

CrystalPad

Decentralized Launchpad Architecture & Design

by RadianceTeam



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Introduction

Launchpad is a crucial part of every blockchain since it creates new utility for the ecosystem, allows to attract new users to the blockchain, and helps to launch new projects within the given blockchain. Enabling projects to raise capital on a decentralized and interoperable environment based on FreeTON.

Attract new or growing projects, the people behind these projects and investors to a public platform to track the progress of projects and the results achieved.

We believe that projects and people behind them are a frontier and a magnet for everything else. So we decided to focus on projects' tracking mechanics. And did it on-chain!

Concept

We propose to create an open-opportunity space for projects of different kinds - technological, financial, gaming, NFT-art based and so on and so forth.

The common place throughout different projects is the opportunity to publish proposed implementation stages, goals of each stage and planned results (measurable KPIs) for each project stage. Each project makes a detailed description of proposed stages, results and budget goals before it's launch.

This way the Launchpad will make it possible to track the broad range of projects by their success achievements, whether the milestones met or not, etc. Moreover everything is measurable and on-chain. In exchange for that - the investors trust the professionally driven projects and demonstrate this in successful funding.

Checklist

General Requirements

1.	Explain in detail typical user flows	DONE
2.	Provide a high-level composition of the system	DONE
3.	Provide a detailed description of each specific subsystem	DONE
4.	Show a deep understanding of FreeTON functioning and ecosystem, including re-usage of previously created open-source solutions	DONE
5.	Provide references to existing benchmark solutions	DONE
6.	Be universal for different kinds of launched projects	DONE
7.	Explain the revenue models of the launchpad operator	DONE

Hard evaluation criteria

1.	A detailed explanation and schematic illustration of a proposed system composition, including major contracts and subsystems and their interaction	DONE
2.	A detailed explanation of the product economic model	DONE
3.	Re-usage of existing FreeTON DeFi products and libraries	DONE
4.	A draft of a platform roadmap and rollout plan	DONE
5.	The system must be built on decentralized principles, including censorship resistance and distributed management	DONE
6.	All payouts for the project in frames of the system shall be vested and based on the investor consensus to unlock the next vesting tranche subject to specific milestone achievement	DONE
7.	In case of not achieving the milestones, the system should allow investors to withdraw the residual of funds partially or in full;	DONE
8.	Explanation of project queue moderation principles	DONE
9.	The system core should be purely on-chain, i.e. being fully functional without any graphical interface or offline part.	DONE

Checklist

Soft evaluation criteria & Artifacts

1.	Usage of the TIP-3/Broxus token standard for token minting and listing purposes	DONE
2.	Detailed and easily understandable charts explaining the architecture and business processes	DONE
3.	Brevity	DONE
4.	Mostly everyday English to facilitate understanding	DONE
5.	Readiness to participate in the implementation of the solution in the next stage	DONE

Architecture

In respect to top-to-the-bottom principle of systems decomposition we started to shape the concept for top-level diagrams, see below.

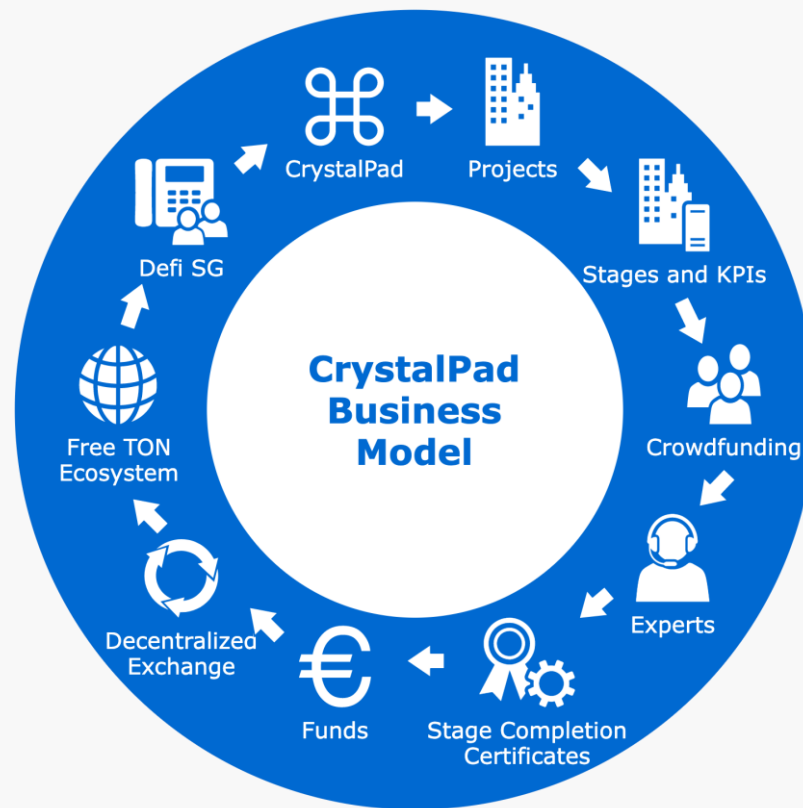


Figure 1.1. Business model overview

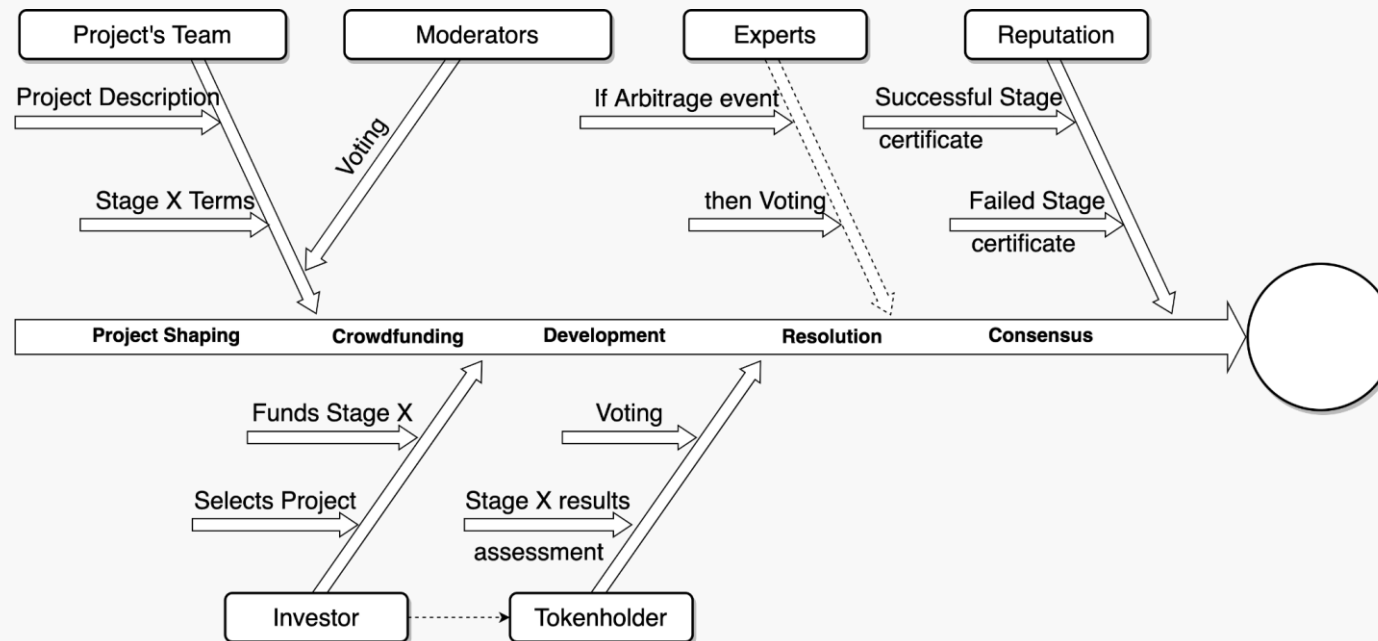


Figure 1.2. Process model overview

The main process consists of 5 steps:

1. Project shaping - where new project arrives to launchpad. And where the moderator's team controls the fulfillment of detailed descriptions, stages and goals by the project's team.
2. Crowdfunding - where investors are coming, applying to selected projects, taking part in funding.

3. Development - at this longest stage the team members work hard to achieve the goals they set in the detailed project description when they applied for funding. At the end of the stage team member uploads the results and this automatically starts the next step, see below.
4. Resolution and possible arbitrage - after the development stage presents the results, the token holders of a project are eligible to vote for projects' milestone achievement (success or rejection).
 - In case of successful completion the funds are paid to project team automatically by smart-contract. Also there is an option to enable vesting payouts. The terms of possible vesting is determined in each stage.
 - In case there is a split decision (for example, votes for 'Stage Successfully Completed' are between 50% and 66%, e.g. there are pretty decent amount of those who voted 'for Not Completed' - here its 33%), then the arbitrage procedure automatically started.
 - Arbitrage is based on experts voting, which acts like judges in Free TON and comprises of several well-known persons.
 - Experts could be paid a small fraction of stage funding amount for their work.
 - In case of 'Not Completed' status is voted by token holders or experts, then the stage considered not completed and projects team has more time to achieve their goals.
 - In case the stage duration is twice longer than initially committed, then the whole project considered as failed and all locked funds are returned to investors in full.
5. Consensus - at last when the consensus on stage completion status is reached, then some additional actions are automatically performed.
 - On successful stage completion - the stage funding is closing (payouts to team, experts if any), project receives the stage completion badge as NFT-certificate.

IDO launch mechanics

How investor can participate in IDOs

STEP 1. Connect your wallet

STEP 2. Stake enough CrystalPad Tokens to get one of the tiers. You can see the required amount to stake in the list of tiers.

STEP 3. Apply for whitelist for an IDO you want to participate in. When IDO whitelisting period starts (usually 24h before the IDO start), you need to open/select the project and click the "Apply for whitelist" button in an IDO pool card.

The steps of an IDO

- 1) IDO registration opens 24 hours before the IDO sale start
- 2) Registration closes 6 hours before the sale start
- 3) Lottery tiers winners and whitelist winners are announced
- 4) Base allocation is calculated. It depends on the number of participants and ensures that there are enough tokens for guaranteed allocation.
- 5) IDO sale starts, whitelisted participants with guaranteed allocation, lottery and whitelist winners are allowed to fund their allocations in the pool.
- 6) FCFS (first come first served) round starts 1 hour before the IDO sale end
- 7) Once sale is finished, CrystalPad collect the funding data. The token distribution and listing information can be found on the CrystalPad Announcements (social networks, telegram channel, etc.).

CrystalPad Tiers for IDO participation

Round 1 - Allocation

Staking of CrystalPad Tokens grants to investors instant access to whitelist eligibility, but locks your tokens for 7 days. To be eligible for any of the tiers you are required to stake the following:

Tier	Stake (\$CLP)	Pool Weight	Allocation	Whitelist Requirement Twitter
Copper	1000	x1	Lottery*	Like, Comment & Retweet
Bronze	3000	x4	Lottery*	Like, Comment & Retweet
Silver	5000	x7	Lottery*	Like, Comment & Retweet
Gold	10000	x10	Guaranteed	None
Diamond	25000	x30	Guaranteed	None
Boss	75000	x100	Guaranteed	None

*Lottery Tiers will share 20% of total raise and the rest 80% of the raise is assigned for guaranteed allocation tiers based on the pool weights assigned.

Round 2 - First come first served

The unsold tokens from the first round are made available. All tiered members can purchase an additional amount that is determined by a tier-based formula. The second round buying window opens at the same time for all members, regardless of tier level. This round is open until all tokens are sold, typically lasting for only a few minutes. After all the tokens are sold, the IDO is concluded.

Typical user flows

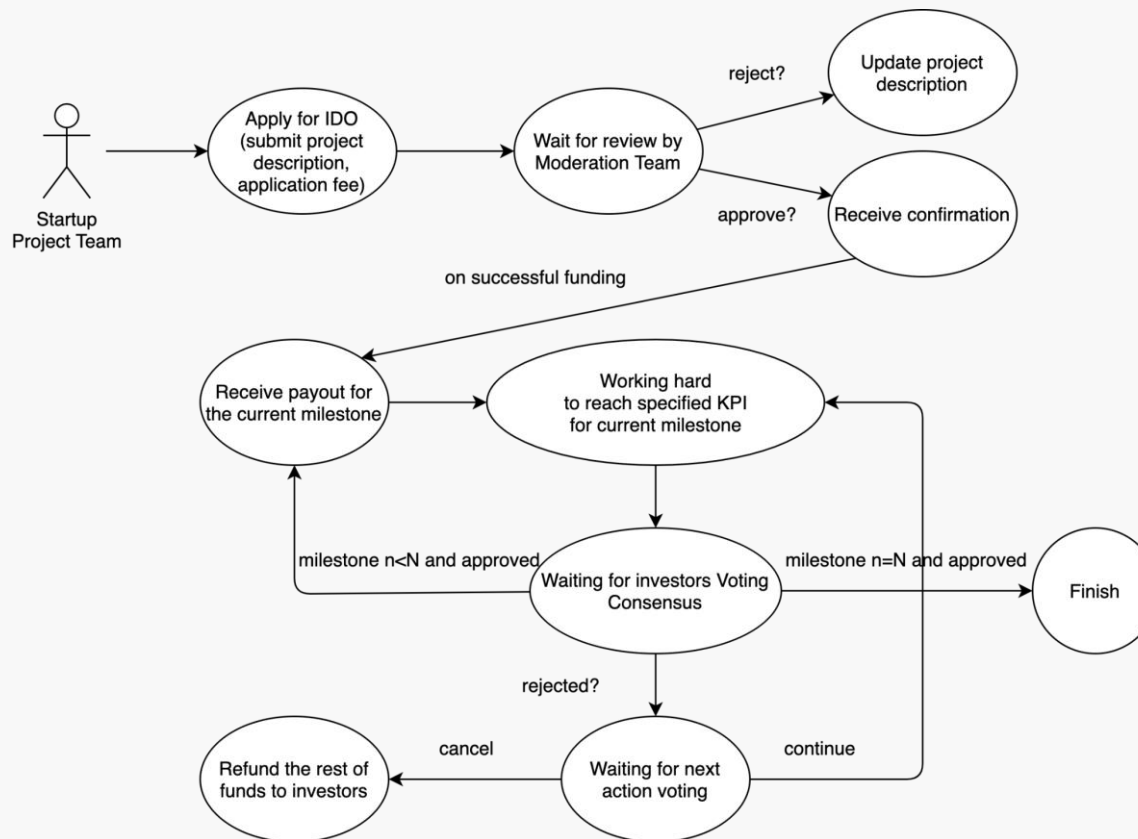


Figure 2.1. Project Team user flow

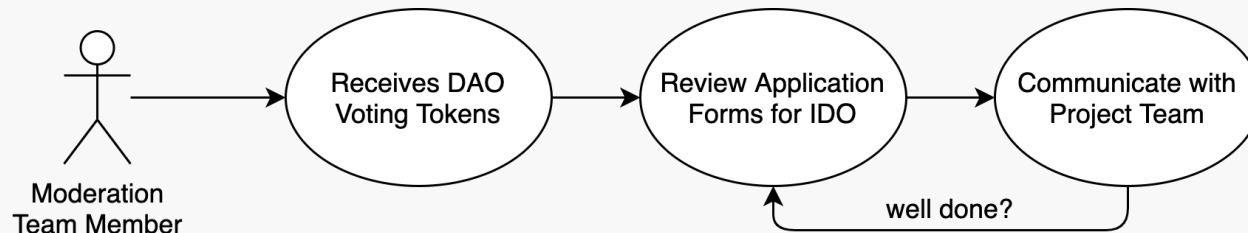


Figure 2.2. Moderation Team user flow

We propose to make a voting-based decentralized application approval process:

- Moderation is based on formal criterias - completeness and reliability of the information provided, relevant experience of the project team.
- Moderation is done by SMV voting for applications to accept or reject it.
- In case the application lacks some information (see application form details below this document) or some provided information is wrong, the application is rejected.

Problems and proposed solutions:

- In order to make it fully on-chain there are some caveats, like passing the confidential information to moderation team. We have the following solution to this problem: when such information is requested (for ex. via Surf messaging) - then it is provided encrypted with the pubkey of a requester. If another moderator will ask, then another encrypted file should be provided by project's team.

- Another big problem is applying business analytics to submitted project description. The experts in this field are rare and expensive. So for now we suggest the launch without it, but in later we propose to add the second filter after moderation, which will be represented by a group of business analysts which will vote just like moderators.

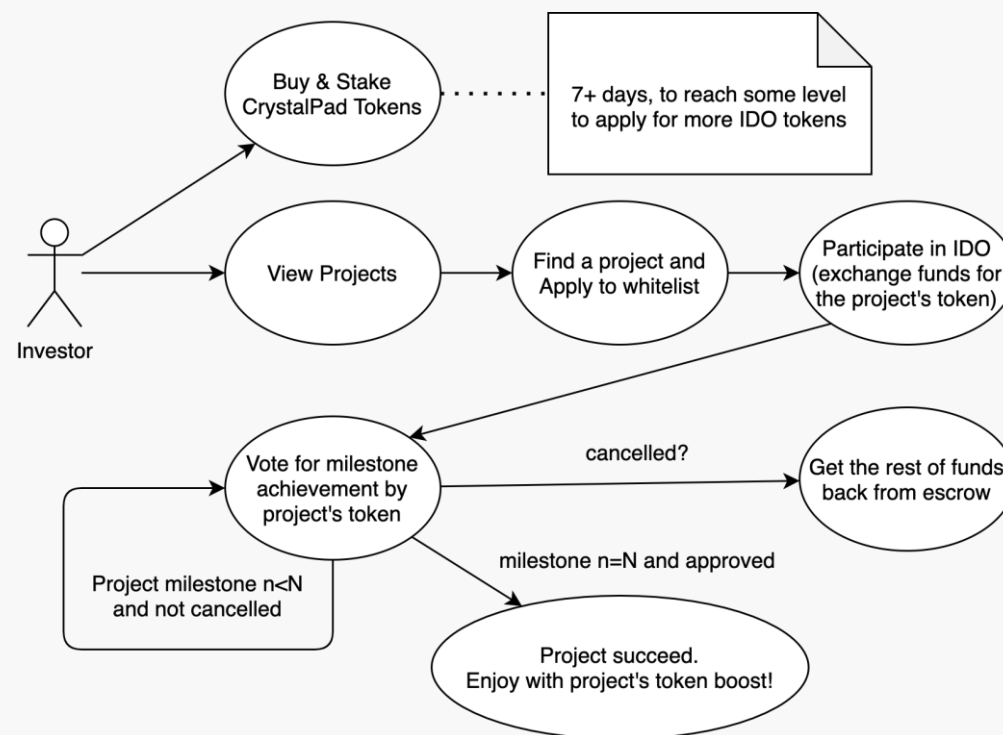


Figure 2.3. Investor user flow

Proposed system composition and smart-contracts

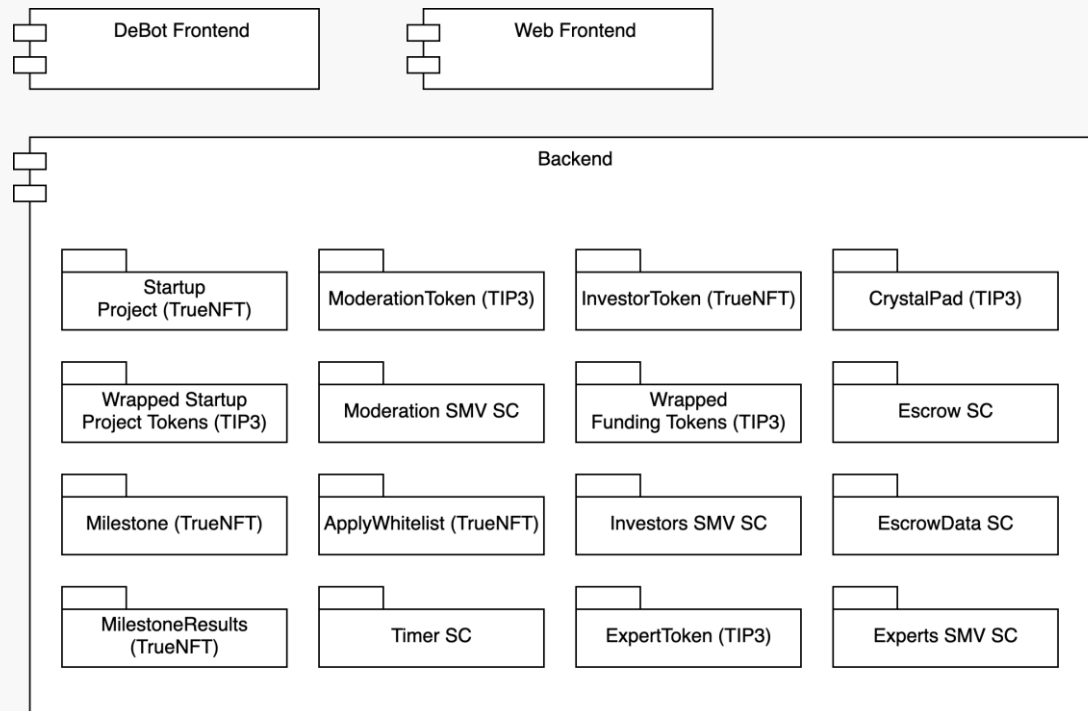


Figure 3.1. System architecture

Brief description of subsystems

Each module could represent a set of contracts (system of smart-contracts).

1. Startup Project (TrueNFT) - acts as decentralized onchain storage and logic for project description and attributes.
2. Wrapped Startup Project Tokens (TIP3) - wrapper for tokens of specific project.
3. Milestone (TrueNFT) - acts as decentralized onchain storage and logic of project's stage and its terms.
4. MilestoneResults (TrueNFT) - acts as decentralized onchain storage and logic of project's stage results presented by Project Team.
5. ModerationToken (TIP3) - smart-contract for tokens used in voting for new projects applications.
6. Moderation SMV SC - Simple Majority Voting smart-contracts for new projects applications' voting.
7. ApplyWhitelist (TrueNFT) - smart-contracts for investors registration state.
8. Timer SC - smart-contract for enabling duration control of 'apply whitelist' period.
9. InvestorToken (TrueNFT) - smart-contract for tokens used in voting for specific projects stages status.
10. WrappedFundingTokens (TIP3) - wrapper for tokens provided by investors.
11. Investors SMV SC - Simple Majority Voting smart-contracts for projects' statuses voting.
12. ExpertToken (TIP3) - smart-contract for tokens used in stage status arbitrage voting.
13. CrystalPad (TIP3) - launchpad token used by investors for applying to IDO, and as liquidity token, as a base for launchpad project economic model.
14. Escrow SC - smart-contract system for investors funds lock and management.
15. EscrowData SC - smart-contract system for investors funds escrow for specific stage.
16. Experts SMV SC - Simple Majority Voting smart-contracts for arbitrage voting of experts. Deployed only in case of arbitrage starts.

Startup project application form

New startup project during registration fills application form describing the following:

- Project Team members list, describing name, role and background of each person. If the project team is not anonymous, then links to social profiles should be provided.
- Project name, web url, whitepaper url, concept description, current project stage, links to community's social networks or chats, link to main image, and ticker name.
- Details of previous fundraising rounds.
- In case of legal entity existence - its full name and requisites.
- Project budget which is planned to raise during IDO launch.
- Project stages (milestones) which will be completed by project team with the following details:
 - Stage duration.
 - Stage budget.
 - Should it be paid upfront or post-factum (after the stage goals are completed).
 - Stage goals description (best-practice is to use S.M.A.R.T. goals).
 - KPIs for each goal, if applicable.
 - Any vesting parameters of tranche, if applicable.

Example of project and KPIs

Project: NFT blockchain game

Stages: 3 stages

Tranche for every stage are paid in advance: 50% of stage budget

Stage/Milestone 1: Technical Demo

Term: 1 month

Tranche: 33% of project raised funds

KPIs:

- ★ Core Game Mechanics
- ★ Draft Graphics
- ★ 1 location is ready to play

Stage/Milestone 2: Beta Version Release

Term: 1 month

Tranche: 33% of project raised funds

KPIs:

- ★ All Game Features Available

- ★ Graphics in production quality
- ★ 50% of locations are ready to play
- ★ First NFT public trades done

Stage/Milestone 3: Final Version Release and User Acquisition Start

Term: 1 month

Tranche: 33% of project raised funds

KPIs:

- ★ 100% of locations are ready to play
- ★ Critical Bug Fixes
- ★ Marketing Campaign (GEOs: Germany, Austria, Switzerland)
- ★ Reaching 30,000 DAU (daily active users)

Existing launchpad solutions and references

We reviewed a number of existing launchpad solutions for different blockchains.

Some of them are listed below:

#	Launchpad	Link	Blockchain(s)
1	TrustPad	https://trustpad.io/	Binance Smart Chain Ethereum Polygon Polkadot
2	BSCPad x Tronpad	https://bscpad.com/ https://tronpad.network/	Binance Smart Chain Tron
3	ETHPad	https://ethpad.network/	Ethereum
4	ADAPad	https://adapad.io/	Cardano

5	Raydium AcceleRaytor	https://raydium.io/acceleraytor/	Solana
6	Polkastarter	https://polkastarter.com/	Polkadot
7	SuperLauncher	https://superlauncher.io/	Cross-Chain
8	CardStarter	https://www.cardstarter.io/	Cardano
9	DAO Maker	https://daomaker.com	Ethereum Binance Smart Chain
10	Seedify.fund	https://launchpad.seedify.fund	Cross-Chain

Revenue model of the CrystalPad

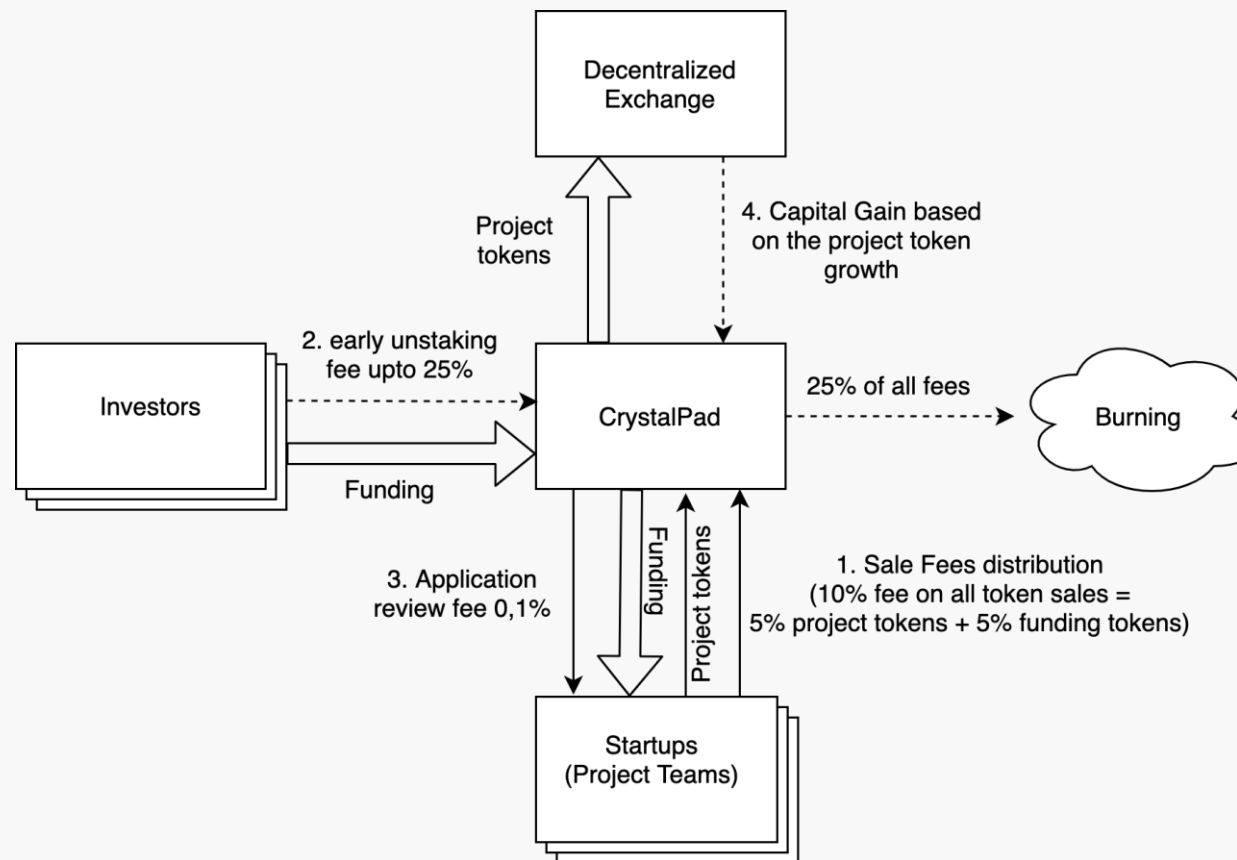


Figure 4.1. Product economic model

CrystalPad Token Distribution and Allocation

Private Sale	20%
Team and Advisors	10%
Liquidity Fund	20%
Marketing Fund	15%
Ecosystem	10%
Staking/Rewards	14%
Airdrop	1%
Foundational Reserve	10%

Decentralized principles and distributed management

1. Launchpad managed by DAO.
2. Projects pre-moderation by decentralized SMV voting.
3. Experts for arbitrage elected by SMV voting.

Project queue moderation principles

Jury board of professionals (like we have professional judges in Free TON ecosystem) put marks for each project's detailed criterias (stage X description, etc.) or reject the entire project. Then the marks are automatically summarized by smart-contract and the project is pushed further or rejected.

Listing fee is charged by Launchpad to prevent spam and to pay moderators for their work to moderate application and check all information. Listing fee amount is set to 0,1% from the amount of funding goal. Say the project asks for 1 mln.DAI, then the fee will be 1,000 DAI.

The very important step to get the detailed description of good quality is to establish communication channel between project's team and moderators. Moderation user flow is described on Figure 2.2.

Graphical Web/DeBot Interfaces

Preliminary we propose to make the following screens (web or DeBot):

- VIEW ALL PROJECTS
 - ★ Projects catalog
 - ★ Project details including project stages
 - ★ UPCOMING PROJECTS
 - ★ OPEN PROJECTS
 - ★ FUNDED PROJECTS
- BUY ON DEX (trade.defispace.com) - buy \$CLP token
- APPLY FOR IDO
- STAKING (STAKE/UNSTAKE/WITHDRAW)
- JOIN OUR INFLUENCER NETWORK
- FAQ

Examples of how the user interface can look like:

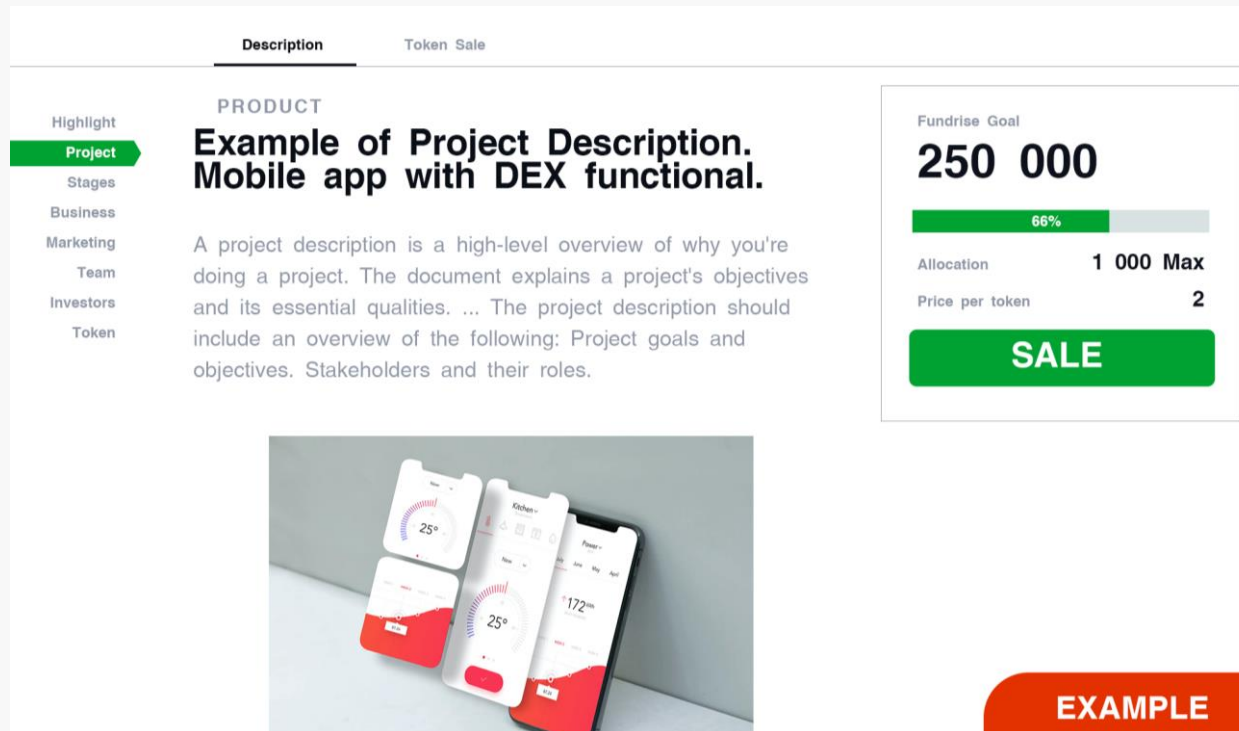


Figure 5.1. Project description page (draft)

Funded Projects

Decentralized fundraising platform






Projects: 135

Investors: 135

Raised funds: 12 135 935

Search projects by name, adress and ended date

All Crystal Ethereum Other

Project Name	Participants	Total Raised	Current Price	ATH Since IDO	Ended (UTC)
 CryptoPlanes	12 034	249 019,54	21.2	+750% ▲	Jan 31, 2022
 NFT Heroes Shooter	76 239	792 129,43	9.2	+1 750% ▲	Dec 31, 2021
 Blockchain Cards	8 032	7 019,54	1.4	+120% ▲	Oct 15, 2021
 Mobile DEX app	12 000	982 16,65	126.4	+1 450% ▲	Feb 21, 2022
 NFT Sports Bet	8 745	71 019,54	1.2	+2 120% ▲	

EXAMPLE

Figure 5.2. All funded projects page (draft)

Re-usage of previously created solutions for Free TON ecosystem

- 1) Many of Free TON platform solutions like SMV, TIP-3 tokens, TrueNFT may be used in the proposed architecture of CrystalPad.
- 2) We are going to use DefiSpace DEX connected with CrystalPad as well as other solutions like Broxus Bridges, Token Wrapper by Broxus, and other things.
- 3) Furthermore, it would be great to involve Free TON DeFi Alliance experts and possibly liquidity reserves to boost this project.

Roadmap and rollout plan

#	Task	Term
1	Concept, model and architecture (this document).	Done
2	Possible agreements with Free TON DeFi Alliance about cooperation and CrystalPad launch.	1 month
3	Development and Launch of MVP with basic mechanics: 2.1. Adding new projects, filling information on stages, etc. 2.2. IDO Launch mechanics 2.3. UI implementation (web and/or debot)	3 months
3	Advanced mechanics (decentralized moderation, arbitrage voting, projects' stages prolongation) and options.	3 months
4	Promotion to scale up the launchpad.	2 months
5	Support for different DEXes and different tokens for crowdfunding.	2 months

Contacts

Tg @Dnugget , @UltraNihilist

W 0:09a782f03ffd1fd4175cd4f4446fc66adcedfc22842a6f2a40dfd3b15158a391

<https://forum.freeton.org/t/contest-decentralized-launchpad-design-architecture/11848/13>

GiHub: https://raw.githubusercontent.com/radianceteam/submission_launchpad-architecture/master/Launchpad-Architecture.pdf