WHITEPAPER
HASHRENTAL MARKETPLACE

FIRST DECENTRALIZED HASHING POWER MARKETPLACE

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CONTENT WHITEPAPER

TOKEN LAUNCH SUMMARY

LUHN technology is the ERC20 token standard, which stands for Requests for Comment, is a standard set of programming “rules”. Ethereum Blockchain is a distributed, open-source blockchain-based computing platform.

LUHN Token is an Ethereum based token representing the right to purchase and trade Hashing Power at a discount on the HashRental marketplace website. LUHN will provide access to buying hashing power and discounts when purchasing different Hashrate for multiple cryptocurrency algorithms. LUHN Tokens will be accepted as a payment for hashing power rent.

The hashrate is the measuring unit of the processing power of the cryptocurrency networks. Such networks must make intensive mathematical operations for security purposes. HashRental Marketplace for hashrate purchasing and trading. Token Launch means the initial sale to the public of LUHN tokens.

LUHN coin corresponds to the price of one hour hashing power rent. Minimum amount of hashing power for 1 LUHN is determined by the current weighted average profit from mining altcoins for each algorithm. After the service is launched all users can exchange LUHN coins on hashing power and get profit.

The LUHN Token is one only token to allow holders to enter and exit cryptocurrency mining investments at any time at a cheap, profitable cost through its fast exchange and no having to buy expensive equipment.

ABOUT ICO:

Tokens will be offered on pre-sale for 30 days:
Pre-sale Start Date: April 17th, 2018 9:00 PM UTC
Pre-sale End Date: May 17th, 2018 9:00 PM UTC
Token Pre-Sale Volume: 384,400,000 LUHN

Bonus Pre-Sale: 62%.
Price (including bonus): 1 LUHN=0.000048ETH ($0.024)
Minimum contribute 10ETH = 208330LUHN
Bonus Pre-Sale: 38%.
Price (including bonus): 1 LUHN=0.000058ETH ($0.029)
Minimum contribute 0.1ETH=1724LUHN

Sale Start Date: May 18th, 2018 9:00 PM UTC
Sale End Date: June 18th, 2018 9:00 PM UTC
Token Sale Volume: 235,600,000 LUHN

Sale price: 1LUHN= 0.00008ETH ($0.04)
Minimum contribute 0.1ETH=1250LUHN

Total Supply: 1,000,000,000 LUHN
Distribution to the Token Pre-Sale and Sale (summarily):
62%: 620,000,000 LUHN.

Soft Cap: 5000ETH ($2.5M)
Hard Cap: 49600ETH ($24.8M)

Payment: Accepted Forms of Payment: Ether (“ETH”).

*The ETH/USD conversion rate was determined to the token pre-sale start (April 17,2018).
**The offering will be open to the public globally, except for the residents, citizens of countries listed below.
United States of America, Republic of China, South Korea, Cuba, Iran, North Korea, Syria, The Crimea region or any other country or territory that is subject of country-wide or territory-wide sanctions.

STAGES OF PROJECT DEVELOPMENT. HISTORY

July 2017
Idea. Market research.
Hashing power marketplace concept development.

With the increasing popularity of the cryptocurrency, Ian Edwards (Co-Founder HashRental) decided to create a project of internet marketplace to attract computer capacity for the mining cryptocurrency.

An analogue of the existing service Nicehash, but with simple and convenient interface.

August 2017
Team building.
Development of the platform's architecture.
September – December 2017
Product MVP development.
Launch Mining rigs power-sharing services.
Started paying to MVP participants.

December 2017
The only existing large cryptocurrency mining marketplace has been hacked in late 2017. As a result, the market customers lost $60 million.

So this seemed like a problem that only we could do something about.

Problem:
Existing marketplace is a centralized service. It’s a point of weakness. More specifically, this marketplace is a website which controls payments on behalf of users until the agreed-upon mining contracts are fulfilled. Moreover, it is responsible for handling refund requests, which means a lot of money flows through its wallets on a weekly basis. It was only a matter of time until hackers decided to attack this platform, which is exactly what happened.

Solution:

Hashing Power Marketplace must be Decentralized. This idea formed the basis of our project HashRental.io.

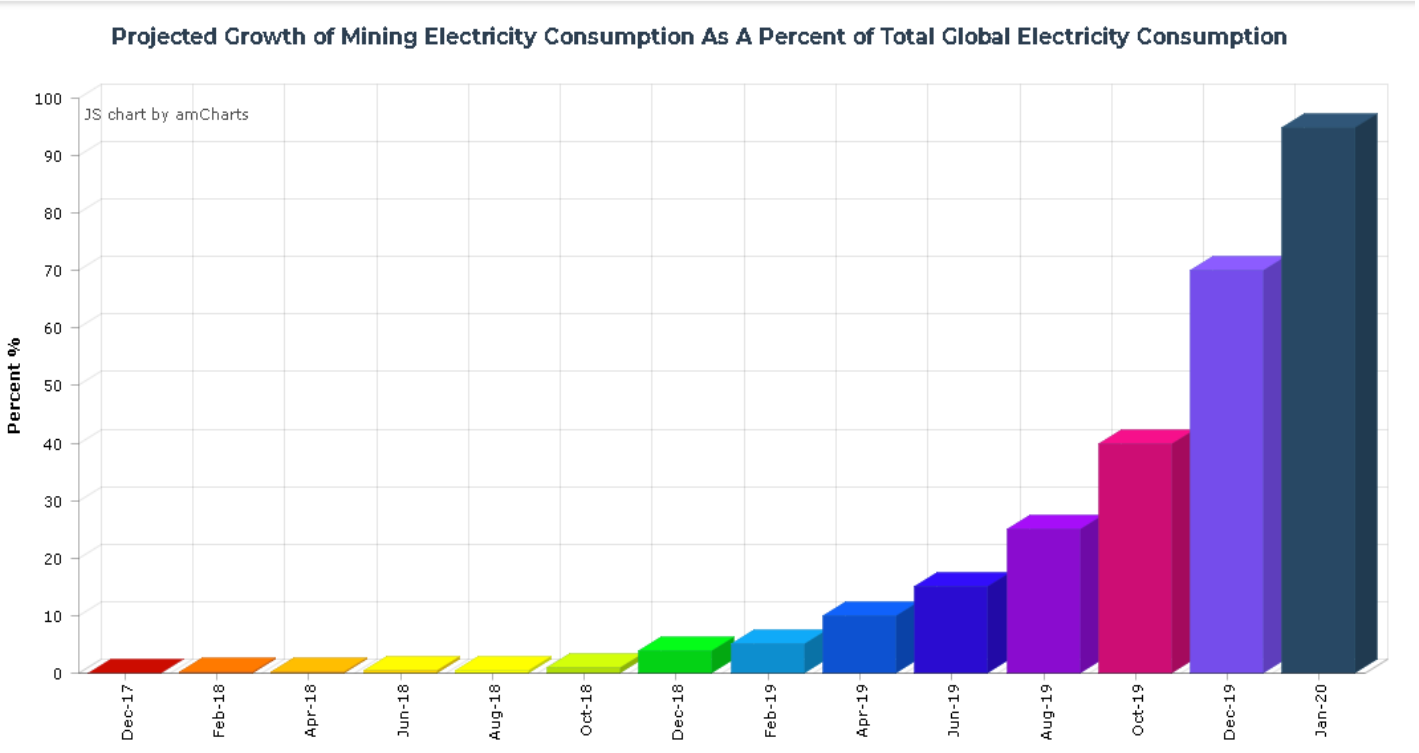
HashRental marketplace connects sellers (miners) of hashing power with buyers of hashing power through smart contracts, decentralized Escrow. It offers convenient and easy-to-use tools for all crypto-market participants to create as much profit as possible.

At the moment HashRental mining system and redirecting system have been tested and launched. $544000 has already been paid to the MVP participants in cryptocurrency.

HashRental marketplace has it’s own tokens (LUHN COIN). LUHN will be accepted as a payment for hashing power rent.

Market of rent hashing power needs the safest services that the HashRental can offer.

MARKET RESEARCH



While Cryptocurrency Mining is only currently consuming 0.13% of the world's electricity output, it's growing incredibly quickly.
The Crypto-Energy Consumption Index estimates consumption has increased by 29.98% over the past month. If that growth rate were to continue, and countries did not add any new power generating capacity,

Cryptocurrency mining would:

•Be greater than UK electricity consumption by October 2018 (309 TWh)
•Be greater than US electricity consumption by July 2019 (3,913 TWh)
•Consume all the world's electricity by February 2020. (21,776 TWh)

Global increases in electricity consumption result from an increasing existing hashing power in the world.
And Miners gets profit for renting hashing power more than from mining on existing common pools.

Today of widespread uncertainty and distrust in existing centralized services of renting and buying hashing power and exchange services. Reason for this suffered a major security breach.

Two high-profile Bitcoin thefts – Nicehash and the e-commerce driven Quant malware exploit. As a result, the market customers lost $ millions.

It all will be contributed to the popularity decentralized and safest service HashRental Marketplace and that's increasing LUHN coin price.

HOW HASHRENTAL WORKS

For Hashing power sellers:

Sellers (miners) can run HashRental software or connect their mining hardware (GPU Rigs, ASICS, Pcs and smartphones) to HashRental servers (stratum ports). Their hashing power is forwarded automatically:

•To the pool that the buyer has chosen for mining. Then Sellers get paid* in ETH for renting from smarts contracts after them confirms.

•To the HashRental pools, if there is no required volume of orders. Then Sellers get paid in ETH from HashRental pools.
This is all done automatically and the process does not require complex technical skills.

*The price for rent is determined by the current weighted average and refreshed each minute.

For Hashing power buyers:

•Select the cryptocurrency that you want to mine

•Select a pool on which you want to mine

•Set needed amount of hashing power

•Set needed order time period

•Place calculated amount (or more) of the Luhn coins into the smart contract*. This provides proof-of- funds and allows for a much safer trade. Then:

- Successfully confirms receipt of needed amount of hashing power, and releases the escrow.
- A party raises a dispute, and brings in a third-party arbitrator, giving them the keys to decrypt the messages and work with both parties to make a resolution.

•Get reward from selected pool in cryptocurrency (Btc, ETH, and any other)Trade complete!

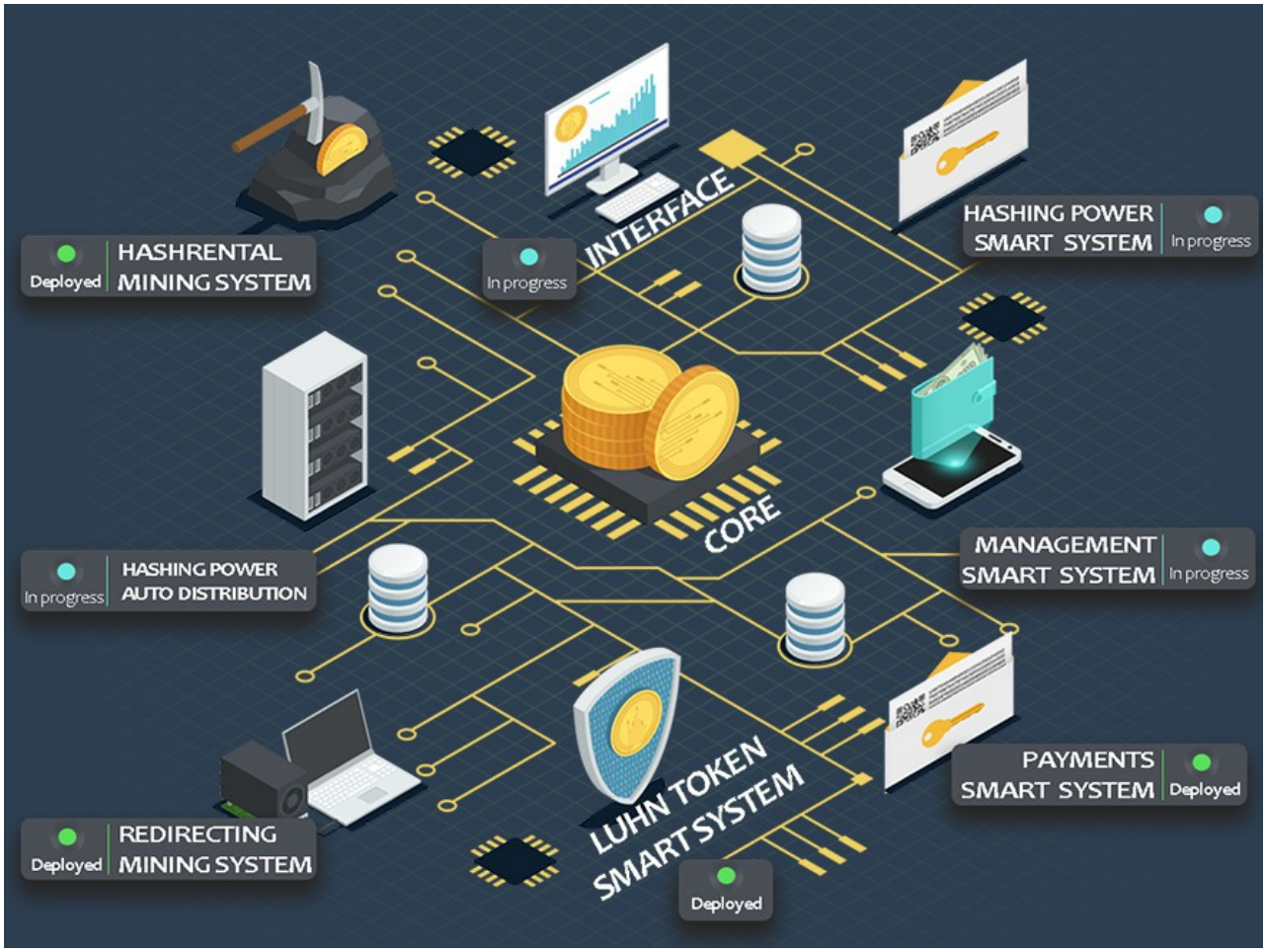
Hashing power buying is based on the "auction" style that smart contract in the marketplace is subject to. When buyer winning in an auction sellers start implement order. This is:

- Needed amount hashing power.
- Duration of the contract.

*The smart contract allows users to safely exchange (Luhn coins → hashing power → any other cryptocurrency) with one another and pools, and to name a trusted third-party to mediate a trade if a dispute arises. Currently, the trusted mediator is always hashrental.io, but the contract will be adapted in the future to switch over to a reputation-based distributed arbitrator pool.

The auction platform with performance of the smart contract at HashRental is designed to offer security to both the buyer and the seller.

INNOVATIVE STRUCTURE OF MARKETPLACE



The core of the system are **smart contracts** that combined all parts in a single system.

"**Redirecting mining system**" is responsible for redirecting hashing power from sellers to HashRental smart pools ("**HashRental mining system**") or to "**Hashing power auto distribution**" (establishes needed parameters for selected external pools and monitors execute orders).

HashRental system don't have centralized storage of participants balances. All payments are processed directly through smart contracts.

“Management smart system” supervises the activity on launch of contracts:

- **“Payments smart system” -** payments from Buyers in LUHN
- **“Hashing power smart system” -** payments to Sellers in ETH

COMPARE TO COMPETITORS

Marketplace	HASHRENTAL	niceHash	MININGRIGRENTALS
Blockchain	Decentralized Ethereum-based	Centralized	Centralized
Fraud Risk	No risk (guarantied smart contracts)	High (has been hacked in December ´17)	Medium
Fees	Low	Medium	High
Auction system to trade hashpower	Yes	Yes	Only p2p
Marketplace and stratum servers	Europe, USA, Japan, India & fast proxy to Japan stratum servers in Hong Kong	Europe, USA,& proxy in Hong Kong, Japan. India	USA & proxy Europe,Asia
Possibility to mine multiple altcoins in marketplace	Yes	Yes	no, only rent
Complex product structure	Simple and convenient interface	Technical, not for newbies	No fancy design
Company location	The Isle of Man	Slovenia	USA

PROFIT FROM MINING
Pooled mining. Calculate reward.

A mining pool is a joint effort between several miners to work on finding blocks together, and split the rewards among the participants in proportion to their contribution. If the total hashrate of all miners is H, then the pool will find on average

$$\mathbf{Ht/2^{32}D}$$

(*2^{32}D for SHA256 example, when D -difficulty*) blocks over time t, so the total average reward is **$\mathbf{HtB/2^{32}D}$** (B – reward for valid block) . A single miner with hashrate h = qH (that is, q is the fraction of the pool's total power contributed by this miner) should receive q times the total reward, **$\mathbf{q*HtB/2^{32}D = htB/2^{32}D}$** , which is exactly his expected payout had he mined solo. However, his variance will be much lower – the variance of the total reward is **$\mathbf{HtB^2 /2^{32}D}$** , so the individual's variance is

$$q^2 * HtB^2 / 2^{32}D = q * htB^2 / 2^{32}D ,$$

which is q times the miner's solo variance. The potential benefit is therefore greater the smaller the miner and the larger the pool. The pool will typically be maintained by a pool operator who may take a fee for his services. This will usually be a fixed percentage cut f of the block reward. So, for every block found, the operator will receive a fee of **fB** and the remaining **(1 – f)B** will be distributed among the miners. Therefore, the actual expected payout for a miner is

$$(1-f)htB/ 2^{32}D .$$

To determine the amount of work done for the pool, users find and submit shares. Quantity of the average payout, which in a fair pool is always (1 − f)pB *for every share submitted.

*Every share has a probability of p = 1 /D to be a valid block.

PROFIT FROM RENT

Solo mining

Variance of solo mining is substantial. Even a participant with respectable hardware will wait more then participant with lower capacity. But reward will be multiple!

Reward = reward for found block = **B**

Solo mining relevance only for altcoins.

For solo mining needed big capacity for a short time. And that's why solo miners use hashing power rent services. They are ready to overpay for it.

Buyers will be rent h power and will be winning in an auctions in HashRental, therefore, with cost more then value $(1-f)htB/2^{32}D$ (reward from mining pool for h hashrate). And Seller will gain more profit then mining on pool.

P.s. When sellers hashing power is not work on buyer, then it work on “HashRental mining system”. Sellers get profit more then from ordinary pools, because in HashRental f = 0 (pool fee).

PRICE JUSTIFICATION. INVESTORS PROFIT

LUHN COIN CORRESPONDS TO THE PRICE OF ONE HOUR HASHING POWER RENT (**t**). MINIMUM AMOUNT OF HASHING POWER FOR **1 LUHN** IS DETERMINED BY THE CURRENT WEIGHTED AVERAGE PROFIT FROM MINING ALTCOINS FOR EACH ALGORITHM (**h**).

1 LUHN = 3600sec. * h

$$(1-f)htB/\ 2^{32}D = \$0.128$$

(calculate value “h” from this formula, on example SHA256)

Then system calculate average value of minimum amount h from such formulas for other algorithms.

f=0 in “HashRental mining system” (we don't take a fee from Sellers hashing power)

$0.128 – current mining profit average value with set parameters

(check whattomine.com)

AFTER THE SERVICE IS LAUNCHED ALL USERS CAN EXCHANGE LUHN COINS ON HASHING POWER AND GET PROFIT:

EXAMPLE (equihash): Create order => 60min(3600sec) * 1000Ksol/s

Minimum amount to pay order with the set parameters: **2000LUHN**

	Buy Luhn with 62% BONUS	**Buy Luhn with 38% BONUS**	**Buy Luhn without BONUS**
Amount in fiat money:	48USD	58USD	80USD
Guaranteed fees for mining (common pool)*:	256USD	256USD	256USD
PROFIT:	434%	342%	220%

CURRENT APPROXIMATE PRICE THAT GUARANTEE YOU SOME HASHING POWER: 0.5KSOL/S * 1 HOUR = 1 LUHN (EQUIHASH ALGORITHM). 1 LUHN PRICE ON ICO, WITHOUT BONUS = $0.04. MINIMUM PROFIT FROM MINING OF ONE HOUR WITH 0.5 KSOL/S HASHING POWER IS $0.128,

THUS, TOKEN RATE WILL INCREASE UP TO $0,128 AFTER LAUNCHING HASHRENTAL SYSTEM. LUHN COINS WILL BE TRADING SINCE JUNE 2018 ON PUBLIC EXCHANGES.

* The ETH/USD conversion rate was determined to the token pre-sale start (April 17,2018)
** The proportions remain with ETH/USD conversion rate change.

CONSIDERING THE INCREASING NUMBER OF USERS AND LIMITED NUMBER OF RELEASED TOKENS, LUHN EXCHANGE RATE WILL INCREASE AND INVESTORS WILL GET MAXIMUM PROFIT.

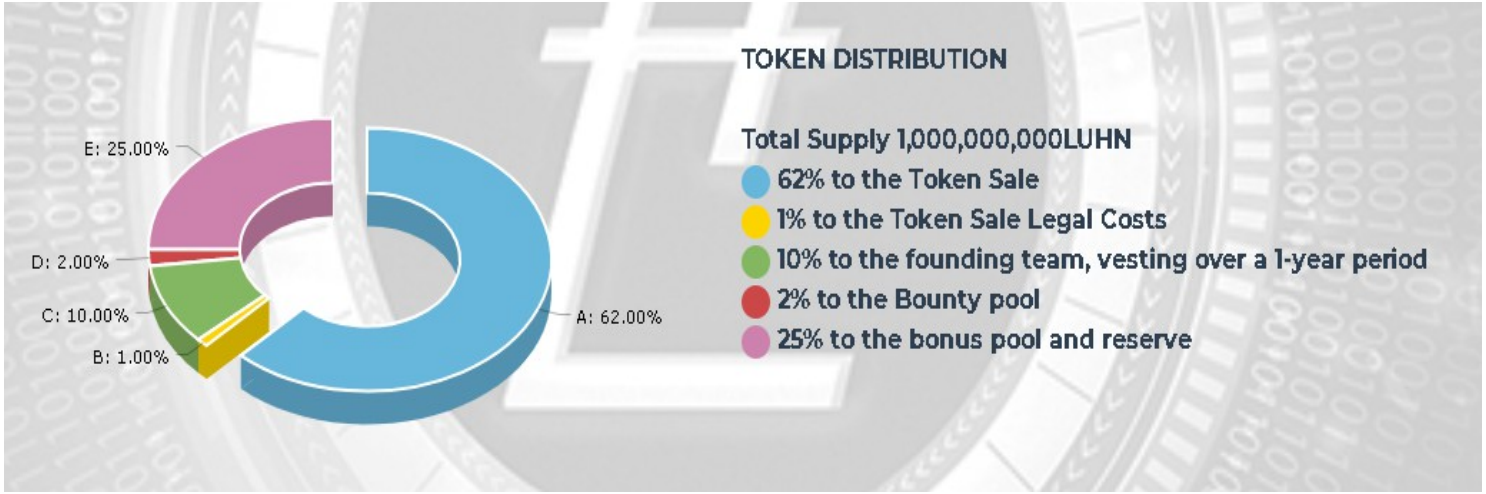
TOKEN PRICING AT ICO

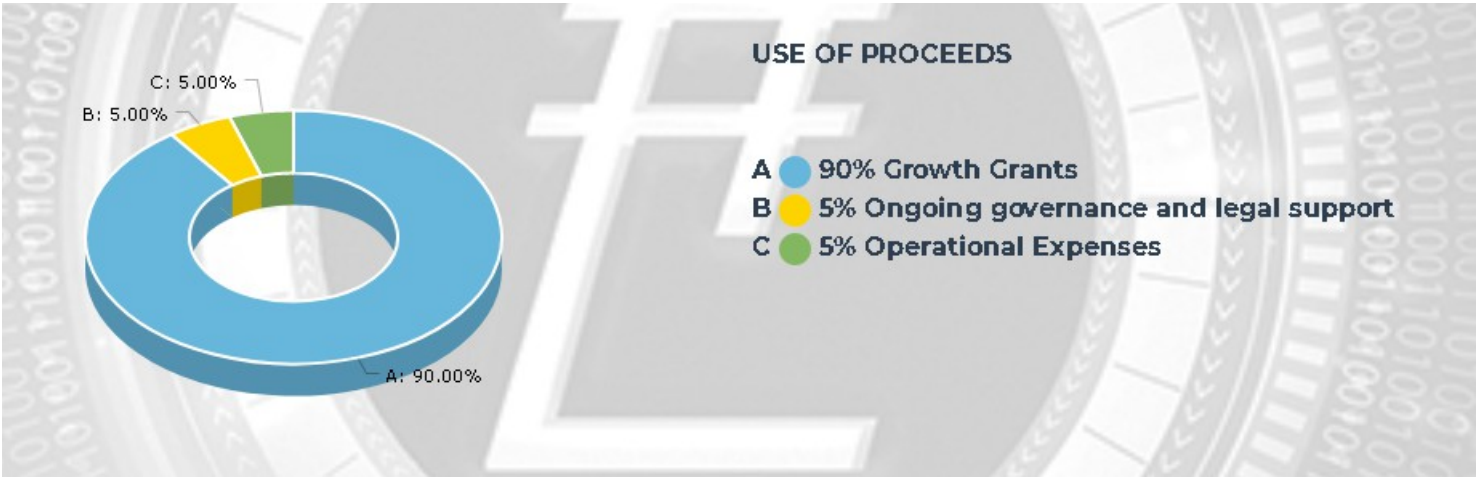
Don't miss the opportunity to participate in the token sale and become part of the first crowd.

ICO Stage	PRE-SALE		SALE
Date	April 17 – May 17, 2018		May 18 – June 18, 2018
Bonus	62,00%	38,00%	
Price (including bonus)	1LUHN = 0.000048ETH ($0.024)	1LUHN= 0.000058ETH ($0,029)	1LUHN= 0.00008ETH ($0,04)
Min. contribute	10ETH = 208330LUHN	0,1ETH=1724LUHN	0,1ETH=1250LUHN
Total number of LUHN	384400000		235600000

*Any tokens not sold will be burned.
**The ETH/USD conversion rate was determined to the token sale start (April 17, 2018).

TOKEN DISTRIBUTION





LUHN TOKEN
SAFEGUARDS AND CHARACTERISTICS

LUHN is an Ethereum token. It complies with and extends ERC-20 - a de-facto standard and widely used token API. LUHN Smart Contract guarantees:

1. Transparency

1.1. Balance. The information on the number of tokens held by any user is public.

1.2. Transfers. All information on transfers is public and can be traced back in time.

2. Ownership

2.1 Scope. Only Ethereum users and contracts can be token holders.

2.2. Uniqueness. Each token belongs to one user-owner. There are no shared tokens.

2.3. Right to transfer. A token can be transferred to another user only by the direct command of its owner or by the command of the receiver directly authorized by the owner. No token transfer may be initiated by another user.

3. Token Supply

3.1. Exclusive issue. Only one user, the contract owner, can issue tokens.

4. Contract Management

4.1 Replacement. The contract owner can relinquish the ownership in

favor of any other Ethereum user or contract.

4.2 Blockade. The contract owner can stop or resume token transfers between token holders at any time.

5. Miscellaneous

5.1 Recovery. Any call to the contract which results in an error does not change the users' tokens or Ether balance, except for the gas spent on the transaction.

5.2 Safe Approval. A call to 3-parameter approve() function guarantees that spender gets new allowance only if current allowance equals presumed allowance. It is recommended to use the 3-parameter approve for all approve() calls taking the presumed allowance as the second input.

WOULD YOU LIKE TO INVEST IN HASHRENTAL MARKETPLACE AND MAKE PROFIT?

PRE-SALE

IS NOW LIVE