

# Smartcap™: Running a Fair ICO

The ICO 2.0 Framework

Jed Grant | [jed@peermountain.com](mailto:jed@peermountain.com) | 14 January 2018

To keep the Peer Mountain ICO fair and transparent, [Peer Mountain](#) Founder and CEO [Jed Grant](#) designed the *Smartcap™* token sale algorithm. It has been reviewed by [Prof. Jos Van Bommel](#), who is contributing his expertise on valuation and corporate finance to Peer Mountain.

*TLDR; Current ICO practices include many aspects that are not fair and would be illegal in a securities offering. While securities tokens will have to be sold under securities regulation, we recognize that utility tokens are a different asset. We present the Smartcap™ as part of the ICO 2.0 Framework and a solution to many of the problems seen in current unregulated token sales.*

## Why We Need the *Smartcap™*

One of the main goals of the cryptocurrency movement is convenient digital transactions with peace of mind. However, many ICOs to date have not delivered on this goal. There are even many cases in which token buyers have been exploited in ways that are highly illegal in a regulated market. Some of the most egregious forms of exploitation include:

- **Pump And Dump** - The promoter sells tokens off-contract via a private pre-sale. This is done at undisclosed and often significant discounts for large purchasers. Once listed, the promoters generate significant publicity around the token and the ICO, even using “pumping” groups to spread awareness of the project. The purchasers dump tokens as soon as the ICO completes and the listing is pumped.<sup>1</sup>
- **Insider Front Running** - Early token buyers and holders have large quantities of tokens, which they sell to excited buyers right after the ICO. The buyers suffer immediate losses once the hype stops.<sup>2</sup>

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<sup>1</sup> <https://qz.com/1095313/initial-coin-offering-lessons-from-the-wolf-of-wall-street/>

<sup>2</sup> <https://www.coindesk.com/submarine-sends-inside-ic3s-plan-to-clamp-down-on-ico-cheats/>

- **Insider Dealing** - Insiders give themselves a quantity of tokens before the ICO; these tokens are not disclosed as part of the token distribution. They sell these during or after the ICO, or use them to manipulate the price of the token once it is tradable.<sup>3</sup>
- **Outright Fraud** - The token and its ecosystem don't exist and are never delivered. The whole facade is a scam to sell worthless tokens for cash.<sup>4,5</sup>

In addition to these problems, there are also problems of design and execution in present ICOs:

- An **open cap creates a greed effect** that leads to irresponsible allocation of capital.<sup>6</sup>
- A **hard cap creates a paradox**. The organizers guess the exact market demand before launching the sale.<sup>7,8</sup> If they guess low, they leave the market unsatisfied. If they guess high, the token sale or ICO is deemed unsuccessful, even if they raise large amounts of capital.

We designed the ICO 2.0 framework to keep non-securities token sale ICOs as fair and transparent as possible. The *Smartcap*<sup>TM</sup> method is a part of this framework.<sup>9</sup> The steps enable a transparent ICO process. The algorithm optimizes and matches the amount of tokens sold with demonstrated demand.

A key distinction of the *Smartcap*<sup>TM</sup> sale is that there's no hidden presale. In traditional ICOs, this presale is often conducted off-the-books and in a whealing-dealing kind of spirit, resulting in vastly different conditions for presale participants and the general-buyer public.<sup>10</sup> There is a pre-order phase for whitelisted buyers. *Smartcap*<sup>TM</sup> is a phased token sale that uses a price discovery algorithm. The price discovered is the point at which supply meets demand. This avoids the open and fixed cap dilemmas.

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<sup>3</sup> <https://www.coindesk.com/sec-chairman-ico-trading-susceptible-price-manipulation/>

<sup>4</sup> <https://www.cnbc.com/2017/11/17/many-icos-are-fraud-according-to-ethereum-co-founder-and-ripple-ceo.html>

<sup>5</sup> <https://www.bloomberg.com/news/articles/2017-12-12/want-to-issue-a-red-hot-ico-rule-no-1-is-do-very-little-work>

<sup>6</sup> [https://medium.com/@dustin\\_byington/why-we-need-a-cap-on-every-ico-looking-at-you-tezos-90d412f34b88](https://medium.com/@dustin_byington/why-we-need-a-cap-on-every-ico-looking-at-you-tezos-90d412f34b88)

<sup>7</sup> <https://medium.com/@monetha/announcing-the-hard-cap-and-the-total-token-supply-699a6a7810cd>

<sup>8</sup> <https://fintechfans.com/blog/the-ico-hard-cap-explained/>

<sup>9</sup> *Smartcap*<sup>TM</sup> is only for the token sale. Market manipulation issues post sale are beyond its scope.

<sup>10</sup> <https://www.coindesk.com/ico-presales-boost-vc-3iq-multicoins/>

The *Smartcap*<sup>TM</sup> algorithm provides incentives for large purchasers. Unlike a pre-sale, these incentives are available to all, on equal terms.<sup>11</sup> This opens three very interesting possibilities. First of all, it helps eliminate the whale wheeling-and-dealing that's often required to cut a specific deal for each whale. A whale with enough clout will get the best deal possible. Second, the algorithm is non-discriminatory and will treat a sizable pool the same as a whale. This means that individual buyers can recruit others to join in pools and compete with whales. Pool smart-contracts are available through dapps that any novice crypto-buyer can use, such as Primablock<sup>12</sup>. Third, pooling opens an avenue for pool creators to become "representative buyers". The representative could be in a jurisdiction offering pass-through access to buyers in directly ineligible jurisdictions. This means those buyers can buy tokens. For example, Cayman Islands structures can pool US investment in non-US securities.<sup>13</sup>

## How the *Smartcap*<sup>TM</sup> Works

The *Smartcap*<sup>TM</sup> has several phases. It opens with a pre-order phase and several sale rounds follow. They culminate in the *Smartcap*<sup>TM</sup> round. There are several parameters for the *Smartcap*<sup>TM</sup> tuned to match the project and its market.

- **Token Parity Level** - exchange rate in tokens for one unit of base currency paid.
- **Round 0 Discount** - discount on the tokens sold in the first round, usually between 20 and 40%.
- **Round 0 Size** - number of tokens released for sale in the first round.
- **Round Time Limit** - timeout for a round to become the *Smartcap*<sup>TM</sup> round, usually 30 days. If a round doesn't sell the full token lot in the Round Time Limit, it becomes the *Smartcap*<sup>TM</sup> round and the sale closes.
- **Round Expansion Factor (REF)** - base increase in number of tokens released into the round vs. the prior round. Subject to a velocity kicker.
- **Price Discovery Factor (PDF)** - base increase in price after a completed round. Subject to a velocity kicker.

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<sup>11</sup> <https://hackernoon.com/hacking-a-popular-ico-practice-that-only-rewards-the-richer-7d10b2019f1e>

<sup>12</sup> <https://primablock.com/>

<sup>13</sup> <http://offshorefundsblog.com/2015/12/07/what-structure-should-i-use-for-my-offshore-fund-2/>

- **Velocity Kickers** - calculations using the Round Time Limit, Anticipated Round Close Time and the time of the last round close. Adjusts the REF and PDF for next the round, casing price and volume velocity to adapt to round close time.

The *Smartcap*<sup>TM</sup> promoter accepts pre-orders in confidence and vets buyers for KYC/AML purposes. Pre-order buyers' orders are first into Round 0 in the processing of the *Smartcap*<sup>TM</sup>.

The *Smartcap*<sup>TM</sup> sale process has a fairly simple price discovery algorithm. The contract releases batches of tokens for sale and receives orders.

The first batch is the Round 0 Size amount of tokens made available at the Round 0 Discounted price. As soon as the contract receives enough orders to fill the round, the round closes. The contract sorts the orders from biggest to smallest. Same size orders receive priority based on whitelist signup time. Orders are then filled in that order for the round. Surplus orders receive pre-order status for the next round.

For the next round, the contract adjusts token supply and price by the Round Expansion and Price Discovery Factors. It then adjusts according to the Velocity Kickers. Based on this, the contract releases the next round of tokens. This will be more tokens than the previous round sold at a lower discount. Batches get bigger and the price moves upwards with each batch. This repeats, finding the price at which demand satisfies available supply.

When a round doesn't sell out in the Round Time Limit, we've reached the *Smartcap*<sup>TM</sup>. These orders get filled at the price of the previous close. Everyone gets in at a price that works for them. Tokens sell until the price discovery point. The token then lists at the *Smartcap*<sup>TM</sup> final round price on exchanges.

## Benefits of the *Smartcap*<sup>TM</sup>

The *Smartcap*<sup>TM</sup> sale accomplishes many of our objectives:

- It eliminates the opaque pre-sale.
- It brings transparency to the whole token sale process.

- It provides a fair price discovery mechanism for the sale.
- It supports all investors with equal opportunity.
- It increases token supply and price until demand / price meet.
- It incentivizes early buyers.
- It treats whales and pools equally.
- It caps the sale at a market-determined amount.

## Case Example: Peer Mountain, the first ICO 2.0 *Smartcap*<sup>TM</sup> token sale

In practice, Peer Mountain is introducing this algorithm in our upcoming token sale. We understand that this is risky and will adjust in favor of buyer protections. We also may stop the sale at any time should any major issues arise.

We're using best practices to hold the most compliant and well-run ICO and token sale to date. We are committed to being as transparent as possible. The token sale will accept Ether. The Peer Mountain Token (PMT) will be an ERC-20-compatible token (so within the standard) on the Ethereum network.

An audited *Smartcap*<sup>TM</sup> smart contract will carry out the sale. In our sale, there will be some up-front KYC requirements. Tokens will be distributed as the sale rounds close. KYC compliance is required to unlock the tokens in buyer's wallet so that they can be traded after the sale.

The pre-order phase is for whitelisted participants and will last up to six weeks. We may close it early at any time without notice should the volume exceed our expectations.

The public *Smartcap*<sup>TM</sup> token sale will follow; we expect it to run for four to six rounds over the course of four to six weeks.

The parameters of the Peer Mountain *Smartcap*<sup>TM</sup> sale are straightforward.<sup>14</sup>

- Token Parity Level is 1500 PMT per ETH
- Round 0 Discount is 30%
- Round 0 Size is 10,000,000 PMT

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<sup>14</sup> These figures are current at the time of writing and may be changed prior to the sale. Please check our website's Token Sale page at <https://www.peermountain.com/token-sale/> for the latest *official* figures.

- Round Time Limit is 30 days
- Round Expansion Factor (REF) is 155%
- Price Discovery Factor (PDF) is 106%
- Velocity Kickers are minimized

The algorithm will determine the total amount of PMT sold. The total amount of PMT sold up to the *Smartcap*<sup>TM</sup> level represents 40% of the total issuance of PMT.

The *Smartcap*<sup>TM</sup> contract is being audited and reviewed in depth in order to ensure it is ready for use. We anticipate a sale that runs fairly and smoothly for all. As this is the first time *Smartcap*<sup>TM</sup> has been used in a live token sale, we will be able to stop the sale at any time for any reason. Our primary objective is a fair and efficient token sale for all stakeholders in the Peer Mountain community - if we need to stop and go again to get this accomplished, we will.

## Simulations of the Peer Mountain *Smartcap*<sup>TM</sup>

Here is a simulation of how we expect the rounds to look. PMT Supply is the amount of PMT sold in a round, each of which has its own discount; that is, a discounted PMT to ETH price. The ETH column in this simulation shows the amount of ETH raised in the round. The Fixed PMT Amount shows the approximate total supply of PMT that will result when the *Smartcap*<sup>TM</sup> ends the sale with the last complete round as shown in the table. This amount will actually be slightly larger because the incomplete round (six in the expected case and eight in the moonshot case) will have some token buyers who will receive their PMT at the price of the final round (five or seven in the scenarios).<sup>15</sup>

Getting in early and getting in larger increases the discount level. This is transparent and fair, especially since a pool of small investors can very easily join together to compete with a whale for the discount.

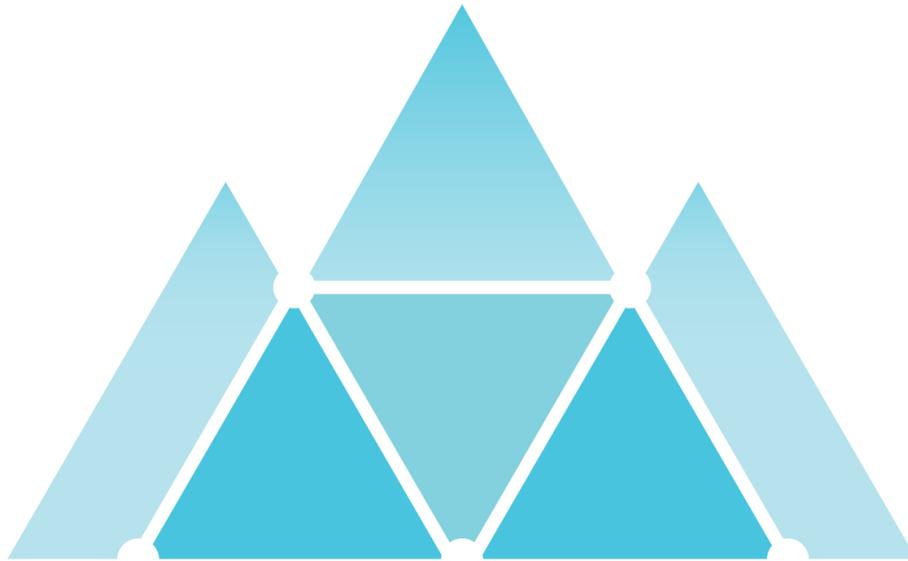
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<sup>15</sup> In the Peer Mountain case, it is important to note that our sale is in ETH. Our original plan equated to  $\pm$ \$30mm success and  $\pm$ \$60mm moonshot. We can't predict the price of ETH. We have observed the remarkable run in the past eight weeks and have adjusted the *Smartcap*<sup>TM</sup> parameters in light of this. We find that the volatility of ETH and risk of a correction require that we leave margin for this risk as well.

<b>Expected SmartCap</b>					
<b>Round</b>	<b>PMT Supply</b>	<b>Discount</b>	<b>PMT/ETH</b>	<b>ETH</b>	
0	10,000,000	30%	4,286	2,333	
1	15,000,000	26%	4,043	3,710	
2	22,500,000	21%	3,814	5,899	
3	33,750,000	17%	3,598	9,379	
4	50,625,000	12%	3,395	14,913	
5	75,937,500	6%	3,203	23,712	
<b>Total</b>	<b>207,812,500</b>			<b>59,946</b>	
<b>Average</b>		<b>19%</b>	<b>3,467</b>		
Fixed PMT Amount	<b>519,531,250</b>				
<b>Post- ICO Listing Price</b>			<b>3,000</b>		

<b>Moonshot Smartcap</b>					
<b>Round</b>	<b>PMT Supply</b>	<b>Discount</b>	<b>PMT/ETH</b>	<b>ETH</b>	
0	10,000,000	30%	2,143	4,667	
1	15,500,000	26%	2,022	7,667	
2	24,025,000	21%	1,907	12,597	
3	37,238,750	17%	1,799	20,698	
4	57,720,063	12%	1,697	34,006	
5	89,466,097	6%	1,601	55,872	
6	138,672,450	1%	1,511	91,798	
7	214,942,298	0%	1,425	150,824	
<b>Total</b>	<b>587,564,657</b>			<b>378,129</b>	
<b>Average</b>		<b>14%</b>	<b>1,554</b>		
Fixed PMT Amount	<b>1,468,911,643</b>				
<b>Post-ICO Listing Price</b>			<b>1,425</b>		

These simulations show that the *Smartcap*<sup>TM</sup> in the Expected Scenario should raise the approximate amount of ETH planned in the whitepaper, while giving every buyer the chance to get tokens at a discount. The Moonshot Simulations will reduce the discount to 0% or “market price”. In this scenario, we pushed the simulation past the parity price and show the token listing at 1,425 PMT to ETH once the *Smartcap*<sup>TM</sup> is reached. While this is possible, we don’t expect it to happen. This is also the reason for the Velocity Kickers, to act as brakes should the sale go too far, too fast.



# PEER MOUNTAIN

## About the Author

Jed Grant, MBA, is the founder and CEO of KYC3, one of the original regtech companies in Luxembourg, and the founder of Peer Mountain, a decentralized P2P ecosystem of trust. He is also a founder and partner of Sandstone, a boutique business intelligence consultancy, and an adjunct professor at the University of Luxembourg, where he lectures on KYC & AML/CFT compliance. His non-profit activities include being a founding member of The Institute for Global Financial Integrity, a founding member of Infrachain, and a board member of the American Chamber of Commerce in Luxembourg. Prior to these activities Jed held senior positions in technology, finance, and security-related organizations including Artemis, the International Civil Servants Credit Union (AMFIE), Computacenter, and NATO.

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