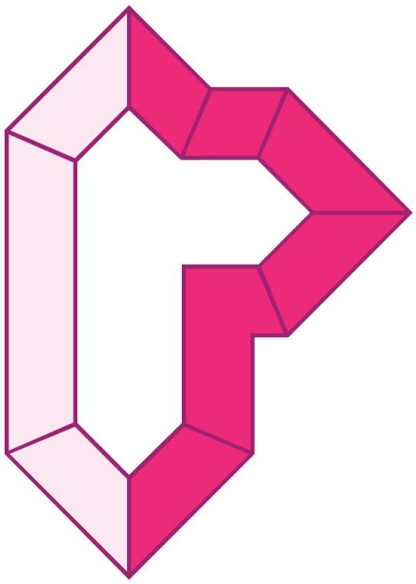


Rupie

Build games, together

Abstract

Rupie is a community-driven video game crowdfunding, incubation and digital distribution platform built on blockchain technology. Created from the ground up with both players and developers in mind, we believe Rupie solves some of the most pressing issues in the video game industry.

With the Rupie Network, we aim to improve the way people create and play video games, by working together. We have re-imagined every aspect of crowdfunding from the lessons learned on other platforms. Instead of "backers waiting for their product", it's game developers and backers working together as a community to achieve success. Using a hybrid public + private blockchain system, application users get sub-second transaction speeds while maintaining the security and transparency of Ethereum.

Games are a large portion of crowdfunding platforms, **but only 25% of successful campaigns result in a shipped game.** We present a Milestone Escrow convention and API that leverages smart contracts, escrow, and community voting to encourage a new collaborative approach to funding, in which the developers and their community achieve milestones *together* to unlock funding tranches.

All platform actions (game funding, escrow, payouts, and more) occur with *Gems*, a private blockchain value store, secured and audited on the Ethereum blockchain. This auditing is done by the Rupie community via the standard Rupie desktop application in exchange for *RPI*, an ERC-223 token also used to get auction work, buy *Gems*, and more uses in the future. This hybrid model enables sub-second platform transactions and stable value, while affording the security and transparency of a public ledger. We see this

transparent and community-focused approach as the future of game funding, creation and distribution.

Table of Contents

Introduction

Our Audience

Game Developers

Game developers make up over 52% of the gaming community, and with easy-to-use tools like Unity and Unreal engine, new PC releases alone went from less than 600 in 2013 to over 5,000 in 2016. This rapid growth means thousands of new projects each year, increased competition for player attention, and an ideal environment for improving the status quo.

Players

There are over 2.2 billion game players in the world, and by 2020, the global gaming market may be worth over 130 billion USD.[21] Rupie will empower players by better aligning incentives toward both shipping and community satisfaction, as well as giving players a direct impact they've rarely had before, with a platform that natively supports

communication, direct development bounties, feature suggestions, testing, and voting to unlock milestone funding.

Content Creators

Content creators are often unsung heroes, but they are game developers too. Rupie is the first crowdsourcing to treat content creators as first class citizens, with major features like bounties, and an asset marketplace to handle licensing, discovery, and payment for their work.

The state of video game crowdfunding

Crowdfunding: 75% of funded campaigns fail to ship

Lump sum campaign funding can make it difficult to budget ahead. If a developer hits trouble, there are few, if any, avenues for additional funding. A common complaint is a lack of product management tools/best practices. The disparate tools that do exist specifically for game development don't play well with each other.

Early access: 75% fail to launch

Another way to build games is via *Early Access*, in which game developers launch an alpha or beta version of the game and charge full price. Unfortunately, only 25% of early access games *ever* make it to "full game", which leaves players feeling distrust and buyer's remorse.

"Read only" after success

Since the crowdfunding model is to get proceeds all at once, developers have one shot to communicate trust and interest. This leads to a very high bar for what game developers

must produce in order to successfully crowdfund their game, often costing $10,000+ of work without knowing if a campaign will even “tip”.

Lack of feedback for developers

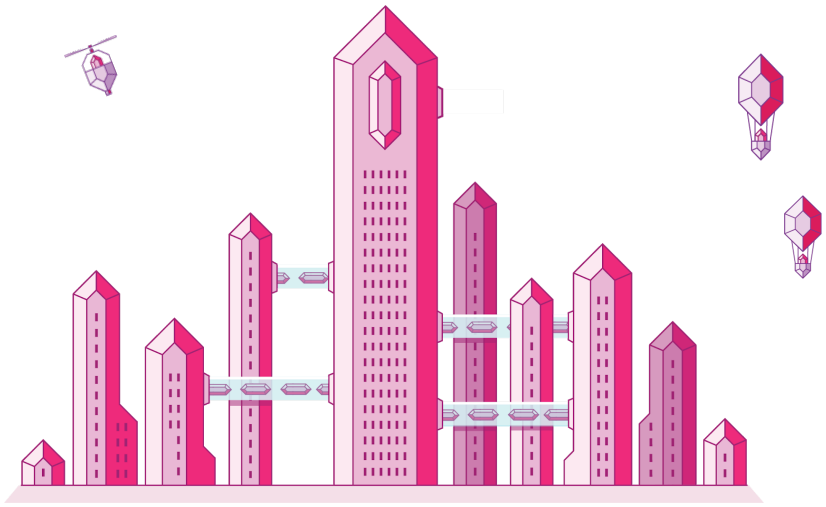
While some game developers hack in feedback, by default, platforms offer player communities little to no involvement other than “read only mode” for progress updates. Building games in expensive, and the results from building something without early feedback can be disastrous.

Complications with crowdsourcing

Millions of gamers participate actively in modding communities across the globe. Millions more seek connection in online forums like Reddit. Contributing to games is something players do naturally, but legal and workflow complication have led to a rocky start for effective crowdsourced games and game assets. Leaving massive talent market fractured and untapped for content, feedback, play-testing, and more.

Existing tools don’t play together well.

Game developers must set up the following tools separately: crowdfunding, project management, community tools, website, playtesting, game distribution, and more. Few if any are designed to integrate seamlessly with each other.



Rupie Network

Build games, together

Rupie re-imagines game development as a community activity. Game developers no longer describe the entire project up front, and get a lump sum success or failure. They describe milestones they'll need to the community, then achieve those milestones together *with* the community. The community then votes to unlock funding to the project owner one by one, as it verifies each milestone has been achieved.

Transparency and success using **Milestones**

What is a *milestone*? A *milestone* is defined as written promise to the community, describing (1) at least one deliverable, (2) an optional deadline, and (3) an amount of funding to be unlocked upon success. Rupie will encourage best practices, such as including deadlines, making deliverables specific and measurable, and thinking the project all the way through to launch. But the game development process can be as

unique as the teams building them, so to support as many as possible, our formal definition of a milestone is intentionally broad. Some examples:

- A traditional milestone, such as “a playtesting prototype of the first level of the game, playable on Windows 10”
- Mobile development like “Testflight alpha build of level 1, to the first 50 backers on iOS”
- A community-driven milestone, such as “100 play tests from backers” or “community vote on concept art for levels 1-10”

We anticipate the Milestone Escrow concept will enable new, creative types of funding we’ve never seen before in the community.

- *Who decides a milestone is achieved?*
  The community votes using smart contracts. Game developers hold a vote, and if a majority of backers vote that the milestone’s promises are met, then Achievement Unlocked! The tokens are released to the developer. This aligns incentives in a way not possible with crowdfunding or pay-per-month creator platforms. For more information on this, see the Milestone Escrow Platform API section below.

- *What if a game developer or community abuses this relationship?*
  The community-driven milestone process aligns incentives to resolve disputes amicably, but there may be rare events in which a deadlock occurs, or a party is acting in bad faith. As part of ensuring security in every milestone funding release, Rupie staff has the ability to resolve disputes, abuse, fraud, or security issues. See the description of the Milestone Escrow Platform API for more details.

Fund additional content with **Features**

Our goal with Rupie is to allow developers to build games how they want, while proposing conventions that can improve project management. *Features* are inspired by Feature Driven Development, and defined as small tasks created by the developer or suggested by the community. The developer can then approve, edit, and attach the feature into a milestone. In contrast to a milestone, a feature has no deadline until it's accepted and attached to a milestone. Some examples:

- Content projects, such as "a winter camo weapon skin for the AUG playable in CounterStrike 1.6 with the following animations[…]"
- Expansion packs whose release dates are flexible
- A community-suggested level or quest (with developer approval)

Content and asset creation

Game developers who make art assets, audio, etc are integral parts of a game's success, but they don't always get the spotlight. With Rupie, they're first-class citizens.

The **Asset Marketplace** of your dreams

Content creators will list their work on Rupie's *Asset Marketplace*, to be paid for the work they're already creating when a project owner licenses the work in their game. Rupie's asset marketplace will give developers ready access to content like audio, 3D models, and textures, and easily incorporate them into their games. License compatibility, payment, etc are built into the platform both the creator and community are already using.

Leverage the community with an integrated **Bounty system**

Content creators may also respond to *Rupie Bounties*: requests for paid work that project owners publish to the community and attach to milestones. Project owners can place bounties directly in their project management interface, say for reproducible bugs in the alpha, or a 3D model they'll need. Bounties are paid in RPI, and may be paid on delivery, or paid in the future using a *Payment Contract: a* smart contract that pays out from future milestone funding or sales revenue.

Tools for **success**

Rupie campaigns give project owners more than the largely one-directional channel to a blog or email list. They're aware of the myriad other tools that surround a successful game launch, like product management, bug tracking, community forums, blog updates, distribution platforms, and more. Imagine if a forum knew who backers were and could adapt intelligently, or if popular blog comments could be funded, and added to the project calendar with a click.

Below are some of the major tools Rupie will provide for creators and their player communities to ship a successful game, together:

- A lightweight product management tool customized for game development, using best practices from advisors in the games industry.
- Feedback channels designed with popular community tools in mind, based on learnings from advisors at Valve, /r/gaming, and more. Creators can reward their top contributing members, moderators can keep criticism constructive, and the community can comment knowing their feedback is tightly integrated into the developer's bug tracking and workflow.

- Ship to existing distribution platforms like Steam with minimal extra work from creators.

Economy

Stability and Trust

Rupie will run on two tokens: an ERC-223 token on the public Ethereum blockchain, and a private blockchain for more frequent smaller transactions accessed by players using their Rupie player credentials. The tokens, and economic implementation details, are described below.

Rupie (ERC-223 token RPI)

Rupie Network funding will run on our public ERC223 token called *Rupies*. This will be created during a private token sale, the details of which can be found below. There are 5 main uses of the *Rupie* token:

1. **Platform participation.** Certain actions require *holding Rupies* in your wallet. For example, posting a game project requires a net positive *Rupie* balance. This is to prevent low quality content spamming.
2. **Entry token.** Trading your RPI for Gems (defined below) allows users to acquire the more stable token used to use many of the platform actions, including funding games.

3. **Staking Rupies** affords you the opportunity to do Audit work (defined below) in exchange for RPI. This incentivizes token stake, which encourages long-term active participation in the platform and its security.
4. **Community incentives.** Staking *Rupies* also includes social incentive within the platform. The Rupie platform will contain a variety of social insignia and achievements to recognize users for their active contributions to the community and platform. Users can display these insignia to communicate status and trust to the community. That status and trust, in turn, incentivizes others to participate in deeper ways.
5. **Proof-of-audit system.** The standard Rupie client will support auditing our internal *Gems* blockchain. Anyone will be able to audit, though users who stake more RPI will be given more work. Audit work consists of validating the transaction hashes, block headers, and merkle tree of each block in the gems chain. Each cycle, the total audit work allotted will target 1000% coverage (each block audited 10 times over). Auditor consensus will keep the private blockchain accountable, as well as perform future tasks as the platform evolves, such as seeding games. We reward auditing work with Gems.

Gems (Internal Private Token)

Rupie uses a private blockchain in a closed economy, to provide a second, non-exchange, non-ERC223 *stable value store* called Gems. This affords us a number of benefits in users' interactions with the application:

1. Decrease the Ethereum gas cost paid by users
2. Sub-second transaction speeds
3. Cheaper transactions
4. Define which actions will *shapeshift* tokens from *Rupies* to *Gems*
5. More stable price of *Gems* relative to USD

For example, *milestones* hold *Gems* in escrow. When the developer and the community successfully achieve a *milestone* and tokens are ready to be distributed from escrow, we compute the appropriate number of *Rupies* to release to the project owner, based on the number of *Gems* raised in the milestone, and the current exchange value of *Rupies*. This means that, not only do *Rupies* generate *Gems*, but certain actions convert *Gems* back into *Rupies* as well.

Economic Implementation in Detail

The total number of *Rupie* ERC-223 tokens minted will be 900,000,000 RPI. Controls for inflation/deflation are crucial to successful ERC-223 token economy management. For full details on the economics system, we describe our fractional reserve system, inflation/deflation controls, and more here: Rupie Economic Controls. Key concepts are below.

Token Rebalance

The *Rupies* paid to game creators will normally be distributed from Rupie's reserve (paid into when the milestone was originally funded). If, during a milestone distribution event, there are not enough *Rupies* to exchange for the milestone's *Gems*, staked auditing *pots* are withdrawn from to meet the transaction volume. Pots are guaranteed full token value when their owner withdraws, so if we've previously drawn against pots, those Rupies are refilled automatically during routine economic rebalances.

Staking and Auditing

Staking tokens is a long-term deposit of *Rupies*, which affords you a share of the auditing work, and slow *Rupie* reward for auditing completed. Any Rupie user may use *Rupies* to buy a *pot*: a smart contract wallet which manages the auditing work and payments,, based on its *balance* and *tenure*. Balance is the amount of *Rupies* staked long-term in the *pot*, and *tenure* is defined as the length of time you've *staked* your *Rupies* in your *pot*. As

your tenure increases, the same number of tokens will yield *Rupies* more quickly per unit time. This incentivizes token stake and platform participation, while reducing non-platform usage and abuse. You may withdrawal from your *pot* at any time, by "breaking" your *pot*. To begin auditing again, *fix* the *pot* for a small *Rupie* fee.

Milestone Escrow Platform

Iterative game development

Rupie will be the first application for an underlying platform we're calling the *Milestone Escrow Platform*. The platform itself is a powerful tool that could be used by the broader crypto community, and as such, we are developing it with an eye toward making it publically available. We envision a future where the platform abstracts away the concept of milestones via API, including the associated smart contracts, securing tokens via escrow, unlocking via backer votes, security fallbacks, and more. This way, others in the community can quickly build products on top: anything from other verticals of crowdfunding products, to funding entire companies. The Milestone Escrow Platform API will handle the following:

Escrow

At the heart of each Rupie game is an escrow smart contract on the Ethereum Network. This keeps tokens in neutral hands until the distribution action occurs. In the case of Rupie's hybrid blockchain model, backers issue *Gems* to fund a milestone, but on success, developers receive ERC-223 *Rupies*. *Gems* are locked in escrow while the *milestone* is in development, with security precautions described below, until consensus is reached for that *milestone's* success.

Smart Contract and Milestone Achievement

Milestone achievement is something unique to Rupie, which game developers and their backer community achieve *together*. All milestone expectations and payouts are controlled by the Rupie smart contract. When a *milestone* is created, the smart contract notes the *milestone*, receives RPI tokens equivalent to the amount of backing tokens that should be released on successful milestone achievement. The smart contract also knows the project owner's wallet address to which it will pay out tokens on successful milestone achievement.

Normal expected operation of successful milestone achievement proceeds as follows:

- Project owner marks milestone as `achieved`, after logging in through the Rupie website. Rupie server signals project owner's intent to the smart contract, and notifies community that it's time to vote on whether the milestone's promises were achieved.
- The community votes on whether the developers achieved the milestone. This is also done by community members by logging in through the Rupie website.
- The community may hold a number of votes on the same milestone, some failing. In the case of a failed vote, the developers and the community communicate on what criteria are missing. A milestone is unlocked with a 60% vote, at which time the Rupie server signals a successful community vote to the smart contract.

At this point the milestone is *Achievement Unlocked*! Tokens are still *pending review* but not yet transferred. Rupie is notified to review.

- A human on the security team at Rupie reviews the vote's legitimacy and it looks good. Rupie's server signals Rupie's approval to the smart contract, and notifies a trusted 3rd party verification service. This service will be bound by contract under

U.S. law to prevent fraud or abuse, including possible attacks from an imposter pretending to represent Rupie, or even a compromised Rupie executive themselves (referred to below as “3rd party”).

- 3rd party verifies no fraud or bad actors are involved. They signal their approval to the smart contract — *not through Rupie’s website, but using their own independent function call on the Ethereum network*.

  At this point, the milestone’s tokens are `released`, and *Rupies* are transferred to the project owner’s wallet on file in the smart contract.

Security

The Ethereum smart contracts that Rupie and the Milestone Escrow Platform will use are available for review here.

PANIC button

Accessible at any time by either Rupie’s security team or the 3rd party, the PANIC button sends a signal to the smart contract to enter PANIC mode. This kills the contract. Self-destructing the smart contract freezes all operations and secures Rupie-staked tokens until new smart contracts can be deployed as an authorized hard-fork. This ensures, in a very public way, that Rupie takes these risks seriously.

Fund release rate monitoring and limits

It may be possible for an attack involving theft to proceed for some time before the PANIC button is pushed. For additional protection of tokens, there is also a rate limit in effect, and monitoring to notify both Rupie and the 3rd party in the event the rate limit is reached. Therefore on a small fraction of the tokens in milestone escrow will be at risk, even the worst cases. (For instance, even if the attacker has both Rupie’s and the 3rd

party's private keys, or even if the "attacker" is Rupie's CEO themself, attempting to defraud our lawyer in person).

Fraud and bad actors

If needed, the human intervention component will allow Rupie to intervene, in case of events like a rogue faction of the community holding votes hostage, a game developer wanting out, or other extraordinary events like hacks. These will be rare, but nevertheless, we will cover the following cases of community deadlock or outright attack:

- **Community goes rogue or MIA:** Game creator requests we intervene. We submit to 3rd party without a community vote, to override. 3rd party reviews, releases tokens. Note that Rupie can not access tokens unilaterally..
- **Attacker gains access to project owner's private key/wallet:** Project owner simply changes receiving address through a smart contract function. Attacker would have to gain access to the wallet secretly, wait for a legitimate payout, then steal the tokens. This is the same risk as with any cryptocurrency wallet.
- **Attacker gains access to Rupie backend but not private keys:** Attacker signals a fake successful community vote, and fake ok from the project owner. Rupie's standard review results in a rejection of the milestone release request, and responds to the breach accordingly.
- **Attacker gains access to Rupie's 3rd party:** The 3rd party can only approve/deny approvals Rupie sends, so this will do nothing on its own. Rupie has what we'll call a FAILSAFE key, on paper in a bank vault accessible only by Rupie's CEO and Rupie's lawyer, together and in person. That FAILSAFE key can be used to reset the 3rd party. It would require a new FAILSAFE key to do so, at which point that new key will go into the bank vault with the same restrictions as before. Rupie continues response from there (notify community, approves no milestones until fixed, etc).

- **Attacker gains access to Rupie's internal private key only:** Attacker triggers everything in the token release process, up to but not including the 3rd party verification. 3rd party rejects and pushes the PANIC button, which kills the smart contract. Rupie reviews, forks to a new smart contract, and funding continues with new private keys.
- **Attacker gains access to Rupie's private key AND the 3rd party:** Both Rupie and the 3rd party will have access to the *PANIC button* key described above, which freezes all withdrawals, as well as automated alerts as to any withdrawals. The withdrawal rate limit minimizes impact before the PANIC button is pushed. The same FAILSAFE key from above will be accessed by our CEO and our lawyer at the bank. Using the FAILSAFE key, they will reset the 3rd party key, and set a new FAILSAFE key, which goes back in the bank vault. We fork to a new smart contract to unfreeze.

Roadmap and Timeline

Timeline details

Pre-Launch

- White paper - **Q4 2017**
- Team Assembly - **Q4 2017**
- Website - **Q1 2018**
- Private chain internal release - **Q1 2018**
- Key partnerships - **Q1 2018**
- Internal alpha, smart contracts deployed - **Q2 2018**

Private Token Event (Q2 2018)

- Tokens to select parties
- Airdrop to select influencers
- Community airdrop

MVP Launch (Q2 2018)

- Bug bounties
- Private funding live
- Alpha release

Q3 2018 and Beyond

- Feature Funding
- Easy publishing to Steam
- Bounty Platform
- Asset Marketplace
- Distribution Platform

A look at the future

While Rupie remains focused on game crowdfunding, we see other uses growing out of the product, including but not limited to:

- ➔ Milestone funding for physical games, asset skins, game modding, even non-games.
- ➔ Creative new modes of funding. We may see creators start crowdfunding earlier in the design process from the earliest stages. The first such milestone might be “hire concept artists and write design doc outline”. We may see them used for Patreon-style ongoing funding as well, with milestones defined as “quit my job to create Counter-Strike skins full-time, and publish the next milestone”.
- ➔ Milestone Escrow Platform API opens to the public. This could anything from other crowdfunding applications, to even entire company funding events. As we grow, we envision opening the platform to the broader community, with its own dedicated team of specialists.

The Team

Core Team

Rupie has a talented team of developers, including members from Valve, LinkedIn, Microsoft, Google, Reddit, and indie games.

.

Austin Anderson
CEO

Jonathan Howard
CTO

Andrew McGuire
VP of Partnerships

Danny Holland
Lead Blockchain Engineer

David Panzarella
Lead UI/UX

Jonathan Tzou
Director of Marketing

Roger Miller
Lead Game Engineer

Lisa Manresa
Lead UI Engineer

Advisors

We're also thrilled about support from our advisors, including Bread, Hypercube Media, Gamepedia, Steam Token, Polymath, GameNation. To read up on our bios and more, see the Team section on Rupie.io

Kalman Gabriel
Polymath

Samuel Sutch
Bread

Chris Barrett
StreamToken/PR serve

Joeri Pross
Hypercube Studios

Will "MisterWoodhouse"
Gamepedia, Reddit

Burton Johnsey
Valve/Microsoft

Maciej Skrzypczak
Gameset, GameNation

How to get involved

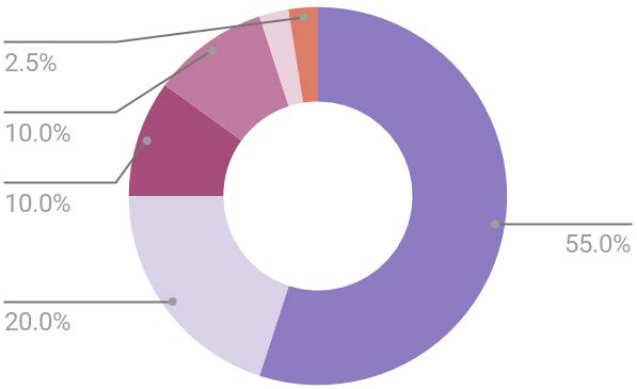
Private Token Event

Our target funding is $27m USD, which equates to around twenty four thousand Ethereum tokens at Ethereum's current price, thus 1 ETH = ~20,000 RT. This price is subject to change, considering the price of Ethereum is volatile. Prior to the crowdsale, these numbers will be recalculated and published. A condition of purchase will be a legal document acknowledging that *Rupie (RPI)* is not a security and the purchase is not in expectation a return.

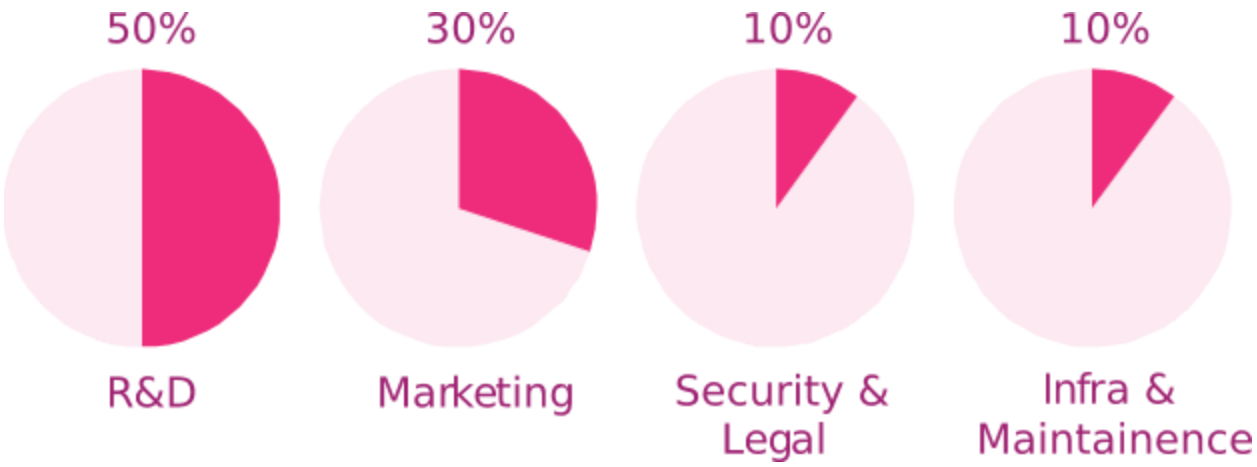
If funding is deemed sufficient, the Rupie Network team may choose to "burn" a number of tokens, thus decreasing total number of *Rupies*.

Allocation

- **900 Million RPI (Rupie Tokens)**
- 55% to token sale
- 2.5% to community airdrop
- 2.5% to influencer airdrop
- 10% to dev team
- 10% to advisors & early backers
- 20% to reserve



Use of Proceeds



- ➔ Research & Development
  - ◆ Funding development costs, like scaling, talent hiring and research. Building out platform, smart contracts, game engine SDKs, storage logic, algorithms, testing, deployment.
- ➔ Marketing
  - ◆ Examples would be exchange listing fees, promotions, email campaigns, video development as well as outreach to game developers.
- ➔ Security & Legal
  - ◆ Legal and business paperwork, lawyer and copyright/trademark registration and other fees that may arise from dealing with government policies.
- ➔ Infra & Maintenance
  - ◆ Cost for internal tooling, development and deployment software, hosting needs and other application related expenses.

Community Distribution

We're reserving a fixed number of tokens to distribute to the community, influencers and participants who help make Rupie great. We'll release more information on this in Q2 2018.

Contact Us

hello@rupie.io

Legal notice

RPI is not a security, but is a functional component of Ethereum, and will be used in utility from within the Rupie Network. *Buyers of RPI should expect to use RPI for its intended purpose within the Rupie Network as described in the Economy sections above, and should under no circumstances purchase RPI to speculate on an increase in value or expectation of future return.* Also make sure to read the SEC's paper on spotting ICO fraud, which you can find here.

Appendix

- https://twitter.com/Steam_Spy/status/908372038972297221 .
- http://gadgets.ndtv.com/games/features/steam-vs-origin-vs-uplay-vs-gog-vs-windows-store-a-definitive-guide-860248
- https://hackernoon.com/our-progress-on-ethpay-encrypted-chatting-via-whisper-6a9550ef036a
- http://www.theesa.com/wp-content/uploads/2015/04/ESA-Essential-Facts-2015.pdf
- https://github.com/ethereum/meteor-dapp-whisper-chat-client
- https://medium.com/uport/what-is-a-uport-identity-b790b065809c
- https://www.reddit.com/r/SteamReviews/
- https://medium.com/startup-grind/five-lessons-from-the-15b-virtual-goods-economy-636be6a44043
- http://www.pcgamer.com/firewatch-is-getting-review-bombed-on-steam/
- https://www.kotaku.com.au/2017/09/steams-haphazard-sex-games-policies-hit-another-game/
- http://www.gamesindustry.biz/articles/2017-09-15-steam-direct-fails-to-prevent-revenue-drop-for-indies
- https://support.steampowered.com/kb_article.php?ref=3415-WAFH-6433#whatisascam
- http://ipfsstore.it/submit.php?hash=QmXd2t4WbhpDf643ija6byLE4q3L8GBQ3u773wWh5zVRT4
- https://www.techspot.com/news/67502-pc-gaming-generated-36-billion-worth-revenue-throughout.html
- https://www.reddit.com/r/announcements/comments/5gvd6b/scores_on_posts_are_about_to_start_going_up/

- https://storj.io/faq.html#faq-3-2
- https://rust.facepunch.com/blog/
- https://newzoo.com/insights/articles/the-global-games-market-will-reach-108-9-billion-in-2017-with-mobile-taking-42/