WHIRL Whitepaper

"Inspiring a Whirlwind of Good"

TABLE OF CONTENTS

TABLE OF CONTENTS 1

IMPORTANT NOTICE 4

I. EXECUTIVE SUMMARY 7

II. INTRODUCTION 8

III. CROWDFUNDING PLATFORM 9

IV. MARKET OPPORTUNITIES 12

V. BUSINESS MODEL 14

VI. TOKEN ECONOMY 15

VII. TOKEN GENERATION EVENT 15

VIII. CORE LEADERSHIP TEAM 18

IX. ABOUT THE COMPANY 20

X. TECHNICAL FRAMEWORK 21

- Technical Glossary 21
- System Description 22
- Components 25
- Key Workflows 30
- Security & Privacy 36

XI. DEVELOPMENT ROADMAP 37

XII. LEGAL NOTICE 40

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I. EXECUTIVE SUMMARY

WHIRL is a socially driven, pay it forward crowdfunding platform that's built on the blockchain. On WHIRL, you can only create a fundraising campaign after you've already contributed to others, inspiring a positive feedback loop of generosity. WHIRL is not a typical crowdfunding platform tacked onto the blockchain; it offers key improvements and innovations over legacy crowdfunding platforms.

First, WHIRL introduces a points system called karma, a unique method of rewarding backers for contributing to campaigns. Karma eliminates the need for campaign creators to ship rewards or ask their friends and family for charitable donations. Karma maintains a fair and transparent campaign queue. And karma incentivizes giving to drive pay it forward, positive societal change.

Second, WHIRL is designed to make every single campaign that lists into a success story. Over time, as the number of crowdfunding campaigns has increased around the world, their already-poor success rates have declined further (e.g. Kickstarter reports a 36% success rate, down from 44% a few years earlier). WHIRL focuses the entire community's attention on only a limited number of campaigns at one time. Limited campaign placements, when combined with the karma points economy and the platform's global footprint, will ensure that every campaign that goes live finishes with a successful raise.

Third, WHIRL is a truly global platform. Because it's built on the blockchain and accepts cryptocurrency, anyone can create a campaign or participate in a campaign without worrying about regional banking restrictions, which are inherent to legacy crowdfunding platforms. WHIRL's fair queue does not discriminate by region or limit members to see only projects from their region, enabling campaign creators to connect with an audience of international backers. All these points are critical because much of the growth in crowdfunding has been and is projected to be outside the United States.

Fourth, WHIRL is the first major consumer crowdfunding platform that's built on the blockchain. Unlike other blockchain projects, WHIRL isn't empty, future hype. The platform is working today after more than a year of development, and portions of its technology have been in development for three years. Being on the blockchain, WHIRL's fees are far lower than other platforms and chargebacks and fake donations are no longer a problem. WHIRL is a secure platform with novel anti-hacking methods like automatic cold storage wallet transfer. Rather than being tied to one specific blockchain, which may not even exist a few years from now, WHIRL transacts with a dozen major cryptocurrencies, a rare feat among blockchain applications.

Fifth, WHIRL is socially driven. In addition to incentivizing giving to improve people's lives, WHIRL works with leading nonprofits around the world and gives them featured placement, white glove support, waived platform fees, and bonus backer incentives. WHIRL will also prioritize campaigns that relate to urgent humanitarian crises, driving funds to people with

desperate, short-term needs. WHIRL understands that the most effective way to positively change the world is by helping those who are already making a difference.

WHIRL is revolutionary, but also rooted in history. It is inspired by community giving funds, where members of ethnic and regional groups donate to a common pool that's used to help the people most in need. But WHIRL is open to everyone, everywhere!

II. INTRODUCTION

A. The Vision:

WHIRL's vision is a world that's inspired to support one-another in an endless loop of giving and generosity. It is to make an impactful difference on a massive scale in how people's dreams, projects, passions, and necessities get funded, removing the need to take out expensive and often never-ending loans from banks, ship rewards to backers, or beg friends and family for donations. It is to usher in the next generation of crowdfunding platforms with a product that's truly global, blockchain-based, and dramatically increases campaign funding success stories. It is to be at all times socially driven, with an emphasis on helping nonprofits access a game-changing source of new capital. Ultimately, WHIRL's vision is to create a whirlwind of good.

B. The Problem:

Since their inception, crowdfunding platforms have given the world a new way to raise capital. But these platforms are beginning to plateau and stagnate, for three reasons:

First, campaign success rates are declining and the vast majority of campaigns finish unfunded. Too many campaigns launch every day and backers can't keep up. They are also more skeptical than ever, following widespread incidents of campaign delinquency, neglect, and fraud.

Second, crowdfunding platforms don't properly incentivize backers, leading many backers to lose interest in crowdfunding altogether. Rewards-based platforms, like Kickstarter, offer only the promise of a product months or years in advance and often never come through; they become risky pre-orders. Charity-based crowdfunding platforms, like GoFundMe, give nothing in return. In the past, the novelty of crowdfunding drove adoption, but now that the novelty has worn off, people are demanding more for their contributions.

Third, crowdfunding platforms are highly segmented by geography; different countries have their own platforms and they all transact in fiat currencies with global banking restrictions. This fragmentation means quality backers are excluded from supporting of quality campaigns.

C. The Solution

WHIRL will usher in the next generation of crowdfunding by creating a novel solution to the pain points listed above. Its limited campaign placements and queue ensure a 100% fundraising success rate. It will energize and attract campaign backers with a unique Karma points system that offers a third, more immediate and compelling alternative to rewards-based and donation-based crowdfunding. And it will be truly global because the platform accepts cryptocurrency (in addition to fiat) and doesn't discriminate by geography.

III. CROWDFUNDING PLATFORM

Below is a comprehensive outline of the different parts of the WHIRL platform.

A. Campaign Listings:

In the beginning, WHIRL will feature only one crowdfunding campaign at a time. Campaigns can be based anywhere in the world with contributors from anywhere in the world. As the platform grows in membership, that number will increase, but deliberately and proportionally. The goal is to focus the entire community's attention on only a limited number of campaigns at once to make success rates guaranteed and fundraising near-instantaneous. The exception are campaigns by approved nonprofit organizations, which have their own separate placement slots. The majority of campaigns listed on legacy crowdfunding platforms fail; WHIRL's limited placements will make every campaign succeed.

B. Fair Queuing System:

Because WHIRL displays a limited number of campaigns at once, you're probably wondering how campaigns get chosen. One of WHIRL's defining features is its fair and transparent campaign queue.

When someone creates a campaign on WHIRL, the campaign is first reviewed by a moderator to ensure that it meets the platform's terms of service. While WHIRL supports the vast majority of fundraising campaigns, it will reject those that deal with illegal or

adult subjects. Once approved, the campaign enters WHIRL's queue, where it is guaranteed to go live at some point in the future.

WHIRL's queue launches campaigns into a fundraising "active zone" based on two variables: the amount of karma that the campaign creator has earned and the amount of time that the campaign has been in the queue.

As a simple example, say you create a campaign and have 1,000 karma. Your campaign moves to the last row in the queue beside another (there are two slots per row). Once a campaign leaves the queue, and a slot above your campaign empties, your campaign competes with the campaign beside it to advance to that empty slot. The campaign whose creator has more karma wins, so if the campaign beside yours has 900 to your 1,000, you advance to the next row. Otherwise, they advance to the next row and the system records that you've been overtaken. If your campaign gets overtaken 10 times, it automatically wins the next contests. Eventually, your campaign lists no matter what other campaigns enter the queue and how much karma their owners possess.

C. Karma:

Every time you back a campaign on WHIRL, you earn karma in proportion to the amount of money you contribute. If you back a campaign with WHIRL's platform cryptocurrency, WRL, you earn 10 karma for every dollar equivalent of your contribution (calculated based on current exchange rates). If you back a campaign with a WHIRL partner cryptocurrency, like KICK, you earn 8.5 karma for every dollar equivalent of your contribution. If you back a campaign with any other cryptocurrency or with fiat, you earn 7 karma for every dollar equivalent of your contribution.

Because WHIRL is a socially driven platform, contributions made to nonprofit campaigns earn bonus karma. For example, contributing to a nonprofit campaign that's raising money for a recent natural disaster might earn you 20 karma per dollar.

The purpose of karma is to set a minimum threshold for creating campaigns on WHIRL, to incentivize backers to contribute more to campaigns, to limit how much money campaigns can raise, and to determine the position and velocity of campaigns within WHIRL's fair and transparent queue. Karma points aren't meant to be hoarded indefinitely; once you list and complete a successful campaign, their sum resets to 0, although WHIRL keeps track of lifetime karma earnings and uses it to calculate a member rating.

Karma is non-transferrable and has no value outside the WHIRL ecosystem because you can't buy or sell it; karma is only earned. Karma is not a cryptocurrency; WHIRL's platform cryptocurrency is the WRL token.

D. Campaign Creation:

Anyone, anywhere can create a campaign on WHIRL so long as they meet a minimum threshold of 500 karma. Campaigns can cover almost any topic or category, like fundraising to pay medical expenses, to start a business, to create an art project, or to make a scientific inquiry. All campaigns require a moderator's approval to ensure that they meet WHIRL's terms of service, which bans certain categories like hate speech.

Though WHIRL is a global platform, campaigns must be created in English. To facilitate that process, WHIRL will provide localization tools.

Once a campaign goes live, the amount that it can raise is capped by the creator's karma at a rate of $1 per karma. For example, if you have 5,000 karma, you're able to raise up to $5,000 for your campaign. This cap is necessary to maintain a stable and sustainable network. (You'll note that earning 5,000 karma is much cheaper than $5,000, so every campaign profits.)

Blockchain-based projects have a long history of security issues. To minimize the risk that a campaign creator's funds are hacked and stolen, WHIRL automatically transports funds into cold storage. WHIRL also pledges to reimburse any funds that are lost or stolen while under WHIRL's control.

E. WRL Tokens:

WHIRL's platform cryptocurrency is the WRL token. WRL tokens will be listed for sale at leading cryptocurrency exchanges and easily transferable into the WHIRL platform. Backing a campaign with WRL earns a significant bonus of karma. Unlike karma, WRL tokens can be sent outside WHIRL and transferred or sold.

If a campaign is backed by WRL tokens, then WHIRL receives 5% of the tokens as its platform commission. These received tokens are not re-distributed or sold; they are burned, decreasing the total supply of WRL in circulation. (Eventually, when WHIRL becomes more established, only 50% of received WRL tokens will be burned.)

F. Campaign Backing

WHIRL allows members to back a campaign with any one of a long list of major cryptocurrencies: ADA (Cardano), BCH (Bitcoin Cash), BTC (Bitcoin), DASH (Dash), EOS (EOS), ETH (Ethereum), KICK (KickCoin), LTC (Litecoin), USDT (Tether), XML (Stellar), and XRP (Ripple), with more cryptocurrencies added in the future. It is expected that most backers will choose WHIRL's platform cryptocurrency WRL, or its

partner cryptocurrency KICK, in order to earn a significant karma bonus. Because WHIRL's mission is worldwide and many markets do not have the proper education or infrastructure for cryptocurrency, WHIRL is working on getting fiat payments up and running. WHIRL will take a 5% commission on all platform fees, which is much lower than industry standard commissions when factoring in credit card fees/banking fees/etc.

G. Nonprofit Engagement

As part of its socially driven mission, WHIRL will work closely with leading nonprofits around the world to help them access a new source of capital. WHIRL will educate them on the ins-and-outs of cryptocurrency, waive all platform fees, help them set up their campaign, fast-track their campaign, give it special visibility on the site, and then incentivize backers with bonus karma.

IV. MARKET OPPORTUNITIES

A. First-Mover Advantage

Consumer crowdfunding was one of the first imagined use cases for the blockchain, but to date the field has remained remarkably wide open with no significant entrants. WHIRL is poised to become the first credible consumer crowdfunding platform that's built on the blockchain. As such, it will enjoy the disproportionate benefits that arise from being first, namely increased press, an influx of early adopters, and the opportunity to become synonymous with the field.

WHIRL will capture a healthy head start over potential competitors because building and marketing a blockchain-based crowdfunding platform is very difficult. For one, there are a long list of technical and security challenges. For two, there's the classic chicken-and-egg problem of building a double-sided market. WHIRL has unique technology that's been in development for a long time, a team with deep expertise in blockchain and crowdfunding, a never-before-seen spin on crowdfunding, and the added benefit of launching first. It is the platform best poised to crack the market and build a moat against future entrants.

B. Blockchain Crowdfunding is Already a Multi-Billion Dollar Industry

Backers have crowdfunded billions of dollars' worth of token sales with cryptocurrency (more than $5 000 000 000 in 2017 and more than $7 000 000 000 in 2018). WHIRL is opening up that fundraising capital and enthusiasm to the consumer market. Many token sale backers, who are incentivized to usher in a blockchain-based future, will no doubt

support campaigns on WHIRL simply to encourage a credible and promising new platform. Over time, as cryptocurrency becomes the de facto method of online payment, WHIRL will naturally grow alongside it to become the de facto method of online crowdfunding.

C. The Biggest Crowdfunding Opportunities are Outside the U.S.

WHIRL is a truly global platform that transacts in cryptocurrency to enable anyone, anywhere to participate. WHIRL's footprint and international team means it can ride the coattails of rapid crowdfunding growth in emerging markets. For example, China is currently the largest crowdfunding market in the world, with a transaction volume 7 times higher than the United States. Another example is India, which has grown 40% year-over-year in crowdfunding transaction size. While WHIRL will have a strong U.S. presence, it will devote significant energy into capturing and even creating emerging markets outside of North America.

D. Crowdfunding is Poised for Rapid Grow

The global crowdfunding market is enticing. It's projected that in 2018, 8 800 000 campaigns will raise a total of $9 370 000 000 . By 2022, the number of campaigns will grow to 17 250 000 and the amount of funding will increase to $26 000 000 000. WHIRL will launch at the perfect time to capitalize on this rapid growth curve.

E. Crowdfunding Needs Something New

The two biggest crowdfunding categories today are rewards-based and donation-based. Both are losing their luster, creating an opportunity for a third alternative to carry the baton. (We count equity crowdfunding as a derivative of rewards-based crowdfunding).

Rewards-based crowdfunding imposes a significant burden on campaign creators and creates tremendous uncertainty for backers. Rather than focusing entirely on their project, campaign creators have to divert attention to peripheral tasks like printing t-shirts, setting up fulfillment centers, and managing stretch goal pledges. Unsurprisingly, many campaign creators get overwhelmed by these distractions and miss their deadlines, angering backers. There are also high incidents of fraud, namely vaporware products and fake pledges.

Donation-based crowdfunding takes away all backer incentives, relying on friends, family, and acquaintances to contribute out of selflessness. The problem with this model is that many people are embarrassed to ask their social circle for monetary contributions and these campaigns rarely reach anyone outside that circle, limiting their potential. As

such, donation-based crowdfunding platforms have a much higher failure rate (as high as 90%) than rewards-based platforms. Fraud is also commonplace.

WHIRL's alternative crowdfunding model lets campaign creators focus on what they want to accomplish without having to worry about fraud, asking their friends family for help, or backer incentives. Likewise, backers are immediately incentivized with karma, so they can support a campaign without risk.

V. BUSINESS MODEL

WHIRL will manage the development, design, and marketing of its platform, facilitate and securely store member payments, promote a fair and transparent queue, and oversee a balanced give-and-take fundraising economy. To accomplish these tasks, WHIRL will receive a 5% commission on all campaign contributions (though contributions made with the WRL token will be burned and not retained). WHIRL's mission is worldwide, so WHIRL's platform fees will help the platform spread to every possible geographic market.

In the near term, WHIRL aims to close 500 successful campaigns per month with an average funding goal of $5 000 each ($2 500 000 million per month volume). By 2020, WHIRL aims for at least 3 000 successful campaigns per month ($15 000 000 per month in volume). By 2025, WHIRL aims for at least 10 000 successful campaigns per month ($50 000 000 per month in volume). Once that scale is attained, WHIRL can afford to reduce its platform commissions from 5% to 3%.

To maintain a secure platform, WHIRL will utilize cold storage wallets and keep the bare minimum of crypto stored online. WHIRL will not be liable for funds transferred to external personal wallets, nor will it be liable for funds sent to the wrong external wallet address. In the event that funds are somehow compromised while under WHIRL's control, WHIRL will refund the amount stolen.

In the beginning, due to regulatory complexity, WHIRL will only accept its own WRL token alongside major cryptocurrencies like (BTC, ADA, DASH, BCH, ETH, BNB, EOS, ETP, ETC, XRP, XLM, LTC, NEO, and NEM), with more cryptocurrencies added in the future. Once the regulatory landscape is calmer, WHIRL will begin accepting fiat currency. Fiat acceptance is critical to maximizing campaign fundraising and fulfilling WHIRL's mission of reaching everyone.

VI. TOKEN ECONOMY

WRL will serve as the primary means of payment across WHIRL. By supporting a campaign with WRL, backers earn 10 karma per dollar (or dollar equivalent). Otherwise, supporting a campaign with partner token KICK yields 8.5 karma per dollar, while any other cryptocurrency yields 7 karma per dollar. With this incentive structure and the ease with which members can purchase WRL on exchanges, we anticipate that WRL will dominate platform payments.

WHIRL charges a platform commission of 5% on all payments. For payments done in WRL and KICK, the tokens received will not be retained or sold on an exchange; they will be burned. Eventually, once the platform is established, only 50% of commission-received tokens will be burned (initial estimate is 2020).

WRL tokens will also be accepted as payment on partner projects, beginning with KICKICO and the FlogMall cryptocurrency store. Negotiations are pending with other successful and credible blockchain projects.

WRL will have the necessary technical hooks to integrate with the Bancor network.

As of now, WRL tokens have no other use. They offer no additional rights to owners and should not be treated as securities or investments.

VII. TOKEN GENERATION EVENT

To seed and promote a community, in addition to raising funds for global expansion, WHIRL will host an initial Token Generation Event (TGE). The TGE will be conducted simultaneously on ico.whirl.com and kickico.com in order to maximize the amount of the raise and the number of participants.

WRL tokens will be generated in advance of the TGE. For now, they will utilize the Ethereum ERC - 20 standard, but eventually they may be transferred to another blockchain, like EOS.

WRL's initial exchange sale price will be set at $0.001. The same price will be set at the start of the token sale, with bonuses listed below.

The following pools will be created during the TGE:

Pool	**Amount, WH**

Token sale pool	up to 38 250 000 000 WRL
Team & advisors pool	up to 6 000 000 000 WRL
Bounty, lottery, PR & other promo activities	up to 2 300 000 000 WRL
Max number of tokens for platform growth	up to 10 000 000 000 WRL
Total max number of created tokens	up to 56 550 000 000 WRL

Fundraising targets and limits are as follows:

Soft Cap (min token sale threshold)	$5 000 000
Target A	$15 000 000
Target B	$25 000 000
Hard Cap — Target C (max token sale threshold)	$30 000 000

The structure of selling tokens is as follows:

Stage	**Max discount**	**1 ETH = WRL**	**1 WRL = $**
Closed Round	25%	375 000	$0.00075
ICO	20%	300 000	$0.00100

During the closed round, no more than 6% of all tokens will be sold. The discount will be 25%, for sums over $50,000. The closed round begins September 15, 2018 with a 6-month token freeze. To take part, participants must provide identification, email, a sender wallet address, and a receiver wallet address.

The ICO campaign begins on November 26, 2018 and ends February 27, 2019. The maximum discount for early participation will be 20% and for contribution will be 5%, for sums over $50,000. The bonus structure is as follows:

Contribution period bonuses	**Discount**
Tier 1: November 26, 2018 — December 14, 2018	**20%**
Tier 2: December 15, 2018 — December 31, 2018	**15%**
Tier 3: January 1, 2019 — January 19, 2019	**10%**
Tier 4: January 20, 2019 — February 7, 2019	**5%**
Tier 5: February 8, 2019 — February 27, 2019	—

Volume bonuses	Discount
$10 000 +	**1.5%**
$20 000 +	**3%**
$50 000 +	**5%**

In sum, the discounts offered will be modest, averaging out to 10% across rounds. WHIRL's incentive and lock-up structure was designed to avoid a common mistake made by other token sales: offering excessively large discounts, which lead to large-scale devaluation after entry into exchanges.

To reduce the risk of hacking and minimize any potential damage caused by it, WHIRL's TGE will not use smart contracts. Instead, funds will be deposited into special transit wallets, which will regularly and automatically deposit their balances into cold wallets. Any hacked transit addresses will therefore at any time have only a minimum balance of funds.

Once the campaign concludes, WRL tokens will be distributed within one calendar month. The amount of tokens distributed to each person will be made in accordance with the amount they purchased at the time of transaction with the exchange rate price of the purchase calculated by an average from Binance, Bitfinex, and Coinmarketcap.

The distribution of funds raised through the sale of the WRL tokens will be as follows:

Expense Item	Cost
Product development and improvement, team salary for two years (before break-even)	$2 000 000 ($4 000 000 if the hard cap is reached)
Legal expenses for two years, obtaining required licenses, account openings, business legalization in target countries	$2 000 000
Return on investments for the platform development and costs, compensation related to the brand and domain	$1 200 000
Repayment of loan for the preparation and execution of the ICO campaign, including interest for using the loan	$2 100 000
Payment of commissions for listings on exchanges (only the top exchanges are considered and those that do not take payment by company's tokens)	$3 000 000

Compensation for the team and founders	5% of funds, if more than $13 000 000 to be raised
Total compensation to all partners participating in the platform development	10% of funds, if more than $15 000 000 to be raised
Opening up of new countries and associated costs for PR, marketing, development and brand recognition	All that remains after the listed above costs will be invested into global development and expansion

VIII. CORE LEADERSHIP TEAM

Martijn Hekman, CEO

Martijn Hekman has more than 20 years of experience leading global enterprises, especially in the nonprofit sector. Hekman has directly overseen the execution, launch, and growth of 50 major ventures across Europe, Asia, and the Middle East, which have attained a combined market value of $1 000 000 000. He has worked in 15 different countries and maintains close ties with governments, NGOs, and Fortune 500 companies. He is an avid angel investor and startup mentor.

Valery Zobov, Founder

Since 2007, Valery Zobov has served as the CEO and founder of MegaLine, LLC, a firm which distributes German engineering systems.

Anti Danilevski, Executive Board Director

Anti Danilevski is an early blockchain pioneer. He founded KICKICO, a platform for cryptocurrency-based startups to list and promote their token sales. KICKICO hosts a community of more than 55,000 crypto investors and has helped launch dozens of successful token sales, with more than 250,000 ETH raised. Danilevski was 13 years old when he began his tech career, first as a videogame designer and then as a producer.

Roel Wolfert, Non-Executive Board Director

Roel Wolfert is an expert in digital payments, serving as COO at Transtrack International, which provides software to banks, governments, and organizations to manage their cash supply chain. Wolfert is an advisor to the Bancor Foundation, which manages the largest decentralized liquidity network in the world, BeamWallet, the UAE's largest mobile wallet, and Genexi, a biotech blockchain startup. He is actively involved in tech mentoring and diversity initiatives.

IX. ABOUT THE COMPANY

ICO COMPANY

The token sale will be conducted by WHIRL TGE LIMITED.

WHIRL TGE LIMITED is a limited liability company organized and existing under the laws of the British Virgin Islands with registration number: 1990361, whose registered office is: Trident Chambers, P.O. Box 146, Road Town, Tortola, British Virgin Islands.

The board of directors is composed of:

- Valery Zobov, Russia (founder);
- Anti Danilevski, Russia (founder, crypto enthusiast, investor);
- Martijn Hekman, Netherlands (CEO of the project).

Strategic planning is carried out by the Board of Directors.

All final decisions are made by Valery Zobov.

Bank details: [●]

DEVELOPER COMPANY

The products have been developed by a team of Russian developers in Russia. The developers have been engaged by our subsidiary – "404 Development" LLC, a Russian entity.

404 Development is a limited liability company organized and existing under the laws of the Russian Federation with registration number (INN): 7703464746, whose registered office is: Presnenskaya Embankment 13, room A 18, office № 1.1, Postcode: 123112, Moscow, Russia.

Bank details:

Bank	Central Branch of Bank "Otkritie FC"
RCBIC	044525297
C/A	30101810945250000297
O/A	40702810249000050051
Address	Presnenskaya Embankment 13, room A 18, office № 1.1, Postcode: 123112, Moscow, Russia.

X. TECHNICAL FRAMEWORK

A. Technical Glossary

For your reference, we define many of the common terms used throughout this whitepaper.

Active zone - a campaign is in the active zone when it can actively raise funds.

Backer - a member who financially contributes to a campaign on WHIRL.

Blockchain node - a hosted copy of a blockchain. WHIRL stores nodes for 10 of the most popular blockchains on its servers. This allows the platform to transact with these cryptocurrencies.

Blockchain service - connects WHIRL's database with a blockchain node via API.

Campaign - a fundraising page created on WHIRL, comprised of a funding goal and description.

Campaign creator/owner - member who creates a campaign on WHIRL.

Cold storage - transferring cryptocurrency offline for maximum security.

Database - structured data hosted on WHIRL's private servers. Contains both public and private/sensitive data. WHIRL's database interacts constantly with smart contracts on the Ethereum blockchain.

Fundraising level - in the beginning, WHIRL will only offer one “micro” fundraising tier, which allows a raise of up to $30 000. Eventually, WHIRL will create a “medium” tier, which allows a raise of up to $300 000, and a “high” tier, which allows a raise of up to $3 000 000 .

Karma - internal platform points system. Non-transferrable. Every donation to a campaign earns the backer a certain number of karma per dollar-equivalent they spend. Karma is required to list a campaign on WHIRL and karma determines how quickly that campaign moves through the queue and how much money it can raise.

Member/User - anyone registered on the WHIRL platform.

Moderator - special class of member that enforces platform rules.

Queue zone - campaigns in this zone cannot raise funds. They compete with one-another to advance into the active zone.

Smart contract - scripts that are executed on a global network of nodes: can read/write transactions from and to the blockchain. WHIRL operates in part with 4 smart contracts on the Ethereum blockchain.

System administrator - highest class of member on WHIRL. Appoints moderators and oversees WHIRL as a whole, ensuring it operates smoothly. Final decision maker.

TRW (Temporary repository wallet) - funds stored on WHIRL are placed in a temporary wallet (TRW) before being rotated in cold storage.

WHIRL tree - WHIRL’s queue and active zone is comprised of a rooted binary tree. ‘Binary’ implies that any node (parent campaign) cannot have more than two children. In a rooted binary tree nodes are also allowed to have 1 or 0 children; branches can have different lengths.

B. System Description

Below are technical explanations of two key parts of WHIRL’s ecosystem: karma and the queue.

How karma is calculated: Contributing to a campaign earns the backer karma. Karma is distributed based on a simple formula:

*Karma = Dollar-Equivalent Contribution * Currency Multiplier * Campaign Multiplier*

Campaign backers can contribute to a campaign using one of a dozen different cryptocurrencies. When they complete their contribution, the dollar-equivalent value of their contribution is calculated based on current exchange rates. For example, if someone donates 4 ETH to a campaign and, at the time, 1 ETH = $250, then our system considers it a contribution of $1 000 total.

The currency that the backer used to contribute determines its currency multiplier. If they back a campaign with the WRL token, they receive a currency multiplier of 10. If they back a campaign with a partner token like KICK, they receive a multiplier of 8.5. Otherwise, they receive a multiplier of 7.

Finally, certain campaigns may have additional multipliers. For example, contributing to a featured non-profit campaign might multiple everything by 2.

So, someone donating $1 000 worth of Eth to a featured non-profit campaign that offers a 2x karma bonus would earn:

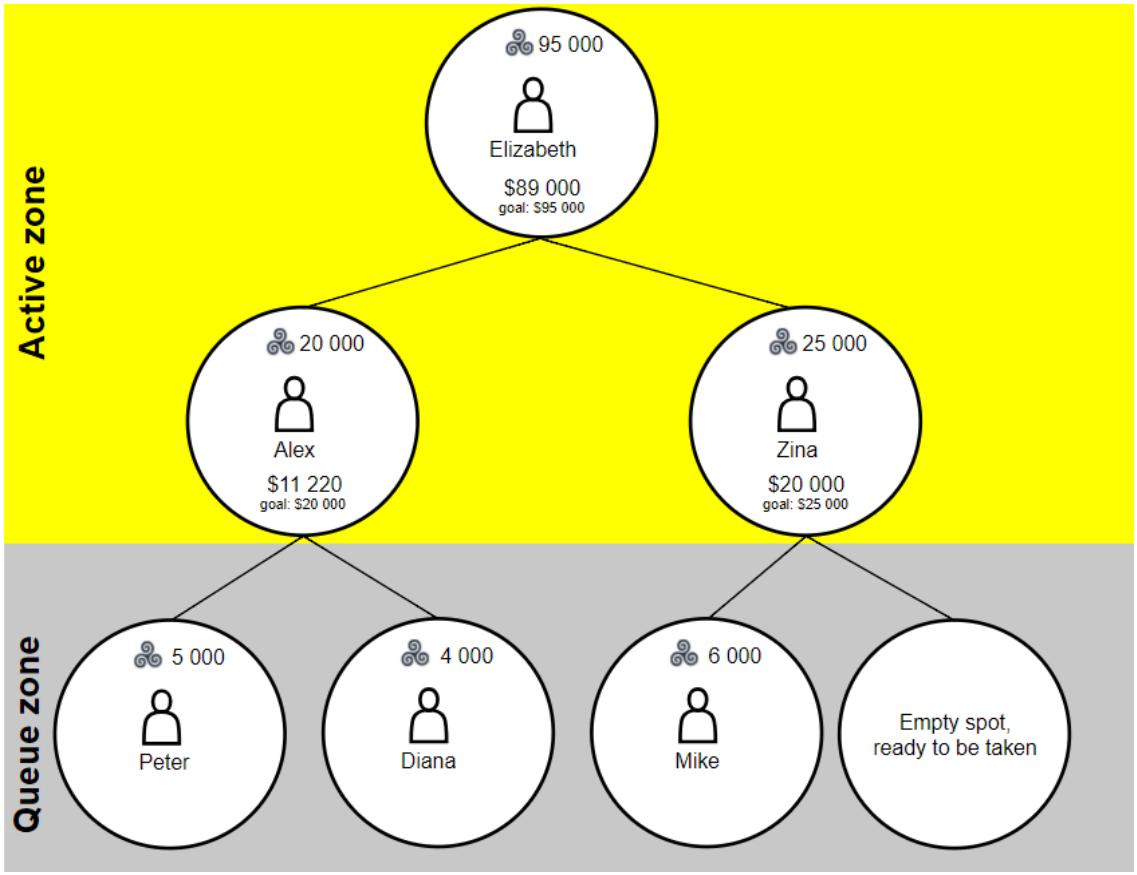
*Karma = $1 000 * 7 * 2 = 14,000 karma*

This is added to the creator's existing karma, so if they had 50 000 karma previously, they would now have 64 000 karma.

Once someone launches a campaign and it finishes fundraising, that person's karma resets to 0 and they begin their journey anew.

How WHIRL's fair and transparent queue functions: WHIRL campaigns are organized in a rooted binary tree geometry. Each parent can have up to two children, which compete against each other for their parent's position, once that position becomes empty.

In the example below, Elizabeth's campaign is the parent of Alex's campaign and Zina's campaign, who are siblings. These three campaigns are in the active zone, meaning they're actively collecting contributions from backers.



Let's discuss what happens outside of the active zone. Campaigns in the queue zone cannot raise funds until they advance into the active zone. In order to advance to the active zone, they must work their way up the queue by competing with their siblings to advance once a parent slot opens up.

You'll note that Alex's campaign is a parent of Peter's campaign and Diana's campaign. If Elizabeth's campaign (above Alex) finishes fundraising and Alex's campaign advances to Elizabeth's slot, then Peter and Diana will compete on who advances to Alex's previous spot. Likewise, if Alex's campaign finishes; it leaves the active zone and Peter and Diana compete for the now-empty slot.

This competition is handled fairly based on two variables: (1) how much karma the campaign owner holds and (2) how many times the campaign has been overtaken in the past (n). If a campaign has been overtaken 10 or more times, it automatically beats any sibling with lower n, even if that campaign's owner has higher karma.

As an aside, you can calculate the maximum number of campaigns on a given level L with the formula:

Nmax(L) = 2^(L-1)

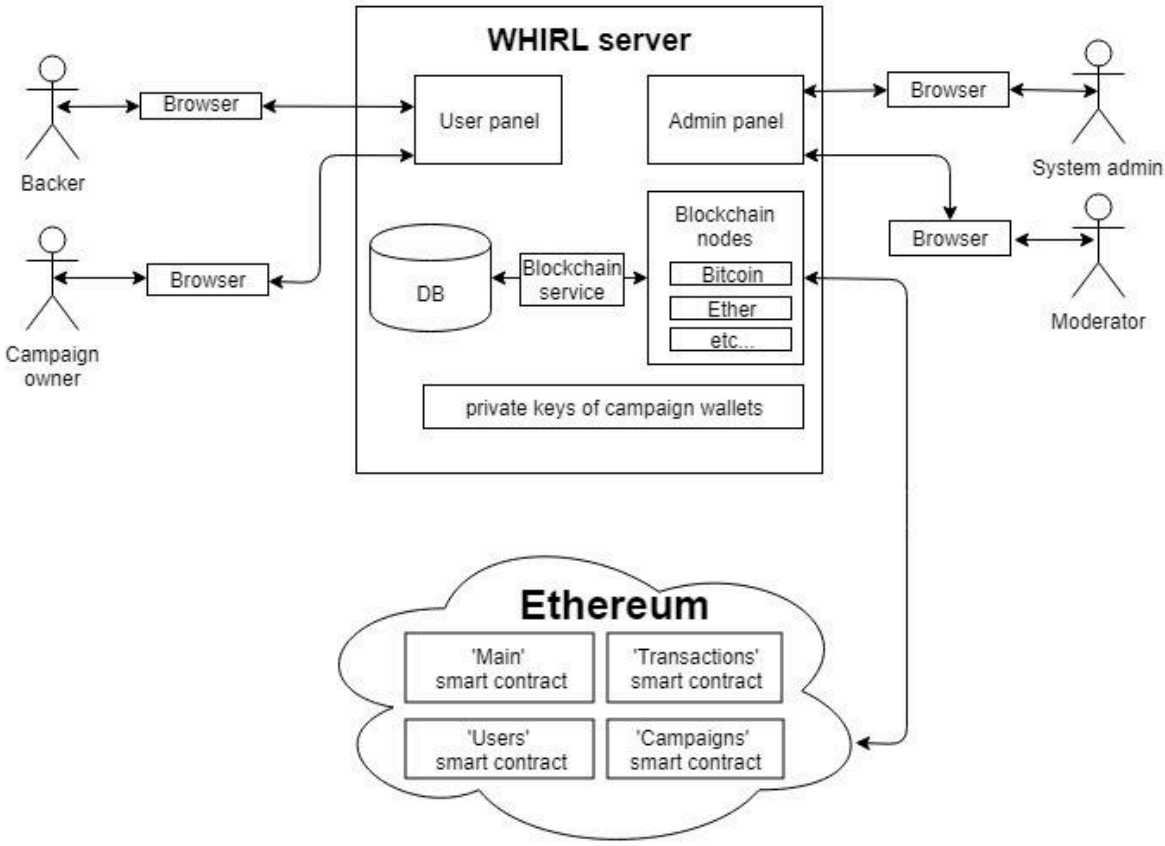
And you can calculate the maximum number of campaigns for a tree with height h with the formula:

N(h) = 2^h - 1

In the active zone, a campaign can only raise $1 per karma point that its owner holds. Campaign owners may add to their karma while in the queue zone.

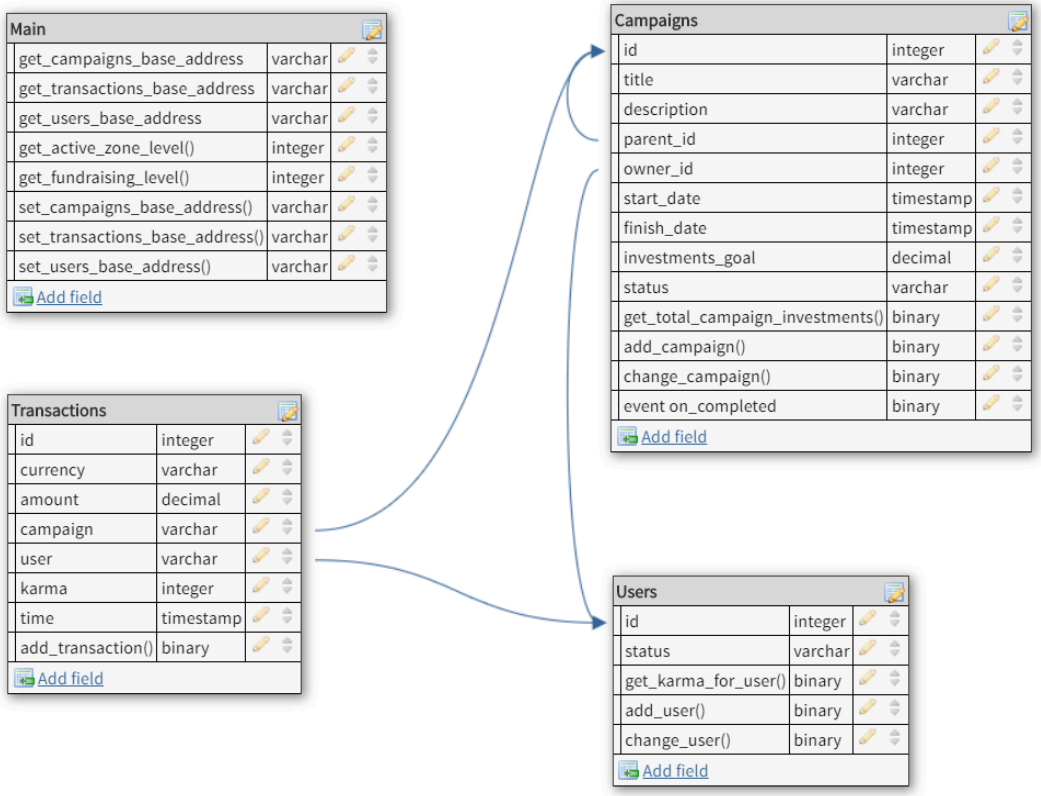
WHIRL's queue is fully transparent. Anyone may inspect it at any time.

C. Components



Ethereum smart contracts: Certain data about members, campaigns, and transactions are stored in dynamic smart contracts on the Ethereum blockchain. Other data are

stored on WHIRL's private database to ensure privacy and to maximize speed and minimize costs. WHIRL employs four smart contracts: Main, Users, Campaigns, and Transactions. We'll outline them below.



- **Main:** This is the zero-order smart contract, containing three fields and five functions.
    - Fields:
        - get_campaigns_base_address: stores address to the Campaigns smart contract
        - get_users_base_address: stores address to the Users smart contract
        - get_transactions_base_address: stores address to the Transactions smart contract
    - Functions:
        - active_zone_level(): calculates the current level of the active zone.
        - fundraising_level(): calculates the current fundraising level. There are three possible levels: (1) 'micro': maximum funding = $30 000;

(2) ‘medium’: $300 000; ‘high’: $3 000 000. Immediately after the launch of WHIRL, only the ‘micro’ level will be available to campaigns. Eventually, the other two levels will unlock.

- set_campaigns_base_address(new_address): in case the smart contract needs to be updated.
- set_transactions_base_address(new_address): in case the smart contract needs to be updated.
- set_users_base_address(new_address): in case the smart contract needs to be updated.

- **Users:** This smart contract contains a list of registered users and functions used to calculate their properties.
  - List:
    - users_list: contains registered user’s records. Each record contains the following fields: user_id, status. Private data (name, address, email, phone, scan of identification documents) are kept in a DB on WHIRL’s secured server only.
  - Functions:
    - add_user(args): adds a user to the list.
    - change_user(id, args): changes selected arguments in selected user.
    - get_backed_campaigns_list(id): gets all funding transactions with given id from the ‘Transactions’ smart contract and returns the resulting list.
    - get_owned_campaign(id): returns the campaign_id with owner=user_id from the ‘Campaigns’ smart contract. If no match exists, returns 0.
    - calc_karma(id): calculates the karma of the user by analyzing ‘Transactions’ smart contract.
    - get_user_transactions(user_id, *args): returns a list of transactions for a given user. Additional arguments can bracket time interval of interest.
- **Campaigns:** This smart contract contains a list of campaign records and several functions that are used to calculate campaign properties.
  - List:

        - campaigns_list: contains campaign records. Each record contains the following fiel
        - ds: id, parent_id, owner_id, title, description, start_date, finish_date, investments_goal, status [‘draft’, ‘rejected’, ‘active’, ‘finished’, ‘deleted’, ‘stopped’, ‘banned’, ‘cancelled’, ‘moderation’].
    - Functions:
        - get_total_campaign_investments(id): calculates total amount of funding gathered by the campaign.
        - calc_level(id): calculates the level of the campaign.
        - add_campaign(args): adds a campaign to the list
        - change_campaign(id, args): changes selected arguments in selected campaign.
        - get_campaign_transactions(campaign_id, *args): returns a list of transactions for a given campaign. Additional arguments can bracket time interval of interest.
    - Events:
        - camp_completed: event happens when a campaign reaches its goal.
- **Transactions:** This smart contract contains a list of donation records as well as a tally of the karma awarded to backers.
    - List:
        - transactions_list: contains transaction records. Each record contains the following fields: id, currency, amount, campaign_id, user_id, karma, time.
    - Functions:
        - add_transaction(args): adds a transaction to the list.

Server: Our private server contains a database that’s synchronized with the Ethereum blockchain. It also contains full nodes of the 10 different blockchains we support, TRW private keys, and a blockchain service that connects the database to the blockchain nodes via API.

- **Database:** Contains all platform data. Continually updates the Ethereum smart contracts. Computations are made on the database while the smart contracts are

updated in the background to ensure that blockchain delays don't affect the reliability of the platform.

    - User information, both public and private. The public data mirrors the information in the smart contracts.
    - Campaign information
    - Transaction information
    - Logs
    - Statistics

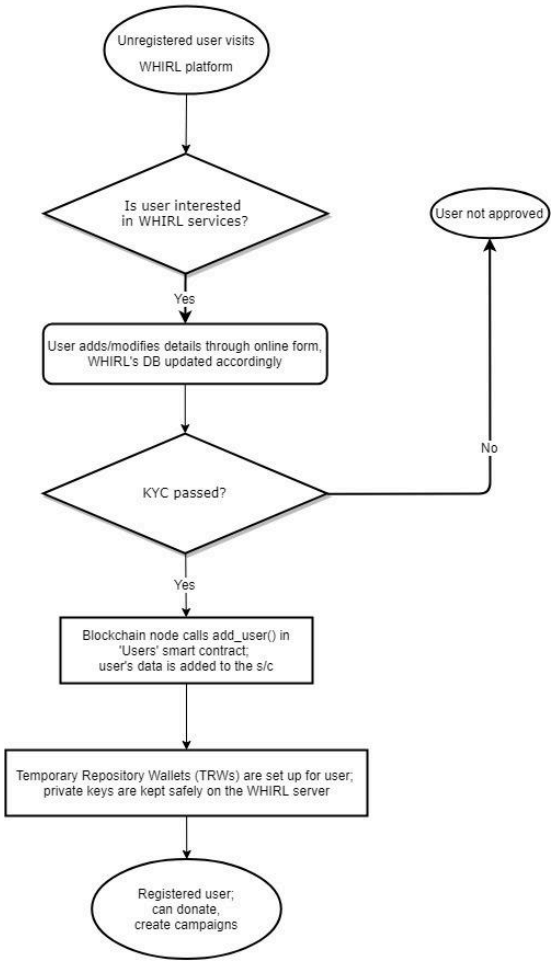
- **Blockchain nodes:** WHIRL supports a dozen different cryptocurrencies. In order to generate wallets for these different currencies and to track the transfer of funds, we have 10 different nodes installed on the server.

- **Blockchain service:** Connects to a blockchain node via API, gets updates and then synchronizes the database.

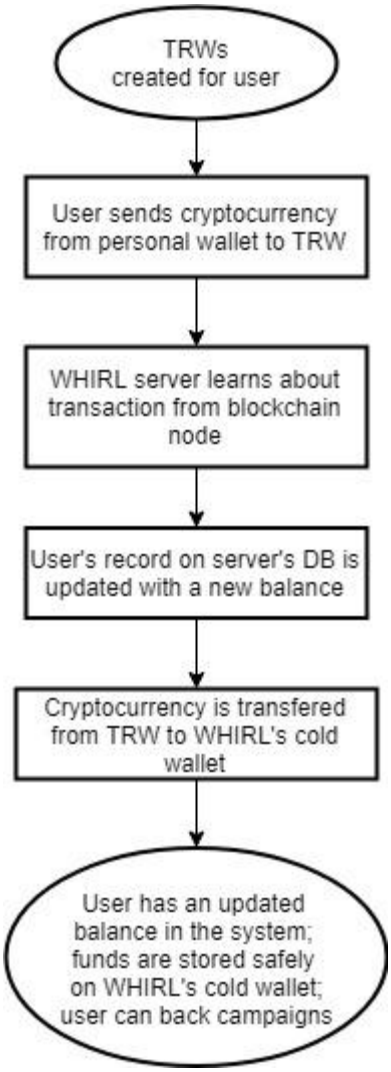
- **Panels:**
    - User panel: Allows members to check information about their account balances, transaction history, karma, backed and owned campaigns, and their activity log. This is also used to edit personal information and settings.
    - Admin panel: Allows administrators to appoint moderators, read and respond to complaints, and view system statistics.
    - Moderator panel: Allows moderators to change the status of users and campaigns (e.g., changing a campaign from 'in moderation' to 'active'), respond to member requests and complaints, edit campaign information, and create articles and news items.

- **Temporary Repository Wallets (TRWs):** WHIRL generates a temporary wallet for every member-cryptocurrency pair, or 12 wallets per member total. These wallets are used to receive campaign contributions. As the name suggests, these wallets are temporary: funds are routinely moved from the wallets into cold storage until the campaign ends and the funds are ready to be distributed outside the platform. All transactions to TRWs are recorded on WHIRL's database.

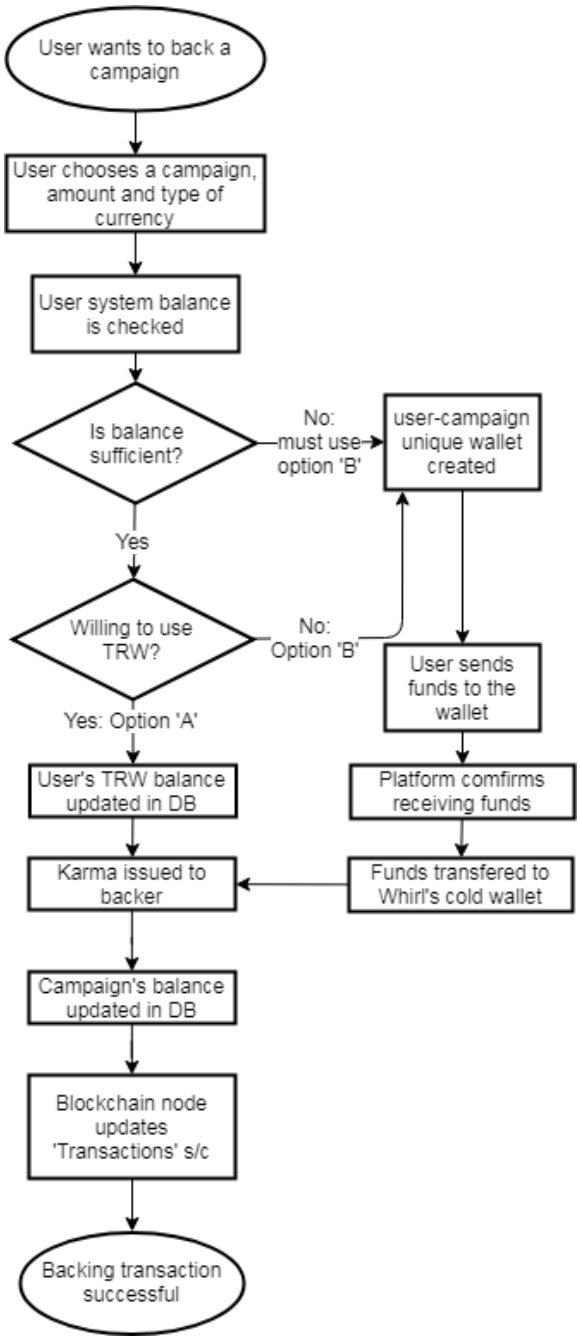
D. Key Workflows



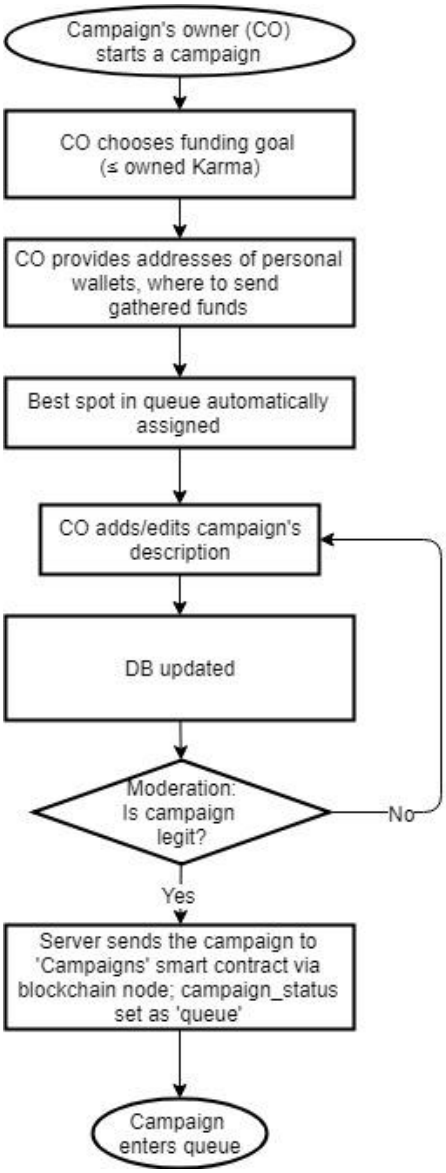
- **User Registration:** Visitors who wish to register for WHIRL first fill out a registration form and complete a KYC process. KYC is free and secure for all visitors (WHIRL pays all costs). It is managed by the well-known company Sum and Substance. KYC utilizes facial recognition, identity verification, and address confirmation. Once KYC is passed, WHIRL calls the add_user function in its smart contract and generates 12 TRWs.



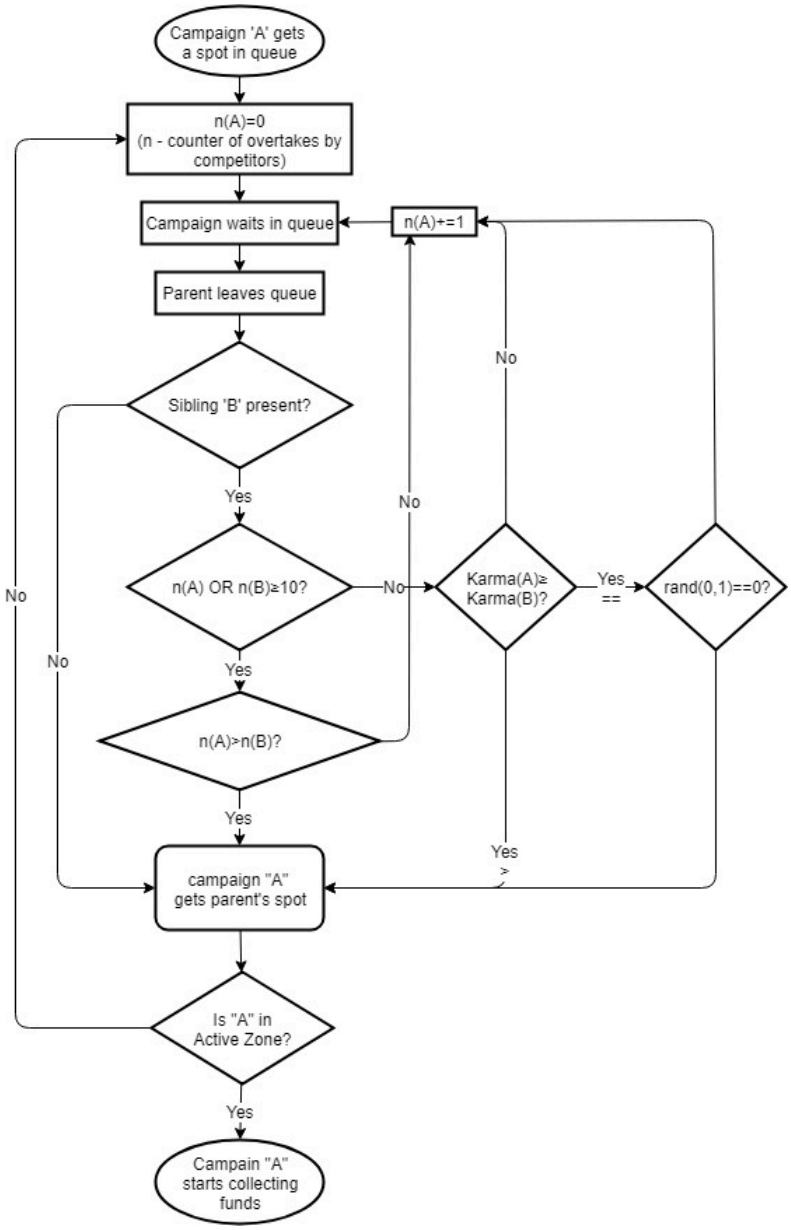
- **Account Funding:** In order to back a campaign, members need a positive balance in at least one of their TRWs. They can top off any of these wallets by transferring funds into the platform. Once the funds are received, they are transferred into cold storage.



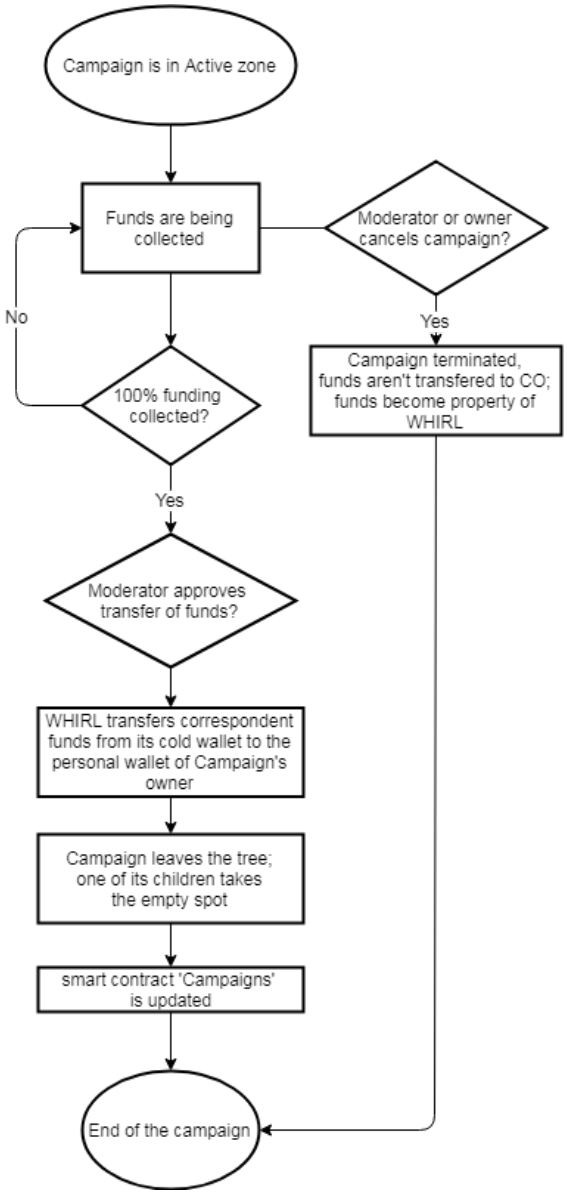
- **Backing a Campaign:** Once a member backs a campaign, several events take place. First, their account balance is checked to ensure that they have available funds. Second, their account balance is updated to reflect their contribution. Third, they are awarded karma. Fourth, the server updates the “Transactions” Ethereum smart contract to store all the details of this transaction.



- **Creating a Campaign:** Members need at least 500 karma to create a campaign. In the future, when new fundraising tiers are added, more karma will be required for them. To create a campaign, members complete a campaign creation form that includes details about the campaign such as its fundraising goal and general description. Once the form is complete, a moderator reviews it against WHIRL's terms of service. Once approved, the server calls the change_campaign() function in the smart contract and updates its status to 'queue.' It then enters the queue in the last available slot position.



- **Advancing in the Queue:** New campaigns enter in the last slot of the queue zone. Except for the top-most node, each campaign has exactly one parent and no more than one sibling, with whom it competes. Once the parent becomes empty, the two siblings compete on who takes the slot, based on whichever campaign creator holds the most karma. If a child loses, it increases its overtake counter by 1 (initial value = 0). Once the overtake value reaches 10, then it automatically wins the next competition. After advancing, the campaign's overtake counter resets to 0. The overtake counter guarantees that every campaign that enters WHIRL's queue will list at some point in the future.



- **Active Fundraising:** Once a campaign advances out of the queue zone and into the active zone, its journey is over and it can receive funds from the WHIRL community. While campaigns in the active zone may still advance if their parent slot empties, this movement does not impacts its fundraising. Fundraising continues indefinitely until one of three outcomes occur:
    - A moderator deems the campaign to be against WHIRL's terms of service. In this case, the owner retains their karma and WHIRL retains hitherto collected funds.
    - The campaign owner cancels their campaign. In this case, the owner retains their karma and WHIRL retains hitherto collected funds.

    - The campaign receives exactly 100% of its fundraising goal, in which case it automatically closes. A moderator approves the campaign's close and all funds are transferred from WHIRL's cold wallet to the campaign owner's external wallet. The campaign owner's karma resets to 0.

E. Security & Privacy

We take security and privacy seriously. Here is a partial list of the measures we've implemented to protect our members.

- WHIRL stores data on two separate systems: in a private database and on the public Ethereum blockchain. Storing public data on the blockchain guarantees its integrity, transparency, and perpetuity while storing sensitive data in a private database ensures its protection. Sensitive data is never shared with any outside services or websites, with the exception of our KYC-provider. It is never sold.

- Private keys to TRWs (temporary repository wallets) are stored separately from other services, so a hacker who compromises WHIRL's systems does not gain access to any private keys.

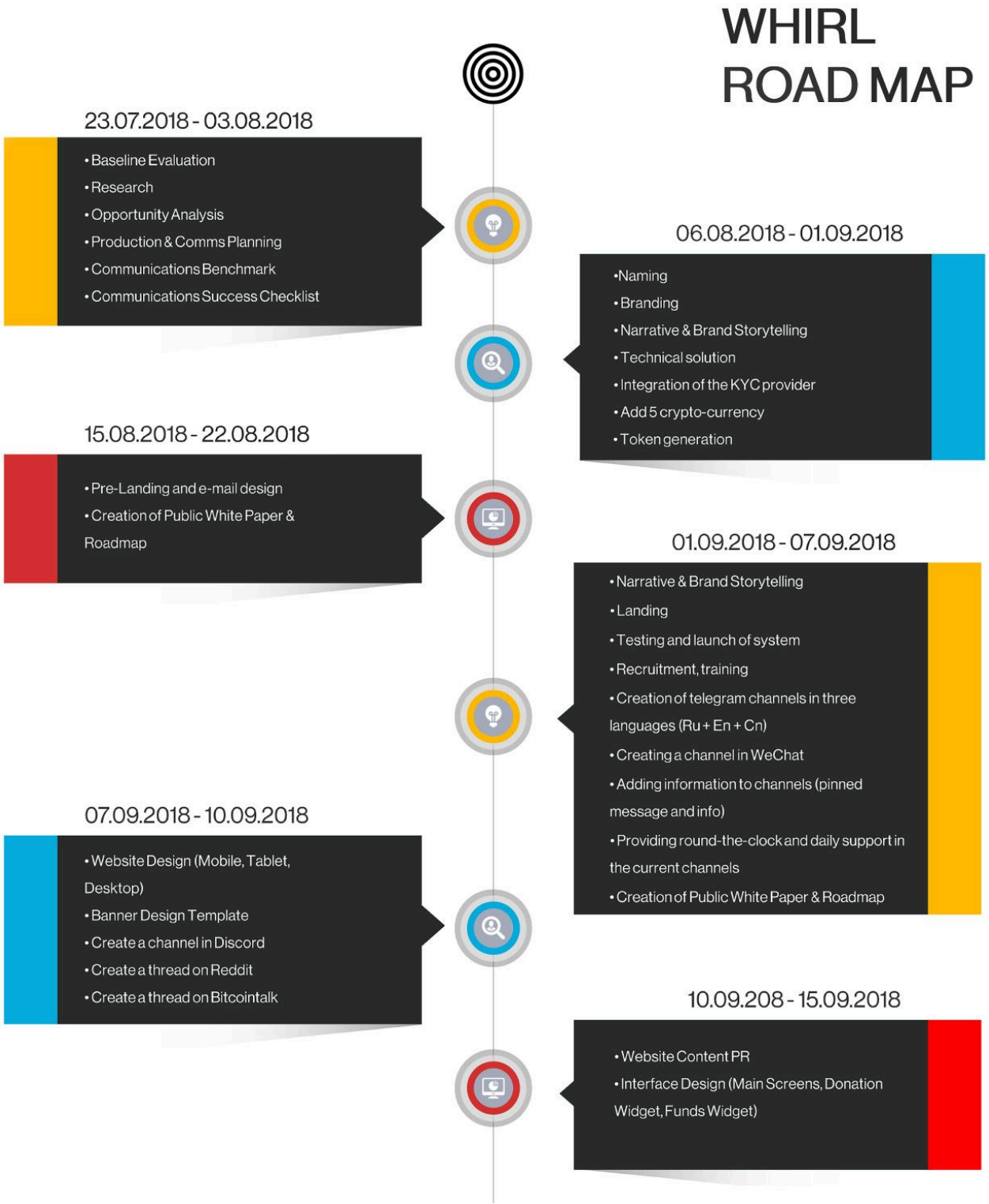
- Following industry best practices, WHIRL supports two-factor authentication.

- Once a campaign finishes fundraising, it is reviewed for suspicious activity by a moderator before funds are transferred to the campaign owner. If there is any suspicion that the campaign owner's account was compromised, the moderator will investigate further before transferring funds.

- WHIRL regularly rotates stored funds to cold wallets, where they are locked until the campaign finishes fundraising.

- In case of a systems breach, WHIRL has lock-down mechanisms in place that instantly freeze all or portions of the platform until it can be secured.

XI. DEVELOPMENT ROADMAP



PRIVATE SALE

17.09.2018

- Public White Paper & Roadmap

15.09.2018 - 23.09.2018

- Website Content
- Media Profile & Press Kit
- Marketing strategy (for all stages)
- Media plan
- Bounty campaign plan
- SMM strategy & content plan
- Email campaign plan (inbound and outbound)
- Pre-landing page analytics setup
- Initially attract new users, support channels
- Start posting news in all channels (with the support of SMM manager)
- Organizing and conducting a Q & A session between community team and the WHIRL project management.
- Creation of a survey on the theme of "crowdfunding" and it distribution in a thematic social platforms.

23.09.2018 - 28.09.2018

- Launching a thread on Weibo
- Launching a QQ chat
- Translating news into Chinese
- The beginning of the formation of the knowledge base
- Setting up aggregation services for getting comments and feedback from the social networks
- Custom tweaks to find references to the project WHIRL in third-party social platforms.

28.09.2018 - 10.10.2018

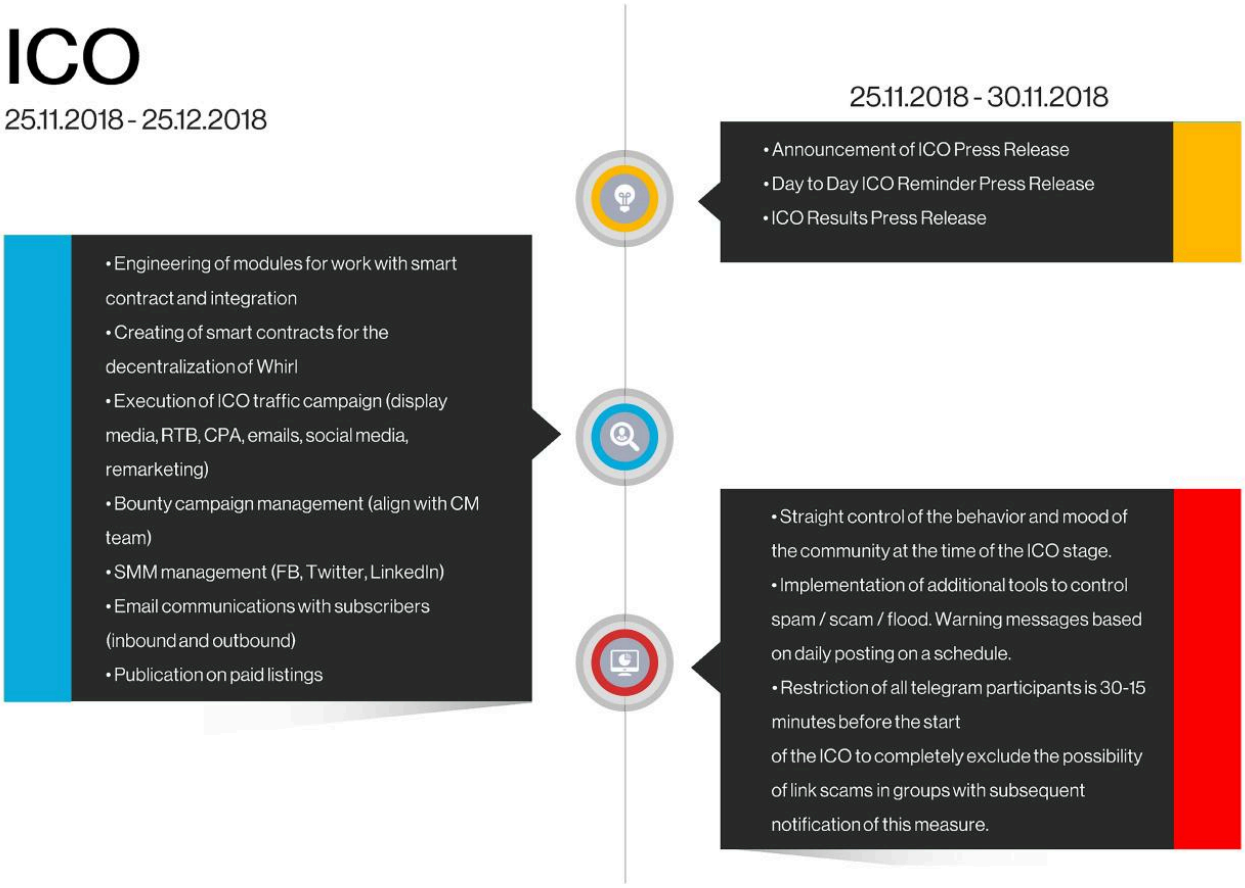
- ICO Landing Design

28.09.2018 - 26.10.2018

- Community Blog Launch
- Pre-ICO Announcement
- Execution of private sale marketing campaign
- Bounty campaign preparation/launch (mid-Oct)
- SMM management (FB, Twitter, LinkedIn)
- Email communications with subscribers (whitelist and private sale)
- Registration of free listings launch Website (landing) analytics set up

22.10.2018 - 14.11.2018

- Kick Off — USA
- Kick Off — Europe
- Kick Off — Asia (Korea & Japan)



XII. LEGAL NOTICE

COMPLIANCE WITH THE APPLICABLE LAWS

Token Sale will be conducted in the British Virgin Islands in compliance with applicable laws.

Legal aspects are key to the success of WHIRL ecosystem, WHIRL is in the process of obtaining the necessary regulatory approvals and legal opinions in the market(s) where we will operate. In particular, The company WHIRL engaged a BVI counsel to advise on local law and EU based counsel to advise on EU laws and regulations. The legal advice will be available to backers upon completion of the KYC process and execution of the confidentiality agreement.

In any case, WHIRL will always endeavor to comply with any applicable law and regulation. WHIRL recognize the importance of complying with the regulations applicable in operating

locations, with regards to token sales and cryptocurrencies. WHIRL will ensure that all required licenses and authorizations are obtained.

The legal opinions will be made available to subscriber's subject to Know Your Client procedure and signed Non-Disclosure Agreement.

LEGAL SUPPORT

The Project has engaged the following law firms:

Tomashevsakya and Partners, a leading Russian law firm in the sphere of TMT recognized by internal ranking agency Chambers & Partners is advising on the Russian law implications of the Project

Advice on Russian law.

Top tier BVI counsel ranked by international ranking agencies is engaged to advice on British Virgin Islands law and to provide a legal advise concerning applicable British Virgin Islands regulatory considerations.

Leading international law firm with offices in a wide range of jurisdictions widely considered as a leading law firm in the IT sphere engaged to advise on European Union law and on compliance with MiFID (European regulatory framework for crowdfunding projects).

The Rodman Law Group to advise on United States law and Know Your Client rules which are applicable to the WHIRL activity.

All data protection, privacy and GDPR issues has been reviewed by the specially engaged certified data protection officer.

The Company's secretarial services are performed by Trident Trust.

THE MAIN RISKS

Uncertain Regulations and Enforcement Actions

The regulatory status of WHIRL and distributed ledger technology is unclear or unsettled in many jurisdictions. The regulation of virtual currencies has become a primary target of regulation in all major countries in the world. It is impossible to predict how, when or whether regulatory agencies may apply existing regulations or create new regulations with respect to such technology and its applications, including WHIRL and/or the WHIRL Platform. Regulatory actions could negatively impact WHIRL and/or the WHIRL Platform in various ways. The WHIRL TGE LIMITED (or its affiliates) may cease operations in a jurisdiction in the event that regulatory actions, or changes to law or regulation, make it illegal to operate in such jurisdiction, or commercially undesirable to obtain the necessary regulatory approval(s) to operate in such jurisdiction. After consulting with a wide range of legal advisors and continuous analysis of the development and legal structure of virtual currencies, the WHIRL TGE Limited will apply a cautious approach towards the sale of tokens. Therefore, for the crowdsale, the WHIRL TGE Limited may constantly adjust the sale strategy in order to avoid relevant legal risks as much as possible.

Competitors

Various types of decentralised projects are emerging at a rapid rate, and the industry is increasingly competitive. It is possible that alternative projects could be established that utilise the same or similar code underlying WHIRL and/or the WHIRL Platform and attempt to re-create similar facilities. The WHIRL Platform may be required to compete with these alternative projects, which could negatively impact WHIRL and/or the WHIRL Platform.

Unregulated space, vulnerable to fraud or illicit activities

Depending on how they are structured, crowdfunding campaigns may not be captured by the existing rules and may fall outside of the regulated space. Some crowdfunding campaigns may be used for fraudulent or illicit activities, while WHIRL cannot exclude that some are being used for money laundering purposes. In the case where a crowdfunding campaign does not fall under the scope of EU laws and regulations, backers cannot benefit from the protection that these laws and regulations provide.

High risk of losing all of the backed capital

The vast majority of crowdfunding campaigns are launched by businesses that are at a very early stage of development. Those businesses have an inherently high risk of failure.