

STEMchain Solution Overview



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Executive Summary

STEMchain is a crypto-platform company who has conceived and operates the Crypto STEM Initiative TM (CSI). The CSI has a singular focus on facilitating the large scale funding of effective and productive STEM (Science, Technology, Engineering, and Math) organizations (e.g., research organizations, charities, educational initiatives, etc.), across the globe, through a dedicated crypto-currency – STEM coin. The STEM coin has been created on the Stellar Network for immediate distribution, exchange, and transaction.

Operatively, STEMchain brokers fund the STEM organizations using the STEM coin and vet, train, and onboard STEM organizations to accept STEM coin for their funding needs according to the CSI 100% guarantee.

The CSI 100% guarantee requires that all funds received as STEM coins will be used for the STEM organization's intended cause.

The Giving Market

There are millions of cryptocurrency users worldwide. Our aim is to capture the attention of the existing crypto-currency holders as well as to create a new home to draw in a whole new community of STEM supporters wishing to fund STEM organizations through the STEM coin.

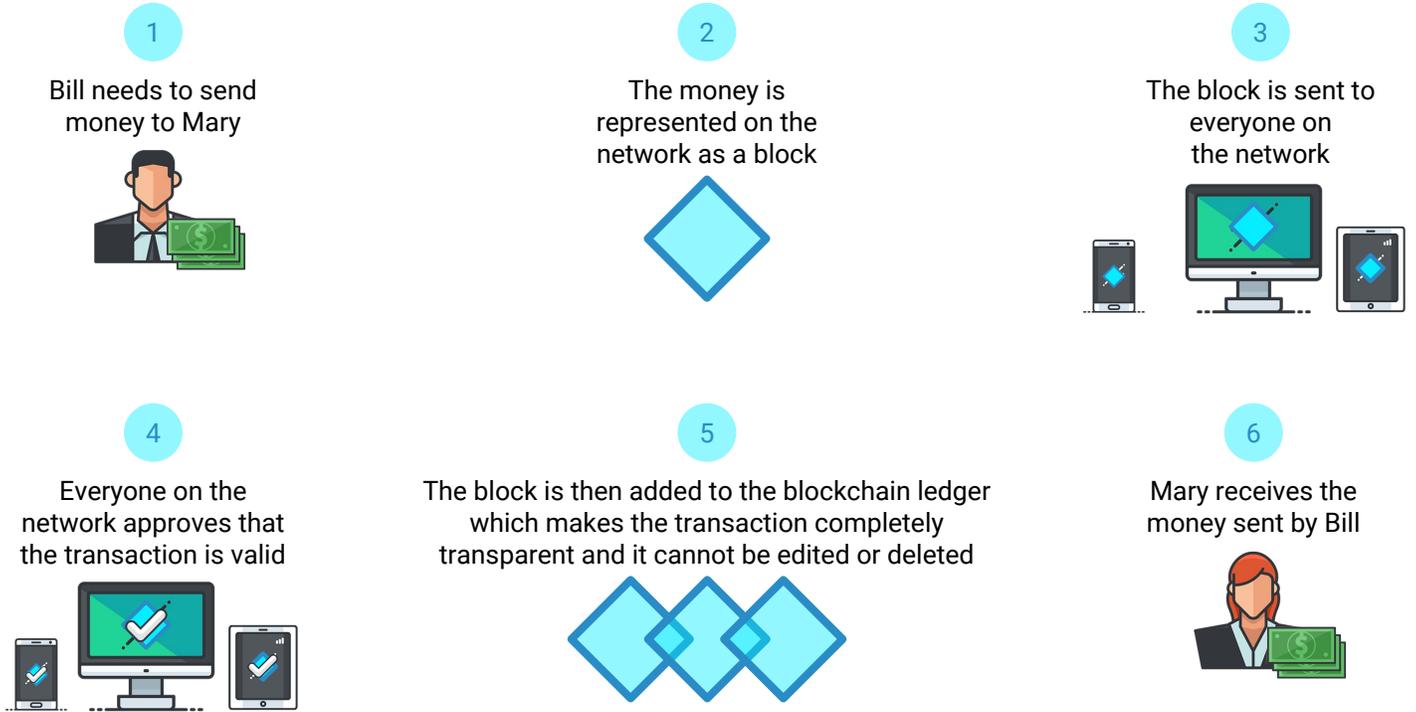
There are other crypto-coins that are listed on their own private network and/or listed across various exchanges having a stated mission of supporting various charities and philanthropic causes. However, these other crypto-coins are laden with the same inefficiencies that are currently plaguing the funding of STEM organization – too broad as they may not focus on a particular charitable/philanthropic cause and the organizations themselves do not comport to the 100% guarantee required by STEMchain leading to thin transparency of how much of the donated coins are used on the receiving organization's intended cause.

Partner Organizations and Funders

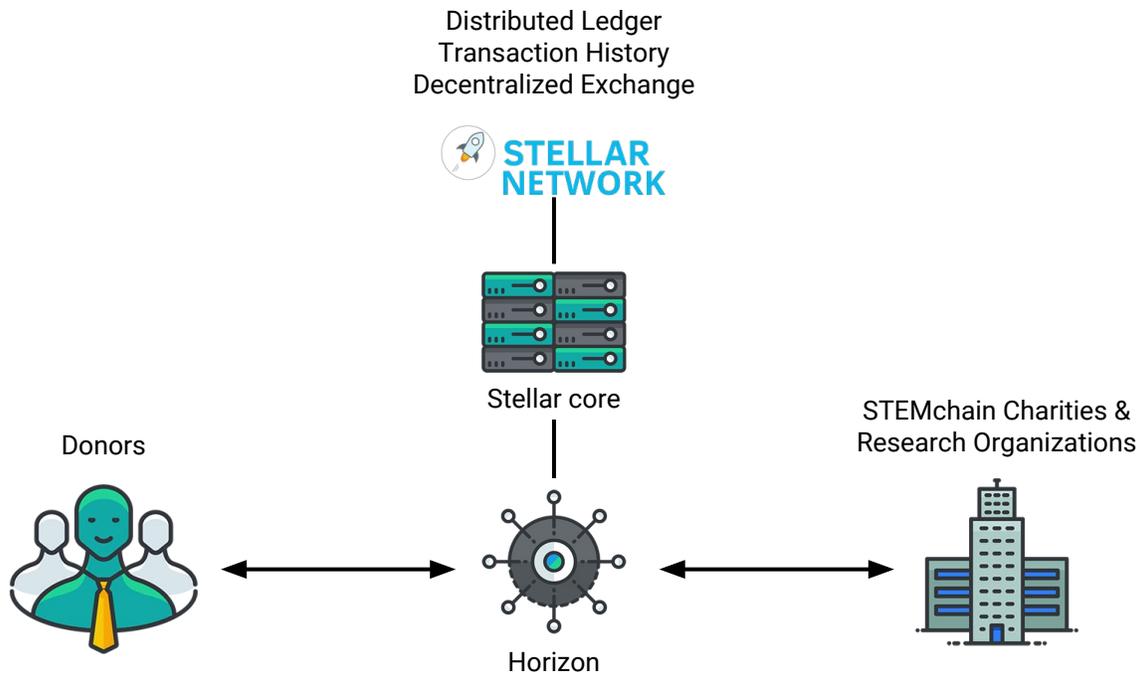
The STEM coin is a token that is created for transaction using the Stellar protocol on the Stellar network. As such, STEM coin leverages the available functions and operations available to parties transacting tokens on the Stellar network inclusive of Stellar's decentralized exchange.

How Blockchain Works

Step by step guide to how a Blockchain works



STEMchain on the Stellar Network

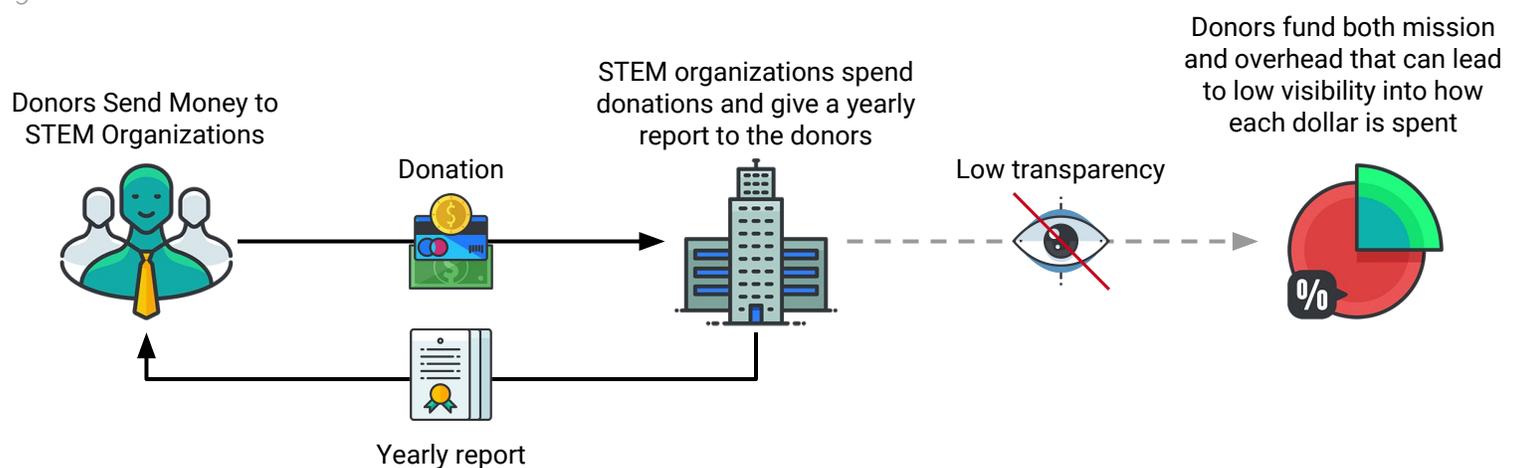


Current Problem

The funding of STEM organizations is currently decentralized and inefficient. Often funders are left to identify which STEM organizations are noteworthy, productive, and effective.

These organizations do not dedicate 100% of the funds received to their mission. When private funds (e.g., donations) are provided to STEM organizations, there is little to no insight regarding how such funds are being spent by these organizations. In some instances, for example, St. Jude’s Children’s Research Hospital, 72.1% of the funds donated are used for the intended cause where the other 27.9% may be used for operational costs, marketing, and administrative funding.¹

Figure 1: Illustration of Current Donation Process



Lack of visibility does not end at merely the breakdown between mission and overhead. There are frequently instances where donor funds are misused completely. For example, in 2015, the FTC uncovered that four cancer charities and their operators misused \$187 million in donations on items such as luxury cars, vacations, concert tickets, etc., leading to widespread skepticism of nonprofit organizations.

While donor-skepticism is at an all time high, simultaneously, there has never been a stronger need for STEM funding. There are two primary reasons for this heightened demand.

- STEM occupations are increasing at a faster pace than we have pipeline of STEM educators equipped to teach STEM subjects. Employment in STEM occupations grew by 10.5% between 2009 and 2015 compared with 5.2% in non-STEM occupations, according to a Bureau of Labor Statistics report, released January 2017.
- Federal funding of STEM under the current U.S. administration is unclear. According to the Nonprofit Finance Fund, 72% of organizations report that government funding/contracts have either remained stagnant, or decreased, as a percentage of their total revenue. Increasingly, nonprofits and organizations are relying on individual and private sector donations.

(1) "Charity Navigator - Rating for St. Jude Children's Hospital, USA" Charity Navigator, March 01, 2017. <https://www.charitynavigator.org/index.cfm?bay=search.summary&orgid=12847> Accessed 30 January 2018.

(2) Gray, Charles. "Can Transparency Increase Non-Profit Donations?" Georgetown University, 12 June 2015, consumerresearch.georgetown.edu/research/can-transparency-increase-non-profit-donations/.

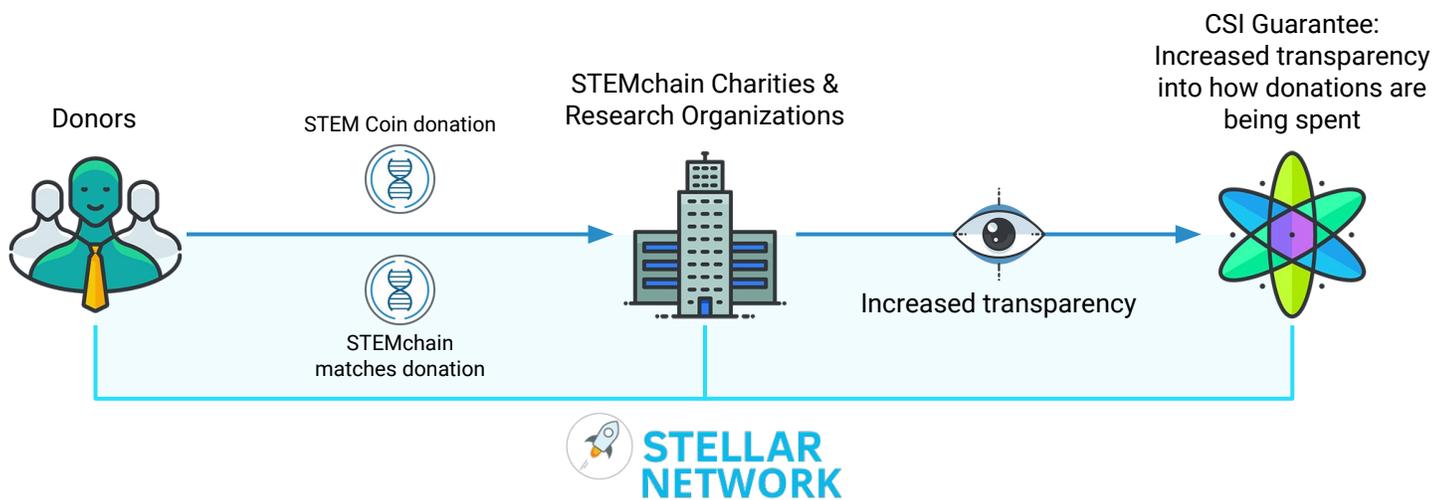
(3) Fayer, Stella, et al. "Nearly 8.6 Million STEM Jobs in 2015." U.S. Bureau of Labor Statistics, U.S. Bureau of Labor Statistics, Jan. 2017, www.bls.gov/spotlight/2017/science-technology-engineering-and-mathematics-stem-occupations-past-present-and-future/home.htm.

Proposed Solution

Transparency into how donations are being spent

STEMchain was created to address the shortcomings of existing STEM organization funding practices by offering a centralized directory of successful and effective STEM organizations that have agreed to the CSI 100% guarantee. The STEM organizations are incentivized to adopt and adhere to the CSI 100% guarantee through STEMchain’s CSI seed and donation match program. In this context, STEMchain, beyond onboarding the STEM organization to accept and transact STEM coins, seeds each of the STEM organizations with a defined amount of STEM coin as well as matches, coin for coin, up to a set limit, each coin that has been donated to the STEM organization. The expected outcome is the efficient and large scale funding of STEM organizations using the STEM coin.

Figure 1: Illustration of STEMchain Process



CSI 100% Guarantee

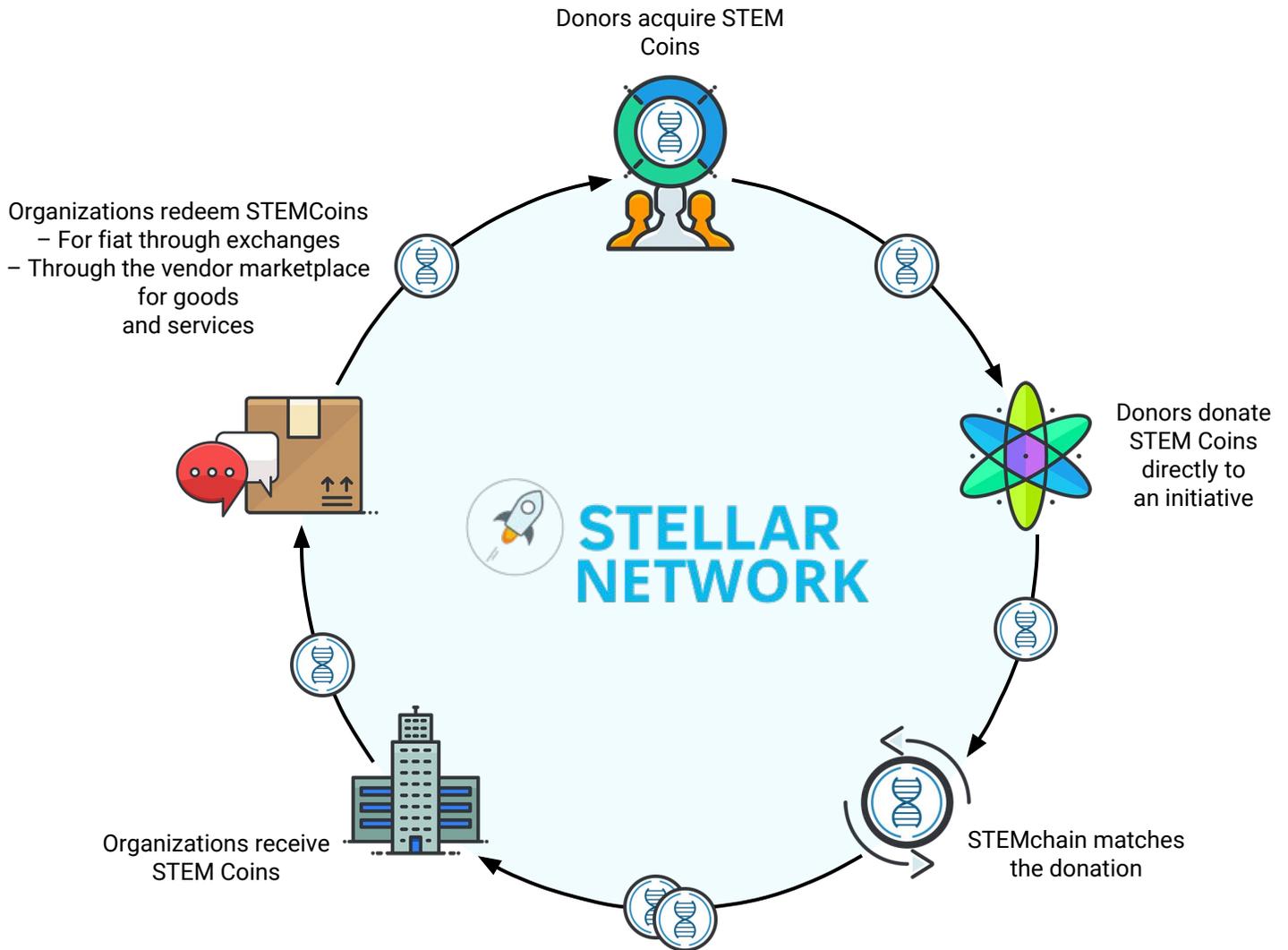
Figure 2: Illustration of STEMchain CSI Guarantee

- STEMchain vets partner organizations on efficiency of dollars spent on mission
- Onboarded partner organizations are required to adhere to the CSI 100% Guarantee by contract. The Guarantee requires that partner organizations spend 100% of funds on mission ONLY.
- As part of contractual obligations, onboarded partner organizations are required to provide reviewed financials showing use of STEM coins (including any exchange of STEM coins into FIAT).

Additionally, partner organizations can use STEM coins with vendors configured to accept STEM coins for purchase of products/services. In this regard, donors/funders can track their donations to the STEM coins to the point of purchase to ensure that the donations are being used consistent with the organization's stated mission.

STEMchain ecosySTEM

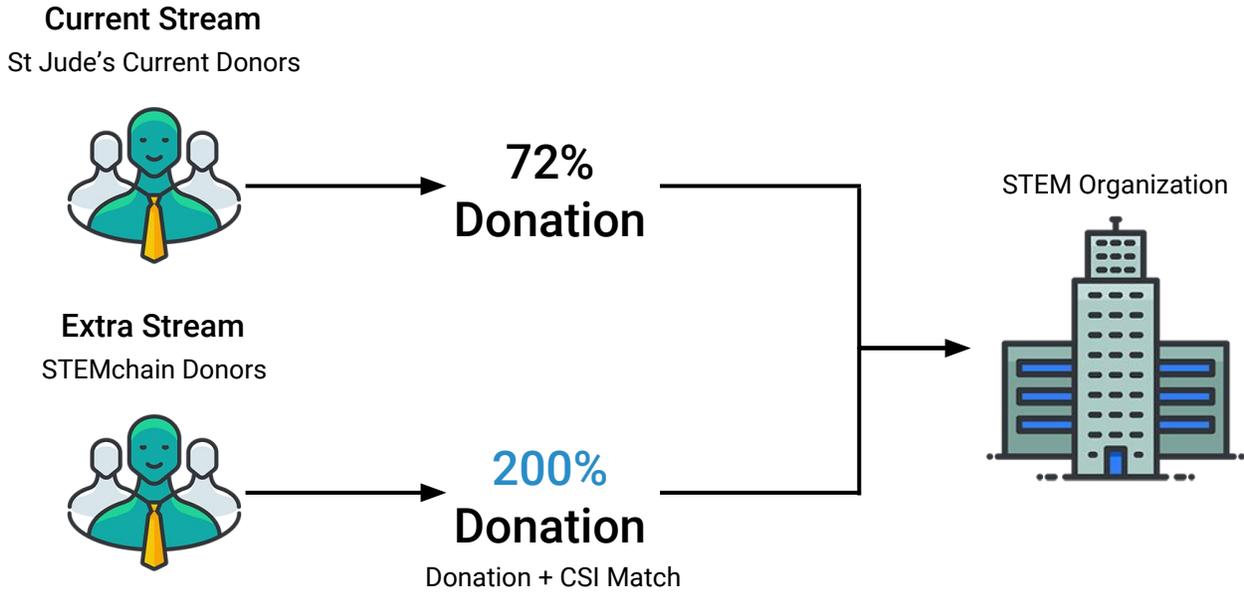
Step by step guide to how STEMchain donations are processed from donor to actual use by a partner organization



Transparency validated through organization agreements with STEMchain and through purchases made using STEM Coins in the vendor marketplace.

Why STEMchain Model Works: An Extra Stream of Revenue

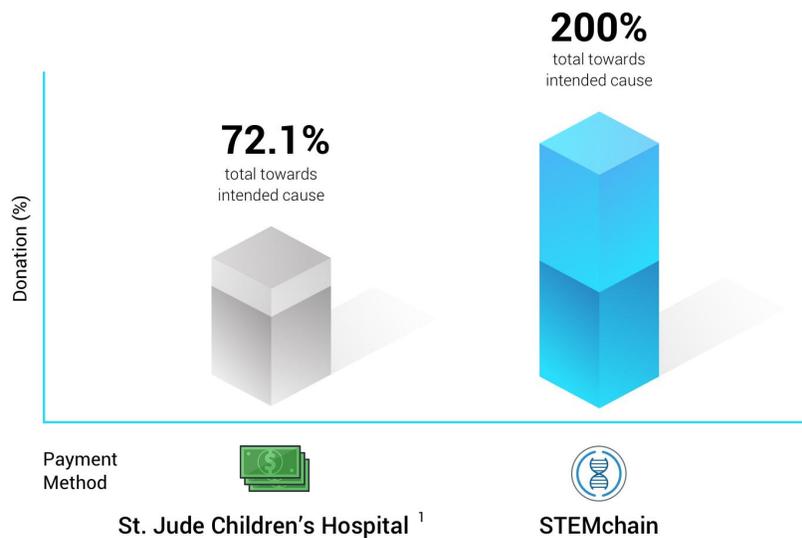
STEM organizations will have a stream of revenue coming from the crypto-currency market currently valued over \$400B USD. This extra stream will allow for the organizations to continue utilizing their existing revenue sources while providing a mechanism for additional funding.



Total of Streams= Current Stream * (% of Donations going to Cause) + Extra Stream

Donation Breakdown

St. Jude Children's Hospital Donation vs STEMchain Donation



(4) "Cryptocurrency Market Capitalizations." CoinMarketCap, coinmarketcap.com/.

(5) "Charity Navigator - Rating for St. Jude Children's Hospital, USA" Charity Navigator, March 01, 2017. <https://www.charitynavigator.org/index.cfm?bay=search.summary&orgid=12847> Accessed 30 January 2018.

Donation Matching

STEMchain matches each donation 1:1 from STEMchain’s **finite matching pool (“SC Matching Pool”)**.

Here’s how it works:

- 1) Donor/Funder provides 100 STEMcoins to STEM.org.
- 2) STEMchain monitors the donation, verifies that the donation is valid, and sets aside 100 STEM Coins from the SC Matching Pool for STEM.org (**“STEM.org’s Matched Donation”**)
- 3) STEMchain manually sends the STEM.org’s Matched Donation to STEM.org. The manual donation is currently performed on a monthly basis until the automatic matching donation application is developed and deployed - expected Q2 2018.

STEM.org now has 200 STEM coins - the power of SC Match!



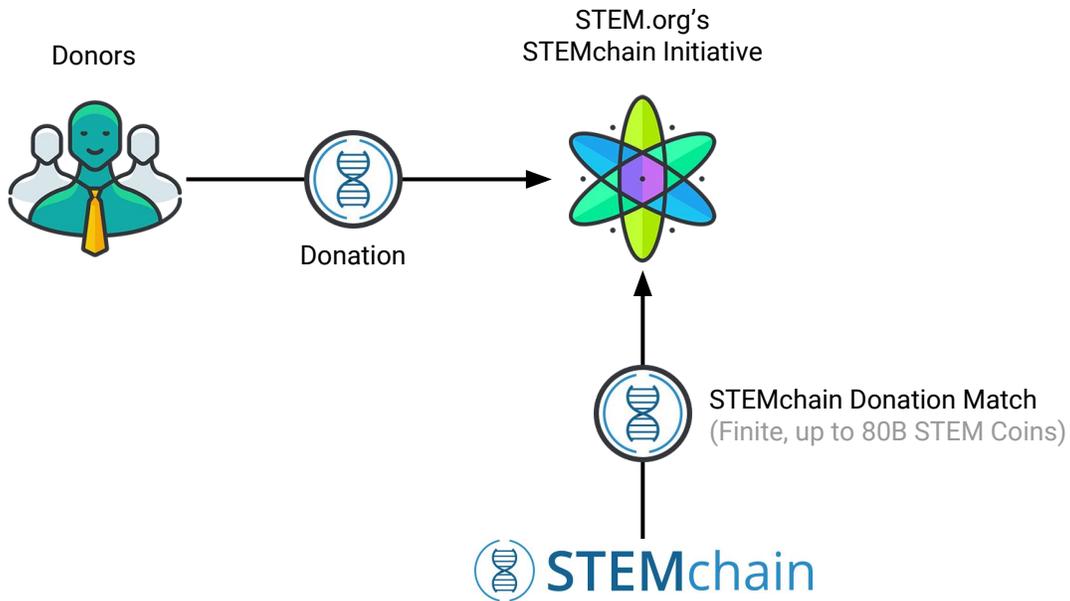
Donation matching is finite and will cease after all remaining 80b coins are in circulation



Donation matching increases as a function of circulating supply



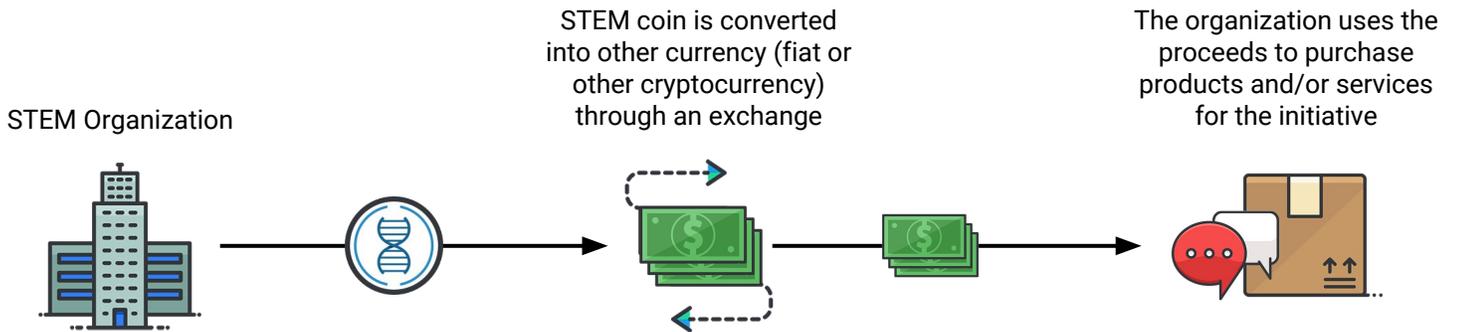
Donation matching algorithm continuously monitors the blockchain for partner organization transactions to match STEM coins and check for manipulation of the CSI 100% matching



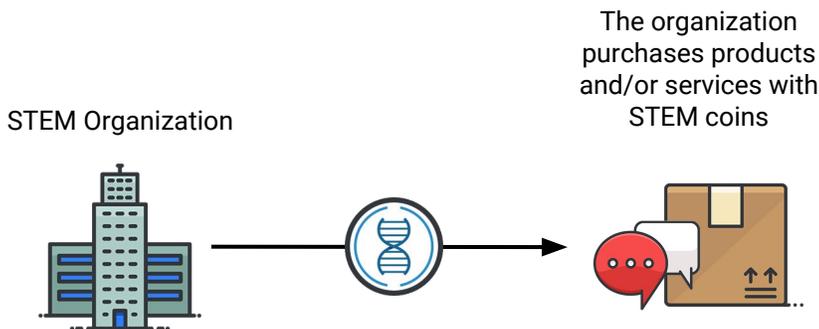
How Organizations Spend STEM Coins

1. Through an Exchange
 - a. Organization sells STEM coin for other currency through an exchange (fiat or other cryptocurrency).
 - b. Organization use proceeds from the exchange transaction to purchase products and/or services for the Organization’s initiative(s).
2. Through a Vendor
 - a. Organization purchases products and/or services directly from the vendor (that accepts STEM coins as a payment modality) using STEM coins.

Through an Exchange

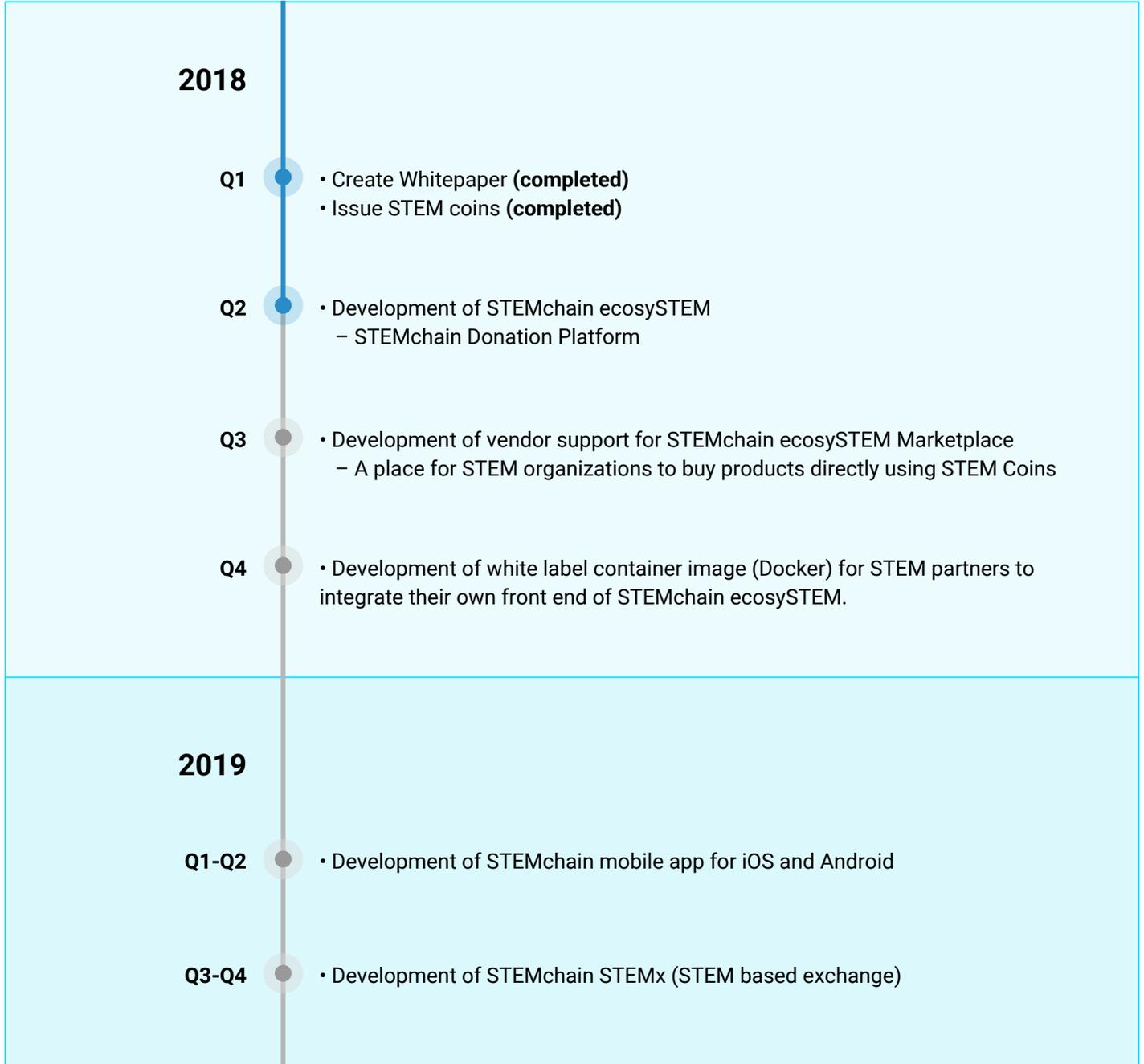


Through a Vendor



Roadmap

The STEMchain roadmap includes the following milestones:



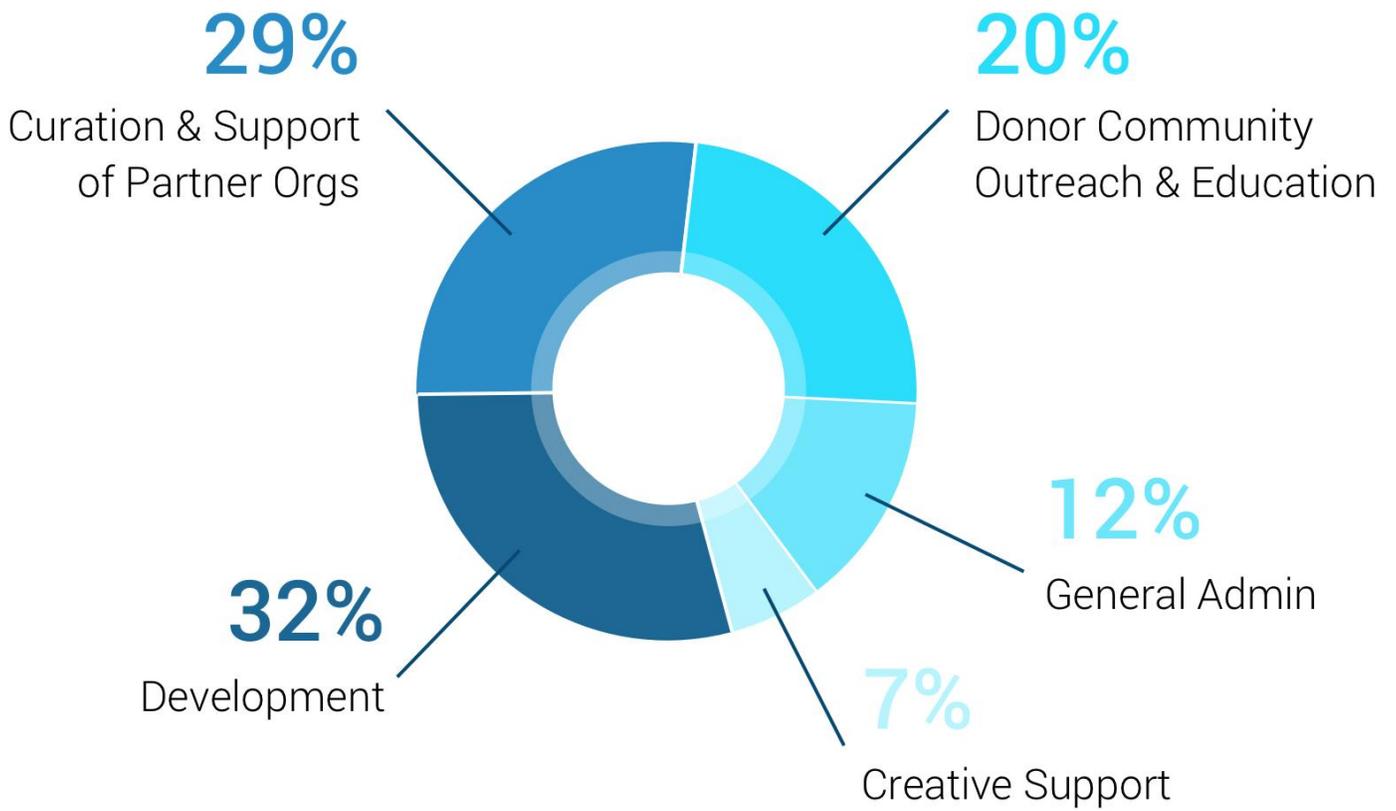
Token Structure

Detailed Breakdown of the STEMchain Token Structure

Maximum Supply:	100B STEM
STEMchain Reserve	10B STEM
Organization Seed/Bounties/Public Release:	10B STEM – 250MM To Seed Partner Orgs – 1.75B Bounties – 8B STEMChain Operating Expenses (Generated – From Release on Stellar Decentralized Exchange (See Page 10 For Operating Expense Breakdown)
Donation Match:	80B (Non-evergreen pool; matched at a selective rate.)
Maximum Advisers, Team and Reserves::	10B STEM
Accepted Cryptos:	XLM (main), BTC, ETH, USD, GBP, EUR, JPY (proposed)
Exchange Rate:	Spot Exchange Rate – Date of Transaction
Token Distribution Dates	
Advisers, Team and Reserves:	8 February 2018
Organization Seed/Bounties/Public Release:	8 February 2018
Issuing of STEM Tokens	STEM Tokens will be issued as each transaction is confirmed

STEMchain's Operating Expenses

Use of Proceeds generated From STEM coins released by STEM Chain on Stellar Network



Closing Statement

The STEMchain team aims to use the power of blockchain to enable large scale funding of STEM organizations to the benefit of mankind. The team consists of proven entrepreneurs, experienced developers, and designers all of whom are supported by legal, financial, cryptocurrency, and trading experts.

Read our full whitepaper at: stemchain.io/whitepaper.pdf

Want to get in touch? You can reach the team at:

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Twitter: [@STEMchainIO](https://twitter.com/STEMchainIO)

Telegram: t.me/STEMchain

Medium: medium.com/stemchain