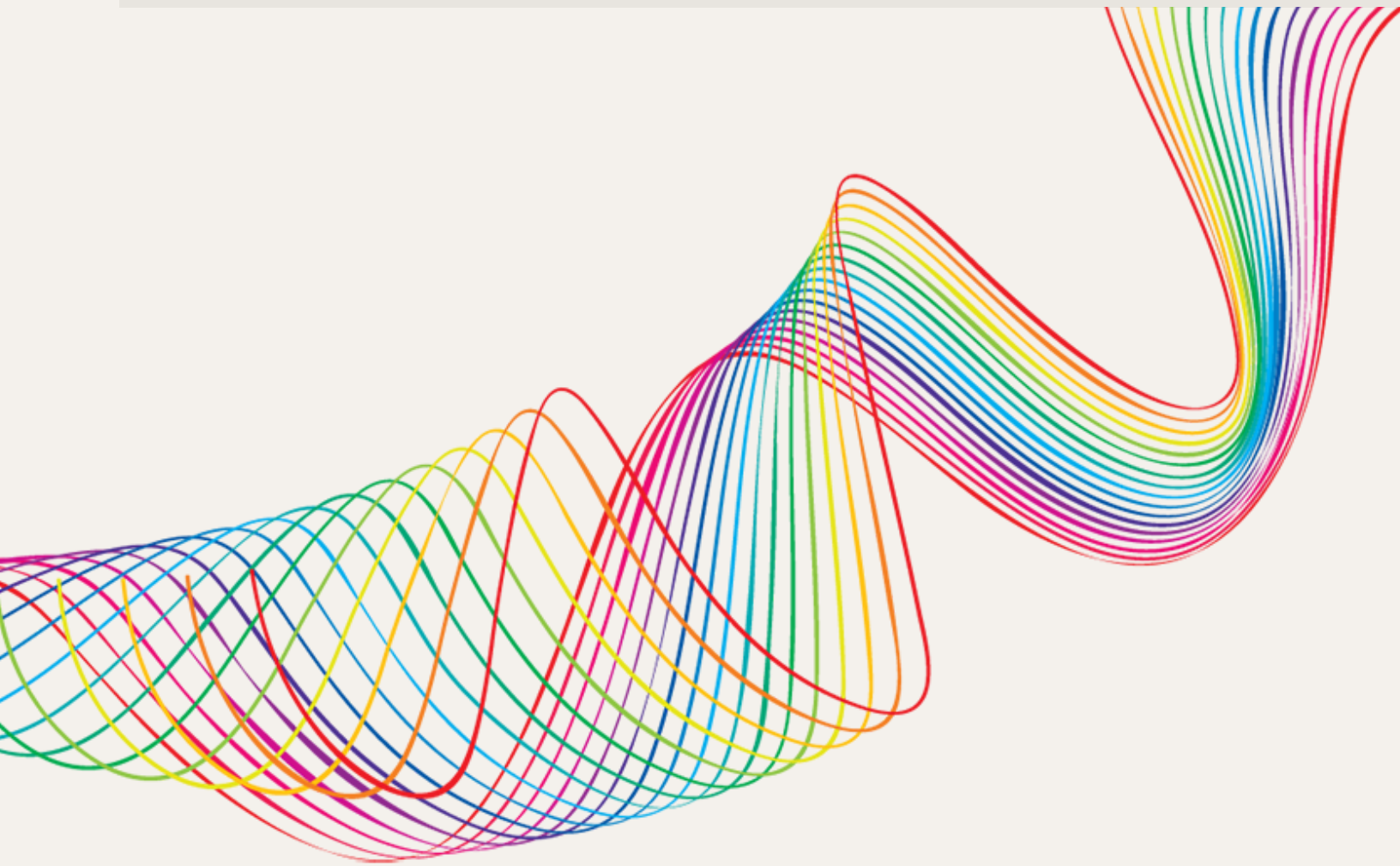# NEW FRONTIERS

## THE INTERSECTION OF AI, BLOCKCHAIN, AND SOCIAL IMPACT

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# EXECUTIVE SUMMARY

## We believe

Embracing emerging technologies such as artificial intelligence (AI) and Web3 (blockchain) is beneficial and essential for philanthropy and nonprofit work in the digital age. We argue for a shift from traditional practices toward more experimental, inclusive, and equitable approaches to solving societal challenges.

By leveraging these technologies, philanthropic organizations can enhance efficiency, impact, and reach, ensuring that the benefits of innovation extend to all, particularly the most marginalized communities. This paper serves as a call for concerted effort to educate and engage these communities in the technological revolution, empowering them to positively shape their futures.

## What you will learn

You will learn about the transformative potential of AI and Web3 technologies in the realms of philanthropy and nonprofit work. We'll outline how these technologies can address longstanding coordination problems, reduce administrative burdens, and democratize access to funding and resources.

We emphasize the importance of inclusive innovation, urging stakeholders to ensure that emerging technologies do not widen existing disparities but rather serve as tools for economic justice and societal advancement. Through real-world examples, we aim to inspire readers to actively participate in shaping a future where technology amplifies social impact and equity.

💡 These callouts provide brief section summaries.

# CLOSING GAPS & CREATING OPPORTUNITIES

Our world is becoming more and more digital every minute of every day. In the tapestry of progress, the threads of innovation are woven by those who dare to dream boldly and seek to anticipate the opportunities of tomorrow today.

This guide invites us to look beyond the limits of what exists today to paint a portrait of a more inclusive and equitable technology future.

A future inspired by the radical imagination of what we can build together, informed by the urgency and certainty of the outsized harm that vulnerable communities will face in the absence of diverse voices and proactive change-makers.

We hope these pages serve as a call to action for lucid dreamers. The clock is ticking, and our technology landscape is shifting exponentially right before our eyes. Now is the time for all of us to dig in, lock arms, and ensure that the most marginalized communities are well-positioned to participate in this booming innovation economy.

We have to look ahead with our humanity in hand, sleeves rolled up, and our eyes wide open. We owe it to ourselves and to our most marginalized communities to be audacious in our asks, chronically curious, and courageous in the face of these new frontiers.

As advocates for access, equity, and economic justice, so much of our work stands at the intersection of history, collective action, cycles of systemic inequality, facilitated opportunity, and coordinated problem-solving.

Today, we are on the cusp of a reality-shifting technological frontier driven by artificial intelligence (AI), Web3 (blockchain), and other emerging technologies. Like so many moments of significance (the invention of cables, combustible engine cars, airplanes, computers, and iPhones), these emerging technologies represent tech-tonic shifts in an exponentially evolving technology landscape.

## Why it matters

AI will undoubtedly augment intelligence as we currently understand it. These models inform how we perceive the world by gradually reshaping our collective consciousness. Every day, these technologies become more widely integrated into how we interact with each other and the world around us.

We acknowledge that all algorithms implicitly bear the value judgments and information processing that reflect their creators' social biases and prejudices.

Dr. Safiya Noble, a tech justice advocate and a professor of Gender Studies and African American Studies at UCLA, details this phenomenon in Algorithms of Oppression: How Search Engines Reinforce Racism.

*"Boiled down to the basics, this pivotal movement in our intellectual, social, and economic evolution offers each of us two paths: we either move to meet the moment and become active participants in this consequential innovation economy, or we stand still and miss it, forced to try to play catch up."*

*Noble, Safiya Umoja. Algorithms of Oppression: How Search Engines Reinforce Racism. New York University Press, 2018.*

# CLOSING GAPS & CREATING OPPORTUNITIES CONT.

The former positions us as architects and active participants in stewarding, interrogating, shaping, and leveraging these technologies to amplify meaningful social impact across various avenues outlined in this guide.

The latter, however, leaves us relegated to the role of spectators and belated bystanders subject to the whims of inequitable systems, individuals, and institutions that'll have their palms firmly clutched around yet another pathway to prosperity and notable impact.

We can't afford to blink here for the sake of all the communities that suffer from intentional exclusion, systemic disadvantage, and a perpetual lack of resources. We need to pay attention and insert ourselves in the driver's seat.

## Why now?

To ensure that our communities aren't left behind, especially those most vulnerable and historically marginalized, we have to champion the cause of concerted education and ongoing conversation/participation around developing these emerging technologies.

Acquiring AI and emerging technology skills isn't merely a choice. It's a necessity, as history points to the perils of being left behind. In the face of these tech-tonic shifts, those without the ability to harness transformative technologies risk facing a digital divide that widens exponentially with each passing innovation.

To empower marginalized communities, embracing these skills is mission-critical to catching up and leading the charge toward a more inclusive future.

Many examples remind us of the cost of being left behind.

**COVID-19 Pandemic—21st century:** Most recently, the digital shift during the COVID-19 pandemic, from remote work to online education, has highlighted disparities in technology access, leaving those without adequate resources even further marginalized in a rapidly evolving technological landscape.

**Artificial Intelligence in Hiring—21st Century:** AI-driven hiring processes have been criticized for perpetuating bias and negatively impacting marginalized communities by potentially reinforcing discriminatory employment practices.

**Globalization - Late 20th Century:** While globalization brought economic opportunities, it also led to the outsourcing of jobs, impacting marginalized communities as industries moved production to lower-cost regions.

**Automation in manufacturing - 20th Century:** Automation in manufacturing industries displaced many blue-collar workers, disproportionately impacting marginalized communities dependent on manual labor for their livelihoods.

# CLOSING GAPS & CREATING OPPORTUNITIES CONT.

These examples underscore the importance of creating pathways for equitable access. We have to ensure that the most vulnerable communities have the tools and opportunity to actively engage with AI and other emerging technologies to shape their destiny in the evolving innovation landscape.

## What happens if we blink?

Let's rewind our digital clocks to the dawn of analog computers. A seismic shift occurred when these machines and this emerging technology entered the scene. As the digital age exploded, so did racial wealth and equity gaps.

The current digital divide, both historically and presently, has been systematically constructed, with barriers to access persisting. At the advent of new economic opportunities, communities of color were often systematically marginalized and confined to the role of spectators and bystanders.

This exclusion prevented the most marginalized communities from benefiting from the economic advancement and transformative potential inherent in these technologies.

As we stand on the precipice of this AI era, that familiar history threatens to repeat itself and further exacerbate these gaps. We can't let that happen. A future where racism, biases, and structural inequities are programmed into the fabric of our technology landscape doesn't sound like much of a future at all.

These shifting sands dictate that we all have a stake in this moment, and participation isn't optional. The responsibility of leveraging these emerging technologies to close gaps rather than to blast them wide open belongs to all of us. The thought of these technologies being used primarily for profit rather than sustained impact should make us all angry.

*"My journey is fueled by rage, radical imagination and fierce love for my community. I am grounded in the belief that we can create what we need."*
*Jenice Fountain, Executive Director at the Yellowhammer Fund*

Given our present trajectory, we can imagine a future where the latent power of AI is leveraged to amplify existing discriminatory practices.

AI policing, prison processing, and precision weapons targeting are just a few examples of our existing trajectory toward exponentially amplifying the systemic disadvantages of marginalized communities and people.

If the past is any indicator, then we can assume that if the social impact and philanthropic leaders of today embrace the path of least resistance—ignoring our technological ascendency in favor of past protocols and processes—we will fail those who need us most.

The risk lies in our looking away and neglecting the imperative to equip marginalized communities with the education, employment, and systemic investment in equitable access they need to navigate the complexities of AI and Web3. We have to learn from the past to shape a more inclusive and equitable future.

# CLOSING GAPS &
# CREATING OPPORTUNITIES CONT.

The workforce landscape is evolving, and jobs that once defined the market are transforming into roles that demand proficiency in these emerging technologies. This shifting labor market and the demand for talent will have an outsized impact on young people.

As stewards of our youth's futures, we owe it to them to provide the tools and create pathways that ensure their participation. The economy is transforming, and those armed with the knowledge of AI and blockchain will navigate the shifting currents more adeptly.

We have to keep our eyes wide open. We need to engage, learn, and teach. Our schools and learning spaces should be centers of empowerment, offering a relevant education and fostering a mindset of exploration and innovation.

It's not about simply learning how to use ChatGPT or how to code; it's about understanding the narratives of technology and how they shape our world. Storytelling becomes our ally in this journey.

As young people dive into the complexities of AI and Web3, they should be captivated by stories of individuals who, like them, ventured into the unknown and emerged triumphant. Stories can bridge gaps, make the abstract tangible, and ignite the flame of curiosity.

We can't afford to be bystanders in this technological revolution. Instead, let's be architects of change, ensuring that everyone, irrespective of their background, has the chance to learn and adapt to these emerging technologies.

Let's build a future where innovation knows no boundaries and radical imagination is grounded in a fierce love of community and the other. In other words, we write the narrative of tomorrow today.

Our keystrokes bridge a future where opportunities are abundant and no one is left behind.

Together, let's champion the cause of tech education and integration as a vehicle for amplifying impact. In the face of new frontiers let's work to weave a tapestry where inclusivity and empowerment are stitched into the fabric of our digital world.  Together, let's define the legacy of our time and paint the portrait of our future with bold colors.

# INTRODUCTION

Philanthropists and the grant partners they serve have a coordination problem. A big part of this challenge comes from old ways of thinking—beliefs and practices that are having difficulty keeping up with our fast-moving tech world. In this guide, we'll explore the potential of these emerging verticals, evaluating present possibilities and how we may apply them to solve shared struggles.

Philanthropy is a vehicle for transformation whose latent potential remains untapped—in the past, defaulting to established processes and protocols to create change made sense. Today, it is not enough. We see innovation occurring at the margins, but if philanthropic organizations seek to remain relevant in how we distribute advantage they must embrace greater degrees of experimentalism.

Nonprofits are often under-resourced and overworked. They need more support to connect with communities and convey their impact and frequently need more context for running efficient and effective organizations. They grapple with the administrative burdens associated with funding and a perpetual fear of having the rug pulled out from under them regarding operational capital.

We've spoken to over 200 foundations ranging from place-based community funders, large multinational organizations, and governments about how to empower the changemakers they serve most effectively. These insights lead us to believe that the most significant opportunities for nonprofits and philanthropy are yet to come. In this paper, we'll explore the foundations we can build upon.

Today, the constraints of past coordination failures are loosening. The convergence of artificial intelligence and Web3 (blockchain) technologies lays the groundwork to make nonprofit and philanthropic efforts more efficient, impactful, and equitable. Catalyzing an evolution from vehicles of retroactively redistributing advantage to creators of eternal impact.

In this paper, we'll explore how these technologies affect nonprofits and philanthropy. Starting with an easy-to-understand overview of these technologies and their uses. Then, we'll look at how they can help these organizations work more efficiently and have a more significant impact, using real examples to explain these ideas clearly.

We'll conclude by imagining how these new technological solutions could reach beyond the scope of historical nonprofit and philanthropic efforts to address root causes of societal disadvantage. We aim to inspire your imagination of the possible, bringing your attention to these emerging technologies as a mechanism to transform philanthropy and nonprofit work.

# INFRASTRUCTURE 101

We'll start by learning some standard blockchains and artificial intelligence terms. These topics might sound complex, but using them is more accessible. We'll get a basic understanding of these technologies to help you see how they can fit into your interests and goals.

Web3, often referred to as the third generation of the internet, is a concept that envisions a decentralized online ecosystem based on blockchain technology. Unlike the current internet (Web2), where data and content are centralized in the hands of a few major corporations, Web3 aims to give power back to the users in the form of ownership and control over their data, digital assets, and interactions.

This vision of the internet is built around fundamental principles such as decentralization, trustless and permissionless networks, and token-based economics.

- **Decentralization** means that instead of storing data in centralized servers owned by large companies, we distribute it across many nodes (computers) on a blockchain network. Enhancing security and reducing the risk of censorship or control by any single entity.

- **Trustless and permissionless** interactions allow users to interact directly with each other without needing a trusted intermediary (like a bank or social media platform), thanks to the secure and transparent nature of blockchain technology.

- **Token-based economics** involves using cryptocurrencies and digital tokens to facilitate transactions, incentivize certain behaviors, and grant ownership or access rights within the digital ecosystem.

Web3 technologies include blockchain, smart contracts (self-executing contracts with the terms of the agreement directly written into code), decentralized applications (dApps), decentralized finance (DeFi), and non-fungible tokens (NFTs).

These technologies aim to create a more open, interoperable, and secure internet, where users can interact in a peer-to-peer fashion, enjoying greater privacy and control over their online experiences. Real-time data is integrated into smart contracts via oracles, which are systems or services providing smart contracts with access to external data or events they can't access on their own.

**Artificial Intelligence (AI)** is like teaching a computer to think and make decisions like a human. Imagine you have a robot friend who can learn from experiences, solve puzzles, recognize your face, and even chat with you about your day. That's what AI aims to create. It's not just about robots; AI is used in things like smart assistants on your phone, video games, and online shopping recommendations. The key to AI is algorithms, which are sets of instructions or rules that tell the computer how to process information and make decisions.

# INFRASTRUCTURE 101 CONT.

**Large Language Models (LLMs)** are a specific type of AI designed to understand and generate human-like text. Think of them as very advanced chatbots that can write stories, answer questions, or even help you write emails. They learn from vast text data from the internet, books, articles, and more. This process is called "training." The more they learn, the better they predict what word comes next in a sentence or how to respond to a question. Key terms to know here are:

- **Natural Language Processing (NLP):** This technology behind LLMs helps computers understand, interpret, and respond to human language in a meaningful and valuable way.
- **Machine Learning (ML):** A type of AI that enables computers to learn from data and improve over time without being explicitly programmed for every task.
- **Neural Networks:** Inspired by the human brain, these algorithms work together to recognize patterns and make decisions. They are the backbone of LLMs, helping them process and generate language.
- **Training Data:** The information (in this case, text) used to teach LLMs how to understand and generate language. The quality and size of this data significantly affect how well an LLM performs.

In simple terms, AI is about creating intelligent machines. LLMs are like ultimate trivia team members who have read almost every book, article, and website imaginable.

# DECENTRALIZED AUTONOMOUS ORGANIZATIONS

Of all possible use cases for **Decentralized Autonomous Organizations (DAOs)**, social impact, public goods, and cultural nonprofits represent the greatest latent potential for collective elevation. Social impact DAOs represent a method of organizing philanthropic and nonprofit efforts where institutional character reflects and spreads visionary ideals.

So, what is a Social Impact DAO? According to a World Economic Forum whitepaper, an Impact DAO is any DAO that aims to produce a positive social impact. Their analysis provides eight distinct categories: Functional (powering a network), Governance, Task, Investment, Philanthropic, Special purpose acquisition (SPAD), Production, and Community. Our evaluation will focus on philanthropic, nonprofit direct service organizations, and community-oriented social impact DAOs. We intend to illustrate how these coordination technologies can revolutionize the philanthropic and nonprofit sectors and scale impact outcomes.

Two central themes of DAOs make them ideal for both nonprofit and philanthropic efforts. The first is stakeholdership. Participants earn the right to govern protocols and institutions via their participation within them. For nonprofits, stakeholdership translates into greater access to the resources necessary to facilitate their work and expanded agency for the community members they serve in developing the scope and context of services rendered.

For philanthropic foundations, it represents a genuinely trust-based approach to engaging nonprofit partners and prioritizing the automation of redundant tasks.

Minimizing unnecessary reporting and clerical requirements, and developing feedback loops that empower rather than diminish and distract.

DAOs are an excellent fit for foundations that are genuine about leveraging their capital to create expansive impact and include their grant partners in that decision-making process.

The second theme is decentralization. Decentralization refers to organizing operations and protocol structures outside of a rigid hierarchy. It's a process that prioritizes individual empowerment and small working groups by leveraging various coordination methods to achieve shared goals. Decentralization reshapes the concept of leadership from a top-down dictation model to a collaborative, bottom-up decision-making process. Protocols such as Unlock and Hats provide easy to use frameworks for managing access and agency with DAOs.

In the upcoming sections, we will examine the impact of these technical infrastructures on philanthropy and nonprofit work. Demonstrating through analysis and case studies how embracing these tools can lead to more effective, efficient, and inclusive outcomes. Given the overlaps between these two sectors, we'll focus on specific pain points and evaluate the potential solutions through the lenses of the funder and grantee.

This journey from theory to practice will illuminate the path forward, showcasing how the strategic integration of emerging technologies can empower organizations to meet their current challenges and reimagine their future possibilities.

# FINANCIAL SUSTAINABILITY

Securing stable, adequate funding remains a pervasive challenge for nonprofits. They often need help with financial constraints, insufficient staffing, and a lack of access to essential technology or training. These limitations significantly hinder their ability to expand programs and develop their workforce.

Foundations face the challenge of effectively allocating capital in a manner that demonstrates tangible impact. How can they make the most of their dollars while supporting experimental solutions to address the root cause of disadvantage?

Blockchain technology provides one such pathway by revolutionizing how foundations distribute grants through smart contracts. They can automate conditional grant distribution, such as extended funding for milestone achievement.

For example, a foundation could set up a smart contract that automatically disburses funds to a nonprofit once it submits a project report, completes an event, or any other trigger.

This speeds up the funding process and adds a layer of transparency and trust, as donors can see exactly where and how their funds are being used, and nonprofits are accessible from the ambiguity of knowing when the next paycheck will come.

Distributing funding via smart contracts also avoids the high costs associated with legacy banking such as transaction fees, banking charges, and administrative expenses.

Smart contracts can automate many of these processes, significantly reducing the need for intermediaries and thus lowering transaction costs.

This efficiency means more of the donated funds can be directed towards the intended cause rather than covering operational expenses. In this same thread, funding via smart contracts empowers global philanthropy, opening doors to changemakers who might otherwise be excluded from participation.

Blockchain technology enables real-time monitoring and reporting of how funds are being used, offering a dynamic view of a project's progress.

This immediacy not only benefits donors but also allows philanthropic organizations to make more informed decisions, adjust strategies on the fly, and respond more effectively to emerging challenges or opportunities.

# QUADRATIC FUNDING

**Quadratic Funding (QF)** is a popular crowd-funding mechanism that amplifies available resources by inviting community members to make donations (big or small) that act as votes on where to allocate funds. The broader the support, the bigger the match. This method uses a mathematical formula (See Figure 1) to give more weight to the number of donors rather than just how much they give, ensuring that the projects with the broadest support get the most funding.

It's designed to reflect the community's valid preferences and encourage everyone to participate, making even the smallest donation valuable. QF promotes community engagement and a sense of shared responsibility, significantly increasing the overall impact of the funds raised.

Let's imagine a scenario where a foundation has a pool of $10,000 to give away outside its standard grantmaking process. Instead of deciding who gets the money, they might let the community vote via donations on which of the three projects should receive it.

Each project initially raises $1,000 from donations, but they differ in the number of contributors: Project A has two donors, Project B has 5, and Project C has 20. As the applied mathematical formula values the number of donations more than the donation sizes, the money is distributed differently. Project A's funds increase by 74% to $740.74, Project B's funds soar by 185% to $1,851.85, and Project C's funds skyrocket by 740%, reaching $7,407.41.

$$V_i^p = \left( \left( \sum_j \sqrt{C_j^p} \right)^2 - C_i^p \right)$$

$V_i^p$ — Represents the total amount of matching funds allocated to project i from the matching pool.

$C_j^p$ — Represents the contribution from individual **j** to project **p.**

$\sum_j \sqrt{C_j^p}$ — Represents the sum of the square roots of contributions from all individuals j to project p.

The entire term $\left( \sum_j \sqrt{C_j^p} \right)^2$ is squared to calculate the total amount of matching funds before subtracting the direct contributions $C_j^p$ to get the final matching amount.

**If this formula seems complicated, it's because it is! Fortunately you don't need to understand the math to leverage it!**

**Figure 1:** The formula behind quadratic funding. Buterin, Vitalik, Zoë Hitzig, and E. Glen Weyl. "A Flexible Design for Funding Public Goods." Management Science, vol. 65, no. 11, Nov. 2019, pp. 5171–5187. Institute for Operations Research and the Management Sciences (INFORMS), doi:10.1287/mnsc.2019.3337.

QF prioritizes how many people support a project rather than how much each person gives. Foundations can set minimum donation amounts, providing pathways for equitable contests independent of community wealth.

Allo Protocol offers a novel solution for implementing QF rounds that foundations could implement immediately— offering a framework that includes a pool manager, customizable allocation strategies, and a project registry. It's part of the larger Gitcoin Grants Stack and integral in present-day efforts to leverage blockchain technology for public goods funding.

# RETROACTIVE GRANT FUNDING

Proactive grant funding is hard. Foundations struggle with wanting to fund creative solutions to community problems while having to balance outcomes and incomes. In theory, the design supports a wide range of community changemakers. In practice, funders often default to established players as the path of least resistance, creating barriers to innovative solutions to common problems.

The idea beyond Retroactive Grant Funding (RGF) is that we measure the impact of efforts and reward them accordingly. Instead of predicting what will work, investing, and hoping our predictions are correct, we allow creators to innovate and reward them after the fact.

It's a mechanism to incentivize the production of goods and services that solve problems aligned with funder goals. Similar to a grant scope, goals are communicated via public documentation and can be top-down (these specific contributions/behaviors will be rewarded) or bottom-up (community votes on the winning efforts.)

Existing efforts to support retroactive grantmaking in the Web3 space have demonstrated that tight scopes are ideal for aligning outcomes with the mission. Successful RGF rounds rely on predictability. Grantee participants must clearly understand that future rounds are coming and have funding committed to them.

Feedback from existing RGF rounds in the Web3 space demonstrates that solution builders feel a greater incentive to contribute towards a direction with the commitment to multiple rounds as opposed to a single round with an ambiguous future.

Retroactive Public Goods Funding (RPGF) is a popular initiative within the Web3 space, led by organizations such as Gitcoin and Optimism.

These institutions prioritize the development of **public goods** and software innovations that exist on-chain and operate independently of any centrally controlled entity or organization.

In most cases, the ideal evolution is that a community of users bands together and, with the support of the founding team, develops governance mechanisms to guide the future direction of the protocol.

Similar to the work of most foundations, grant rounds are analyzed leveraging the standard scientific method to discover learnings. Insights are then communicated publicly via a reflection piece highlighting successes and failures of the most recent round.

This approach to public goods funding represents the most significant opportunity for traditional philanthropic organizations to reimagine the power and potential they hold. While there is no escaping that many foundations serve Nonprofits that primarily focus on basic needs, for funders with the means, public goods represent a future of eternal impact.

The funding of public goods provides philanthropy with the means to merge our most advanced forms of work and practice with a vision of collective elevation. While many philanthropic efforts focus on retroactively addressing disadvantages, public goods provide a vehicle for transcending the systems and institutions responsible for creating them.

# FINANCIAL SUSTAINABILITY USE CASES

## Housing Shortages

AI can analyze data from completed housing projects to identify the most cost-effective and sustainable building techniques, materials, and designs. By evaluating projects retroactively, RGF can reward those initiatives that have demonstrably alleviated housing shortages with minimal resources.

AI could assess the impact of modular housing projects on reducing homelessness in a specific area, considering the speed of construction, cost, and long-term viability. Successful projects could then receive funding to replicate their efforts in other communities facing similar issues.

## Youth Development

Programs focused on youth development can be diverse, ranging from educational initiatives to mental health support. AI can help measure these programs' long-term impact on participants' educational attainment, employment outcomes, and wellbeing.

By collecting and analyzing data on participants before, during, and after their involvement in a program, AI can provide insights into which approaches are most effective, thereby guiding RGF to reward initiatives that have significantly impacted youth development.

## Food Insecurity

AI can optimize food distribution networks to ensure that food banks operate efficiently and meet the needs of their communities. By analyzing data on donations, demand, distribution logistics, and community feedback, AI can identify bottlenecks and propose solutions to improve service delivery.

Furthermore, AI can assess the impact of food security initiatives on community health outcomes, enabling RGF to reward those programs that have demonstrably reduced food insecurity in their communities.

## Governance & Participation

For RPGF initiatives like those led by Gitcoin and Optimism, AI can support the development of governance mechanisms by analyzing community preferences, behaviors, and feedback to propose governance models that reflect the community's needs and aspirations.

AI can also enhance participation in decision-making processes by providing intuitive platforms for community voting, feedback collection, and discussion, making the process more accessible and engaging for a broader segment of the community.

# IMPACT MEASUREMENT

Depending on what areas foundations are looking to reward, varied infrastructures to score impact may be developed. Blockchain empowers ample pathways of measurement that are verifiable via onchain interactions. For example, attestations are digital records that serve as evidence or confirmation of information made by an entity about anything.

Think of them like a digital signature, a stamp of approval, or verification. They allow one entity (the attester) to make a claim about another entity or some data. The claim is then cryptographically signed to ensure its authenticity and immutability.

The Ethereum Attestation Service (EAS) supports onchain and off-chain attestations, ensuring their use applicable to organizations embracing these emerging technologies and those left behind.

Onchain attestations are credibly neutral, meaning the system operates without favoring any participant, agenda, or outcome. The platform's operations are transparent, unbiased, and free from external influences. If we orient impact through measurable outcomes, attestations can play a vital role in empowering nonprofits to seek multi-foundation financing with verifiable track records.

Attestations can then be analyzed with AI across various sectors to understand program outcomes better and serve nonprofits and foundations alike in making data-driven decisions to optimize their programs. Additionally, we can train AI models to automate the verification process for attestations, reducing the need for manual checks and increasing the speed at which trust can be established.

AI could automatically compare new attestations against established criteria or benchmarks to quickly verify their authenticity and relevance, enhancing the efficiency of the impact measurement process.

Hypercerts represent another form of verifiable attestation. They are ERC-1155 semi-fungible (they can be altered) tokens with information stored on IPFS (InterPlanetary Filesystem). We can use Hypercerts to verify impact claims and capture the information about the scope of work performed, the corresponding scope of impact, time frames for both the work and its impact, sets of contributors – the organization or people behind the work, and sets of rights you get by owning a hypercert.

Hypercerts provide unique use cases for deepening relationships between foundations and grant seekers. For example, grantees might get access to a suite of resources such as software subscriptions, event access, or priority evaluation for future grant rounds.

Through the use of blockchain technologies, verification can be automated and supported via software dashboards, making the most significant initial investment training for the grantees. Like attestations, hypercerts stay with the organization beyond their relationship to any one specific funder.

This reduces power imbalances within the space and lessens the mutual burden of grant applications for grantee and grantor alike.

# IMPACT MEASUREMENT CONT.

Another potential use case to augment grantor and grantee efforts is predictive analysis. AI can use historical attestation data to predict future outcomes of similar programs or initiatives.

This capability allows foundations and nonprofits to proactively adjust their strategies, allocate resources more effectively, and achieve better outcomes over time.

For example, predictive analytics could suggest which types of after-school programs will likely improve student performance and attract attendees, guiding future funding and program design decisions.

Nonprofits and foundations can leverage AI in combination with attestations to personalize donor engagement by providing donors with tailored reports and insights about the impact of their contributions.

AI can analyze a donor's preferences and the outcomes they care most about, then match this information with relevant program attestations to generate personalized updates and stories of impact. This approach can deepen donor engagement and support sustained funding.

AI can help nonprofits manage and present their blockchain-based attestations in a way that aligns with the specific interests and criteria of different foundations.

Facilitating more efficient and successful funding applications by intelligently matching program outcomes with potential funders' goals.

Implementing these tools is supported by interactive dashboards that visualize the impact of programs and projects in real-time.

Making it easier for both nonprofits and foundations to understand the data and for donors to see the tangible effects of their contributions.

# NONPROFIT IMPACT USE CASE

## After-School Programs

Utilizing blockchain attestations for a nonprofit running an after-school program can revolutionize how they report impact and manage donor trust. Imagine a scenario where every session attended by students, volunteer hours logged, and program outcomes are recorded as attestations on the blockchain.

Each attestation is a tamper-proof record of the program's activities and achievements. This setup allows the nonprofit to provide real-time, verifiable proof of its impact on donors, stakeholders, and the community it serves.

For instance, when a student attends a tutoring session, the program's staff records the event as an attestation on software. This attestation includes details such as the date, duration of the session, and skills covered.

Over time, these attestations form a comprehensive, immutable ledger of the program's educational activities and the student's progress. It also provides a verifiable source of credentials for the program participants.

Donors can verify these claims independently, enhancing transparency and trust. This level of accountability can attract more support and funding, assuring donors that their contributions are making a tangible difference. Over time, AI can analyze the data collected to identify the most effective efforts and offer improvement suggestions to others.

Beyond recording attendance and session details, AI can analyze student progress in real-time to adapt educational content to meet their needs better. For instance, if AI identifies that a group of students is struggling with a particular concept, it can recommend adjustments to the curriculum or suggest additional tutoring in that area.

# FUNDER IMPACT USE CASE

## Building Grantee Reputation

Foundations can leverage blockchain attestations to build and verify grantees' reputations over time. By requiring grantees to record key milestones, outcomes, and financial transactions as attestations on the blockchain, foundations can create a transparent and immutable history of each grantee's performance and reliability. This approach not only simplifies the monitoring and evaluation process for foundations but also provides grantees with a portable, verifiable record of their accomplishments and integrity.

Consider a foundation focused on environmental conservation that funds various initiatives worldwide. Each funded project records its conservation activities, community engagement efforts, and project outcomes as attestations. These records provide a clear, verifiable track record of the project's impact and the effective use of funds. Over time, a grantee consistently meets its goals and transparently reports its activities, building a robust and verifiable reputation on the blockchain.

This reputation can be invaluable for securing future funding from the original foundation and other funders in the philanthropic ecosystem. The ability to quickly verify a grantee's past performance and impact through blockchain attestations streamlines the due diligence process, making it easier for projects to receive support and for foundations to invest in trustworthy initiatives.

AI can automatically score the impact of different projects based on the attestations provided. This scoring system could take into account not only the outcomes reported but also the efficiency of resource use, the sustainability of the impact, and the scalability of the project.

As attestations are adopted, funder collaboratives could leverage them to identify prospective grantees proactively. Streamlining the funding process and making it easier for funders to allocate capital to mission-aligned grantees.

# CAPACITY BUILDING

Capacity building is an ongoing challenge for nonprofits and foundations alike, and our rapidly changing technology landscape isn't making it any easier.

Artificial intelligence and large language models promise power and automation beyond anything nonprofits and funders have experienced but can be intimidating for non-technical users.

Fortunately, this resource transformation is coupled with imagination to produce easy-to-use solutions.

Grassroots nonprofit leaders feel driven to enact change, but that doesn't translate into being great accountants, marketers, and organization operators. They struggle with where to begin, often attempting to do it all at once.

Access to resources is necessary to create a potential impact within the communities they serve. Still, no amount of resources can overcome a lack of agency to enact them most effectively.

Consultant partners frequently have long-established relationships that may muddy the waters when embracing technological innovation.

Additionally, they suffer from the limitations of being human—finite operational hours and knowledge scopes that do not apply to AI solutions. Grantee partners always need answers now, and having to work around a consultant's schedule is often not enough.

Whereas the weekend capacity-building workshop was once a popular tool for grantee engagement, COVID has rendered it a shadow of what it once was.

Declining attendance and rising costs have led to many funders exploring alternative approaches. The weekend workshop also suffers from the common challenge of conferences everywhere; participants leave energized and full of ideas, but the enthusiasm fades every day after the event. Solutions are less likely to be implemented.

We've witnessed a recent trend of technology solutions designed to support the development and growth of grantees promoted under the "tech for good" label, which can be misleading unless "good" refers to enhancing company profits.

Our direct experience with thought-partnering around these solutions leads us to conclude that nonprofits do not embrace them with the same enthusiasm as the sponsoring foundations. They are not enough.

Solutions leveraging volunteers to serve grant partner needs create increased points of failure within their protocols, which can lead to poor experiences for volunteers and nonprofits.

Direct capacity-building services like on-demand coaching are unsustainable as demand perpetually exceeds projections, which reduces the quality of services received and creates ballooning operational costs.

# CAPACITY BUILDING CONT.

Platform solutions that try to offer multiple functions often duplicate existing tools, leading to low adoption rates. Non-technical users find them hard to utilize due to steep learning curves, and switching from current systems involves significant effort and cost.

During our research for this paper, we explored a variety of ChatGPT plugins for nonprofits and other AI resources but felt underwhelmed by the available options. Instead of sharing our disappointment with you, we set out to create an alternative.

Over the past three months, we built Nonprofit Navigator, the world's most advanced AI for strengthening nonprofit capacity.

Nonprofit Navigator is the culmination of hundreds of hours of research the authors collected through the past decade of their work within the nonprofit and social impact space. It is an intuitive software that trains new users, supports general and detailed questions, proactively prompts for deeper engagement, and progressively learns based on user interactions and partner resource additions.

Available 24/7, Nonprofit Navigator provides on-demand actionable feedback via web or mobile devices to meet nonprofits where they are.

This AI model subscription for a nonprofit organization costs $24.99 monthly, 90% less than comparable capacity-building solutions. We share this to provide context for the type of operational revolution AI solutions provide to us, the most advanced solution on the planet available, with an order of magnitude more significant savings than all other solutions.

Nonprofit Navigator highlights a trend we encourage you to expect from AI-based solutions, which is significantly greater returns at a fraction of the cost.

Given the authors' personal histories in the social impact sector, we understand that building a better solution isn't enough. It is vital that we develop these innovations in alignment with our shared values of collective elevation. To that end, we rejected traditional business models that bind systemic change to maximizing profits.

We've organized Nonprofit Navigator as a co-op, part of the Tributary ecosystem. All team members have perpetual equity stakes in our success, and we award grants to random nonprofit users enrolled in our program every month.

Funders can easily sponsor nonprofits into the program via unique grant codes, and we also have a program for consultants to incorporate all sector voices.

We hope this framework shows how "tech-for-good" might take shape. It's not enough to throw the label on extractive venture-backed institutions; we must embed our values into our creations.

Nonprofit Navigator is one example of how AI is revolutionizing the philanthropic and nonprofit space for the better.

WE RECOMMEND

nonprofit navigator

# VISIBILITY & COMMUNITY ENGAGEMENT

Both funders and nonprofits need help achieving visibility and engaging effectively with their communities and stakeholders. The challenge lies in reaching a broader audience and cultivating meaningful, lasting relationships that can drive support and impact.

Leveraging Web3 and AI technologies could provide innovative solutions to these issues while only requiring a fraction of traditional time investments.

One of the most effective ways to create champions of an organization or effort is to empower them to share and recognize them for their contributions. Blockchains can be utilized to develop tokenized memberships for volunteers and service users, providing a novel way to acknowledge and reward engagement and support.

For example, a nonprofit could issue digital tokens to volunteers based on the hours they contribute. These tokens could then be redeemed for various benefits, such as exclusive event access, voting rights on community projects, or merchandise.

This system not only incentivizes participation but also creates a tangible record of individual contributions to the community. Our bonus case study about SpiritDAO covers a nonprofit organization structure doing precisely this.

This same idea can be applied to the relationships between funders and grantees, where contribution to shared efforts accumulates tokens that provide governance rights. Today, there is much talk of "Trust-based philanthropy" but little real effort to reimagine the systemic infrastructure that furthers disadvantageous power dynamics.

We integrate successful grantees as stakeholders in collective elevation by including grant partners in the governance process. Imagine a world where a grantee applying to a new funder for a grant could provide variable credentials surrounding their past efforts and stewardship around shared visions of the good.

Building on the theme of engaging the community through tokenized membership and relevant incentives, we can turn our attention to events. AI can assist in planning community events and analyzing data from past events to suggest optimal dates, locations, and themes that are most likely to attract attendance.

Furthermore, blockchain can be used to tokenize event tickets, providing a secure and transparent method for registration and attendance tracking. This approach could facilitate unique engagement opportunities, allowing attendees to vote on event aspects (speakers, topics, location, and more) using tokens.

Tokenized membership and associated perks overlap significantly with impact measurement and evaluation from the funder's perspective. By orienting grantees as partners and providing the necessary infrastructure to facilitate this, we begin to open philanthropy to scale visibility and community engagement not presently possible.

Nonprofits and foundations can leverage AI to automate their outreach and social media campaigns to solve the storytelling problem. Funders can leverage existing tools to highlight the work of their grantees, share success stories, and engage with a broader audience—nonprofits to draft compelling narratives about their efforts and develop calls to action to drive further supporters.

# VISIBILITY AND COMMUNITY ENGAGEMENT USE CASES

## Nonprofits: Food Bank Volunteers

A local food bank could implement a tokenized volunteer program where volunteers earn digital tokens for their service hours. These tokens could be redeemed for benefits like early access to events or voting rights on food bank projects.

AI could manage outreach, informing volunteers of opportunities and recognizing their contributions on social media. Partnership with local municipal leaders could enhance the food bank's capacity to identify and provide contributors with renown for their involvement and effort. In doing so, they create champions who elevate their work and attract new volunteers.

## Foundations: Learning Ecosystems

A foundation (or group of foundations) could develop an on-chain learning ecosystem where grantees document their projects, outcomes, and lessons learned. AI tools could analyze this data to identify successful strategies and common challenges, facilitating a dynamic knowledge-sharing platform. This system could also automate feedback collection from grantees, using blockchain to ensure the integrity of the data collected.

Combined with the suggestions detailed in the *Impact Measurement* section, these training courses could serve as a cross-foundation reference to elevate and engage grant partners.

# HYPERSTRUCTURES

Thanks to blockchain technology, hyperstructures are a new kind of software that can work forever. They don't need any upkeep, they won't stop running, and they don't need anyone in the middle to keep things going.

Protocol independence is a big deal because it means these programs can keep doing their job as long as the blockchain they're on is up and running.

Hyperstructures empower the foundations to move beyond retroactive redistribution toward creating eternal impact.

What makes hyperstructures so powerful is that they are unstoppable and free. They run by themselves and treat everyone equally, meaning no one gets a particular advantage.

You can add or use them without needing permission from the person who first made them. Empowering the protocols to work worldwide while still meeting local needs. Unlike the usual pay-to-use software, everyone benefits from hyperstructures - the people who use them, the ones who keep them running, and the protocol itself.

Hyperstructures are about creating a lasting effect, much like the goals of many nonprofits. Unlike many software options today, they're built on trust and don't force or take away from others.

Governance models often develop over time, so people using the protocols have a say in how they're run, from small decisions like fees to bigger ones like the program's direction. Ensuring that the benefits and surpluses generated from hyperstructures strengthen their user community.

By moving away from old ways of thinking about strengthening changemakers through giving, hyperstructures allow for new kinds of help that can last into the future.

They make it possible to build on what others have started, ensuring that efforts today can lead to fairness and inclusion for a long time. They shift away from the usual control by a few big companies to something more open and accessible and represent significant action towards realizing a trust-based philanthropic approach.

Hyperstructures take time to ideate, iterate, and implement, so funders should exercise restraint in their short-term reporting and impact requirements. Additionally, they require a significantly greater level of collaboration amongst funders than is presently exercised.

Success with hyperstructures comes from joint funding efforts, spreading the word, teaching people about them, and agreeing on common goals. Providing a means of unleashing the latent transformative power philanthropy possesses.

# UNIVERSAL GRANTS PROTOCOL

The idea of a universal grant application has been discussed widely but has been difficult to make a reality. We'll explore how a grant hyperstructure could take shape and the widespread impact it could provide to funders and grantees alike.

At the center of this system is a commitment to transparency and equity. Since everything is recorded on the blockchain, there's a constantly growing source of information that gets better as more people use it.

You don't need to spend a lot of time on reports because you can quickly find and pull out the information you need thanks to the secure way it's stored. This setup is something everyone can use without having to ask permission, making it a public good.

For grant seekers, we might start by developing standardized, or universal, application formats. Small, mid, and large capital requests could require different base information. Search functionality empowers prospective grantees to identify live grants in relation to their focus areas, geographic regions, and grant sizes. Artificial intelligence can be integrated to assist with customization in relation to the specific grants.

One big hurdle to realizing a grants hyperstructure is that different foundations trust organizations to different extents.

We could start by agreeing on some basic elements every application should include, like information about the organization, what they plan to do, their budget, who will benefit, and their timeline. We don't need everyone to agree at first; the early supporters will shape the start, and it can grow from there as more groups join in.

The protocol could also support funders adding their own requirements to the standard application. This would help applicants automate as much of their application as possible, while still letting funders set their own grant requirements.

Since this protocol runs on blockchain, both nonprofits and funders can see how projects are doing in real time. This means they can offer help right when it's needed.

Automating more of the process and keeping better records can also reduce costs, so more money goes to the causes that need it.

We can break the project down into two distinct verticals, the front end user experience for funders and grantees and the back end record keeping and accessibility that exists onchain.

See Figure 2 for a visual map of what a Universal Grants Protocol hyperstructure may look like.

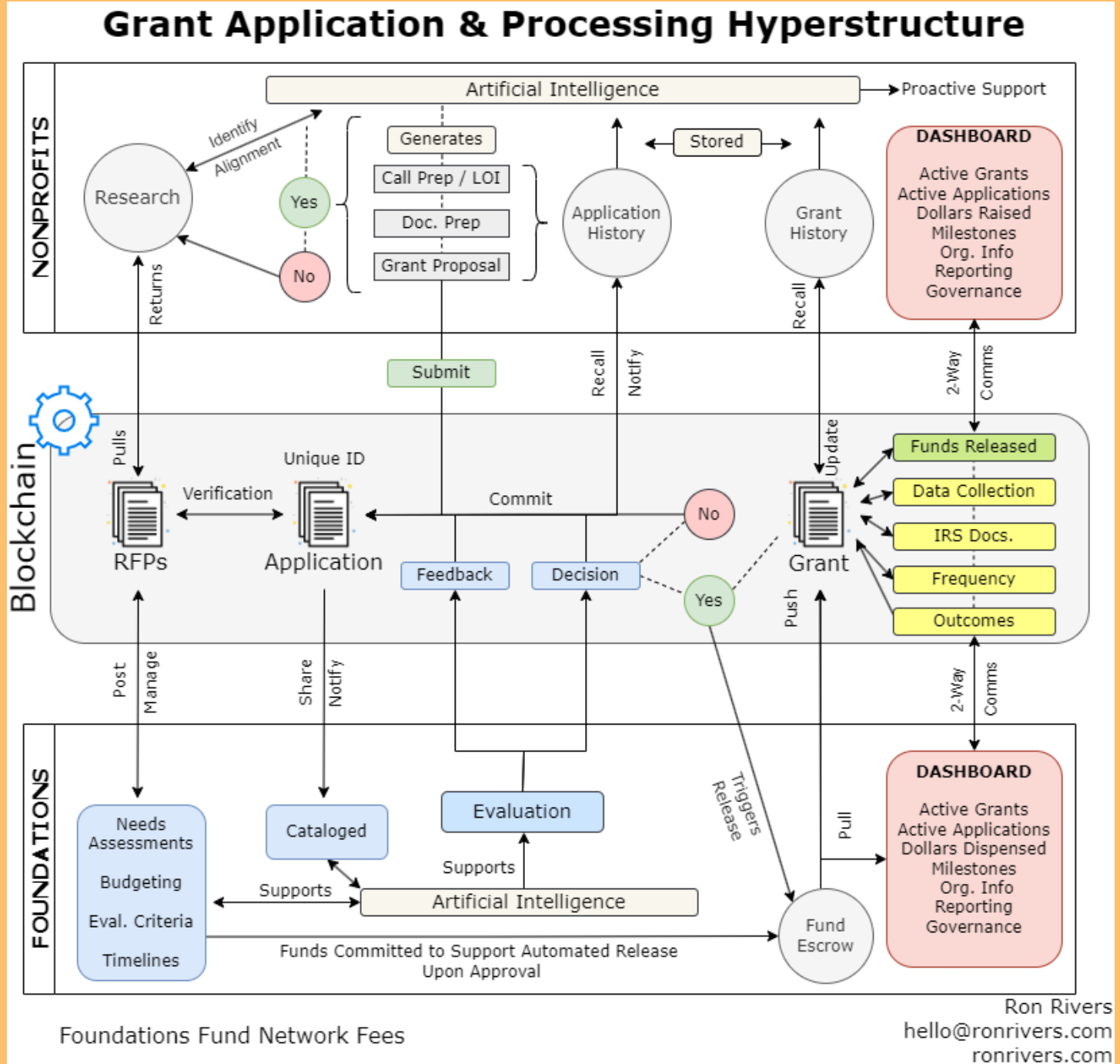# UNIVERSAL GRANTS PROTOCOL HYPERSTRUCTURE



**Figure 2: Illustrates a possible blueprint for a Universal Grants Hyperstructure.**

# UNIVERSAL GRANTS PROTOCOL CONT.

There's a central protocol in the middle of the system, like the main engine. Nonprofits and foundations both use this engine to do their work. Here's what happens:

- Foundations announce what they want via an RFP (Request for Proposals). When they post the RFP through their dashboard, it is recorded onto the blockchain, which is like a public bulletin board that can't be erased or changed.

- Nonprofits use integrated artificial intelligence to identify relevant grant opportunities and assist in completing applications.

- When nonprofits submit a grant application, it is assigned a unique ID and saved onto the blockchain. This way, it's stored securely and can be found again later.

- Funders receive automatic notifications when new grant applications are processed. Artificial intelligence can help categorize applications about grant scopes before staff review to save time.

The foundations review the applications and give feedback. This feedback is also saved onto the blockchain, linked to the application, so everyone can reflect on it.
   a. If a "No" decision is made it is committed to the application and marked as closed.
   b. If a "Yes" decision is made a grant is created, posted to the blockchain, and attached to the unique application ID. Funds are released to grantee.

Both funders and grantees can use the software to recall past applications, input/export key performance indicators, generate documentation for IRS reporting, and more.

The benefits of moving towards a grants hyperstructure are plentiful. This example illustrates a trustworthy digital record that keeps all the details about grant applications, who received the money, and what they did with it. It acts as a library for nonprofits and funders alike, providing real time information and enhancing the access and agency of all participants. It empowers foundations to better assess prospective grant partners and serves nonprofits by reducing friction in the application process and speeding up the allocation of capital.

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All past grant applications are stored onchain and may be referenced anytime by all parties. Integrating specified LLMs can support nonprofits in creating compelling grant applications that align with funder ideals.

The Grants Hyperstructure empowers foundations to reduce the time necessary to evaluate prospective grant partners. Through the front end, onchain data provides intimate insights into nonprofit efforts, challenges, and successes.

KPIs and reporting are bound to grants committed to the smart contract, automating the milestones necessary to support reoccurring and multi-year grant making and providing a verifiable history of grantee efforts.

Funds can be locked into the smart contract via escrow and automatically distributed when reporting requirements are submitted or verified.

he depth of transparency provided by the grants hyperstructure allows greater coordination between both nonprofits and foundations.

Nonprofits benefit through the potential of leveraging their shared efforts to win larger and more consistent grant funding pools, as well as the opportunity to increase collaborative applications for grants meeting overlapping needs.

Funders are also able to instantaneously share information about nonprofit applications and needs of other funders of their network. Leaning further into transforming philanthropy into a collaboration network as opposed to independent silos competing for attention.

Funders and non-profits mutually benefit from stakeholdership in the protocol through their use of it. We recognize from the onset that the ideals surrounding impact measurement are a moving target, and develop our protocol accordingly. While the onchain data is committed to history with each interaction, the information inputs required are able to evolve over time.

While this specific example serves to illustrate how hyperstructures might improve sector operations, we're only scratching the surface of how we might scale impact. We can apply this same philosophy and methodology to a variety of other verticals. Anything that we may consider a public good necessary for collective elevation can benefit from global hyperstructures.

At its heart, hyperstructures represent a new era of possibility for philanthropy. One that realizes many of the visions and goals that remain out of reach within present operational infrastructure.

There is no industry better equipped to build these expansive public goods than philanthropy, but it requires an expansion of our imagination of the possible.

# CLOSING THOUGHTS

If you're a non-technical reader, the ideas presented within this whitepaper may seem intimidating or out of reach. We want to assure you that they are not.

While there may be a slight learning curve, the time investment is well worth it, given the potential for transformation they support. Our recommendation is to start small.

Many contributors within these emerging technology spaces (including the authors) are happy to connect and explore collaboration possibilities.

Foundations can leverage internal committees to evaluate the resources provided here to imagine how they might restructure their organization—weighing the benefits of increased stakeholdership from grant partners against their fiscal responsibilities to provide more significant insights into where to begin.

LLMs can be trained on internal processes and documentation to provide better real-time support for prospective and existing grant partners.

Remember that implementing these solutions is not a wholesale substitution of your operational infrastructure but rather an a-la-carte means of transforming your process to better reflect your mission and values.

Nonprofits can begin quickly by exploring token-gated event ticketing, membership programs, or attestations to recognize engaged community members. LLMs can be implemented to support volunteer acquisition, expand operational capacity for team members, develop new programs, and seek grants.

Funders should consider banding together to explore and experiment with building public goods hyperstructures.

These efforts are well underway within the web3 ecosystem. Still, they could benefit significantly from the established knowledge and networks within philanthropic institutions.

If we can close and strengthen coordination between optimistic innovators, the possibilities for transformation are endless.

Alternatively, suppose we refrain from actively embracing these emerging technologies. In that case, we may be left behind in a world whose only constant is exponential change.

In closing, we hope that this document inspires imagination of the possible. These emerging technologies provide an opportunity to reshape philanthropy to live closer to its values and better connect those nearest to pain to sources of power—a chance to enhance existing efforts and reshape them entirely.

Philanthropy can be so much more, but it will require courage from those in positions of power.

## Bonus Case Study: SpiritDAO

SpiritDAO (501c3) is the first fully onchain spiritual community. They've pioneered an infrastructure blueprint many nonprofits can leverage today.

Click here to download the full SpiritDAO Case Study.

# GLOSSARY

- **Attestations** - digital records that serve as evidence or confirmation of information made by an entity about anything.

- **Blockchain** - A distributed and decentralized ledger system where transactions are recorded in linked and secured blocks using cryptographic hashes. It's the highly customizable but mathematically verifiable transaction information we build on top of.

- **Crypto** - Short for "cryptocurrency," which refers to digital or virtual currencies that use cryptography for security, operating independently of a central authority. A token that can be used to identify, govern, exchange, and grant agency.

- **DAO (Decentralized Autonomous Organization)** - An organization represented by smart contracts on the blockchain, where members make decisions according to a set of pre-established rules without central leadership. Today DAO's take on many forms, and many work towards decentralization.

- **dApp (Decentralized Application)** - Applications that run on a P2P network, often on a blockchain, rather than a single computer or server. Empower eternal public goods.

- **Decentralized** - A system where components operate on a peer-to-peer basis without a central authority or single point of control.

- **Gas** - Refers to the fee required to conduct a transaction or execute a contract on the Ethereum blockchain. It compensates for the computational energy required.

- **Hypercerts** - Verifiable attestations (ERC-1155) tokens with information stored on IPFS (InterPlanetary Filesystem). Hypercerts are used to verify impact claims and capture the information about the scope of work performed, corresponding scope of impact, time frames for both the work and its impact, sets of contributors – the organization or people behind the work, and sets of rights you get by owning a hypercert.

# GLOSSARY

- **Layers (Blockchain)**: Layer 1 (L1) blockchains are the foundational networks that support the entire system. They are the original underlying protocols where all transactions are recorded and secured directly on the blockchain. Ethereum is a prime example of an L1 blockchain, where every transaction is processed and confirmed on the Ethereum blockchain itself, providing security and decentralization. Layer 2 (L2) blockchains, on the other hand, are built on top of these Layer 1 blockchains. They are designed to enhance scalability and speed by handling transactions off the main chain. L2 solutions process transactions on a separate layer and then record them on the main blockchain. Optimism is an example of an L2 solution built on top of Ethereum. It allows for faster and cheaper transactions by rolling multiple off-chain transactions into a single batch before finalizing them on the Ethereum L1 blockchain.

- **Liquidity Pool** - A pool of tokens locked in a smart contract, used to facilitate trading by providing liquidity in decentralized exchanges. Common for many crypto tokens, but not likely not ideal for a nonprofit or philanthropic effort.

- **NFT (Non-Fungible Token)** - Unique digital tokens that represent ownership of a specific item or piece of content on the blockchain. Unlike cryptocurrencies such as Bitcoin or Ethereum, which are fungible and can be exchanged on a one-for-one basis, NFTs are distinct and not interchangeable on a 1:1 basis.

- **Onchain** - Refers to a protocol whose operations exist on a blockchain.

- **Oracles** - Services that provide external data to smart contracts. They act as a bridge between blockchains and the outside world.

- **Protocol** - In blockchain and crypto, a protocol refers to a system of rules defining how data is transmitted and received. Protocols determine how different blockchain nodes communicate and synchronize data. Popular blockchain protocols include Bitcoin, Ethereum, and Binance Smart Chain.

- **Sharding** - A scalability solution for blockchains, where the main blockchain is divided into smaller chains (shards) to process transactions faster and more efficiently.

- **Smart Contract** - Self-executing contracts with the terms of the agreement written directly into code. They automatically enforce and execute when specific conditions are met.

# GLOSSARY

- **Soul-bound** - A slang adopted from video games (World of Warcraft) that refers to a non-transferrable token.

- **Staking** - Participating in a proof-of-stake (PoS) system to support operations like validating transactions. Participants are often rewarded for locking up their tokens.

- **Wallet** - A tool that allows users to store, manage, and transact with their digital assets. It contains a pair of private and public cryptographic keys.

- **Web3** - The decentralized web era, where applications run on peer-to-peer networks, often built using blockchain technology. It represents the next phase in the evolution of the internet.

## Tokens

- **ERC20** - The standard interface for fungible tokens. This is the most widely used standard for issuing tokens on the Ethereum platform. They are used for everything from simple transfers of value to more complex financial instruments.

- **ERC721** - The standard for non-fungible tokens (NFTs) representing unique assets. Each token has a distinct value and is not interchangeable on a 1:1 basis with other tokens.

- **ERC884** - A proposed standard for creating a Delaware General Corporation share on the Ethereum blockchain. It's specifically tailored to the legal requirements of representing Delaware shares on-chain.

- **ERC998** - A standard for composing non-fungible tokens (NFTs) to own other NFTs or fungible tokens. This allows for the creation of a hierarchy of tokens.

- **ERC1155** - A multi-token standard that allows a smart contract to manage multiple token types, both fungible and non-fungible. It's designed for efficiency and flexibility.

- **ERC1400** - A standard for security tokens, which represent real-world assets and comply with regulatory requirements.

- **ERC1484** - Focuses on digital identity, providing a framework for on-chain and off-chain identity management.