

GCL

Valuing Performance

<https://www.gclgaming.com/>

WHITE PAPER V1.0

Table of Contents

Intro	3
Problems and Solutions	4
Eliminating Risk & Entry Barriers.....	4
Unbanked Gamers.....	4
Incentivizing competition.....	4
Reducing Match Queue Times.....	5
Opening New Markets.....	5
Global Interoperability.....	5
Eliminating Smurfing.....	5
The GCL Vision	6
GCL Currency	6
GCL Supply and Allocation.....	6
Incoming GCL Supply.....	6
GCL Power.....	7
Reward Distribution.....	8
Ranking Algorithm	9
Calculation.....	9
GCL Wallet	9
GCL Leaderboard	10
Seasons	10
How to Play	10-11
Microtransactions & In-Game Currencies	12
GCL Gaming Revenue Model	12
Non-Restricting Subscription.....	12
Microtransactions.....	12
E-commerce.....	12
Content Promotion & Monetization.....	13
Cardano Blockchain	13
Credibility.....	13
Plutus	13
Marek Analysis	14
Initial GCL Currency Structure	14-15
GCL Disclaimer	15-16

Introduction

According to Guinness World Records Rod Stewart performed the [world's largest concert](#) in 1994 with 4.2mm attendees at a venue in Rio...yet in February of this year over 10.7mm people tuned in to a [10 minute concert in Pleasant Park](#)...a suburban enclave in the online video game Fortnite. Our online existence continues to blur the line between our own real and virtual realities, and it's worthwhile to note that while Fortnite is a free game in a virtual world, it generates over \$2.4BN in real world revenue.

GCL is a new e-sport (competitive gaming) ecosystem utilizing blockchain to remove the risk and inefficiencies of betting money to fund reward pools. Gamers can earn without betting money or paying entry fees. The ecosystem includes the **GCL Gaming platform**, which is used to host e-sport matches, and [GCL cryptocurrency](#), a digital currency on the Cardano blockchain. Newly minted GCL cryptocurrency distributes every 24 hours in accordance to each players ranking. This newly minted supply rewards performance with value that isn't an overhead cost. The players "mine" by competing in games and value is distributed in accordance to performance. GCL eliminates the risk of betting money and more effectively rewards performance. The amount of new GCL currency that is created each day to fund the reward pools is pre-set to create predictable economics. The economic model is detailed in the GCL Currency section, infra. GCL's reward distribution model also improves the quality of competition by rewarding gamers for increasing their rank, while higher ranked players must continue to engage with the platform to sustain their ranking. The current reward model of betting money creates a user experience where earned value is largely dependant on the amount initially bet to start the match, rather than the players actual performance. This system of increasing risk to obtain bigger rewards eliminates any incentive to challenge better players resulting in an unhealthy competitive community.

In GCL a gamer's reward size is solely based on the performance of the individual in skill-based esports competition. The ranking system measures each gamer's daily performance to determine the amount of GCL a gamer receives at the end of each daily cycle. Increasing rank allows the user to be matched with higher ranking players, leading to larger rewards. Players can track current placements and reward sizes on the leaderboard. Gamers compete for their percentage of each daily reward pool and must win at least one match to be rewarded. The most talented gamers receive the highest rewards; losses do not subtract GCL from account balances. To begin users select play now on the website or app and are automatically matched with the closest ranking player or team also searching for a match.

Any gamer that earns GCL obtains full ownership over the currency. [The Cardano public blockchain](#) is used to track ownership of the currency. GCL was [founded by gamers](#) looking to fix the biggest problems in the e-sport community. This technology greatly increases the entertainment and efficiency of online e-sports while eliminating the risk and paywalls that prevent many from participating.

Problems and Solutions

Eliminating Risk & Entry Barriers

GCL Gaming is the first online e-sport platform enabling gamers to profit off competition without placing bets or purchasing match access. Users do not purchase permission to compete, because GCL currency is derived from the act of competition. While Bitcoin “miners” compete to produce computing to earn new Bitcoins, GCL gamers compete in games to earn new GCL. This is possible because GCL is a second layer blockchain application. First layer blockchain protocols such as [Bitcoin](#) and [Cardano](#) use their incentives to secure the network. This allows second layer applications to create new types of incentives because the blockchain is already secure. Today’s esports are largely dependent on risking currency, discouraging many gamers (especially those new to e-sports) from participating. GCL eliminates the need for gamers to assume the risk of loss associated with traditional esports wagering systems; instead a loss merely shrinks a player’s daily-awarded GCL via a drop in their leaderboard position.

Unbanked Gamers

Countless gamers in developing nations want to be rewarded for competing in e-sports but do not have sufficient banking infrastructure to play on sites that require fiat currency to enter. This demographic will continue to grow as more of the world's population comes online. GCL provides an exciting opportunity for these gamers to finally take advantage of their ability. No credit, debit or bank information is required to earn GCL. GCL provides opportunity for the global network of gamers.

Incentivising Competition

Competitive gamers often avoid betting on matches against higher-ranked players because they want to ensure match-superiority over their opponents to minimize risk. They also attempt to keep their personal rank low to attract similarly ranked challengers. This creates an unhealthy competitive community. GCL integrates match-difficulty (as measured by their opponents rank) into the calculation when awarding GCL. A player's rank is calculated by the algorithm detailed in the GCL Ranking Algorithm section, *infra*. Gamers must continue to beat better players in order to increase their rank and rewards. Beating high ranking players allows the victor to move up the daily leaderboard faster and receive larger rewards. Creating a platform where people compete for rewards without betting money allows the user to fully embrace the competition and be excited about facing difficult opponents.

Reducing Match Queue Times

The GCL reward pool is not reliant on human entry which dramatically increases the efficiency of the e-sport experience. Gamers simply select “Play Now” and are instantly matched with the closest ranking opponent as they strive to rise in the ranks. GCL Gaming is the first esports platform capable of perfecting this type of matchmaking because gamers do not wait for another user to place an equivalent bet. The requirement to select a bet amount before matchmaking is also erased. GCL Gaming also eliminates the process of adding a credit/debit card which further increases the efficiency of the experience. These features allow GCL Gaming to provide the most user friendly interface in the industry.

Opening New Markets

GCL Gaming widens the esports market by eliminating traditional forms of wagering fiat-currency or other fungible currencies. The United States federal laws and the [Unlawful Internet Gambling Enforcement Act of 2006](#) Section 5362 allows “games of skill in which opportunity to win is not predominantly subject to chance.” Esports sites are able to operate without violating gambling laws because the games are entirely dependant on skill. However, there are still many locations across the world, including a few states in the US that have banned skill based betting. GCL Gaming is the first platform to reward gamers without requiring currency wagering. Gamers between the age of 13-17 may participate with parental consent because it is not a betting site and there is no inherent risk in participating. This substantially increases the size of the market because gamers under the age of 18 are prohibited from esports betting sites. GCL removes the risk of funding reward pools off the shoulders of gamers. Resulting in a safer user experience that allows more people to participate.

Global Interoperability

Gaming is a global phenomenon that connects people across borders in the same ethos as blockchain. The creation of a cryptocurrency designed for the e-sport community streamlines the global connectivity of gamers and the industry. Players no longer need to be disconnected by conflicting fiat currencies. [The Cardano public blockchain](#) tracks ownership of GCL digital currency without any third party. Decentralized blockchain systems such as Cardano create global peer-to-peer trust.

Eliminating Smurfing

[Smurfing](#) is a well-known e-sport problem where talented gamers create low ranking profiles to compete against low ranked players. This problem increases in bet based matches. The GCL incentive model provides e-sports with the highest protection against smurfing. GCL rewards are based on increasing rank and competing vs higher

ranked opponents. This eliminates the incentive of having a low ranked profile. GCL Gaming is the first e-sport platform capable of this.

The GCL Vision

Eliminating the risk of betting money with a protocol that distributes value in accordance to performance. This value helps improve the entertainment, efficiency, and global connectivity of the gaming industry.

GCL Currency

Initial GCL Supply

The [total supply of GCL currency](#) will begin at 1,000,000,000. Each GCL will start with a valuation of 1.5 cents, equaling a total market cap of \$15,000,000. These numbers were chosen to create high growth potential and easily calculated mathematics. Many cryptocurrency projects have overvalued the initial supply in hopes of raising absurd amounts of capital. This results in the cryptocurrencies market cap realizing its full valuation at launch with no room for growth.

Incoming Supply

The release of GCL currency supplies every 24 hours creates a predictable economic model. In the first year 232,876.712 GCL will be mined daily resulting in 85,000,000 total mined GCL. The annual incoming supply will decrease by 5,000,000 every subsequent year until hitting a fixed rate of 10,000,000. GCL is directly mined by gamers competing in e-sport matches without the need to risk fiat-currency.

Year	Total Supply	Mined Daily	Mined Annually
1	1,000,000,000	232,876.712	85,000,000
2	1,085,000,000	219,178.082	80,000,000
3	1,165,000,000	205,479.452	75,000,000
4	1,240,000,000	191,780.822	70,000,000
5	1,310,000,000	178,082.192	65,000,000
6	1,375,000,000	164,383.562	60,000,000
7	1,435,000,000	150,684.932	55,000,000

8	1,490,000,000	136,986.301	50,000,000
9	1,540,000,000	123,287.671	45,000,000
10	1,585,000,000	109,589.041	40,000,000
11	1,625,000,000	95,890.411	35,000,000
12	1,660,000,000	82,191.7808	30,000,000
13	1,690,000,000	68,493.1507	25,000,000
14	1,715,000,000	54,794.5205	20,000,000
15	1,735,000,000	41,095.8904	15,000,000
16	1,750,000,000	27,397.2603	10,000,000
17	1,760,000,000	27,397.2603	10,000,000

GCL Power

Gamers may use GCL currency to Power Up. Power is GCL currency which has been locked from transacting by the wallet owner. GCL currency in Power is locked for an 8 week period; after those 8 weeks, any amount of that same locked supply can be unlocked. If a user has locked amounts of GCL on different dates and wants to unlock at once the total amount of GCL currency in Power, 8 weeks must pass from the date of the last Power up before that user can unlock the total balance of GCL currency from Power. Powering up increases rewards for players that win matches. 40% percent of the reward pool is distributed to daily winners according to Power levels, which ensures no single entity dominates the network.

Reward Distribution

Gamers have two options from which to choose when receiving their rewards: Gamers can elect to receive rewards allocated equally between GCL and GCL Power or they can choose to receive their rewards in 100% GCL Power. Total distributions are calculated by daily rankings and GCL Power levels: 60% rankings, 40% GCL Power levels. The GCL reward distribution model eliminates entry barriers for gamers because [GCL Gaming](#) does not require gamers to place bets to participate in peer-to-peer matches nor require tournament entry-fees to fund the GCL mining pool. A predetermined rate of GCL currency is paid out every 24 hours to maximize the amount of GCL that can be mined, create a predictable rate of inflation, and reward gamers for playing more matches. Users can track the current payout leaders on the daily leaderboard. Eliminating traditional wagering methods, GCL gamers have no incentive

to safeguard themselves from higher-ranked players or intentionally keep their rank lower to attract players. The GCL protocol addresses the problems of skill-based betting and creates the highest-quality online esports ecosystem, wherein participants only stand to move up or down on the leaderboard to take more or less of the daily GCL reward pool. The value awarded to gamers in GCL is not an overhead on GCL Gaming or its users. GCL is distributed and tracked on the Cardano public blockchain. GCL is not awarded to gamers directly from [GCL Gaming](#), rather they are autonomously generated on the decentralized blockchain and distributed as gamers produce the data required to mine GCL. GCL Gaming pushes the first domino by developing the economics and distribution method of the digital currency after which it becomes autonomous

Ranking Algorithm

The GCL ranking algorithm is based on the [Glicko rating system](#) to measure performance and assign rankings. Invented by Dr. Mark E. Glickman of Harvard University, Glicko is an extension of the classic Elo rating system. Glicko increases the reliability of Elo by adding rating deviation (RD) to the calculation. Players that have competed in a small number of matches, or that have taken time off, have a high RD because their data is less reliable. Low RDs apply to gamers who frequently play. A player's rank only changes from match outcomes, but their RD changes from game outcomes and from the passage of time when not playing. New players do not have a reliable rating until they have played several games, so their rating must converge quickly to their true skill value. A frequent player has a more reliable rating, making it less volatile.

Calculation

The parameters for each player's rating are the following:

- Ratings deviation (**RD**): Measures the uncertainty in the player rating.
- New RD (**RD'**): Measures post-match RD.
- Rating (**r**): Measures the player rating.
- New rating (**r'**): Post-match player rating.
- q: A constant value: $(q = \frac{\ln 10}{400} = 0.0057565)$.
- s: Outcome of the match (1 for a win, 0 for a loss).
- $E(s|r, r_j, RD_j)$: Represents the probability of player winning against player "j".

Post-match rating determination (variables with a "j" indicate rival player values):

$$r' = r + \frac{q}{\frac{1}{RD^2} + \frac{1}{d^2}} * g(RD_j)(s_j - E(s|r, r_j, RD_j))$$

$$RD' = \sqrt{\frac{1}{\frac{1}{RD^2} + \frac{1}{d^2}}}$$

where

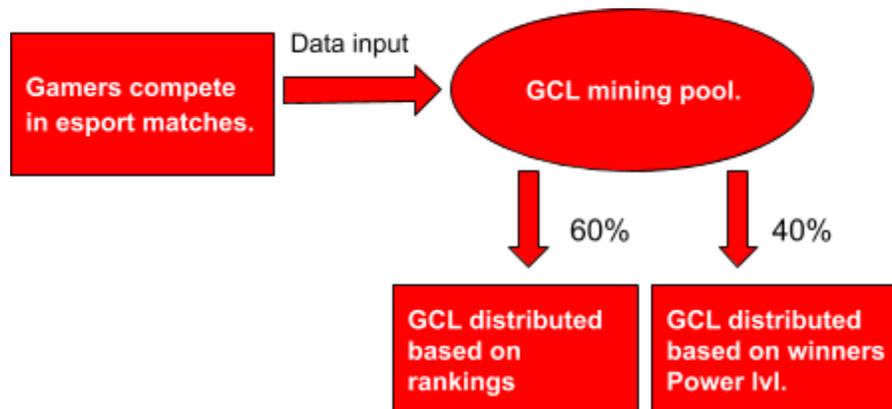
$$g(RD) = \frac{1}{\sqrt{1 + \frac{3q^2(RD^2)}{\pi^2}}}$$

$$E(s|r, r_j, RD_j) = \frac{1}{1 + 10^{-\frac{g(RD_j)(r-r_j)}{400}}}$$

$$d^2 = \frac{1}{q^2 \left((g(RD_j))^2 E(s|r, r_j, RD_j)(1 - E(s|r, r_j, RD_j)) \right)}$$

These calculations repeat after each match, for each player.

Each game on the platform has its own glicko system. If a gamer does not compete in a specific game title for 30 days then their rank is not accounted for in the distribution of GCL. Tied ranks are resolved by the length of time registered on the platform. In the case of a team match. The calculation takes the mean rating and RD of the players.



GCL Wallets

New users are automatically given a wallet to allow them to begin playing instantly. This default wallet does not require a 15 word key phrase creation and storage by the user. Users will have the option to create a new wallet which will allow them to generate a 15 word recover phrase in order to achieve higher security. GCL Wallets on

the platform hold GCL and GCL Power. Gamers can send GCL from their GCL wallet to any compatible GCL wallet address.

GCL Leaderboard

GCL Gaming leaderboards allow gamers to track their rank and reward progress. The main leaderboard tracks daily reward rankings. Performance in multiple game titles goes towards the same reward placement. The daily reward leaderboard displays the order of player performance and the amount of GCL they currently receive if the GCL distribution happened at that time. Displayed is the amount of GCL and the USD trading value. Each game title also has its own rank leaderboard which displays the all-time ranking of players within that community. These leaderboards are found on the same leaderboard page as daily reward but are secondary in displayed relevance.

Seasons

Seasons on [GCL Gaming](#) are three months long. At the end of every season, ranks reset so no players dominate the ranking system. Players must still continue to compete within each season to maintain their rank. In the future, blockchain registered profile enhancements will be given to top-ranked players at the end of each season.

How to Play

Matches on GCL Gaming follow standard e-sport rules and procedures, making the transition to GCL Gaming easy and familiar. The process for joining GCL matches is simple:

1. Create a GCL Gaming account online and connect it to gaming networks (PSN, Xbox Live, Steam, Epic etc) by entering a gamertag.
2. Begin competing by selecting "Play Now"



Sign up

New users signup on the [GCL Gaming landing page](#). Information required for registration includes; username, password, email, age, time zone, game network tag (PSN, Xbox Live Epic, Steam, etc).

Compete

Players begin competition by selecting “Play Now” under their desired game title. The two filter options are game network (PSN, Xbox Live, Epic, etc), and time zone. Once “Play Now” is selected the user is instantly matched with an opponent. A page specific to that match is opened to display the following details; GCL Gaming Profiles, Gamertags, Host, time zones, and chat box.

Report score

GCL Gaming is not attached to the game’s API because they do not return the data needed for e-sports and are subject to change. Each participating party reports the winner of the match. If the second reporting party reports a different result than the first party then the first party receives a notification to accept that result or begin a dispute. Three invalid disputes result in a platform ban. A banned account may access wallets but may not compete on the platform. A gamer may not start a new match until the most recent match has been reported.

Disputes

Gamers can resolve a dispute by submitting a photo or screen capture of the result and a note for the community admin. Gaming consoles automatically record gameplay making it easy to submit evidence directly from the gaming system. Once a dispute has begun the gamers have one hour to submit evidence. No XP is earned until the match is resolved. E-sport sites have used this model since the creation of Major League Gaming in 2002. Fiat wager websites have 1% of matches disputed while the gamers have placed bets on the match. GCL gamers do not bet their money, so there is even less incentive to attempt a fraudulent dispute which will not be verified and lead to a platform ban.

Win GCL

GCL is distributed every 24 hours after launch to give gamers time to gain XP and compete for the reward pool. Gamers can track their current placement and reward on the leaderboard.

Microtransactions & In-Game Currencies

Microtransactions via in-game currencies are becoming the main revenue model for game publishers. [Fortnite](#) and [Apex legends](#) are two of the world's top grossing game titles and are free to play. These games produce income by providing in-game currencies such as Fortnite's V-bucks which can be spent on microtransactions for skins, weapon camos, emotes, etc. GCL is the cryptocurrency for gamers, and a blockchain based in-game currency. GCL is mined by players competing in games such as Fortnite and can be used for microtransactions on the [GCL Gaming platform](#) to improve a users presence and profile design. GCL Gaming also plans to work with game publishers to enable GCL as a means of payment for their in-game currencies. This would introduce a seamless connection between the players' experience of competing in games and accumulating various in-game currencies.

GCL Gaming Revenue

Non-Restricting Subscription

After the first 6 months of platform launch, a non-restricting subscription will be introduced. Players will pay \$2 worth of GCL at current trading value every 30 days. If the user does not hold \$2 worth of GCL at the end of a 30 day cycle their wallet is locked via a smart contract, and they may compete until acquiring the required GCL or adding the required amount to their wallet. This means the "subscription" is not a pay wall.

Microtransactions

Gamers may use their GCL to purchase profile graphics, animations, emotes, etc which display to others on the public leaderboard and when matched vs opponents. This provides GCL Gaming with a powerful revenue model and GCL currency with another valuable use case. No microtransaction gives players an edge in the competition beyond intimidation. GCL Gaming microtransactions will also be a proof of concept for major game publications to accept GCL as payment for their in-game currencies.

E-commerce

[GCL Gaming](#) will feature a shop for gamers to spend their GCL. Products featured on the site such as gaming equipment will cater to the communities needs. People can pay to have their products displayed in the shop to increase sales. This provides a nonintrusive type of promotion that benefits the whole community. The highly targeted gaming demographic who seek to expend their earned GCL provides promoters with a valuable niche and users with meaningful products that fit their needs.

Content Promotion & Monetization

GCL Gaming provides media-based gaming entertainment for community growth. The content displayed by GCL Gaming is provided by the GCL community. Gamers send in their quality content to be featured on [GCL Gaming social media](#) accounts or may be selected to stream on [GCL Gaming's official Twitch](#). This allows gamers the opportunity to have their content seen by a broader audience and gives [GCL Gaming](#) a means to monetize. Streaming is the main focus in regards to content promotion and monetization. In the future, GCL Gaming plans to integrate video streaming into the platform for top players to broadcast their GCL Gaming matches. This will provide GCL Gaming with a revenue model similar to Twitch where the broadcaster and platform share income.

Cardano Blockchain

Credibility

[Cardano](#), engineered by [IOHK](#), is a third-generation blockchain. We have selected to build the GCL cryptocurrency using Cardano because of the rigorous peer-review process it has gone through and its credibility in the academic world. IOHK's network of partners has included Oxford University, Edinburgh University, the University of Connecticut and the University of Athens. IOHK has numerous [peer-reviewed academic publications](#) that represent their knowledge and capabilities in the blockchain space.

Plutus

GCL will be among the first cryptocurrency systems programmed with the [Plutus smart contract language](#). IOHK released Plutus for testing in December 2018. Plutus is a subset of a functional programming language called [Haskell](#). This technology provides GCL with high assurance code that is easily audited. This is because the code is typed in a similar manner to mathematical theorems. The functional nature of Haskell and Plutus makes it easier to mathematically reason and provide formal verification. Formal verification is the process of mathematically proving the program will run as intended. This is not as important for most web applications but when people's value is reliant on the code it must work as intended. An increasing number of banks are adopting functional programming for this reason. Plutus provides a new industry standard for smart contracts which helps prevent unforeseen events, such as [the DAO hack](#). Coding smart contracts with Plutus will begin once Goguen, the computational layer of Cardano, becomes live in Q4 of 2019.

Market Analysis

Gaming Market

With the popularity of competitive [esports growing globally](#) in recent years, networks connecting gamers for competitions have emerged naturally. Talented players can earn substantial, full-time income from gaming revenues accrued from video streaming their live games, private label sponsorships, tournaments, and wagering platforms.

Crypto Market

Although online e-sports gaming marketplaces are rising in numbers, a live blockchain platform for e-sport gamers is lacking today. Here are identifiable flaws of marketplace competitors that have raised money to build platforms for wagering cryptocurrency:

- Undefined token allocation structure
- Undetermined fee model
- Unclear user interface or product
- Unknown revenue sources, if any
- Unidentifiable token value mechanisms
- Ambiguity of gamers' interest
- Reliant on players betting

Our competitors are proposing projects that take the fiat e-sport model and copy it with cryptocurrency. These projects are platforms that allow the users to bet the value of their cryptocurrency tokens instead of fiat currency. The problem is fiat currencies like USD are a better betting mechanism because of their stability. Why should a user exchange their USD for a token that provides the same function with a lessor experience.

Initial GCL Cryptocurrency Structure

Allocation

The 1,000,000,000 initial GCL supply will be allocated accordingly: 700,000,000 for the Token Sale; 200,000,000 for the GCL Gaming Team; 50,000,000 for the Advisory Board; 50,000,000 For The First GCL Gaming Users.

%	Amount (GCL)	Participant
70%	700,000,000	Token Sale

20%	200,000,000	GCL Gaming Team
5%	50,000,000	Advisory Board
5%	50,000,000	For The First GCL Gaming Users

Token Sale

Token sale represents the supply reserved for raising capital. 700,000,000 tokens will be sold to raise \$10.5 million.

GCL Gaming Team

20% of the initial supply is reserved for [GCL Gaming core contributors](#). This percentage will be distributed at the discretion of GCL Gaming. The lockup period for this supply will be 24 months.

Advisory Board

The GCL Gaming advisory board includes industry experts that provide advice and guidance.

First Users

5% of the pre-mined supply will be given to the GCL community to gain access to platform features. This supply will be placed in GCL Power.

GCL Disclaimer

GCL is a cryptocurrency operating on the Cardano blockchain. GCL functions on the GCL Gaming platform to provide access to services in the GCL Gaming ecosystem. GCL is not defined as an equity that entitles ownership, voting and decision making rights, or profits made by GCL Gaming Inc to platform users or GCL holders. Gamers' GCL rewards are solely based on a user's individual performance in skill based games. GCL Gaming is not a betting platform, still the game titles available for play adheres to United States federal laws and the Internet Gambling Enforcement Act of 2006 Section 5362 that allows "games of skill in which opportunity to win is not predominantly subject to chance." GCL Gaming Inc, is opening a new market, because we are providing opportunities to gamers that live in different locations across the world, including locations where skill based wagering is banned, to compete for GCL Rewards. Our users can compete in esports matches to receive GCL rewards without placing wagers

or bets. Gamers must be at least 13 years of age to use our services. Users aged between 13 and 17 years of age must receive and provide parental consent to use our services.