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F3rn.org DeFi

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F3rn.org DeFi

By

Nabeel Mohammed Basheer

A Graduate Paper/Capstone Submitted in Partial Fulfilment of the Requirements for the

Degree of Master of Engineering Management

Department of Industrial Engineering

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RIT Dubai

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Master of Engineering Management

Graduate Paper/Capstone Approval

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Abstract

Leadership is searching for strategies to assist geo-based communities, cities, large and small towns, and neighborhoods in achieving independent and more decentralized, sustainable environmental practices. By employing a paradigm that encourages peer-to-peer fund raising and rewards participants by actively encouraging more civic engagement, the F3rn platform responds to this demand and helps to build a stronger local circular economy.

The F3rn Defi Platform has made it possible to create a global ecosystem for recycling plastic waste. This ecosystem uses Algorand blockchain technology to provide unbanked people with access to financial services, job opportunities for the extremely poor through financial incentives, a sovereign digital ID, and transparency for tracking every link in the value chain of plastic recycling.

Keywords

F3rn.org
Name of the organization

Block
Everything in the blockchain sphere revolves around the concept of blocks. In fact, it's the foundation of this technology. Every record or data that the network produces is essentially stored inside a block and every time a record is created, there is a new block to contain it. In other words, you can also think of it as a container for holding the blockchain data. If you want to learn more about the concepts of a block, you can read about it on the official documentation page from ethereum.org.

Decentralization
It is a phenomenon or rather an environment where no one has absolute control over the network. All actions occur after most of the network has provided its explicit consent, thus removing the dependency from a single member or administrator. As a result, in a decentralized system, every member of the network has the same level of authority

Peer to Peer
This term is effectively an extension of the idea portrayed in "decentralization" as it means that two individuals or computers can communicate directly without depending on an intermediary (i.e. a centralized organization).

Smart Contract
In simple words, it is a real-world contract that is agreed to and executed in a digital and secure environment. Due to this, it can be triggered automatically, without depending on any external factor, and both parties can enjoy the same level of transparency.

Mining
This is the core of any blockchain network and refers to the creation of a new block creation of a new block that contains the record. Once a block is created, there is no reversal for this operation.

Cryptocurrency
This is a tradeable digital asset that runs on blockchain technology.

ICOs
It is one of the most popular ways for marketing a cryptocurrency startup and to raise funding. It resembles quite closely with IPOs in the stock market.

Simple Agreement for Future Tokens
This mechanism was designed particularly for investors which allows them to buy tokens for a project that is yet to be launched. The amount that the investor receives is in the percentage of total tokens, rather than the company's equity.

Token
If you have traded cryptocurrencies, you already know that it's possible to buy them in fractional amounts as well, unlike fiat. Therefore, by that analogy, a token is the most basic unit of a cryptocurrency that cannot be further divided.
In fiat, it's always a whole number but in cryptocurrencies, it is mostly a fractional number.
Another major distinction is that tokens do not have their own blockchain and in fact, a project that offers tokens, runs on a blockchain provided by 3rd party.

Stablecoins
These are basically cryptocurrencies but were created to provide low-risk entries and minimize the overall volatility of the cryptocurrency market.In order to provide feasibility, these coins are pegged to an underlying asset.

Wallet
It happens to be a "vault" where digital assets (i.e. cryptocurrencies) are stored. But from a technical standpoint, a wallet is a secure entity that contains an individual's private keys , allowing him to communicate on the network and sign transactions.

Transaction
A transaction is an event on the blockchain network that generates data. For instance, one of the most important transactions on the BTC network happens when person A sends coins to person B. Since this transaction generates data as to who transferred the coins, the value of the transfer, and the address of the recipient, it is recorded on a public ledger.

Tokenization
It is one of the concepts upon which the entire crypto industry stands. Basically, it refers to the process of mapping any real-world entity into a digital environment

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F3rn Defi | COLLECT.RECYCLE.EARN

A DeFi platform to save our planet

Project Background and Identified Challenge

Plastic is a life-changing resource, but the same qualities that make it useful alongside with poor waste management have created a global waste challenge.

While plastic is durable, this also means plastic waste can be trapped in our environment for centuries if neglecting the proper utilization of waste management. While plastics deteriorate into fragments easily through wear and tear, their polymer chains only break down into other smaller components at very high temperatures, such as during some chemical recycling processes. However, today only **15% of plastic waste is recycled** remaining discarded into the environment entering the ecosystem.

The world still largely operates on the 'linear economy' with common notion around 'Take > Make > Discard' where raw materials are used to manufacture products, only to be disposed of at the end of their short lifetimes resulting in impact of microplastics in soils, sediments and freshwater could have a long-term negative effect on our ecosystems.

Transitioning to a more sustainable model is through following 3 Rs in a circular economy approach: 'Reduce > Reuse > Recycle'

- **Reducing** our overall consumption is about respecting our natural resources, only using what we need, and refusing unnecessary excess.

- **Reuse** is key to increasing the lifespan of the things we use. This includes repairing or upcycling our items to give them a new lease on life.

- **Recycling** the waste, we eventually generate is key to closing the loop in a circular economic model.

Plastic recycling is a crucial step towards a circular economy, but achieving circularity calls for action at every point in the lifetime of a product: from design to waste management. At F3rn, we focus on action '**Participation and Engagement'** that advance our pathway towards a circular economy and contribute to a cleaner, safer and sustainable environment. Following are the steps involved in achieving a circular economy:

- **Front-end Design**
  Designing products that can last long and are easy to repair, and eventually can be recycled.

- **Access to Collection**
  Providing basic infrastructure enabling convenient and necessary recovery of waste, preventing leakage into the environment.

- **Participation and Engagement**
  Raising awareness and inspiring participation in sustainable practices and clean-up campaigns through an incentivized model adopting blockchain technology wherein participants earn by collect/recycle.

- **Sorting**
  Sorting waste according to type, wet or dry; recyclable or non-recyclable; plastic, paper, metal, or glass. Sorting like this can happen right inside your home, or at a formal waste management facility.

- **Processing**
  Scaling solutions of new advanced recovery and recycling methods, including both mechanical and chemical recycling.

- **End Markets**
  Growing market demand for recycled materials from all recycling methods.

All these efforts help divert plastic waste from the environment and move us toward a sustainable circular economy unlocking the value of our waste.

Introductory

Project Aim and Objectives

The Future of Plastic is circular, F3rn deFi platform aims at giving access to financial services and increasing community engagement by generating value out of plastic waste - enabling collectors, recyclers, brands, and consumers to make a real impact on the environment.

Summary of Project Approach

F3rn is a Defi platform that encourages users to host and run clean up campaigns through partnership with local municipalities by allowing individuals to raise funds through peer-to-peer fundraising methodologies and distribute these raised funds to the participants in the clean-up campaign with 100% transparency using [Algorand blockchain technology.](#)

- F3rn platform enables clean to earn concept for saving the environment and contributing to waste management. The platform allows any individual to raise funds to run cleanup/waste management campaigns on geographically mapped areas.

- Once enough targeted funds are achieved through peer- to- peer fundraising methods on f3rn campaign launchpad the clean-up campaign drive is initiated, allowing any user with a digital wallet to collect plastic and return it to the campaign owner (governor).

- Participants/gatherer earn Fern tokens + USDC (stable coin) as incentive once collected waste is disposed with segregation to the campaign owner. The campaign owner can further raise profit by reselling the collected segregated plastics to dedicated recycling and waste management plants in the region partnered by F3rn.
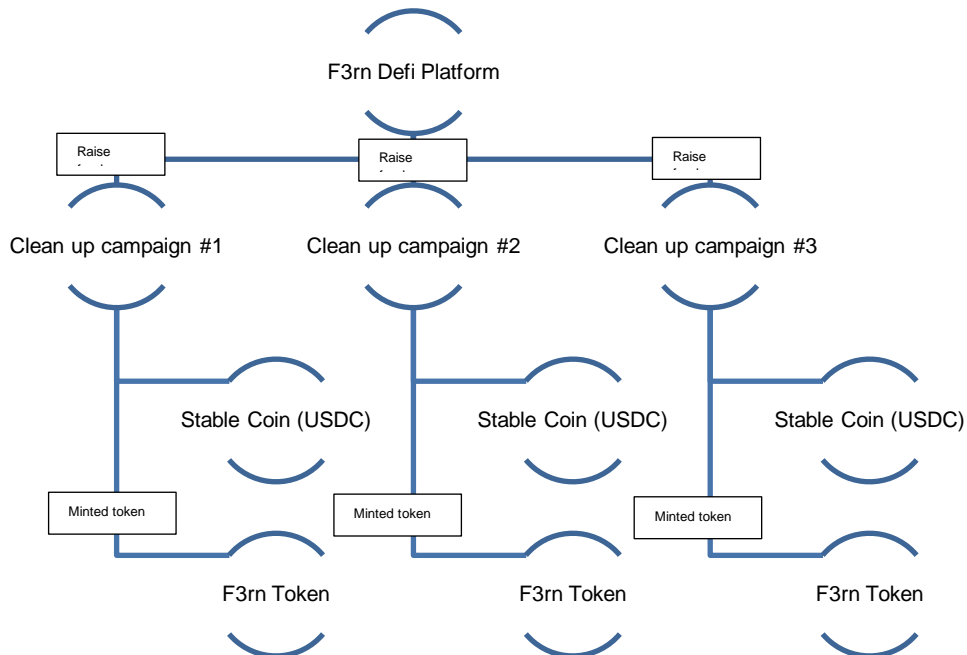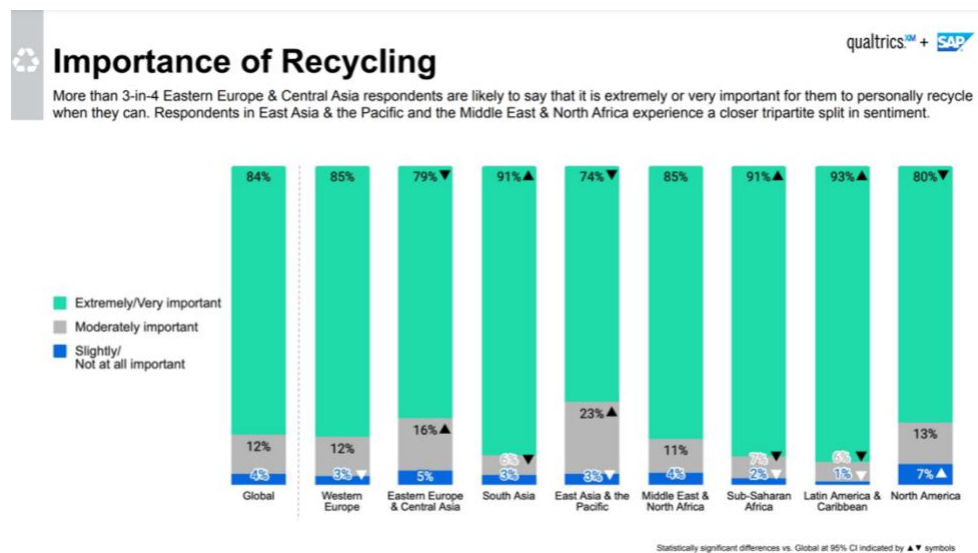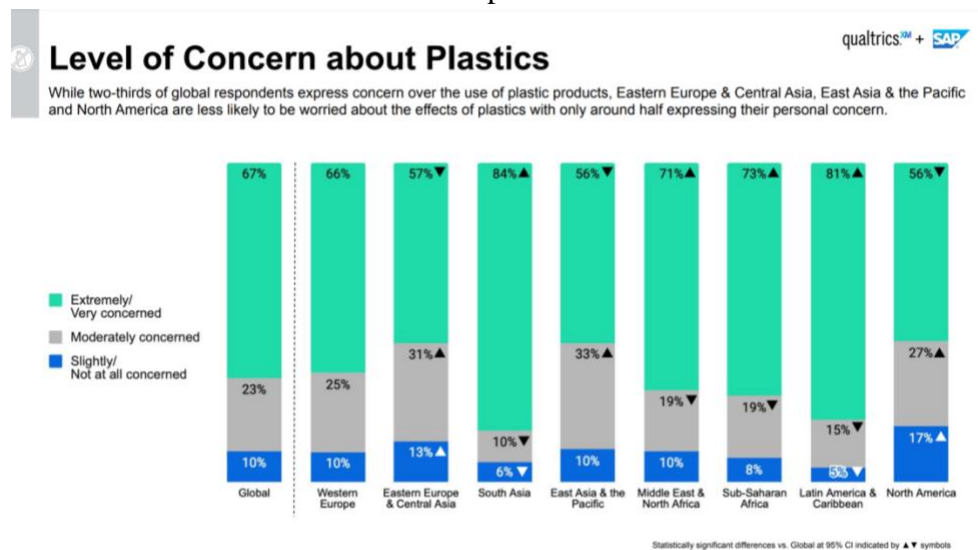
Market Analysis

- A lack of programmes and services is the top barrier to greater recycling uptake, a global sustainability survey shows.
- Globally, 64% of people feel personally responsible for acting on climate change.
- But many said recycling was either inconvenient, or they lacked trust in recycling programmes.
- People around the world think choosing products with reusable packaging is the most adoptable zero-waste measure.

Source: https://www.weforum.org/agenda/2021/11/barriers-to-recycling-sustainability-survey

According to world economic forum based on a survey conducted:

The Climate Progress Survey:

Business & Consumer Worries & Hopes

qualtrics.™ + SAP

Level of Concern about Plastics

While two-thirds of global respondents express concern over the use of plastic products, Eastern Europe & Central Asia, East Asia & the Pacific and North America are less likely to be worried about the effects of plastics with only around half expressing their personal concern.

Legend:
- Extremely/Very concerned
- Moderately concerned
- Slightly/Not at all concerned

Statistically significant differences vs. Global at 95% CI indicated by ▲ ▼ symbols

qualtrics.™ + SAP

Importance of Recycling

More than 3-in-4 Eastern Europe & Central Asia respondents are likely to say that it is extremely or very important for them to personally recycle when they can. Respondents in East Asia & the Pacific and the Middle East & North Africa experience a closer tripartite split in sentiment.

Legend:
- Extremely/Very important
- Moderately important
- Slightly/Not at all important

Statistically significant differences vs. Global at 95% CI indicated by ▲ ▼ symbols

Top Barrier to Recycling

Regionally, a lack of recycling programs and services is the driving force behind what keeps people from recycling more, and this barrier has increased since 2020 (+5% points, driven mostly by East Asia +18%pts, South Asia +10%pts and MENA +6%pts).
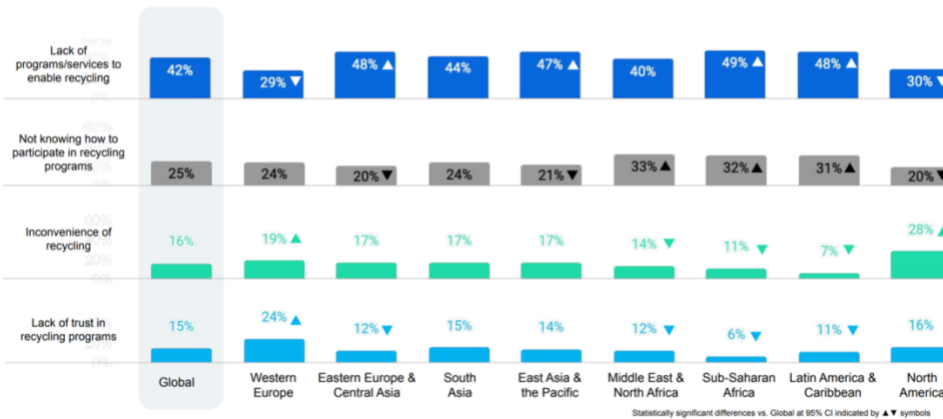
Some of the key barriers in recycling amongst community is

- Lack of program/services to enable recycling
- Lack of Trust in recycling programs

Competitor Analysis

	Plastic Bank	**Circularize**	**Empower**	**Litterati**
	Vancouver, Canada	Den Haag, Netherlands	Oslo, Norway	Oakland California, USA
Year Founded	2013	2018	2018	2012
Type of Blockchain	Hyperledger Fabric	Ehtereum	Stellar	None yet
Cryptocurrency used	Yes (Name Unknown)	CIRCOINS	EmpowerCoins (EMP)	To be determined
Website	Plasticbank.com	Cirularise.com	Empower.eco	Littterati.org

Implementation Model

Stable token (USDC)	F3RN Token (Minted Token)
A coin for daily use	Represents community initiatives participation rewards encasing prosperity
Pegged to	Demand driven, Traded on Defi platforms for staking, providing liquidity pools and buy products developed from recycled plastics
Accepted by crypto exchanges and business	Governance community token, offers benefits to holders in conducting organizing clean up campaigns
Unlimited minting	Capped total supply of 5,000,000,000 F3RN Tokens

As seen above, the Dual-token model is composed of 2 types of coins, set up individually for each community: the "**Stable Token USDC**" and the "**F3RN Token**".

The model starts off with raising targeted stable coins funds through peer- to peer methodology on F3rn launch pad tab on the Defi Platform. The opportunity to earn stable coins is the primary incentive that encourages residents to take action that the community chooses to promote to run the clean-up campaign on the geographically mapped areas.
Stable tokens are also minted by individuals through exchanges (Binance, Bitoasis etc) or through donations directly depositing funds into the f3rn launch pad and hence taking their first action as engaged organizations as part of their corporate social responsibility or residents: committing to support local clean up in the community of choice.

Stable coins pegged to a USD making them most viable for everyday transactions, can then be used to purchase goods and services at whitelisted local businesses (C2B transaction).
The businesses, in turn, can also use these stable coins to buy goods and services from other whitelisted local traders, thus increasing the circulation of the coin (B2B transaction).
These actions – the C2B and B2B transactions – are the actual realization of funds that remain local, through Local Coin circulation. Local Coin circulation fulfills the idea of a local currency used as a medium of exchange, where funds remain local to stimulate the local economy.

F3RN token pegged to Algorand native token (Algo) enables the token holders to participate on as governance tokens. People possessing these F3rn tokens can use them to take out loans, stake them, provide liquidity on decentralized exchanges (Tinyman) and earn money through yield farming with their primary function is still to distribute power amongst the community.

Raise funds for conducting clean up campaigns
Participants support clean up campigns by participating and earn Stable tokens
as well as F3RN token as rewards

Pay with stable coins at shops
Residents pay with stable coins at bussinesses, keeping funds local

Get rewards with F3RN token
Participants are rewarded with F3RN tokens enabling for DeFi benefits through
governance,staking, provide liquidity on decentralized exchanges (Tinyman)
and earn money through yield farming

Hold F3RN token to enjoy benefits
Participants holding the F3RN token to gain voting rights, higher earning rates
and other exclusive benefits
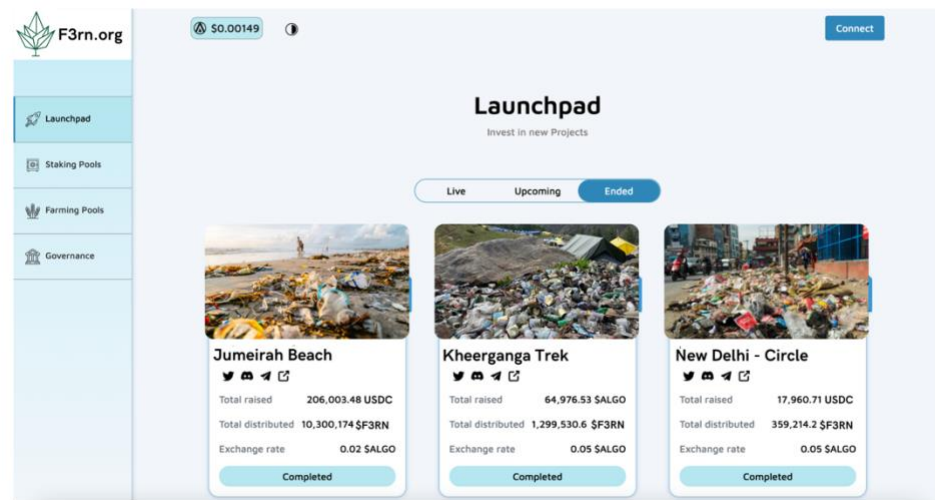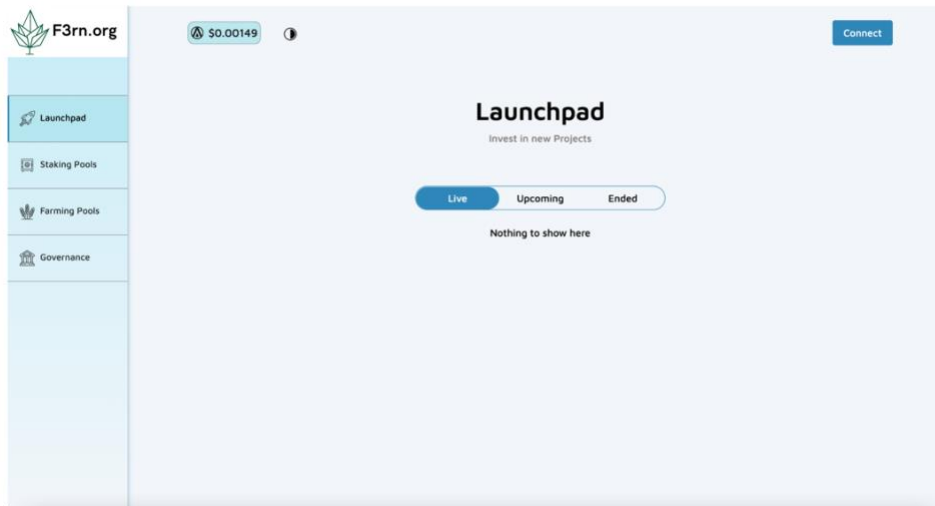
Use case scenario of F3rn Defi platform

A Defi platform allowing users to raise funds connecting remote regions to global access in contributing by saving the planet. Campaign owner can use the launchpad feature on the platform to raise the campaign funds further the funds can be distributed to participants to whoever is connected to the F3rn Algorand Standard Asset (ASA)
The F3rn DeFi platforms enables users to

- **Participate for Staking Pools:**
  The act of investing in, or "staking," F3rn token assets for a fixed amount of time to get rewards or interest is known as staking. A user can use the blockchain network and confirm transactions made through a series of smart contracts by staking F3rn tokens. Staking is an effective way to get passive income on a user's digital wallet profile and is   a
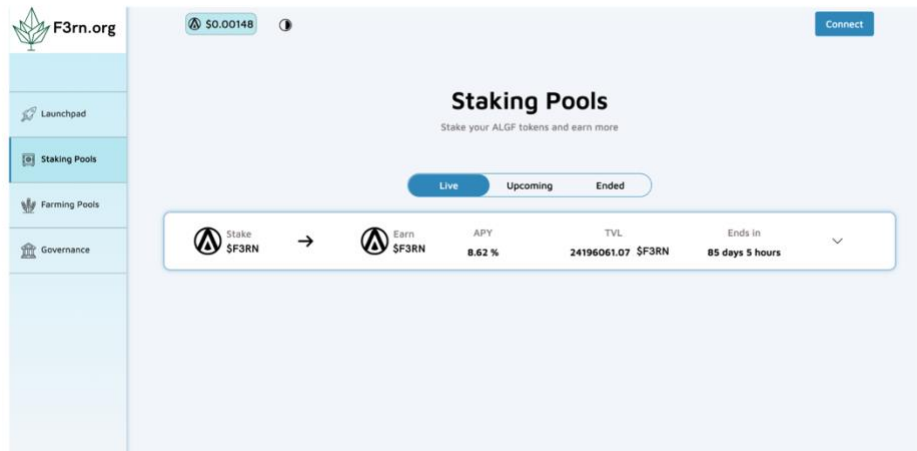
  relatively secure way to profit from their holdings. Users are able to receive higher rewards the longer they agree to stake. Like a savings account, users may often "unstake" their assets whenever they want to take them out of the smart contract. The return for staking will probably drop as the danger of staking increases.

- **Participate for Yield Farming:**
  Decentralized exchanges (DEXs such as <u>Tinyman</u>) are typically used by yield farmers to lend, borrow, or F3rn token to earn interest and speculate on price fluctuations. Smart contracts, which are pieces of code that automate financial agreements between two or more parties, enable yield farming throughout F3rn DeFi platform.
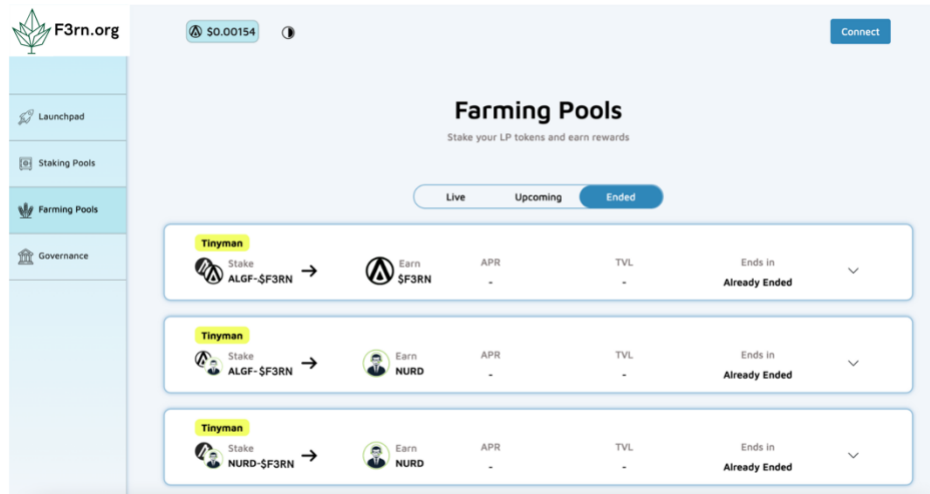
- **Participate for Governance:**
  The F3rn tokens used as governance tokens enables for a vote in F3rn DeFi platform decisions depending on the project growth phase, with each token often denoting one vote. Holders can support or reject a particular proposal by using the governance tokens as a voting mechanism. The outcome of the voting method determines whether a proposal should be put on the platform, even though the community can predict the minimal response necessary for any choice to be chosen.
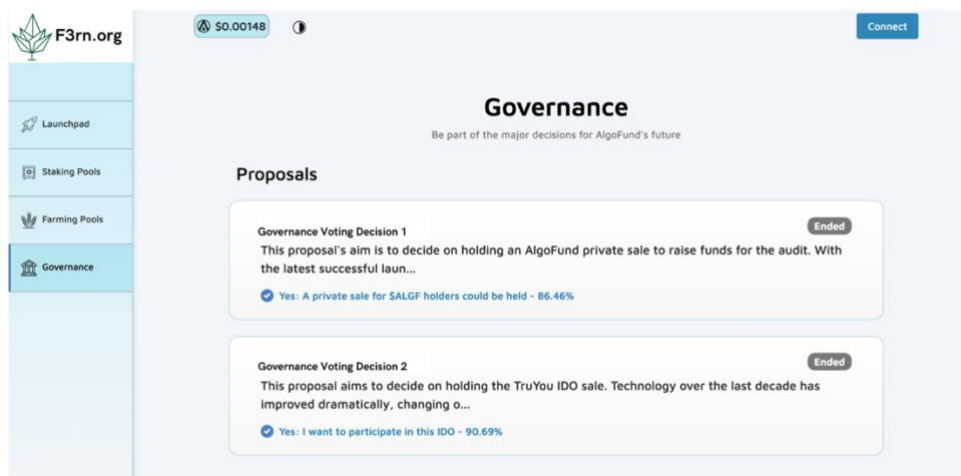
Rewards mechanism

The Dual-token Model-driven by the F3rn Protocol may balance these divergent community requirements by using its peer-to-peer fund-raising mechanism to carry out cleanup initiatives. The Dual-Coin architecture of the f3rn Protocol seeks to accomplish these objectives by including leverage to financial incentives and encourage civic participation, making the most of local economic stimulus, involving residents in ownership decisions, and giving the neighborhood a fresh stream of cash to support neighborhood clean-up campaign projects.

Key stakeholders on the F3rn Defi platform

- **Governors**
  Incentive: Conduct peer-to-peer fundraising for running the campaign in a targeted region + profits for reselling the segregated and recycled plastics

- **Gatherers**
  Incentive: Rewards in ferns token + USDC for collecting plastic and contributing to the waste management campaign

- **Partnered business**
  Incentive: Accept USDC and F3RN tokens for exchange of products made from recycled plastics and higher incentive in profits
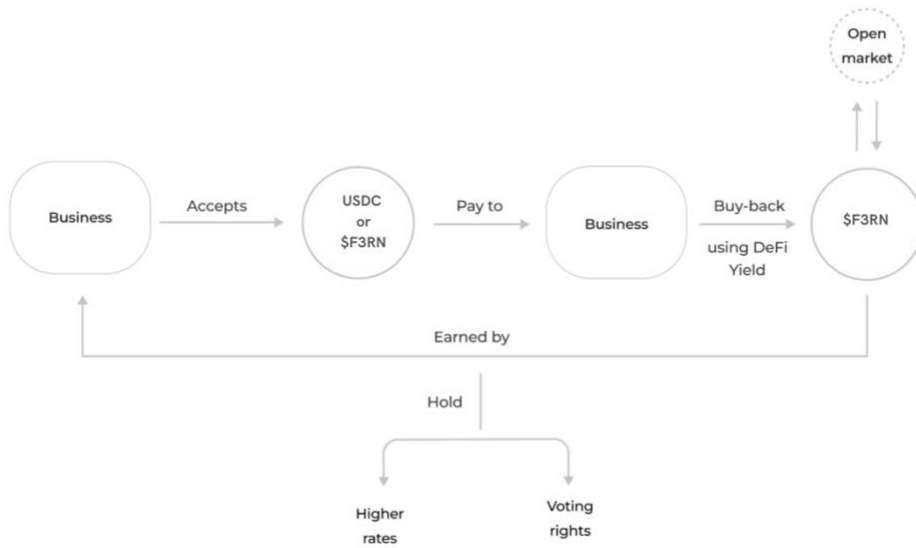
Community Campaign Launcher (Governor)
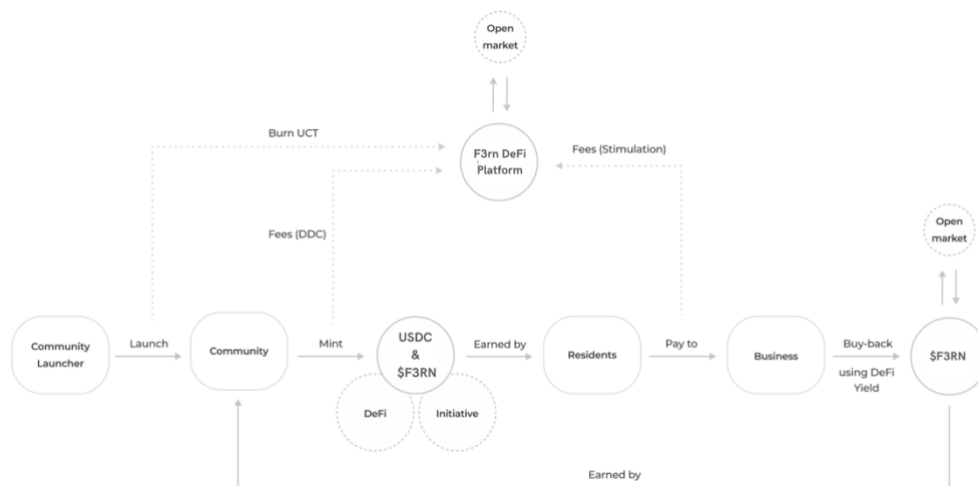
Community Member (Gatherers)
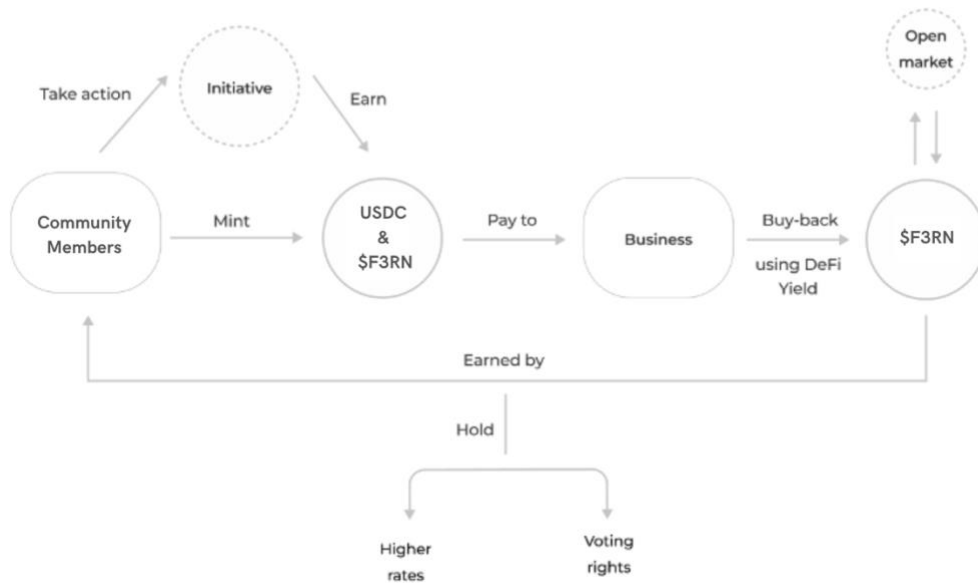
F3rn Partnered business

Tokenomics

	F3RN Token
15% Token Sale: Private round targeting influencers and beta testers while Public round comprising any interested individuals (ICO)	750,000,000.00
45% Ecosystem & Reward: Staking rewards and incentives for ecosystem growth	2,250,000,000.00
20% Liquidity: Liquidity provision and liquidity mining program	1,000,000,000.00
10% Marketing: Marketing F3rn DefI platform launch for building a stronger community	500,000,000.00
5% Team: To motivate and compensate team members for their dedication to develop and develop F3rn DefI platform	250,000,000.00
2% Advisors: Advisory remuneration for guiding F3rn DefI platform towards success	100,000,000.00
2% Treasury: Future development needs and smart contracts auditing requirements	100,000,000.00
1% Airdrop: Create awareness about F3rn DefI platform launch and $F3RN utility	50,000,000.00
Total Supply	**5,000,000,000.00**

Prototype

Landing webpage: **www.f3rn.org**

F3rn is an Algorand Standard Asset (ASA) created on Algorand MainNet with Unit Name (F3RN) and a Total Supply of 5,000,000,000.00
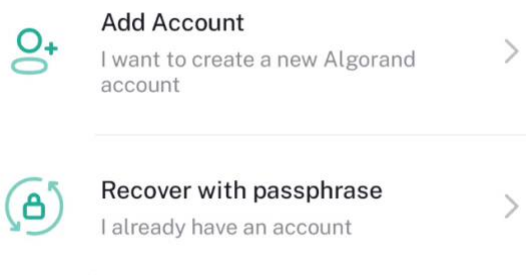
Source: https://algoexplorer.io/asset/971005855

Getting Started

Below are the steps a user needs to take to add (opt-in) the F3RN asset on the Algorand MainNet to their Algorand Wallet.
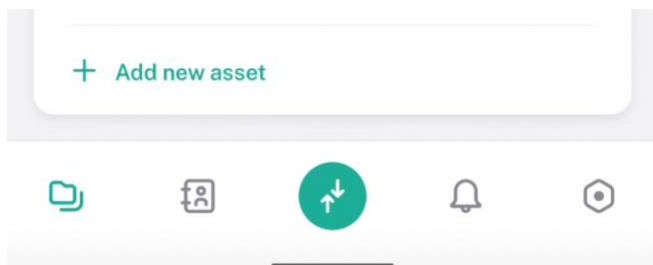
Algorand Wallet

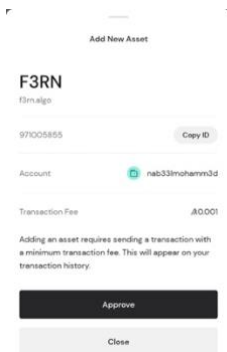1. Download Algorand Wallet (available on iOS and Android) and access/create/import/ the Algorand Wallet.

2. Add (opt-in) the F3rn asset verified by clicking **Add Asset** in the top right corner pressing on Balance.
https://explorer.perawallet.app/assets/971005855/

3. Enter the ID *971005855* and sign the transaction.

Add New Asset

F3RN
f3rn.algo

971005855   Copy ID

Account   nab33lmohamm3d

Transaction Fee   Ⱥ0.001

Adding an asset requires sending a transaction with
a minimum transaction fee. This will appear on your
transaction history.

Approve

Close

4. The F3rn asset verified now is in your Algorand Wallet.

F3rn Wallet & Ecosystem

The created F3RN token asset has been distributed to the Wallet addresses with the address
P6IHHJVBNY7ET5QK73NN4LB53INH64GC66DGSRBOCSVUW63YIVI2HAOHAU

Project roadmap

Timeline and Schedule of Events
Q1 2023
• Create website
F3rn.org

• Email validation
Validation of emails sent in to earn tokens for cleanups

• Social Media
Create profile's on Twitter, Reddit, Facebook, instagram, Discord

• Liquidity pools on Tinyman (Listing in DEX)
Tinyman

• Validate on Algorand

• Validate on AlgoExplorer
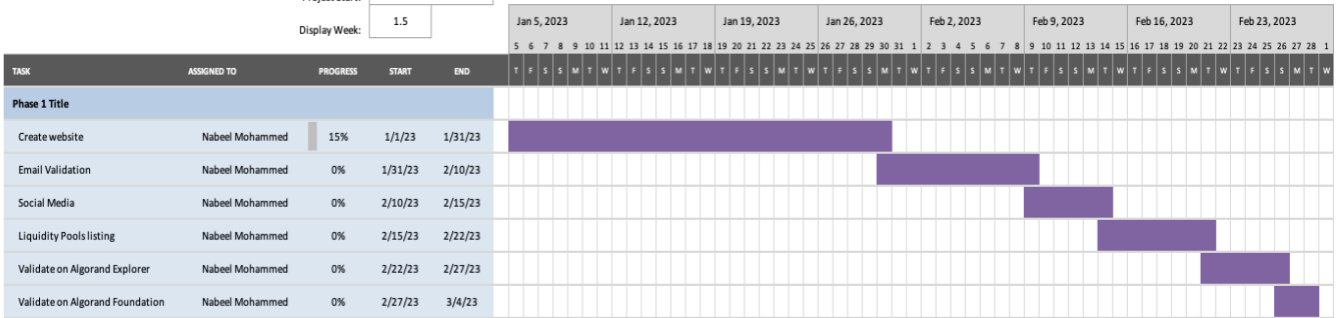
Project Timeline and Gantt Chart

F3rn Implementation Project Charter

F3rn.org
Nabeel Mohammed Basheer

Project Start: Sun, 1/1/2023

Display Week: 1.5

TASK	ASSIGNED TO	PROGRESS	START	END
Phase 1 Title				
Create website	Nabeel Mohammed	15%	1/1/23	1/31/23
Email Validation	Nabeel Mohammed	0%	1/31/23	2/10/23
Social Media	Nabeel Mohammed	0%	2/10/23	2/15/23
Liquidity Pools listing	Nabeel Mohammed	0%	2/15/23	2/22/23
Validate on Algorand Explorer	Nabeel Mohammed	0%	2/22/23	2/27/23
Validate on Algorand Foundation	Nabeel Mohammed	0%	2/27/23	3/4/23

Participation for Decipher and Entrepreneurships Hackathons

Conclusions

Global adoption of the suggested paradigm could have a positive impact on the UN Sustainable Development Goals. By recognizing the worth of plastic garbage, we may help to end global poverty and directly improve the opportunities for education, well-being, and health for those living in the most underprivileged areas. The connection is most obvious with goal 12, which strives to separate economic growth from resource use and promote sustainable consumption and production patterns.

Although non-technical stakeholders must be the change-drivers, the blockchain community can help change in several ways:

- Showcase the effective blockchain use cases to promote more environmentally friendly business.
- Support the scaling of these use cases such that there are many case studies of the technology being used at scale.
- Create a financial foundation to support these actions.
- Work together with the garbage industry so that they are aware of the possibilities and the potential for change.

Governments, businesses, citizens, and academic institutions all have a part to play. We don't have time for incremental advancements or little gains. Food and beverage packaging in the business needs to undergo a significant revolution. Companies will likely need to take on more risk as a result of this transformation than they are used to, but the danger to humanity is already far higher. Greta Thunberg declared at the UN Climate Change COP24 that she will turn 75 in 2078. Perhaps my kids will join me on that day if I have any. They might question me about you. They might inquire as to why you remained silent when there was still time to take action.

Now is that time!

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https://www.litterati.org/

https://decipher-dxb.com/