

HealthCredit

Like a carbon credit but for health.

[DevWebsite](#). [Website2](#) if DevWebsite is down.



Healthcare funders like corporations, governments and foundations want to improve health in developing countries but **funders are unsure of the impact they are getting**. Health interventions that could save lives go underfunded due to lack of awareness, accessibility and traceable impact.

We're all familiar with this: when we see a company's annual report say "We are helping maternal health in Africa" we wonder "Are they? How much? And how sure are they?"

In the era of blockchains we need not be in doubt anymore.







Solution

Just as carbon credits represent a ton of carbon or equivalent removed from the atmosphere, we can tokenize health using DALYs (disability adjusted life years) as a unit of account.

Each HealthCredit represents a DALY averted. Each verified health care Project Developer gets a unique token of impact with their photo.¹ Each accredited health organization can sell their tokens on a marketplace at the market price. The token uses the ticker symbol \$LYS for "life year saved."

¹ The tokens will be ERC-1155 tokens that combine the benefits of tokens and NFTs.

Here are example organizations with example stats:

Access Afya	flare	SEVAMOB
 	 	 
Primary health care in Kenya. + verified Life-Years Saved: 12,345.6 \$LYS: \$12.34 (+3%)	911 number for Kenya. + verified Life-Years Saved: 1,234.5 \$LYS: \$15.26 (-3%)	TB testing in India + verified Life Years Saved: 54,321.0 \$LYS: \$11.11 (+1%)
Other stats: <ul style="list-style-type: none">15 clinics335,513 people served	Other stats: <ul style="list-style-type: none">520 ambulances available360,000 covered members	Other stats: <ul style="list-style-type: none">30 clinics335,513 people served
Other perks: <ul style="list-style-type: none">Access to videosAnnual investor call	Other Perks: <ul style="list-style-type: none">Access to videosAnnual investor call	Other Perks: <ul style="list-style-type: none">Access to videosAnnual investor call

Price of \$LYS (the life-years saved token) depends on the subjective view of the buyer. For example, an \$LYS from a health center in rural Kenya might be worth more to buyers than an \$LYS from a hospital in New York. This is similar to how carbon credits work, though the carbon credit solution is less elegant. Carbon credits were intended to be fungible², but in practice buyers are willing to pay a higher price for a ton of carbon from saving the amazon rainforest than a ton of carbon from a cement plant that reduces emissions by 5%.

NFTs and crypto currency is a good way to solve the challenge of subjective value of a DALY while simultaneously referencing a concrete impact. The picture on the token also maintains the emotional relationship to the project the DALY came from. Each health organization's token will come with an image of the project so that people can keep it in their digital wallet, on their digital trophy wall or annual report. It will also link to a video of the work and may come with perks like visiting the project (for major patrons).

The number of \$LYS for sale depends on how many DALYs an organization saves, which are subsequently verified.

Business model

A portion of sales go to the protocol for management, R&D, demand generation, verification and a yield to the staker.

\$LYS sales might be distributed as follows:

- 50-80% Health Organization

² Fungible means identical, one to the next, the way each dollar bill is functionally identical to the next dollar bill.

- 45-10% Verifier
- 10% Demand Generation/sales
- 1-3% ImpactCredit R&D
- 1-3% ImpactCredit Management
- 1% transaction fees

This is comparable to carbon credits where 15-50% of the value of the credits sold goes to the carbon aggregator/broker. The proportions can vary depending on supply and demand. This dynamic model is only possible because of blockchain and will make the system more efficient.

Token Value Accrual

The \$IMT governance token accrues value to those who stake their tokens. Each \$LYS sold pays a commission to the HealthCredit protocol. The protocol distributes some of that commission to stakers of \$IMT. \$IMT stakers receive the distribution regardless of whether they are chosen as jurors. This is so that jurors are not incentivized to approve projects for their own benefit.

Startup Financing

There are two options:

1. An ICO crowd sale of \$IMT to fund the initial product development.
2. Raise VC capital.

Cash flow for healthcare organizations

Health Organizations can sell \$LYS futures at a discounted price. Speculators can buy the futures based on the expectation that the \$LYS will increase in value once verified.

DALYs futures can be verified and turned into Verified DALYs (\$LYS). This is analogous to carbon credits where carbon aggregators³ pay for all of the upfront verification and might even advance a conservation company funding so that they can begin their work. But this becomes more elegant with cryptocurrency.

Once \$LYS is sold it is not resellable. This is analogous to how carbon credits are retired after purchase. However, a commemorative token will be shared with the funders of the project.

\$LYSs don't prevent an organization from winning grants from other activities or prevent them from charging patients for their services. Selling \$LYS may prevent them from raising Results Based Financing (RBF) for the same DALYs averted.

Verification

Carbon credits rely on 3 levels of verification:

³ Like [Numerco](#), [Natural Capital Partners](#) or [SouthPole](#)

- Methodology development (a mangrove methodology is different from a permaculture pasture one, for example)
- Specific Project design and
- Monitoring of Results

HealthCredits will have several levels of verification:

Methodology Development

Each type of health intervention needs its own methodology. Thus, a method of tracking maternal health outcomes is different from cataract surgery. This study could be an RCT or equivalent. Methodology development is a cost prohibitive step in the carbon credit ecosystem. But the R&D budget from ImpactCredits can fund new methodology development.

Specific Project design

Each company needs to pass KYC checks and choose a methodology. They need a way to record the number of patients treated for each condition.

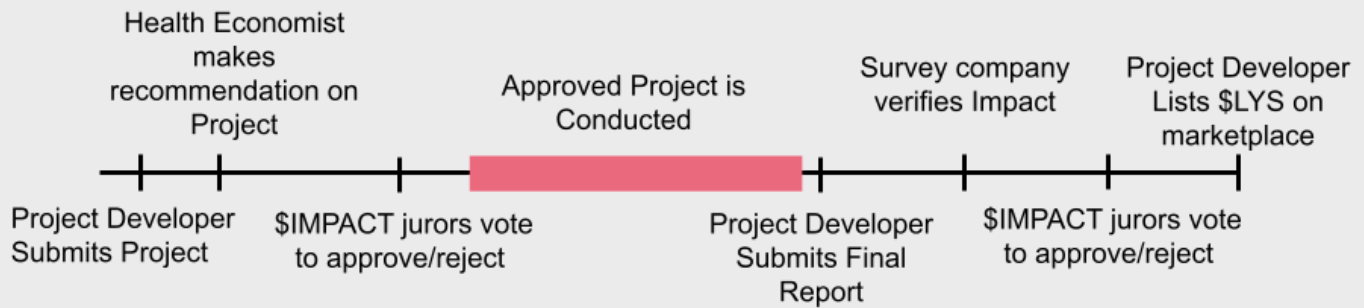
A health economist, commissioned by the \$IMT protocol, creates a report on whether they recommend the Project Developer be approved/rejected. Does the project make sense and will their methodology be sufficient to judge whether the project had an impact?

The health economist compiles a report with a recommendation to approve/reject the project. A random jury of \$IMT holders are selected to approve/reject the project.

Monitoring of Results

Once a project is complete, the Project Developer will compile a list of patients treated. They will send this list to a survey organization, such as 60_db, that will randomly call the patients on the list to verify.

The survey organization sends the report to the HealthCredit protocol where a random selection of \$IMT holders are chosen to approve/reject the project. Because the \$IMT holders chosen are random, collusion is impossible.



Jury Selection

\$IMT token holders who have their tokens staked (indicating that they have long term interest in the protocol) will be randomly selected to be in a jury.

Stakers who are chosen to be on a jury but don't vote are penalized and thus are incentivized to vote. Further, they are incentivized to vote correctly due to the Consensus voting mechanism of the HealthCredit protocol. Jurors who do not vote with the majority are penalized.

Marketing

People want to show the world what they think is important. To show the world their values. That they walk the talk. Great networking like joining a biking club. Do something hard and you'll meet other people who like doing hard things.

Events to meet like-minded people in the space. Speed dating event before the auction opens.

Make it easy to show the world. Use as social media profile pictures.

Leaderboard for referrals.

Buyers

Initially, buyers will be individuals, possibly Effective Altruists.

Later, forward thinking and quantitative grantors in the healthcare space like Gates Foundation and USAID DIV.

Around the same time, corporations wanting to contribute to CSR projects (and for ESG) will see the value of buying certified health credits.

Eventually, companies with bad health outcomes like soda companies may feel compelled to buy HealthCredits to offset their negative impacts.

Giving away money to qualified organizations is hard

In 2009, Bill and Melinda Gates at the time worth 46.4 billion, committed to donating half their money before they died.

They gave away 45.5 billion dollars!

But by 2020, they were worth \$114.7 billion.

Giving away money is hard. Each of us has our own challenge.

Meanwhile, entrepreneurs struggle to find the capital to get their ideas off the ground.

Let's connect the ideas and capital and make the world a little happier, a little healthier and a little greener.

Roadmap

- Stage 0:
 - Write whitepaper
 - Launch token
 - Build software
- Stage 1:
 - Launch in private beta to test the system with a few organizations
 - Raise awareness
- Stage 2:
 - Marketing to potential funders of health credits
 - Full launch
- Future:
 - This model can be extended to other kinds of impact like education, solar, ecological preservation (that is not already covered by carbon credits), refugees, etc.

Risks

Fraud: to avoid fraud from health care organizations an independent organization needs to verify the impact.

Health care organizations can't deliver on the futures contracts they create.

Appendix

Prior Art

- [Andrea Feigl article on using DALYs like carbon credits](#)
- [Carbon Credits](#)
- [Social Impact Bonds](#)
- [NPX Social Impact Bonds](#)
- [IXO impact oracle](#)

MVP for Hackathon

Roles:

- **Investor:** someone who buys \$IMT ERC20 governance token such as a high net worth individual or institutional investor
- **Project Developer:** a HealthCare Organization that generates the impact such as a chain of maternal health facilities in rural Uganda. They sell this impact by selling the ERC1155 token, \$LYS
- **Credit Buyer:** someone who buys the \$LYS token
- **Beneficiary:** the patients receiving the health treatment

Interaction

Investor buys \$IMT token with Ethereum or DAI. They can hold it in their wallet, sell it on UNISWAP or stake it in the protocol.

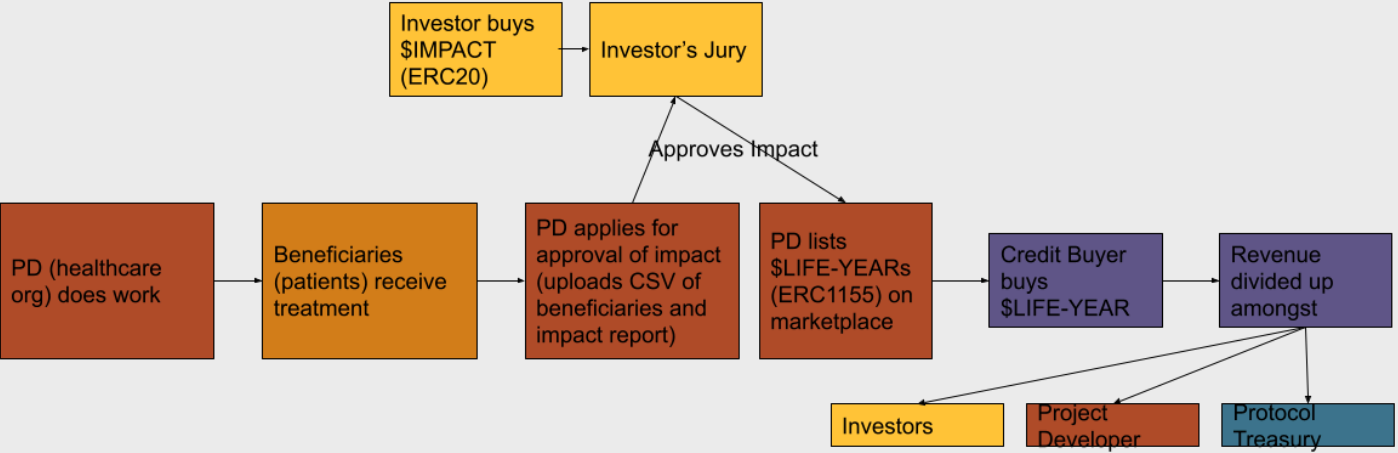
Project Developer applies to be verified by submitting documentation (certificate of registration, a business plan, a methodology they propose using and a CSV of **Beneficiaries**). 3 random **Investors** are chosen to vote on the submitted documentation

Project Developer sets the price of the \$LYS credits they want to sell and list them on the marketplace.

A **Credit Buyer** signs in with their wallet to the marketplace and purchases credits with DAI. The NFT \$LYS are transferred to their wallet where they are non-transferable. The NFTs are displayed on the **Credit Buyer's** profile. The purchase price is divided amongst:

- Project Developer
- Investors
- Treasury for R&D and management

Investors vote on the amount that each role receives once a year, as well as the budget approved for management and R&D.



- Credit Buyer
- Project Developer
- Beneficiaries
- Investor

Full Design (for later)

Roles:

- Investor: An investor in the protocol; someone who buys \$IMT ERC20 governance token
- Staker: an investor who has staked their \$IMT token in exchange for interest and has the right to vote on protocol proposals
- Project Developer: a HealthCare Organization, such as a chain of maternal health facilities in rural Uganda, that generates \$LYS impact. They sell this impact by selling the ERC1155 token, \$LYS
- Credit Buyer: Institution or high net-worth individual who buys the \$LYS token from a specific Project Developer (e.g. buys \$LYS tokens from a rural health facility in Uganda)
- Methodology Verifier: a health economist who verifies a methodology is suitable for the Project Developer (High level verification)
- Impact Verifier: a research organization that calls Beneficiaries to confirm Impact such as [60 db](#). (Detailed or low level verification)
- Beneficiary: the patients receiving the health treatment (e.g. a pregnant mother in rural Uganda)
- Agent: someone who facilitates the sale of \$LYS credits connecting the Project Developer and Credit Buyer (effectively a sales agent)

Interaction

Investor buys \$IMT token with Ethereum or DAI. They can hold it in their wallet, sell it on UNISWAP or stake it in the protocol. **Stakers** earn interest for their commitment to the protocol and can vote on proposals.

Project Developer applies to be verified by buying \$IMT as a deposit (to avoid spam) and submitting documentation (certificate of registration, a business plan and a methodology they propose using). A **Methodology Verifier** confirms the **Project Developer** has chosen a suitable methodology and files a report. 3 random **Stakers** are chosen to vote on the **Methodology Verifier's** report.

Project Developer keeps track of the relevant metric of the **Beneficiaries**. For example, if the chain of clinics treats pregnant mothers, the **Project Developer** must keep track of the number of pregnant mothers and deliveries carried out in their clinics.

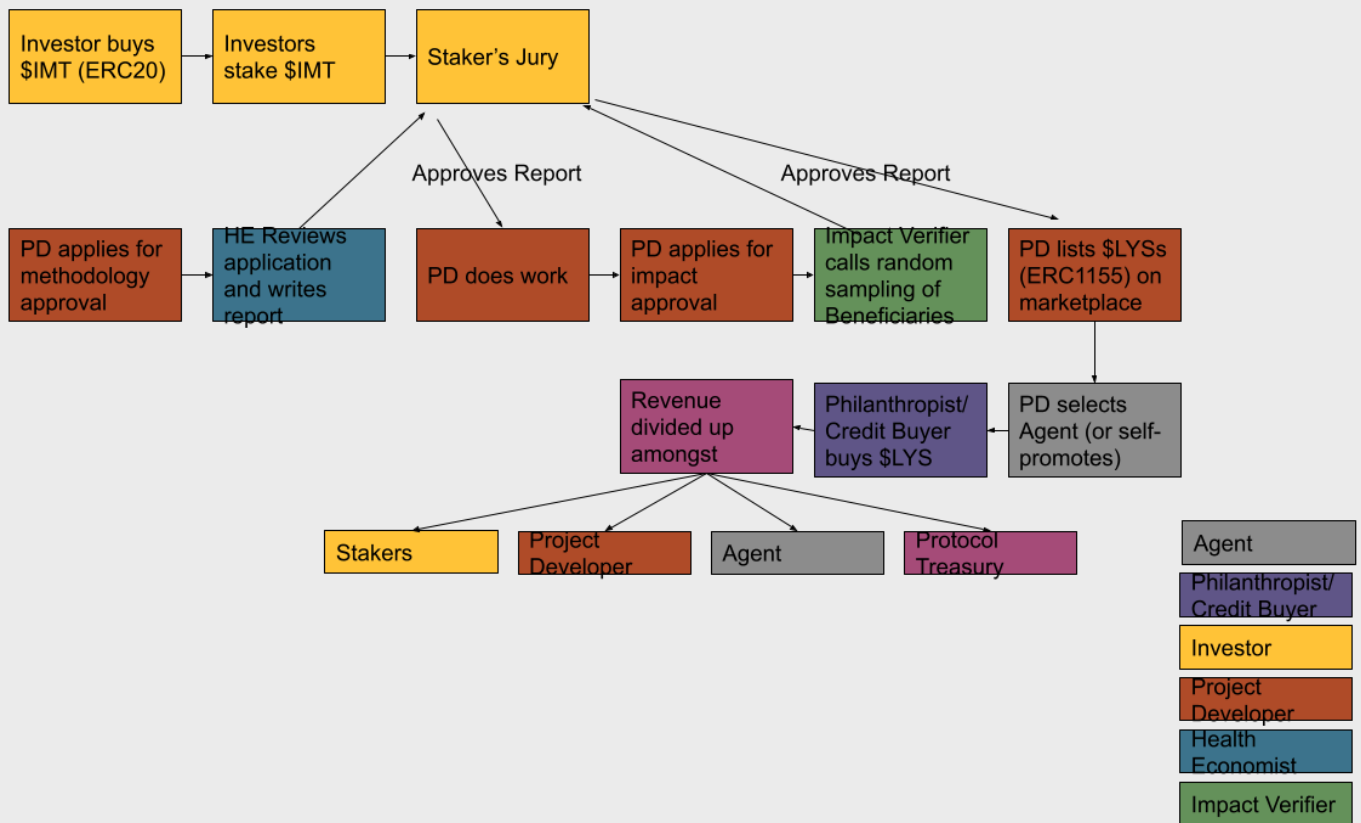
Project Developer submits their impact report with the relevant metric. **Impact Verifier** calls a random sampling of the **Beneficiaries** and creates a report. 3 random **Stakers** vote on the report to approve the credits for the market.

Project Developer sets the price of the \$LYS credits they want to sell and list them on the marketplace. They choose an **Agent** to help them sell the credits or sell the credits themselves.

A **Credit Buyer** signs in with their wallet to the marketplace and purchases credits with DAI. The NFT \$LYS are transferred to their wallet where they are non-transferable. The NFTs are displayed on the **Credit Buyer's** profile. The purchase price is divided amongst:

- Project Developer
- Staking Pool
- Treasury for R&D and management
- Agent (if any)

Stakers vote on the amount that each role receives once a year, as well as the budget approved for management and R&D. The R&D budget includes financing new methodology development.



Though this system may seem complex, it is relatively simple compared to MakerDAO (DAI) stablecoin. It's worth reading about it [here](#) as it has similar oracles to our Health Economist and Impact Verifier roles.

Fonts and Colors

Connections/Advisors

- [Dann Moreno](#) at Giveth
- [Andrea Feigl](#) CEO at Health Finance Institute
- Matt Bonds at Impact Markets
- Morgan Rivers Effective Altruism
- [Melissa Menke](#) Founder Access Afya Kenya
- Griff Green founder of Giveth

\$LYS NFT attributes

Attributes for MVP: Trading Name, NFT Image, country of operation, Health Service Provided.

Attributes for full version: Trading name (doing business as name), Official name, NFT Image, country of registration (or chain of registration if a DAO), registration number (or link to DAO contract if a DAO), year of

registration, country(ies) of operation (an org might be registered in the US but operate in Uganda), Health Service provided, Logo.

What am I missing as far as crypto

Is there a more elegant solution?

How else can we raise aside from ICO

Griff Green notes on raising capital:

Print a token, not ico. Superfluid. Fork giveth code. Regen farms (merkle drop doesn't have).

Or airdrop. Who could assess impact.

NFTs.

Token lockup

Farms for liquidity. Finimatix.

Jobs to be done—customer discovery

Fund health care orgs in developing countries in the most cost effective way.