La Liga", etc.) will be ranked on a scale of 1 to 7 based on its data history (as documented in industry databases), determining the default staking cap.

**2. Bet Volume** - A certain league can have a certain staking rank, however, a betting event with an exceptionally large volume may "offset" and increase the actual staking required above the default cap.

### Banking

Similarly to Operators, data feed providers and validators will hold a growing bank of coins in order to have enough liquidity on hand to stake the necessary amounts for provision and validation of data.

## Transaction & Protocol Fees

**Transaction Protocol Fees ~0.05%** - These fees, calculated as a percentage of the total bet volume, will partly fund the Spartos foundation (For more information on the Spartos foundation's governance, roles, and funding, please see section 5 - "The Foundation"

**Node Fees ~0.15%** - These fees are charged per bet (calculated as a percentage of the bet's total volume) and transferred to the nodes logging/signing the bet transactions made within the network. The fees are calculated as a percentage of the total volume of the bet.

### Sports Data Provision/Validation Fees ~0.3%:

**Data Feed Provider Fees** - These fees are distributed among the data feed providers associated with the bet (per event).

**Data Validation Fees** - These fees are distributed among the data validators associated with the bet (per event).

---

The ranking will be conducted according to historical information derived from SBTech's databases. In the future, all relevant information will be derived from the Spartos database.

The staking process for data feed providers and validators is as follows: (1) If they stake tokens and are chosen for their data, or validation, which proves to be correct - they get their stake back along with additional fees (2) If they stake tokens and are not chosen for their data or validation, which proved to be correct - their stake is returned to them (3) If they stake, tokens and are chosen for their data, or validation, which proved to be incorrect - they lose their stake and don't receive any fees.

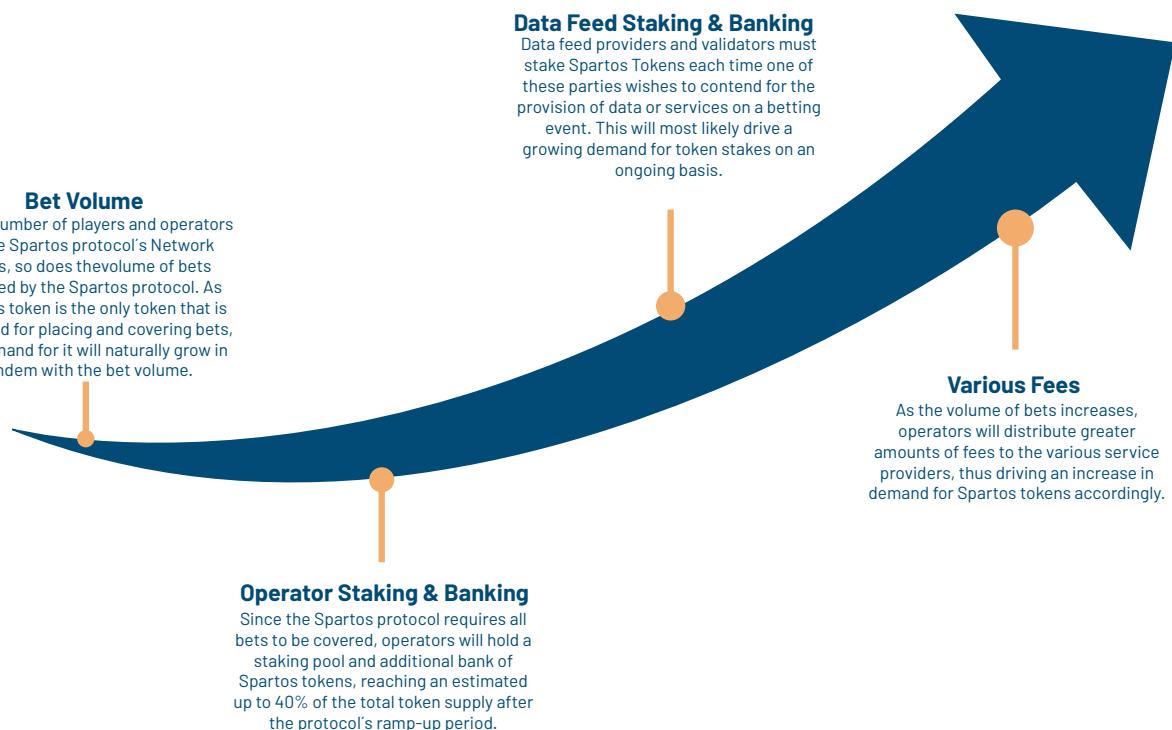
In order to prevent any ranking manipulation (caused by malicious data feed providers who may wish to manipulate the staking amounts for others), any ranking/ staking increase will be approved by a consensus of at least 51% of the Nodes.

## B2B Commercial Agreement Payments

These are automatic and periodic (typically monthly) payments based on commercial agreements made between operators and their tech providers, marketing affiliates and advertisers. The agreements' terms are immutably incorporated into smart contracts.

### 4.4 Increasing Demand for Spartos Coins

The Spartos coin economy is designed so that the various participants within the ecosystem will have to buy and hold the coin in order to access services and benefits. As the Spartos Coin economy grows, the demand for the finite number of coins is expected to increase.



## 05 | The Foundation

The Spartos protocol will be developed and maintained by the Spartos Foundation, responsible for the cultivation and ongoing evolution of the Spartos protocol and network. The foundation strives for transparency, fairness, democratisation, and innovation – both in sports betting and within its own operations.

### 5.1 Structure and Governance

#### Spartos Network of Operators

All operators on the Spartos Network can vote on decisions that influence the protocol, such as approval of new betting markets, modifications in the protocol or the smart contracts according to new regulation, etc. Motions can only be passed if backed by 75% of the votes. The foundation's audit trail and financial records will be transparent to and auditable by all community members.

#### Wider Spartos Community

Every member of the wider community (i.e. players betting with Spartos tokens) can actively contribute to the success of the foundation by contributing ideas or raising concerns using an internal memo-list.

### 5.2 Roles

#### Protocol Development Management

The foundation will oversee all aspects of the protocol's development – from the R&D roadmap and QA to the affiliated tools and maps, mass adoption, and market innovation.

#### Simplifying leveraging regulation / Ongoing communication with regulators

The foundation will strive to ensure ongoing compliance with regulatory measures for sports betting and online gambling – both local and global alike. Furthermore, the foundation will foster synergistic relationships with leading regulators and auditing bodies, and will develop specialized regulation capabilities for the protocol to promote innovative governance and compliance.

#### Promoting global partnerships / ensuring global collaborations

The Spartos Foundation's valuable global partnerships and community relations will be continuously cultivated and managed by the Foundation, who will strive to refine the Spartos protocol's standards and methods and educate the market – including adoption campaigns and initiatives.

### 5.3 Funding

Funding for the Foundation's activities will be obtained using a modest share (0.05%) of the betting transactions processed through its protocol and seed money.

# 06 | Scaling The EcoSystem

## *Trustworthy Sports Betting By-Design*

### 6.1 Empowering Regulation - A Powerful Collaboration

Although blockchain projects strive to be as limitless and decentralised as possible, the regulated nature of the online gambling industry dictates aligning the Spartos protocol with regulators' demands, supporting them in their efforts to create a responsible and safe gambling environment.

As a blockchain protocol, the Spartos protocol is regulatory compliant by-design, with an immutable audit trail and customisable regulatory audit modules that allow operators to easily enter new markets and support current and future regulatory demands; providing operators, service providers, technology providers, players and regulators a complete set of relevant reporting tools and aggregated dashboard; while maintaining the proper degree of privacy and pseudonymity expected by players and operators.

- **Regulated Event Offering** – Some regulators have placed restrictions on offering specific leagues and bet markets, mainly to limit match fixing and promote local sports. These restrictions are different for every regulated market. Today, each operator has to develop (and constantly struggle with) their own tools to block certain events and bet markets, but the Spartos protocol aims to remove this redundancy by creating offering modules for each regulated market, hopefully to be certified and approved by the regulator himself. If an operator would like to operate in a particular regulated environment, they could just apply the module and have an off-the-shelf regulated offering with the proper events/bet markets permitted for that jurisdiction.
- **Responsible Gambling** – Each regulator has its own rules when it comes to responsible gambling and player protection. Same as in event offerings, operators will be able to connect to an off-the-shelf module that will apply the local regulatory limits.
- **Chainalysis Modules** – Regulators will be able to audit and track transactions on the chain in real-time, either by developing their own chainalysis tools or by using the mission-specific tools created by the Spartos Foundation.
- **Segregated Funds** – Today in almost all regulated markets, the regulator requires the operator to store the player's funds in a segregated bank account. Limiting risks of player fund loss is a main priority for most regulators today that will be made redundant with the Spartos protocol, as the operator will not hold any player funds (subject always to jurisdiction-specific requirements).

## 6.2 Adoption

Spartos Foundation intends to promote widespread market adoption and its own brand, through three complementing avenues:

### 1. B2B Adoption

- **Business Development & Integrations SWAT Team** - The team behind the Spartos protocol are veterans in the B2B gambling technology world, with ample hands-on experience in:
  - Contracting new technology deals with regulated operators worldwide. Setting up strong integration teams that assist on-site with the implementation process for new technologies
  - (Already)securing thousands of contacts among decision makers and technology leaders within the top online gambling operators.
- **Promotions Utilising Token Allocation** - As mentioned in the Token Economy section, the Spartos Foundation will allocate a certain amount of tokens to be used as adoption incentives to operators on the network.The Spartos Foundation intends to offer various token rewards to early adopters, such as commission on turnover and adoption milestones reward, and allocate tokens to execute adoption-affiliated contractual commitments.
- **Exhibiting in Conferences** - The Foundation will also represent the Spartos protocol at various wide audience and professional industry venues , positioning the Spartos Foundation and its protocol as a pivotal player in what's next in sports betting.

### 2. Community Adoption

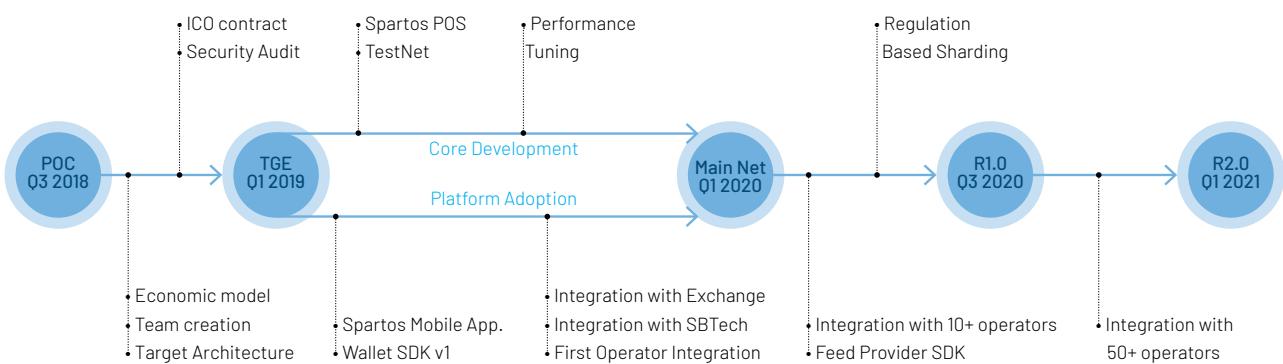
- **Community Building** - The Spartos Foundation will work towards fostering a vibrant community of players and partners that will promote the Spartos protocol, ambassador its sports betting paradigm, and encourage new players and ecosystem contributors to join the Spartos Network. The community will promote the Spartos protocol both from a technology/functionality perspective, as well as by contributing ideas to new sports betting practices and innovation.
- **Funding Spartos-Based Ventures** - Enhancing innovation and community involvement is in the core of our business. The Spartos Foundation will utilise its token reserve to fund start-ups and provide grants to businesses built on the Spartos blockchain protocol.

### 3. Retention Enhancement

- **Official Mobile Wallet** - As part of the preparation for main-net go-live, the Spartos Foundation intends to develop the first Spartos protocol mobile app, designed to enable users to control and take advantage of all the features the spartos protocol offers via a simple and easy UX:
  - End to end SPT Wallet
  - Bet placement/confirmation via the Spartos protocol
  - “One-Click” KYC sharing
  - Integration with various exchanges for seamless Fiat/SPT or SPT/Fiat exchange
  - Full visibility of all transaction history
- Control over multiple HD/Stealth wallets
- **Spartos dApps store** - This includes multiple apps that are either operator/technology-provider facing, or player facing, such as (a) **Open Source T&C Display/Dashboard** - enabling operators or technology providers to display the exact terms and conditions of a bet to the players during their bet placement journey, and (b) **Spartos BetMate (™)** - Spartos' own branded app - designed to supplement common wallet capabilities with a cross-operator dashboard that contains a complete history and insight to all past and present bets placed by the player across multiple operators and others.

### 6.3 Partnerships

- **Industry Leaders - e.g. SBTech**
- One such notable deal is the partnership secured with SBTech, one of the world's leading technology provider for regulated sports betting. SBTech will integrate the Spartos protocol within its platform, and offer it to its operators.
- SBTech are committed to working exclusively with Spartos in the Crypto/Blockchain worlds, and will therefore actively promote the Spartos Protocol to ensure a strong adoption rate from day one. Similar partnerships are now being negotiated with several similarly prominent entities, with the goal of reaching millions of players within the first 24 hours of the mainnet go-live date.

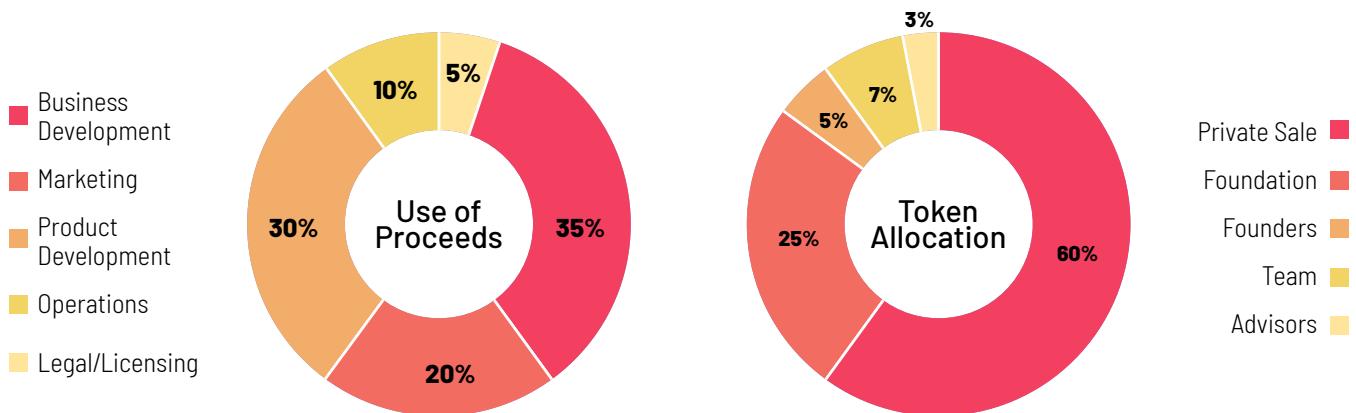


### Token Generation Event/Token Sale/Token Sale Properties

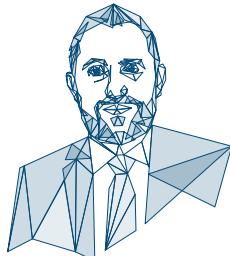
Token Name	Spartos Coin
Token Symbol	SPT
Type	Utility
List Price	0.10 USD
Hard Cap	\$150,000,000
Soft Cap	\$50,000,000

## 07 | Token Allocation & Use of Proceeds

*Please see updated Rounds and Bonusing*



## 08 | Team, Advisory, Partners



**Dave Hammond**

CEO

[in Dave Hammond](#)

25 years gambling and gaming experience driving innovation and growth across multiple continents and all product verticals; Dave directed Operations for Inspired Gaming, delivering over £1bn per annum revenue to William Hill, Paddy Power and Coral amongst others before creating an online gambling distributor supplying innovation to Bet365 and other pure digital operators.

More recently Dave directed commercial operations and innovation for Paddy Power Betfair, responsible for Australia Exchange, Asian partnerships and World Lottery Association operators whilst driving the digital transformation of the world's oldest Horse Racing data analytics company, TimeForm. An Expert in high growth strategy and disruptive innovation, Dave continues to create value for suppliers and operators worldwide.



**Yuri Lapin**

COO

[in Yuri Lapin](#)

Yuri came from a strong technology and engineering background converting from a developer to a solution architect. After that he established a delivery management career stemming from project manager through program management of large international programs (incl. governments) into key account management for the professional services business.

But his career highlight is 7 years in consulting, starting from outsourcing consulting through R&D consulting to management consulting for digitally enabled businesses. The last engagement converted into a permanent role as COO at SBTech. After a successful 3 years at this role he is stepping out to take a COO role at Spartos. Together with other SBTech and industry peers the new mission is to disrupt the online gambling industry using blockchain technologies and eco-systems, also leveraging strategic partnership with SBTech.

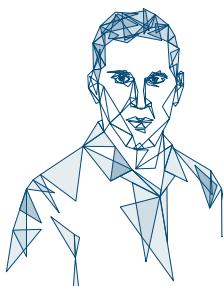


**Itzik Adler**

CPO

[in Itzik Adler](#)

With over 10 years' experience in Product Development, specialized in Blockchain technologies and tokonomics. Itzik's skills lie in transforming complex ideas to fully functional outputs. He is a former CPO at Saga Foundation and holds a BSc in Computer Science from Ben-Gurion University.



**Yossi Cohen**  
Chief Architect  
[in Yossi Cohen](#)

Yossi is a veteran technology pioneer, with experience in cutting edge technologies and distributed computing and online gambling. His prior experiences include co-founding two companies, leading the technological components within online betting companies, and heading M&A activity in technology companies.



**Keith McDonnell**  
VP Business Development  
[in Keith McDonnell](#)

Now based in the USA, and building on 18 years of online gambling experience, Keith founded kmigaming.com in 2011 to provide services for the regulated International online gambling sector, helping start-ups launch, fully established businesses grow internationally, and generally providing solutions within the online gambling sector (e.g. business strategy, international payments, marketing strategy, product solutions, mergers & acquisitions, boutique staff placements, etc). Also an investor in niche industry businesses and broker of sponsorship and corporate deals.

Keith was global affiliate manager for William Hill before leaving to oversee the launch of the UK Tote's betting website with overall P&L responsibility for performance.

Keith played a central role taking the bodog brand to regulated Europe, before becoming MD for that business. Took the lead on all global business development deals, was responsible for global sports betting performance and spent time in Asia as Managing Director for bodog Asia under license in the Philippines.



**Roland Pashniev**  
Blockchain Solutions Architect  
[in Roland Pashniev](#)

Roland came to the blockchain world with years of experience in conventional technology stack. The highlight of his career is a Solution Architect role in one of the worlds largest FinTech groups based out of City of London/Canary Wharf where he was leading 25+ projects in the scope of global architecture group. Spartos is not Roland's first ICO as he completed a successful one with Solve.Care before joining Spartos Team.

Roland's recent experience does include Blockchain Healthcare Platforms, multiple financial trading and analytics platforms, enterprise cloud migration programs. Spartos is very happy to have a passionate technologist who is always in a front row as a key member of the team.



**Dimitrios Lititaris**  
Director of Finance

[in Dimitrios Lititaris](#)

Dimitrios is a diversified finance professional within corporate finance, investment, financial consulting & entrepreneurship experience. Dimitrios comes from an engineering background and started his career in the financial industry where he built an expertise in investment banking, private equity, asset management, and consulting.

He participated and led projects varying from technology, telecommunications, finance, RE and developed strategic investment initiatives as mutual fund strategies and models. Dimitrios has held responsibilities for entity level P&L reporting & analysis, financial controlling & financial strategy development in top-tier betting industry companies.



**Rodion Altshuler**  
Senior Blockchain Developer

[in Rodion Altshuler](#)

Software engineer with extensive experience (7 years) in various business domains - finance (cryptocurrency and Forex trading systems), healthcare, business solutions support systems and social networks. Founder and developer of Crypton1 - cryptocurrency trading bot.

As a T-shaped person, he has expertise developing solutions in different roles - as blockchain, back-end and mobile developer.



**Valeriy Shtanko**  
Senior Integrations Developer

[in Valeriy Shtanko](#)

Valeriy has more than 20 years of experience in IT. He worked with different programming languages and technologies. He took part in various projects in the automotive industry (for Visteon, Volkswagen, Skoda), Fintech (Sage) and Healthcare (the "Obama Care" program in US). He has varied experience in software development from small systems to complex financial and enterprise information systems, and enterprise integration.

After 3 years of successful work as Senior Java Developer on a previous project for the US health-care market he moved to take this role in Spartos with a new goal - make a contribution into the development of the online gambling industry using state-of-the-art blockchain technologies.



**Ran Neu-Ner**  
Marketing Advisor (Acting CMO)

[in Ran Neu-Ner](#)

Ran Neu-Ner is a born entrepreneur. Founded The Creative Counsel in 2001, South Africa's leading activations agency with an annual turnover of \$150 million. In 2015 Ran concluded the biggest business transaction in South Africa where he sold The Creative Counsel to a French owned international business, The Publicis Groupe for just over \$150m. Ran has been a part of the Blockchain world since 2013 and has advised several projects. He is the founder of Onchain Capital, a Crypto Asset Fund and Advisory service.

In 2017 Ran's launched the world's first televised cryptocurrency show called Crypto Trader which is aired weekly on a Thursday night at 20:30 on CNBC Africa, DSTV channel 410. The show is the most viewed show on CNBC today. Ran is also ranked in the top 10 most influential people in the Blockchain by Richtopia.



**George Rover**  
Advisor

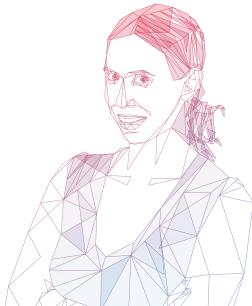
[in George Rover](#)

George Rover is the Managing Partner of Princeton Global Strategies, LLC (PGS) following his retirement after 26 years as a Deputy Attorney General and then an Assistant Attorney General with the New Jersey Department of Law and Public Safety, Office of the Attorney General. PGS is a boutique firm specializing in all aspects of casino gambling law, including investigations, licensing, compliance, internal controls and internet gambling as well as the licensing and regulation of New Jersey's liquor industry and its medical marijuana dispensaries. In addition, PGS is also available to provide advice and counsel on all matters involving representation before government agencies, corporate compliance, anti-money laundering and in-house corporate investigations both civil and criminal.

Mr. Rover is a seasoned attorney. In January 1999, Rover was promoted to Assistant Attorney General and assigned as the Special Assistant to the Director of the New Jersey Division of Gambling Enforcement. In August 2011, Rover was appointed Deputy Director of the Division and placed in charge of its Atlantic City office until his retirement in November 2016. Rover has handled some of the Division's most complex investigations and had direct oversight and responsibility of New Jersey's successful implementation of online gambling in November 2015.

Prior to his assignment to the Division of Gambling Enforcement in January 1999, Rover served as a Deputy Attorney General in the Attorney General's Office of Legal Affairs from July 1992 through 1995, where he provided legal advice on matters to the State Attorney General. In 1995, he served as a Special Assistant to the Director of The Division of Alcoholic Beverage Control until his promotion to Assistant Attorney General in January 1999. Prior to joining the State of New Jersey as a Deputy Attorney General, Rover was an associate at a law firm from 1987-1992 where he handled litigation matters.

Rover received his BS degree, with honors, from Rutgers University in 1983 and his Juris Doctorate from Rutgers University in 1986. Upon his graduation from law school, Rover served as a law clerk to The Honorable Virginia Long, in the New Jersey Superior Court, Appellate Division.

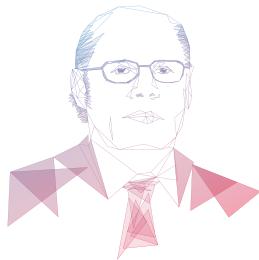


**Adi Karmon Scope**  
Tokenomics architect / Advisor

[in Adi Karmon Scope](#)

Adi is a serial entrepreneur with deep experience in the digital and cryptocurrency space. She co-founded AppCoin in 2012, building a digital currency platform that enabled communities to become economies, by issuing their own token.

Adi founded Fractal to assist companies with their ICOs, primarily in architecting their Tokenomics. She holds a B.A. in Economics and an M.B.A in Business Management.

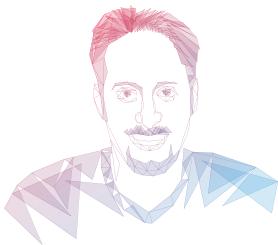


**Mark Guillaumier**  
Advisor

[in Mark Guillaumier](#)

Mark is the former Chief Executive of the Malta Stock Exchange Plc, retiring in September 2010, having held the post for the previous nine years. Having graduated in Economics in 1973, Mark spent three years at the Bank of Valletta Plc before joining the Research Division of the Central Bank of Malta where he spent the next sixteen years. In 1992 the Malta Stock Exchange commenced operations and Mark joined the Exchange as Assistant General Manager. He was appointed Deputy General Manager in January 1995, General Manager in January 1999 and Chief Executive in September 2001.

In 2005, Mark was officially appointed Senior Advisor to the Ministry of Finance and represented the Ministry on the Financial Services Committee of the European Commission in Brussels until 2008. He also sat on a number of international committees including the European Central Bank Advisory Group for Target2-Securities and the Budget and Audit Committee of the Federation of European Securities Exchanges (FESE).



**Yaniv Feldman**

Advisor

[in Yaniv Feldman](#)

Chief Executive Officer - One Alpha, First Digital Assets Group's Research Division

Yaniv Feldman is the CEO of One Alpha, the research arm of First Digital Assets Group. One Alpha provides context on crypto markets, technologies, projects and regulatory environment, all available through the One Alpha Intelligence Platform. One Alpha also provides Crypto and blockchain research, analysis and consulting services and works mainly with large financial institutions, funds, banks, regulators and enterprise customers, helping them plan, build and execute their blockchain and cryptoassets strategy.

Yaniv is known for his innovative top-down perspective on the crypto market, with a multi-disciplined approach utilizing fundamental, quantitative and technical analysis. He frequently presents his analysis at industry conferences and has been known for building innovative token economics and valuation models for crypto assets.

Before founding One Alpha, Yaniv was the founder and Editor-in-chief of Geektime, a leading startup and tech media outlet. Previously, Yaniv worked as a Microsoft Regional Director of Security products and an IT Infrastructure and security consultant for global technology companies.

Mr. Feldman has a bachelor's degree in business administration with concentrations in Economics from the University of Derby and is covering the Crypto market since 2011.



**David Purvis**

Advisor

[in David Purvis](#)

David is the former CEO of Stanleybet International and MD of Cyberview and has over 20 years of experience in senior management positions across the betting and online gambling sectors. Having lead both retail and online B2B supply across Europe, David moved to supplier and headed up Stanleybet International with their market leading expansion into regulated European markets.

David is still highly active and influential in the betting vertical, advising C-level and board members on M&A and strategy at the largest operators and suppliers in the industry.

## 09 | Disclaimer

### **Risk Factors**

The following are the main risk factors in relation to the Spartos project and the associated token sale event. Please note that the following is a summary of the risk factors only. You must read in full the "Legal Considerations, Risks and Disclaimer" that can be found at [www.spartos.com](http://www.spartos.com)

#### **A. Token Related Risks**

- There is no prior market for tokens and the token sale may not result in an active or liquid market for the tokens.
- Future sales or issuance of the tokens, as well as the individual conduct of token holders, could materially and adversely affect the market price of the tokens.
- Negative publicity may materially and adversely affect the price of the tokens.
- There is no guarantee of any success of the company's business platform or any future token functionality.
- The market price of the tokens may fluctuate significantly following the token sale.
- Technical failures may impact or prevent the correct issuance of the tokens once generated.
- The token may be significantly influenced by cryptocurrency market trends and the token value may be severely depreciated due to non-company related events.
- The use of the tokens may come under the scrutiny of governmental institutions, and governments may adopt legislation or regulation or apply existing legislation in a manner which may change the status or restrict the transferability or functionality of the token.
- The ownership of tokens may fall under new and unpredicted taxation laws that will erode the benefits of the tokens in general, or in a specific jurisdiction.
- There may be unanticipated risks arising from the tokens.
- Applicable laws and regulations may limit the utility, functionality, the accessibility and transferability of the tokens.

## B. Company Related Risks

- The company may be materially and adversely affected if it fails to effectively manage its operations as its business develops and evolves which would have a direct impact on its ability to maintain or operate the company's business platform and/or develop structure and/or license any future token functionality.
- The company may experience system failures, unplanned interruptions in its network or services, hardware or software defects, security breaches or other causes that could adversely affect the company's infrastructure network, and/or the company's business platform.
- The company may in the future be dependent in part on the location and data center facilities of third parties.
- General global market and economic conditions may have an adverse impact on the company's operating performance, results of operations and/or cash flows.
- The company or the tokens may be affected by newly implemented regulations.
- The company may not be able to pay any anticipated rewards in the future.

## C. Industry-related Risks

- The online gambling industry is highly regulated and the regulatory landscape applicable to sports is rapidly changing. Such changes could restrict or impede the ability of the company to realize the project and may impact the success of the project.
- Sports betting is increasingly regulated on a point of consumption level. Many jurisdictions have imposed prohibitions or significant restrictions on the industry and others are likely to do so. Such regulatory changes could impact the availability of the platform in certain jurisdictions and impact the success of the project.

Most gambling regulators have not yet specifically addressed the use of cryptocurrencies in online gambling, some regulators have expressed concern over such activity and others have subjected it to stringent conditions. Additional restrictions on the use of cryptocurrencies for online gambling may be imposed. Such restrictions may impact the usability or attractiveness of the platform in various jurisdictions.

## 10 | Glossary and Endnotes

Bet placement	The act of placing a wager on the outcome of an event at agreed upon terms. e.g. a team to win a football match
Bet returns	The amount of money returned to the player after the bet was settled
Bet settlement	When a bet is settled based on the terms agreed upon during placement. This can include a full win, partial win, money back, or no money back in case of complete loss
Bet types	Different categories of bets; these include pre-match and live bets; single bets (single event) system and combo bets (multiple events)
Bonuses	Promotional incentives offered by operators to encourage sign up or bet placement. Used as means to increase player lifetime value.
Bookmaker/Operator	Provides odds and terms on the outcome of events and accepts bets on these terms in exchange for a house edge
dApps	Decentralized applications that directly connect users and providers
Data feed provider	Provides event result data for the purpose of settling sports bets
Deposit	Money deposited by a player into their account on an operators site in order to place bets
Fixed odds bet	A bet that guarantees potential returns from that bet will not change, regardless of whether or not the odds fluctuate after the bet is placed
In-play bet	A form of betting that has become hugely popular, it involves betting on a particular outcome after the event has started
Latency	The time between submission and resolution for a specific transaction
Marketing affiliates	Third parties that route potential players to operators sites via advertising, in exchange for payment, either one time or revenue share
Odds/Price	The returns a bookmaker offers against a particular outcome
On/off chain	Indicates whether a transaction or event occurs on or off the blockchain

Operator risk management	In order to reduce risk exposure, operators will take bets on opposing outcomes. Ideally they will have no risk exposure, and enjoy profit from the spread
Oracles	Bridge the gap between digital code and physical event results. Enables real world data usage in smart contracts
PSP's (payment service providers)	Provide payment transaction services allowing the transfer of money between parties in exchange for fees
Regulator	Government, or other regulatory body, that regulates sports betting in a specific jurisdiction
Segregated bets	A bet an operator passes to another operator in exchange for a commission
Staking	An operator locking an amount of coins in a pool, in order to cover 100% of player's bets and pay the various Spartos Network fees.
Tech provider	Provides operators with sportsbook, player management and front end technology
TPS (Transactions per Second)	Used as a measure for the bandwidth of a given blockchain protocol
Void bet	Void bets lead to stakes being returned by the Operator. For example, if you placed a bet on the first goal scorer in a football match before the team selections were announced, and that player is not named in the squad for the game, your bet will be voided and your stake returned
Withdrawal	Money withdrawn from the operator's site back to the player's wallet

## Technology Chapter Endnotes

1. Ethereum has a performance speed of 800 transactions per second  
<https://github.com/ethereum/EIPs/issues/650>

2. Bitcoin has a transaction speed of only 7 transactions per second  
[https://en.wikipedia.org/wiki/Bitcoin\\_scalability\\_problem](https://en.wikipedia.org/wiki/Bitcoin_scalability_problem)

3. EOS has reached speeds of 3,000 tps in recent testing  
<http://www.crossroadstoday.com/story/38551848/race-to-million-tps-eos-ethereum-and-thunderchain>

4. Plasma project is a proposed framework that overcomes transaction speed limits  
<https://plasma.io/plasma.pdf>

5. Sharding is a conceptual solution to scalability, latency, and throughput issues  
<https://medium.com/edchain/what-is-sharding-in-blockchain-8af9ed4cff0>

6. Oracles find and verify real world information for use in smart contracts  
<https://blockchainhub.net/blockchain-oracles/>

7. Zero Knowledge Proof is where one party proves to another party that something is true without revealing any further information  
<https://medium.com/@argongroup/on-zero-knowledge-proofs-in-blockchains-14c48cf1dd1>

8. A 51% attack is where a malicious actor manages to control 51% of the network  
<https://medium.com/formosa-financial/a-51-attack-happened-how-did-it-happen-to-bitcoin-gold-da131a8080a6>

9. Proof of Stake is a consensus mechanism that relies on proving network involvement  
<https://en.wikipedia.org/wiki/Proof-of-stake>

10. Proof of Authority is a consensus mechanism that uses identity as a stake  
<https://en.wikipedia.org/wiki/Proof-of-authority>

11. Practical Byzantine Fault Tolerance is a system by which the security of systems are assured by requiring the majority of participants to agree  
<http://pmg.csail.mit.edu/papers/osdi99.pdf>