LUDUM

"A Revolutionary Global Social Gaming Experience"

Whitepaper V3.1.2

Table of Contents

Summary & Mission

Traditional lottery is broken: High fees, low transparency, rampant fraud, major social stigmas against players, and no support system for players who win, steal the dreams of people playing a game in the hopes of living a better life.

Our mission is to build an international, un-cheatable, anonymous lottery that gives anyone in the world a real and honorable chance to change their lives. It will be backed by a community of passionate players and investors who support each other. **A large portion of the lottery revenue will go towards social causes around the world.**

In order to fulfill our mission most effectively, the entire lottery will be fully transparent: every ticket we sell, every winner selected, and all financial results will be published on a publicly viewable blockchain.

The second goal is to make LUDUM completely decentralized. We are using the Stellar blockchain network to achieve this.

The long-term goal is to create a platform which will enable private enterprises, nonprofits and governments to launch any form of financially incentivized online game, not just lotteries or gambling. Further details are outlined in the whitepaper.

Basic Terminology

This section is for people who have found this whitepaper and know very little about blockchain technology. If you understand the tech, you can skip to the next section.

There are some excellent articles written about blockchain tech; they are so good that we couldn't hope to do any better in explaining how it works. Therefore, and to keep this whitepaper as brief as possible, we're going to refer to these sources to get you up to speed on some of the technical terms we are using in this document:

- [Blockchain basics: an introduction](#)
- [Bitcoin: What Is It and Where Did It Come From?](#)
- [Stellar Network: the basics](#)
- [Stellar as an ICO platform](#)

Key Takeaway:

We are using blockchain technology because it enables people, for the first time in history, to have a system that's completely anonymous, yet also completely transparent, secure, and available to everyone around the world.

The problems we're solving

Traditional lotteries are a system that has remained the same for thousands of years. It's a $300 billion dollar global market[1], predicted to grow by almost 10% every year[2], but there are a number of major issues that prevent the market from achieving the growth that it could potentially achieve:

- Traditional lotto is not trustworthy
- Lotto is seen as a "game for naive idiots".
- Winning the lotto jackpot can kill you
- You can't play lotto online (in many countries)
- Not everyone is allowed to play lottery
- The odds of winning are impossibly low
- You need a bank account to play traditional lotto
- If you win, getting your money can take months

Below, we will discuss all of these problems in greater detail.

---

[1] http://www.uniongaming.com/wp-content/uploads/2012/07/GamingTech.pdf

[2] https://www.businesswire.com/news/home/20170131005644/en/Global-Lottery-Market-Growth-CAGR-9.44-2017-2021

Traditional lotto is not trustworthy

Currently, most lotteries are centralized or owned by local governments. There is little insight and transparency in traditional lotteries.

Lottery players don't have clear answers to questions around manipulation or fraud:

- Are the ticket and lottery real and legitimate?
- Where is the prize money accumulated?
- Is the RNG(Random Number Generator) really random and secure?
- Is the jackpot winner a real person that's unaffiliated with the lottery company?
- Are the prize winnings paid out quickly?

There are many cases of lottery fraud:

- "Mastermind of lottery fraud admits he rigged jackpots"
  Eddie Tipton worked for the American Multi-State Lottery Association until 2015 as its security director. He publicly acknowledged his lead role in a scheme to rig the winning numbers for jackpots in several states. Tipton was sentenced to 25 years in prison.
- "2 guilty of bid to rig Pennsylvania lottery":
  In this fraud case, workers switched out the regular lottery balls for the draw, and substituted them for a set of heavier balls. The group decided they would weight all numbers but the 4's and 6's, leaving only 8 possible combinations that the machine can make.

Ludum prevents fraud by using the Stellar Blockchain for a completely transparent, un-cheatable, publicly viewable lottery system.

Global Lottery Market 2017

$300 Billion

Ludum Market Potential by 2025

$600 Billion

Through removing social stigma, reaching new customer markets and doing social good

Lotto is seen as a "game for naive idiots". This scares away potential players and limits the market size.

Countless articles and research papers[34] have been written on how lotto is seen as a "tax on stupidity".

Lotto players are seen as poor fools, spending their hard-earned money on something that's less likely to happen than getting struck by lightning while being eaten by a shark.

The result of this is that millions of people who would potentially play lotto, are turned away by this social stigma.

We will double the lottery market size by reaching people who never were interested in playing traditional lottery due to fear and social stigma.

[3] https://www.huffingtonpost.com/max-galka/the-lottery-is-a-tax-an-i_b_8081192.html

[4] https://www.theguardian.com/commentisfree/2014/feb/16/powerball-lottery-real-stupidity-tax

Winning the lotto jackpot can kill you

In many countries, if you win the lottery, your name and photo are made public for everyone to see. As soon as this happens, your life is over: there are countless cases of people being kidnapped or murdered after winning the lottery.

Furthermore, winning a large jackpot often initiates a pattern of self-destructive behavior that leads the winner to either be broke or dead in less than 5 years after winning.

Examples of lives destroyed by winning a lottery jackpot:

- **Billie Bob Harrell, Jr.: $31 million. Texas, 1997.[5]**

  As of 1999: Committed suicide in the wake of nonstop requests for money from friends and family. "Winning the lottery is the worst thing that ever happened to me.

- **William Post: $16.2 million. Pennsylvania. 1988.[6]**

  In 1989: Brother hires a contract murderer to kill him and his sixth wife. Landlady sued for portion of the jackpot. Convicted of assault for firing a gun at a debt collector. Declared bankruptcy. Dead in 2006.

---

[5] http://newsfeed.time.com/2012/11/28/500-million-powerball-jackpot-the-tragic-stories-of-the-lotterys-unluckiest-winners/slide/billie-bob-harrell-jr/

[6] http://newsfeed.time.com/2012/11/28/500-million-powerball-jackpot-the-tragic-stories-of-the-lotterys-unluckiest-winners/slide/william-post/

- **Shefik Tallmadge: $6.7 million. Arizona. 1988.**[7]

  As of 2005: Declared bankruptcy.

- **Thomas Strong: $3 million. Texas. 1993.**[8]

  As of 2006: Died in a shoot-out with police.

Ludum will be backed by a supportive community and tools that help winners acclimate to their new financial status.

Problem 4:

You can't play lotto online (in many countries)

Many countries, including the USA, a billion-dollar lottery market, do not allow you to play online. You need to go to a store, fill out a paper ticket, and pay for the ticket with cash. There's a tremendously high risk of losing your winning ticket because it's just a piece of paper.

Ludum's blockchain-based lottery platform will be accessible to anyone around the world who has access to an internet connection: around 4 billion people.

[7] http://www.phoenixnewtimes.com/news/arizona-lottery-winner-details-how-he-lost-his-millions-7968218

[8] http://www.kbtx.com/home/headlines/3246816.html

❉ LUDUM

Problem 5:

Not everyone is allowed to play lottery

While non-US residents can enter and win the lottery, there's a caveat: you have to actually be in the country to buy US lottery tickets. It is illegal to buy lottery tickets through the internet or by mail.

You can only win a foreign lottery if you bought a ticket while you were in that country.

Because there are no residency restrictions about who can enter US lotteries, illegal immigrants can buy tickets and can claim their winnings. However, claiming the lottery winnings might make an illegal immigrant vulnerable to deportation.

Ludum's blockchain-based lottery platform will be accessible to anyone around the world. It is not protected by state borders.

The odds of winning are impossibly low

Ever wonder why in the USA, lottery jackpots can be up to $1.2 billion dollars? It's because the odds of winning the jackpot are the lowest in the world. Winning the jackpot is a chance of 1 in 292 million[9]. This is a number that's hard to even understand. Just to compare: the chances of dying in a plane crash are 1 in 1 million, and how often do you hear about a plane crashing?

The probability of winning the Power Ball Lottery

5 Balls   1 Ball

1 – 69   1 – 26

Numbers of combinations 1 - 69

n = 69   k = 5

$$_nC_k = \frac{n!}{(n-k)!\,k!} = \frac{69!}{(69-5)!\,5!} = \frac{69!}{64!\,5!} = \frac{69 \cdot 68 \cdot 67 \cdot 66 \cdot 65}{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1} = 11{,}238{,}513$$

Numbers of combinations 1 – 26

n = 26   k = 1

$$n^k = 26^1 = 26$$

Chance of Winning Power Ball

$$P = (_nC_k) \cdot (26) = (11{,}238{,}513) \cdot (26) = 1 \; chance \; in \; 292{,}201{,}338$$

---

[9] https://www.cbsnews.com/news/powerball-mega-millions-lottery-odds-of-winning/

Numbers	Chance	Chance %	(US$)
5 + 1	1:292,201,338	0,00000034%	Jackpot
5	1: 11.688.053,52	0,0000086%	$1 million
4 + 1	1: 913.129,18	0,00011%	$50.000,00
4	1: 36.525,16	0,0028%	$100,00
3 + 1	1: 14.494,11	0,007%	$100,00
3	1: 579,76	0,17%	$7,00
2 + 1	1: 701,32	0,14%	$7,00
1 + 1	1: 91,97	1,09%	$4,00
0 + 0	1: 38,32	2,6%	$4,00

The probability of winning the Ludum lottery

Numbers of combinations 1 – 7,000,000

n = 7,000,000 $\qquad$ k = 1

n^k = 7,000,000^1 = 1:7,000,000 Jackpot

	Chance	Chance %	(US$)
Jackpot	1: 7,000,000	0.000014% Better chance than PB 5	6,800,000* PB $1 million
Second Prize (10)	10: ~6,999,999	0,00014% Better chance than PB 4 + 1	Each 340k* PB $ 100
Third Prize (100)	100: ~6,999,989	0.0014% Similar chance to PB 4 + 1	Each 34k* PB $ 100

*If all tickets (7,000,000) sold

LUDUM

6 things more likely to happen than winning the traditional lottery

Odds of winning powerball lottery:

1 in 292.000.000

Winning an olympic gold medal:

1 in 662.000

Getting hit by an astroid:

1 in 700.000

Becoming a movie star:

1 in 1.500.000

Being killed by a shark attack:

1 in 3.700.000

Being struck by lightning...twice

1 in 169.000.000

Winning the jackpot in LUDUM:

1 in 7.000.000

41 times more likely than Powerball

20 times more likely than 6 out of 49 lotto

In other countries, the chances of winning are a little higher, and the jackpots are lower. But no matter which country you look at, the chances of winning are always at least 1 in 50 million.

Traditional lotto is a game that manipulates the psychology of people to make them "feel" as if they have a chance of winning. The growth of the market is limited because many people don't trust the lottery.

We have completely rethought how lotteries are played and we've found ways to increase the odds of winning without sacrificing the size of the jackpot.

Problem 7:

You need a bank account to play traditional lotto

Many people who could be playing lotto, can't play, because they don't have a bank account.

According to the World Bank's data, there are more than 2 billion unbanked adults. Even if they have a chance to play lottery and win, there is no possibility

to cash out their prize.[10] Unbanked adults have expressed great interest in playing lotto and other games online.

Ludum will expand the market to reach 2 billion additional players that are currently waiting to play.

Problem 8:

If you win, getting your money can take months

Traditional lottery systems are slow and bureaucratic. You don't get your winnings immediately. In the best case, it takes around 10 days. Typically it takes around two months, but there have been cases where it took over a year for winners to receive their winnings.[11]

Imagine winning millions of dollars, and then having to deal with slow bureaucracy, while still having to work a job you hate and being barely able to pay the bills.

Ludum's payouts are instant.

Traditional Lotto
Wait up to 2 months for payouts

Ludum
Instant payouts after winning

Our solution

We have completely reinvented how people play lottery games online. We use blockchain technology to make a game that's completely transparent, fully anonymous, global, and impossible to cheat.

- Complete Transparency
- Instant Payouts
- Impossible to cheat
- Higher odds of winning
- An international audience, completely anonymous.
- A socially conscious mission

Below, we will discuss all of these solutions in greater detail.

Complete transparency

On the LUDUM platform, all lottery matters are 100% implemented using blockchain technology and open source code available on GitHub. Ticket purchase, random number generation for betting and draws, prize fund composition, prize ticket verification, prize distribution and other operations are all viewable by external parties.

Instant payouts

Prize payouts are executed instantly, no third parties involved. All payments and transactions are recorded in the open registry (blockchain ledger) and any player can check for themselves if we've distributed the prizes.
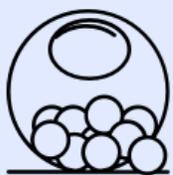
Impossible to cheat

Due to the transparent, secure nature of the blockchain technology, cheating is impossible in this game. The source code of the game is open, all transactions are open and the encryption of the blockchain is impossible to break with any technology available in the next 10-15 years.

Higher odds of winning

Our game has much higher odds of winning than other lotteries, thus eliminating the stigma of lotto being a game for naive fools.

Odds of winning jackpot:

Powerball
1 in 292.000.000

Basically impossible

Odds of winning jackpot:

Ludum
1 in 7.000.000

41 times more likely to win jackpot than Powerball

An international audience, completely anonymous.

Blockchain technology is not limited by national borders, so with our game, anyone in the world can participate. Any person from any place in the world is able to play our lottery without providing any personal information.

With our complete rethinking of how lottery games are played, we can free ourselves from the traditional stigma of lottery games, and do more than just attract the "online gambling" market -- we can attract new customers who have never played online before.

A socially conscious mission

A large portion of Ludum's earnings are donated towards global social causes like ending hunger, empowering women in developing countries and improving access to education for impoverished children.

By supporting Ludum, you support the greater good of the world.

A large portion of Ludum's earnings are donated towards global social causes such as ending hunger, empowering women in developing countries and improving access to education for impoverished children.

playludum.com

LUDUM

Why this project will succeed

We have the best team

Our design & engineering talent is based in Silicon Valley and Berlin, the #1 and #2 centers for technology innovation in the world[12,13]. We are connected to all of the major players in the entrepreneur-space. We have a track record of successfully launching products to hundreds of millions of people, for some of the largest, most well-known brands in the world.

Innovative concept

We have completely rethought how a lottery game can function. We have no direct competitors in the space.

World-class design

People underestimate the power of a clear, user-friendly design. The main reason Coinbase became the most popular exchange for buying cryptocurrency, is because of their emphasis on good design to make it as easy as possible for people to start trading.

We have the absolute best designers in the world on our team.

Design is the core of Ludum's DNA.

---

[12] http://www.businessinsider.com/the-20-hottest-startup-hubs-in-the-world-2015-7

[13] https://www.fastcompany.com/3061460/the-best-global-cities-for-working-in-tech

Aggressive marketing

The best product in the word won't succeed if people haven't heard about it. We have partnerships with the best marketing experts in the world, to ensure that everyone will know about Ludum. Once we've achieved market awareness, it's easy to convert prospects into paying customers.

An engaged, socially conscious community of world-changers

The entire concept of Ludum is based on community. The product is entirely decentralized on a public blockchain. Winners can anonymously communicate with each other and offer each other tips and tricks on how to manage your life after winning. The community votes on which features get added over time.

A large portion of Ludum's earnings are donated towards global social causes like ending hunger, empowering women in developing countries and improving access to education for impoverished children.

By playing Ludum and buying Ludum Tokens, you are supporting the greater good of the world.

How the game works

LUDUM is a completely anonymous lottery based on blockchain technology, with instant payouts and a publicly available source code.

Using agile methods mastered by champions of innovation in Silicon Valley and Berlin, we have completely reinvented how a lottery works.

Revealing all of the game's new rules and patterns in this whitepaper would put us at a competitive disadvantage. Here's what we can reveal at this time:

- Odds of winning the jackpot are 1 in 7.000.000
- Jackpot starts at $1.000.000 USD for the first drawing. After that, jackpot varies
- Each ticket costs $3
- If a jackpot doesn't get won in a drawing, the winnings roll over into the next jackpot
- There will be more prize drawings than in any other lottery
- It will be very easy for people to buy tickets -- emphasis on good UX design

Prize fund distribution

The system automatically converts every ticket purchase to Tether, the most stable cryptocurrency *(if this changes in the future, we'll make adjustments)*. This prevents the jackpot fluctuating based on the volatility of the cryptocurrency market. It then transfers funds to the prize fund of the lottery. The platform prize fund is transparent and always open for viewing due to blockchain technology, and accounts for 60% of the ticket cost.

Business model

The business model for token holders is completely transparent: Every sold ticket, winnings, withdrawals and operational expenses will be visible for every LUD token holder and recorded onto the blockchain.

The main service that generates Ludum's profits is ticket sales.

Tickets cost $3 USD. Our basic estimates suggest we will sell about 15.000 tickets per day when we start out. This is only about 0.4% of the global online-gambling market, and doesn't account for the billions of new players we will attract into the market. After the launch of our marketing offensive and growing of the community, the daily sales will easily reach 150.000 sold tickets per day within 3-6 months of launching (10x increase).

After a player buys a ticket, the funds will be distributed as follows:
- 60% goes directly into the prize money
- 10% go into marketing
- 10% into global social causes
- 7.5% for fees & operations
- 10% for the token holder game
- 2.5% for referral awards

The prize money is distributed as follows:
- 1 Grand Prize(Jackpot): 50% of total prize money **(6,800,000$)***
- 10 Second Prizes: 25% **(3,400,000$ = 10x 340,000$)***
- 100 Third Prizes: 25% of prize money split across the 100 tickets **(3,400,000$ = 100x 34,000$)***

* If 7.000.000 sold tickets

Ludum Ticket Revenue: Distribution

Global Social Causes 10%

Token Holder Game 10%

Marketing & Operations 17.5%

Referral Program 2.5%

JACKPOT 60%

playludum.com

The Ludum platform will be instantly profitable and support social causes around the world.

LUDUM

Why we are building on the Stellar Network

Many ICOs are based around ERC-20 tokens from the Ethereum network. But the Ethereum network has major weaknesses that make it unusable for a large scale, global community.

Ethereum is slow and expensive

If you used the Ethereum platform for a lottery, as soon as you start to become popular, the wait times will become too frustrating to keep playing the game. Imagine waiting 2 hours before you know if you're ticket purchase went through. Ethereum is the equivalent of a dial-up modem: is a great proof-of-concept, but it's not the future.

Stellar was made for cross-border financial transactions

The entire purpose of Stellar is to facilitate cross-border transactions. Therefore using it for our platform is a natural fit.

Stellar is fast

Stellar can process transactions in seconds, with transaction fees close to zero. Ethereum transactions can take up to 24 hours. By the time you buy a lottery ticket for a game on the Ethereum network, and the payment is processed and you have your ticket, the lottery might already be over!

Stellar is designed for smart-contract platforms

Stellar has all the functionality needed to create smart contracts and run ICOs. It's tailor-made for all the needs we have as a blockchain-based company.

Go-to market strategy

Our go to market strategy consists of four steps: Create awareness, involve the community, involve the press, measure and improve.

Create awareness

We will have an initial marketing blitz across all social media channels.

Involve the community

This is the heart of our growth strategy. LUDUM is a thriving community of passionate winners. We will engage with them through:

- An actively growing referral program.
- Bounties. We incentivize people to write their honest opinions about the platform.
- We will have a strong presence on all the relevant social media outlets: reddit, FB, Twitter, Bitcointalk, etc

Involve the press

The last step is to involve the traditional media. Things like advertising campaigns on the radio or billboards, PR-releases, speaking at conferences and building partnerships with the right synergies. The lottery will be marketed and

popularized not just within the blockchain community, but throughout the general public.

Measure and improve

Our team uses the user centered design methodology to consistently measure the performance of our marketing efforts. If, along the way, we notice that what we are doing isn't working, we have metrics to track what is working and what isn't and can adjust our tactics accordingly.

Leadership

Oliver Backe
Founder & CEO

Over the last 10 years, Oliver combined military leadership overseas and academic research in the heart of Berlin. He strongly believes that we can build a new revolutionary global social gaming experience that will usher into an era where the power of blockchain technology and the internet create a better and more transparent society. His vision is that Ludum will be the easiest and fairest way around the world to reach a higher standard of living.

Jamal Nichols
Founder & Chief Design Officer

Over the last 15 years, Jamal has designed solutions for some of the world's most iconic brands, like BMW, Google, T-Mobile, Wells Fargo and Walmart Labs. He's a respected design educator, having taught thousands of people across the world with his classes and published articles. He founded Ludum because he believes in the potential of brilliantly basic blockchain apps have to change the world and help people in need.

Crowdfunding model & tokens

The LUDUM limited LUD Token sales model will use the "Initial Coin Offering" (ICO) process.

The crowdfund goal is set at 110.000.000 XLM (330.000.000 LUD).

Token Allocation: After we receive the funds, LUD Tokens are automatically distributed to crowdsale backers through a smart contract.

Token ticker: LUD
Hard cap: YES (330.000.000 LUD)

Conversion rate:
1XLM = 3LUD

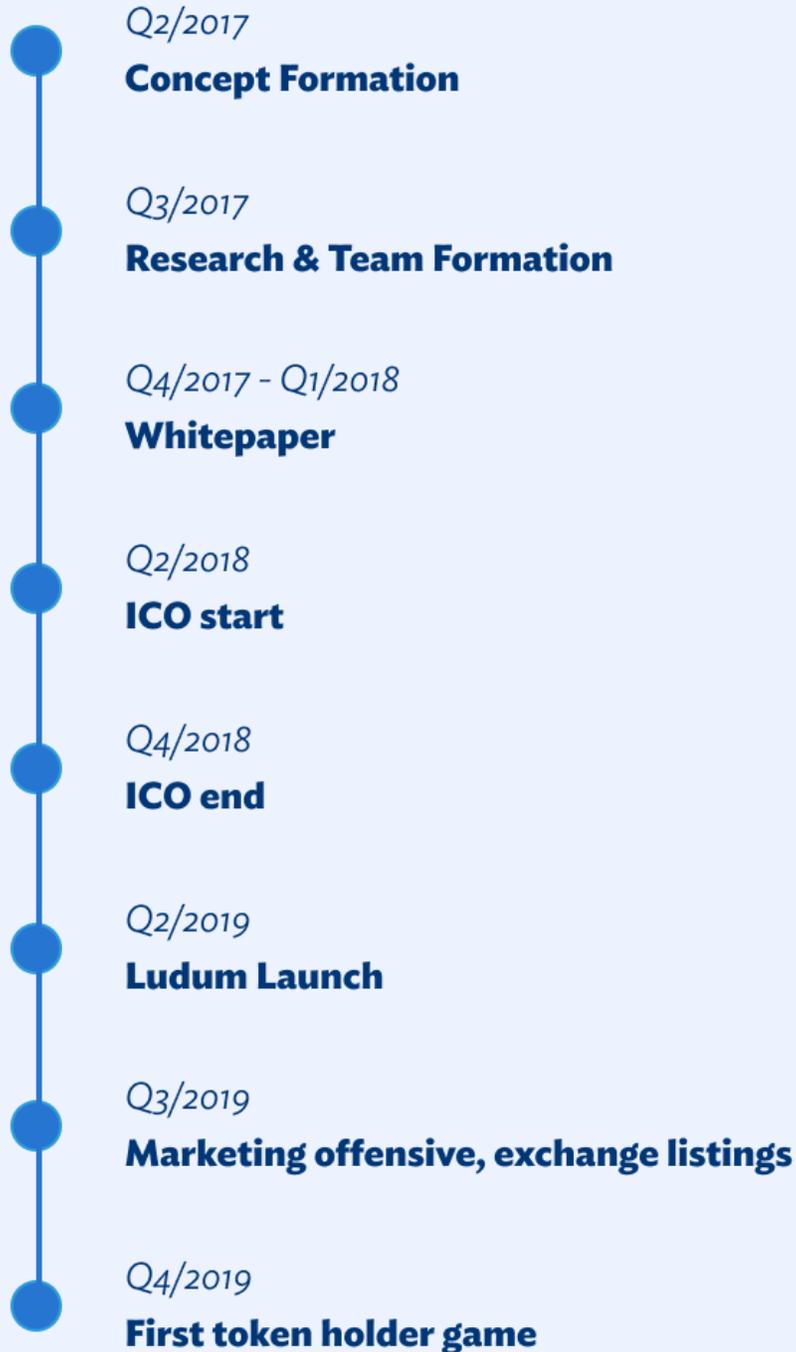Maximum market cap at ICO: 330.000.000
Total supply: 550.000.000
ERC20 token: No
Timeline: Q2 - Q4 2018

Unsold tokens get stored away for a year, then sold on the market.

Pre ICO / ICO = 330.000.000		60%
Stellar trading platform = 20.000.000 (1 LUD = 1 XLM)		3,63%
Dev Team = 150.000.000		27%
Marketing, design, bounties = 50.000.000		9%

Roadmap

Q2/2017
Concept Formation

Q3/2017
Research & Team Formation

Q4/2017 - Q1/2018
Whitepaper

Q2/2018
ICO start

Q4/2018
ICO end

Q2/2019
Ludum Launch

Q3/2019
Marketing offensive, exchange listings

Q4/2019
First token holder game

This white paper is a constant work-in-progress. If you have any questions, or see any typos or logical errors, contact us at

www.playludum.com/contact