



SCIENCEROOT

WHITEPAPER



"Scienceroot"

Whitepaper

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Vlad Günther
Alexandru Chirita

Abstract

Technology evolves faster than ever, with the pace picking up with every passing year. Unprecedented in history, we have the greatest and brightest minds driving unparalleled change. Progress isn't a trend that naturally happens on its own - it requires an ever growing number of researchers and experts. The scientific community of today doesn't get what it deserves, constantly struggling with obtaining funding and working endless hours with little to no reimbursement. It is our stated mission objective to empower those who empower us all by establishing Scienceroot, the first blockchain-based scientific ecosystem to integrate a social media scientific network, a funding platform and a decentralized publishing framework for journals.





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9 Vision and Roadmap

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1 Introduction

Scienceroot aims to improve the scientific and research community using blockchain technology. The goal is to create an ecosystem where anyone in the scientific community around the globe will have the ability to gather funding, interact, discuss research ideas, collaborate and in the end, publish their work through a more efficient, open and transparent platform. Our scientific ecosystem will be powered by its own unique currency called **Science Token (ST)**, which will be used to exchange funds, store articles on the blockchain, crowdfund scientific ideas, exchange services through our scientific marketplace and reward parties involved. Scienceroot will integrate all the critical functionalities needed by researchers, scientists and academics, making their day to day lives easier and allowing them to focus on maximizing their impact in the scientific world.

1.1 Motivation

Researchers have to publish their work in scientific journals in order to widely disseminate their results and gain recognition in the scientific world. In order to be able to come up with ground breaking research there is need for a collaboration platform to connect with peers, with whom they can discuss ideas and find solutions. Funding and a standardized job platform are greatly needed by scientists, researchers and academics. They need a place to allow them to have an overview of funding options, a chance to apply for grants, and a way of accessing new opportunities in their field. The reason why we decided to combine **Collaboration, Funding and Publishing** is because they are the 3 **key pillars** of the scientific/research lifecycle. Each researcher, scientist and academic has to go through them in order to publish, advance and disseminate their results.

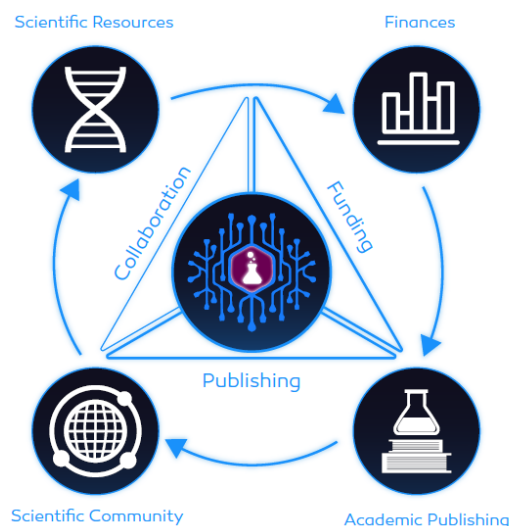


Figure 1: Scientific lifecycle

Currently many of these pillars are spread out on different platforms. By combining them, we are creating the platform which will change the scientific community for the better. To take it to the next level we add blockchain to create the world's most efficient, intuitive and transparent scientific ecosystem.



2 Scienceroot Platforms

2.1 Scienceroot Collaboration

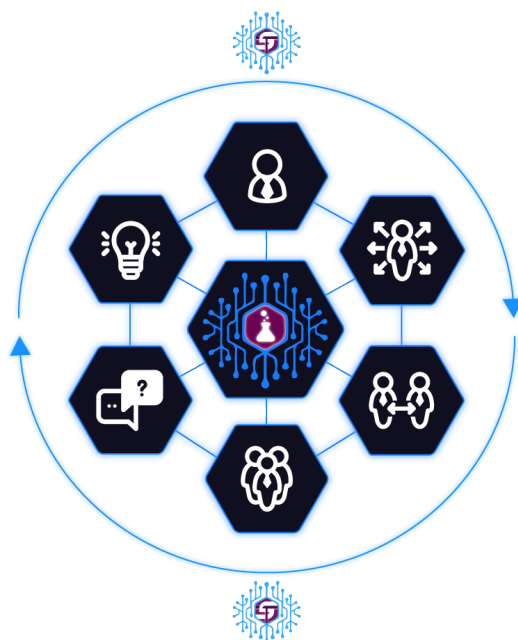


Figure 2: Collaboration platform

The first part of the ecosystem will be the blockchain-based collaboration platform where scientists, researchers and academics will have the opportunity to connect and collaborate with colleagues, peers, co-authors and specialists in their field. Furthermore, it will offer the possibility to ask questions, get answers and find solutions to research problems. By integrating the blockchain and the IPFS (Interplanetary File System) ¹ as the underlying technology we are creating a decentralized open access collaboration platform with a unique currency to be used by users worldwide. For example, users will have the possibility to post a research problem or tip a helping colleague; by enforcing them with smart contracts we can guarantee that everyone keeps up at their end. In addition, the Scienceroot Marketplace (subsection 7.3) and Scienceroot Repositories concepts (subsection 7.4) will add value to the collaboration platform, and make it more user-friendly. While the former takes the shape of a decentralized marketplace, where scientists and practitioners may market their services and knowledge for the benefit of both scientist and community, the latter will assure an ever growing database of scientific information, guaranteeing unfalsifiability and a clear, time-stamped documentation, based on blockchain's immutability.

¹IPFS - Interplanetary File System, a peer-to-peer hypermedia protocol to make the web faster, safer, and more open. More info <https://ipfs.io/>

2.2 Scienceroot Funding and Jobs

The second part will be the blockchain-based funding and job platform. Our target is to create a centralized portal that offers a wide list of grants from all around the world. The portal will be open to all registered users searching for national or international funding opportunities and organizations looking to recruit or market their grants to a national and international audience. This will enable scientists, researchers, and academics to more efficiently find a suitable funding option thus allowing them to focus on the scientific application itself rather than on funding details. The offered funds will be in fiat currency² and our currency **Science Token**, while the decision on awarding them will remain with the offering organization.

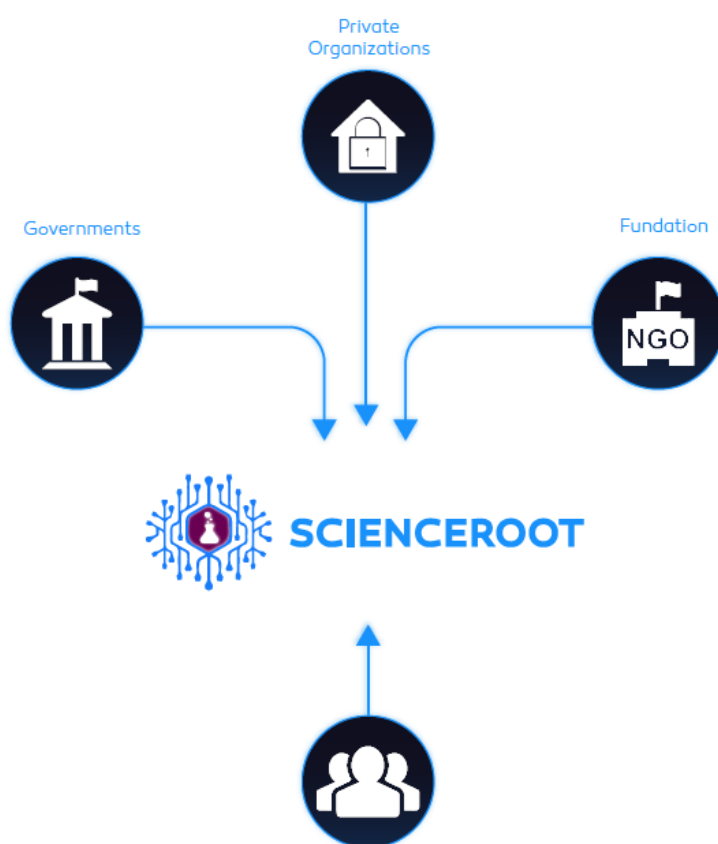


Figure 3: Funding opportunities

²Fiat money is currency that a government has declared to be legal tender, but it is not backed by a physical commodity.

2.3 Scienceroot publishing framework and journal



Figure 4: Scienceroot decentralized publishing framework

While nowadays access to scientific information is being restricted due to the policy of the publishers, be it the price for accessing an article, or the rejection of papers obtaining null hypotheses, we are aiming to create a decentralized publishing framework, where scientific information may be freely shared among all beneficiaries. We believe that the liberalization of science through a decentralized publishing framework approach will boost the advancement in science in an unprecedented way. Managing to overcome the current paradigm will not only allow people to access scientific articles, allowing them to take more informed decisions based on scientific discoveries, but it will also enable scientists to have a more comprehensive overview on studies related to their work (i.e. published replication studies; published papers where the null hypothesis is not rejected). In our opinion, the first step in generating such a paradigm shift, will be through the creation of a decentralized scientific journal, where scientists may publish their results in an open access manner. We will welcome new companies which want to adopt blockchain into their platforms and will have the possibility to do this within the ecosystem. Already existing journals will have the possibility to integrate our decentralized publishing framework into their existing business models.

This brings us to the third and final part of the ecosystem - the Scienceroot



Journal. This will be a blockchain-based journal with different branches of the same journal such as Scienceroot Medicine, Scienceroot Biology etc. One of the core features of the journal will be the publishing process. By leveraging blockchain and smart contracts we can guarantee submitters immutability, security, transparency, and trust. The second and most important feature will be our unique rewarding process ([subsubsection 7.6.3](#)) which brings profit to anyone who decides to publish in our Journal. Scientists will obtain profits from their published work and peer-reviewers will receive compensation for their contributions. This will be achieved using blockchain technology to ensure an automated and unbiased process.



3 Why Blockchain?

3.1 Unique Currency

Blockchain offers the possibility to create our own unique currency which can be exchanged regardless of the user's location. Based on this, the global scientific and non-scientific community will have the option to get involved in promoting science by investing their money in a cause in which they believe in, without the fear of third-parties taking huge percentages of the generated contribution. This can be achieved using the immutable ledger and smart contracts. This feature will later allow us to create transparent grants which can be easily monitored. Scientists, researchers and academics collaborating worldwide will have a common Scienceroot currency that has the same value and functionality in every corner of the world.

3.2 Smart Contracts

Smart contracts serve as the foundation of our groundbreaking journal, which rewards all the contributors involved. Without smart contracts we would not be able to create a self governing system and pay high returns to our contributors. We can only achieve this by removing the intermediaries. Smart contracts will also allow us to protect the intellectual property of our publishers by automating the sale of the works online and eliminating the risk of file copying and redistribution. They will be the building block of our self-governing marketplace for scientific collaboration in which researchers, scientists, and academics can offer their assistance in exchange for **ST**'s.

3.3 Storage and Content

By combining the scientific data with blockchain we can create a decentralized archive for the entire scientific, technical, and medical content to which anyone at anytime can have access. By distributing data throughout the network we are protecting files from getting hacked or lost, which will allow us to create a lasting database for generations to come.

3.4 Identity

By integrating ORCID with our blockchain platform we can ensure an immutable persistent digital identifier that can be integrated within research workflows like grant submission, research walk-through, manuscript submission and much more.



4 State of the Art

4.1 Publishing

Regardless of the small audience, scientific publishing is a remarkably large industry. The total size of the global scientific, technical and medical (STM) market was estimated by Outsell at 25.2 billion USD in 2013 and is predicted to grow at about 4% annually as seen in Figure 5.



Figure 5: Scientific publishing market cap analysis according to STM.^{1,2}

In order to create profit, a normal publisher has to cover several costs like: paying writers for the articles, editing, proof editing, design, shape, and distribution. After all this is successfully completed, a good publisher makes a profit of around 15%. The same goes for publishing a scientific article, except that the publisher avoids most of the costs. Researchers write articles about their own work - mostly funded by governments and research institutions - then send them to the publishers for free. The publishers hire scientific editors, who verify whether the manuscript is or not within the scope of the journal. Then, the greatest burden falls on the shoulders of other researchers who have to evaluate the validity and legitimacy of the work in a process called peer-review, again for free on a volunteer basis. After that, the publishers sell rights to their journals, so that fellow scientists can access the articles. There were about 28,100 active scholarly peer-reviewed English-language journals in 2014 and most of them do not compensate their contributors and reviewers.

We decided to challenge this approach. Peer-review and collaboration are fundamental to scholarly communication. According to the STM report a typical reviewer spends 5 hours per research paper and reviews about 8 articles per year. These numbers are so small because contributors are not rewarded for their time. By offering well deserved rewards to our contributors we aim to drive the scholarly community to new heights.

Despite the transformation of journals over the years, researchers' core motivation



for publishing remains unchanged: it is a focus on securing funding and furthering the author's career.

In the current system, the incentive to contribute to science journals is based on the necessity for researchers to publish their work in order to be acknowledged. Our goal is to create an ecosystem, using blockchain technology, that more appropriately benefits all the parties involved in the research process, and perhaps in the future to be the connection point for the global science community.

4.2 Funding

Research funding covers any financing for scientific research, in both areas of science and social science. This is obtained through a competitive process in which potential research projects are evaluated and only the most promising receive funding. This process is normally run by the government, corporations and foundations with the first two are the major contributors. To put things in perspective here is a sample list (Table 1) of how much is being spent on research and development (R&D) in the recent years.

Rank	Country/Region	Expenditures on R&D (billions of US\$)	Year
1	United States of America	473.4	2013
2	China	409	2015
3	European Union	388.3	2014
4	Japan	179.8	2014
5	Germany	109.4	2014
6	South Korea	91.6	2014
7	India	66.5	2015
8	France	60.0	2013
9	United Kingdom	44.8	2013
10	Russia	42.6	2013
11	Canada	25.7	2013

Table 1: Top list of countries/regions by research and development spending³

Granting agencies inquire about the researcher's background, facilities used, the equipment needed, time involved and the purpose of the scientific outcome. This process is time consuming due to the widespread variety of funding opportunities which are available to researchers. In order to be able to apply for funding, a scientist has to find a grant which best suits his needs. One can easily lose sight through all that is offered when searching for funding. A quick search will reveal a lot of grant-related scams, confusing ads, and a lot of subscription-based directories. The need for a go-to transparent and centralized platform which connects applicants with funding organizations is now bigger than ever.



5 Benefits of using Scienceroot

Problem	Solution
Researchers don't receive any money from their published work	Users will be able to reward them
Negative results are not published	Regardless of the outcome, scientific results may be published and stored
Concerns about the reproducibility of published results	Traceable "Blockchainified" repositories
Long waiting times until articles get reviewed and not enough reviewers	Process will be sped up since reviewers will get paid
Divided platforms for different purposes	One ecosystem containing all the platforms a scientist needs
Dispersed funding organizations	Centralized platform containing all necessary informations

The target of current journals is to publish only successful and interesting papers that drive scientific discoveries forward. This leads to the scenario where wrong hypotheses and negative results are not being published even though failure is part of scientific research. Keeping away valuable information from other researchers, leads to work duplication and waste of resources and time. In many cases, the results published can not be reproduced and concern over the reliability of the scientific reports has been growing for some time.

We propose a new way of scientific conduct. Results should be made available if the method pursued is a novelty, regardless of the outcome. Every author should

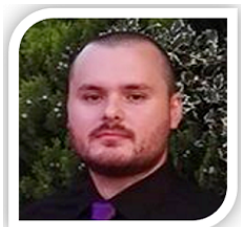


carefully document their progress so it can be traced and reproduced by other peers. However, the decision to make it publicly available should stay with the author until the time of publication. Researchers could be able to “blockchainify” their data and timestamp their progress. This way they would create a transparent repository of their work, which can be shared with other peers and made public in the event of publishing a scientific report. The functionalities will be similar to those of Github but for scientific discoveries. You can contribute, comment and fork a repository. The scientific repository will complement the material submitted to a journal. Fellow peers will be able to track, reproduce and confirm the experiments if need be. Having the data timestamped on an immutable ledger will also rule out the possibility of information theft.

We will encourage scientists to publish negative results so other involved parties can pick off where they left off or maybe just start over from a different angle. It will improve the collaboration between researchers, remove the waste of resources and time, and create a transparent and efficient scientific community.

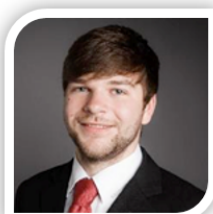


6 Team



Vlad Günther is a Consultant, Engineer and Project Manager with 6 years of experience in Enterprise IT, Finance and Management. He has worked for major companies like Microsoft and Bosch and is experienced in Cloud platforms, VoIP systems, enterprise architecture and Data Security. He is passionate about blockchain and cryptocurrencies, and inspired by decentralization.

Alexandru Chirita is a physicist currently finishing his Master studies at the University of Vienna, where he will soon be starting as a Ph.D student, doing molecular dynamics simulations. Having to work with researchers and being inspired by them, he came up with the concept of Scienceroot to help change the current status of the scholarly communication and publishing ways.



Frederik Huschebeck is an experienced Backend Developer with extensive knowledge of Blockchain configuration, Mining and Smart Contract Development. He studied Computer Science at the University of Dresden, Germany. His main Programming languages are C#,Java, Python and C++.

Michael Schönbeck studied International Affairs at the Rhine-Waal University of Applied Sciences in Kleve, Germany. Over the years he gathered a lot of inter-cultural experience abroad in Jordan, China, Russia and Romania. He is also knowledgeable in SQL Server and Azure technologies from working at Microsoft. His first contact with cryptocurrencies was in 2013 when he first found out about Bitcoin, intrigued by the potential he began researching blockchain. He has a strong belief that blockchain can solve real world problems.



Sven Seemann is a frontend and backend developer with experience in developing healthcare software. His main programming languages are Java, CSS, HTML and Javascript. After his first contact in 2017 with blockchain, he realized the potential it has to improve the scientific community.



Luca Tisu is experienced in Organizational Development and Human Resources. Having a degree in Psychology he decided to pursue Organizational and Occupational Health Psychology to provide companies with assistance in growth and value creation. Being a Human Resources Scientist-Practitioner, he is driven by the change needed in the scientific community, experiencing first-hand the downsides of the status quo.



Marius Chirita is currently doing research on blockchain and cryptoeconomics. He holds a Bachelor's and Master's degree in physics from the University of Vienna. Outside of school, he has worked as a junior researcher at the Stefan Meyer Institute for subatomic physics. While being involved in international collaborations (ALICE at CERN, PANDA at FAIR) in the field of experimental particle physics, he focused both on the technical development of the radiation detectors and the simulation of their performance. His strengths include an analytical and structured way of working, as well as high problem solving competences.

Garazi Monzó Contreras is a biotechnologist, who achieved a master in regenerative medicine. The focus of the master thesis, which she completed at the Harvard Stem Cell Institute, was on microfluidics. In this project she analyzed the difference in gene expression of endothelial cells in a microfluidic chamber. Being aware of the multiple challenges the scientific community usually faces, especially when it comes to data exchange and credibility, she has currently developed a growing interest for blockchain technologies and their integration into the everyday life. By providing the team with the perspective of someone from the natural sciences field, she is actively contributing to the advancement of the project.





7 Technology

7.1 Accounts

In order to access everything Scienceroot has to offer, one needs to setup an account with blockchain integration. This will allow users to exchange tokens, gather funding, submit articles, access content and much more. The accounts are separated into four major groups, based on user needs:

- Investor: Wallet Account for Science Tokens (**ST**)
 - Name - required
 - E-Mail Address - required
- Ecosystem Account(Researcher, Scientist, and Academic): Wallet, access to Scienceroot collaboration platform and journal, access to search and apply for funding and jobs.
 - Name - required
 - E-Mail Address - required
 - Organizational Details - required
- Organizational Account and Libraries: Sending and receiving tokens, access to Scienceroot collaboration platform and journal, access to post funding and job possibilities, Delegation of access rights.
 - Organization Name - required
 - E-Mail Address - required
 - Organizational Details - required

We will integrate the Waves blockchain wallet within our platform. This way, users will be able to both access their Science Tokens and enjoy the features our platform. The connection is done via the user's e-mail address and encrypted public key. We do not store the users private Key. By linking the e-mail address to a Waves wallet, we can increase account security by blocking access from suspicious locations, and add additional authentication verification.



7.2 Scienceroot Collaboration

This will be our decentralized social network platform for scientists, researchers and academics where they can showcase their work, connect with peers, seek new collaborations, find solutions, create and manage projects. Everything will be governed by blockchain smart contracts and therefore the need for the middlemen is eliminated. We will incorporate some of the known elements from social media platforms like LinkedIn, Twitter and Facebook such as:

- Creating profiles
- Liking and following researchers and their publications
- Implementing a ranking system based on the contribution in a certain field
- Endorsing skills
- Bookmarking favorites
- Commenting and sending feedback
- Sharing news items and updates
- Incentivized Q&A

Yet the most important feature will be the underlying cryptocurrency on which the whole platform will rely. It will offer the possibility for users to reward peers themselves for their contributions, delegate work in projects and get a quick payout for their knowledge, similar to already known freelancing platforms but without the middleman. This can be achieved with the help of smart contracts.

7.3 Decentralized marketplace

Scienceroot will incorporate a decentralized scientific marketplace (see [Figure 11](#)) that will allow scientists to market their services and knowledge to the entire world, with the help of blockchain as a trusted mechanism. We can remove intermediaries and create a self-governing marketplace using tokens as a payment system. Having a unique currency which can be exchanged regardless of the user's location, will remove boundaries between people and promote collaboration. Services, such as writing and editing, assistance with projects, verifying results and setups, or renting equipment without any middleman, will be provided. We will ensure a smooth operation by employing one unique identity per user, silencing fake reviews and prevent scamming.

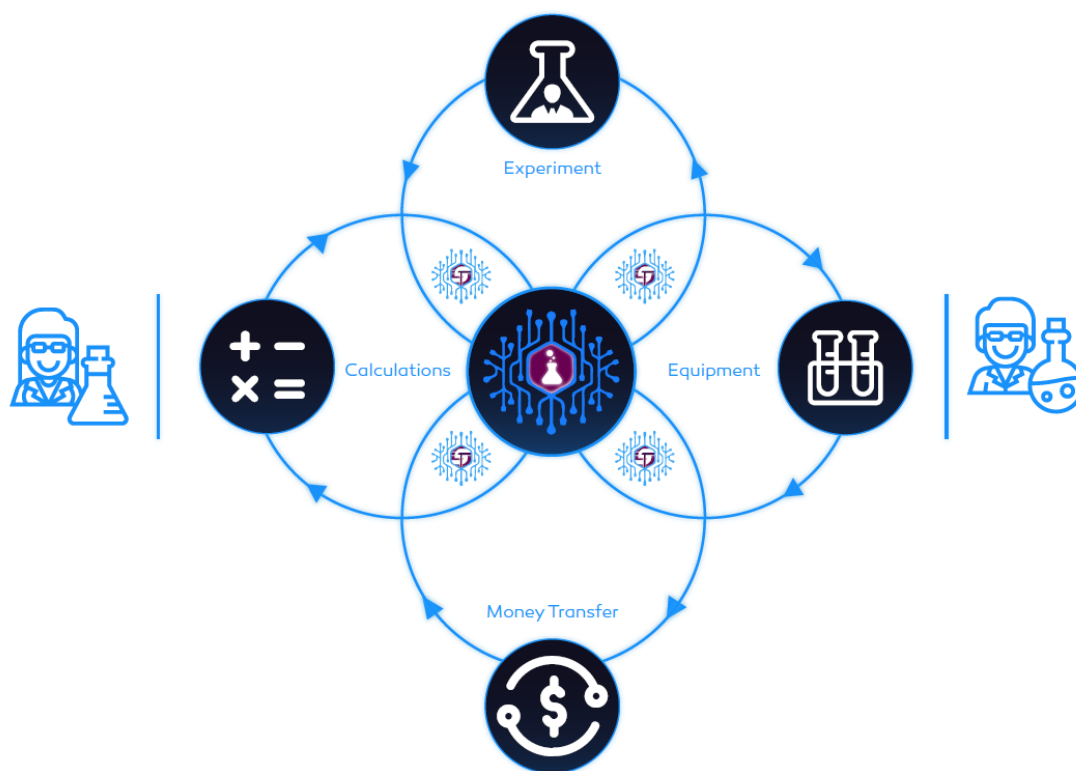


Figure 6: Decentralized scientific marketplace.

7.4 Scientific repositories

Maintaining perfect documentation becomes a whole lot easier with the underlying blockchain approach. The blockchain's immutability aspect guarantees unfalsifiability and a clear, timestamped documentation. This way, scientists can create a transparent repository of their work (see [Figure 7](#)), which can be shared with other peers and made public in the event of publishing a scientific report. The functionalities will be similar to those of Github but for scientific discoveries. You can contribute, comment and fork a repository. The scientific repository can complement the article submitted to a journal. Fellow peers will be able to track, reproduce and confirm the experiments if need be. Having the data timestamped on an immutable ledger will also rule out the possibility of information theft.

We will encourage scientists to make negative results available so other involved parties can pick off where they left off, or maybe just start over from a different angle. It will improve the collaboration between researchers, remove double research, waste of resources and time, and create a transparent and efficient scientific community.

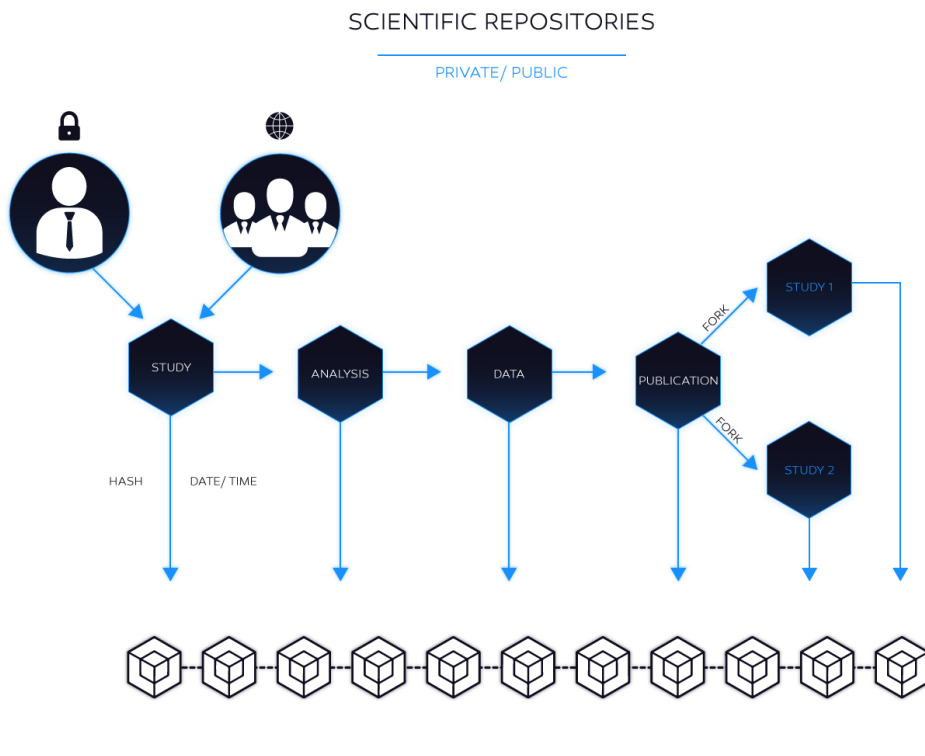


Figure 7: Timestamping progress and blockchainified data.



7.5 Scienceroot Funding and Jobs portal

Our target is to create a centralized portal which offers an entire list of government, corporate and private grants, funds, and jobs from all over the world. We will make applying for funds a lot easier, more transparent and intuitive. It will be accessible only to our registered researchers, academics, scientists and organizations searching or offering funding and job opportunities. Funding will be offered in fiat currency or our own currency called Science Token. The decision will remain with the offering organization.

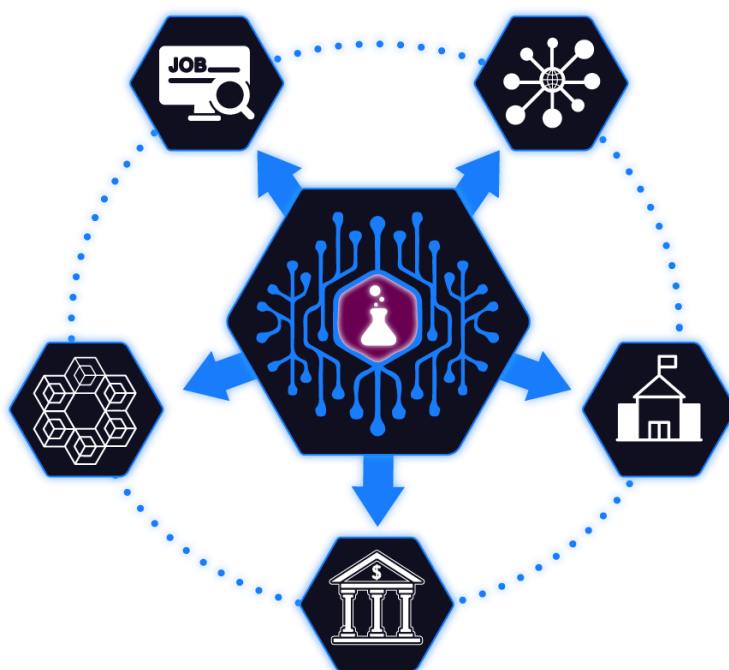
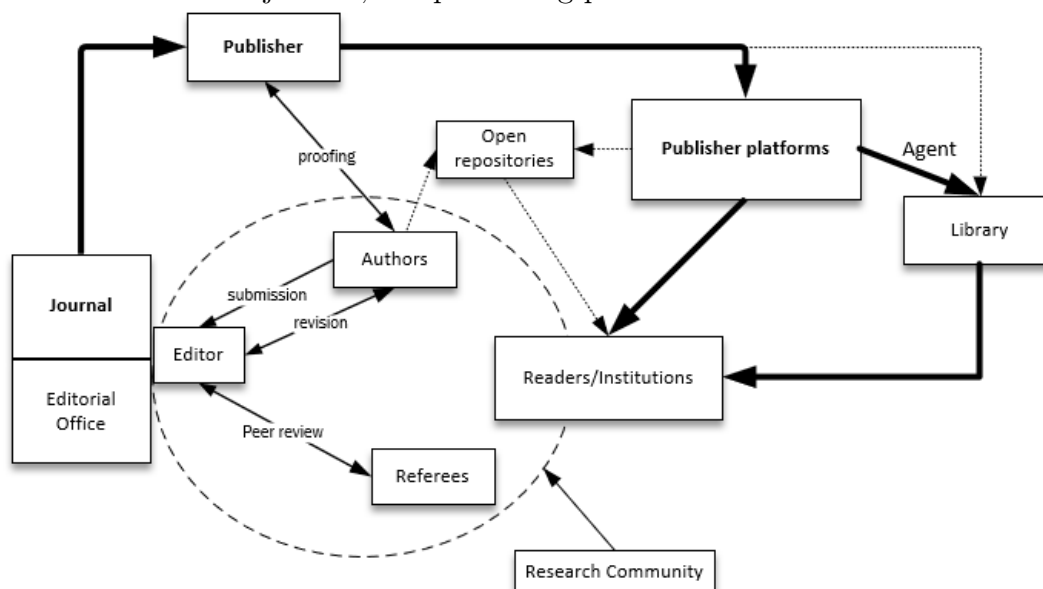


Figure 8: Portal which includes all funding opportunities.

7.6 Scinceroor Journal Technology

7.6.1 Traditional publishing process

In a standard science journal, the publishing process is as follows:



- 1. Author submits their manuscript to a Journal of their choice
- 2. Editor³ reviews the manuscript. Chooses if it is going to be submitted to peer review or sent back to author for revision
- 3. If the article passes editorial review the editor sends it out to peer review⁴
- 4. After passing peer review the editor submits it further to publishing
- 5. Last minute proofing and layout review will be done together with the author
- 6. In the end it will be available to Readers via the Publishers Platform or library in print format

³Expert in the field

⁴Peer review is a methodological check on the soundness of the arguments made by the author, the authorities cited in the research and the strength and originality of the conclusions. It is mostly done by fellow researchers in the same field.

7.6.2 Scienceroot publishing process

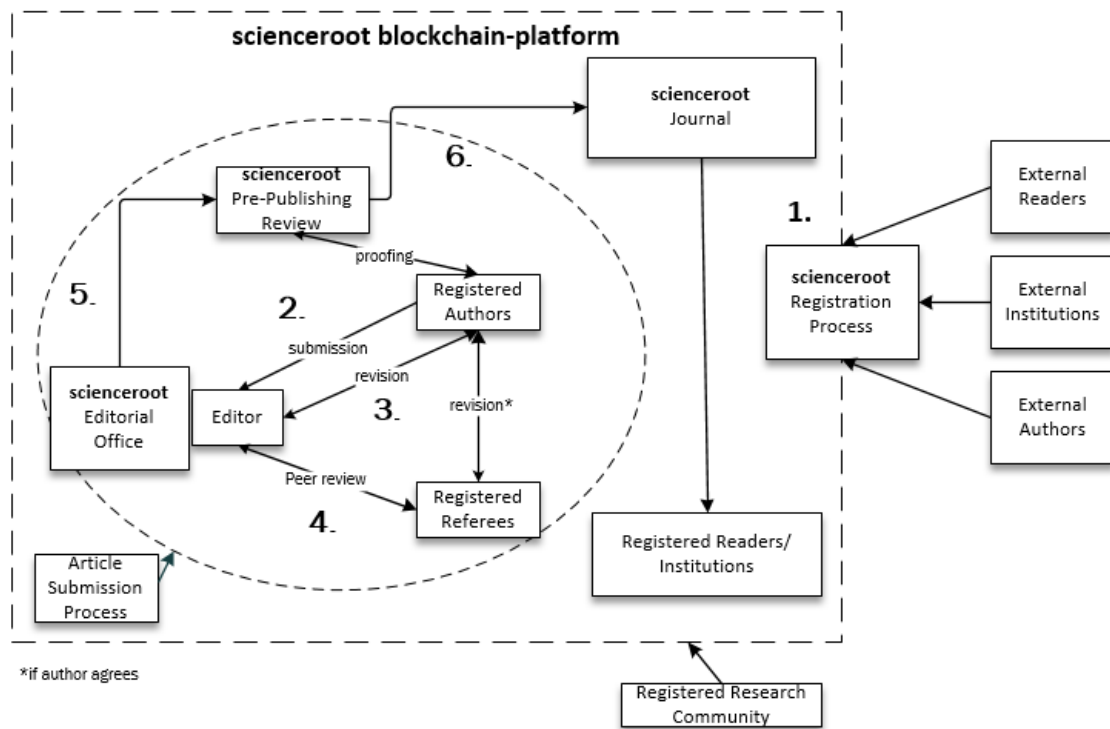


Figure 9: Scienceroot publication process.

- 1. Author registers to *Scienceroot*, receives his wallet and access to our journal
- 2. Author submits the manuscript to our editors
- 3. Editor reviews and selects if the article will be submitted to peer review
- 4. Based on the referees suggestions, the editor will decide whether or not the article gets published
- 5. Article is sent to pre-publishing for final proofing and typesetting
- 6. Article is published in one of our Journals where it will be available for our registered readers.

7.6.3 Publishing Options and rewarding system

At *Scienceroot* we want everybody to have the chance to share their work and get rewarded. The only publishing option which we will offer will be **Open access**. Researchers will cover all publishing costs and articles will be available to everyone for free. Despite the fact that some might lack the funding for the article submission, we will cover the cost if the article is accepted. We will encourage those who will use the publications for research purposes to sustain the authors by giving them the option to reward them with Science Tokens. Everybody who finds the published articles interesting can express their gratitude by means of our cryptocurrency.

Scienceroot will share profits with its contributing user base. There will be two categories of people eligible for the rewards, the authors and the reviewers. A visual description of the revenue and rewarding system is depicted in [Figure 10](#).

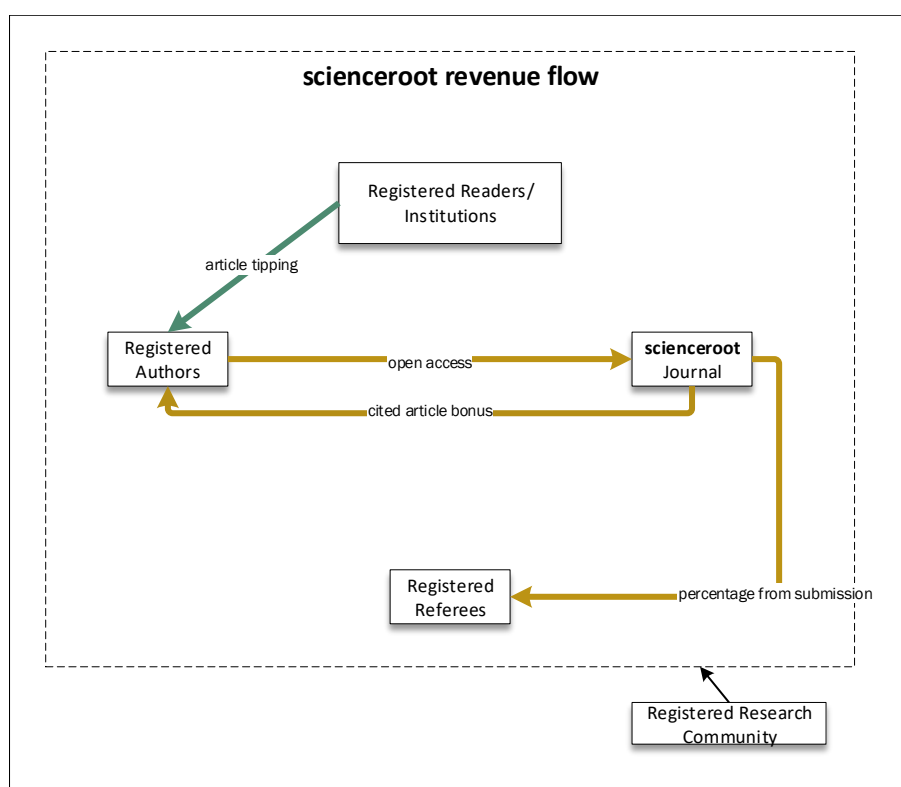


Figure 10: Revenue and rewarding system.

Reward for reviewing: For each submitted article 20% of the submission tax in tokens will be set aside for peer reviewing. We believe that by using this format of reward we can speed up the review process and generate higher quality articles by getting more fellow researchers to contribute in peer review.

Rewards for the authors: 20% of the article submission tax will be redirected to the **Scienceroot Fund**(see [subsection 7.8](#)). Every half year we will be ranking the published articles based on the number of citations. The authors of the top most

cited articles will be rewarded from this pool of tokens according to the ranking of their article.

By using this rewarding model based on a ranking system, researchers will be more motivated and incentivised to publish and create useful and ground-breaking content. Besides rewarding the authors for their contributions, we aim to add an element of competition to the activity of scholarly publishing.

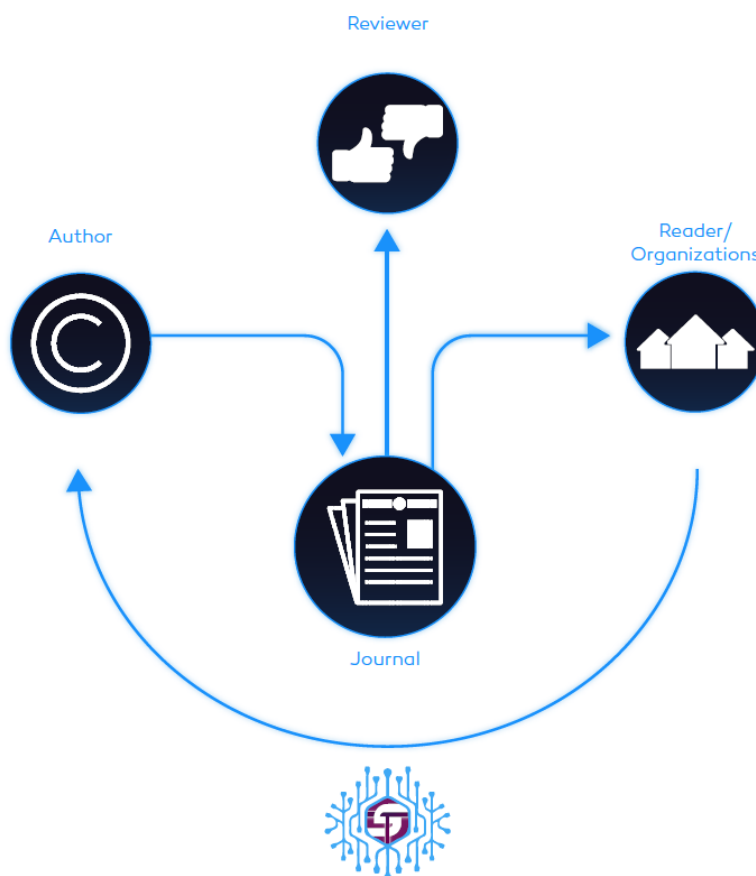


Figure 11: Scienceroot Journal model.

7.7 Storage

The open access content will be kept in a peer-to-peer storage system called IPFS. You can address large amounts of data with IPFS and place the immutable, permanent IPFS links into a blockchain transaction which timestamps and secures your content, without the need to write the data on the chain itself. IPFS will be also the backbone of our content archive, as it provides high performance decentralized archiving, resilient access to data, and removes duplications and offers version history for every file. This will allow us to create the world's most advanced and resilient archive of scientific content to which anyone, at anytime, will have access.



7.8 Scienceroot Fund

Scienceroot Fund is a pool of tokens used by Scienceroot organization as funding capital for scientific projects, grants, rewards and partnerships. It will be also used for institutional access to make it easier for them to gain access to the Scienceroot Ecosystem. As a starting point this pool will be funded during the Token Generation Event with 20% of the tokens generated (100 000 000 ST). During the 2 years Token Generation Event this tokens will only be used to stake in the network and ensure transaction fees. All revenue generated by the Scienceroot Ecosystem in form of transaction fees, platform fees will enter this fund. Only the generated revenue can be used as funding capital for projects, grants, rewards and partnerships. After the end of the 2 year token generation event this fund will also be used to sustain the platform, this will include infrastructure costs, business costs and development costs. These costs will be covered from revenue generated into this fund or the fund itself.

7.9 Idea crowdfunding

We will support ideas and promising scientific projects. Researchers will be able to showcase their proposals, present their results and gather funds through the power of the crowd. Scienceroot users will be able to select based on the presented information and decide how much they are willing to invest in you. Previous to be publicly listed the projects will undergo a feasibility check by Scienceroot in order to avoid scams or malicious attacks. In future, this will not only work with Science Tokens (ST), but also with individual tokens created for each project.

7.10 Copyright

When publishing in subscription-based journals, authors grant the publisher a license to exploit a set of defined rights, this will allow journals to commercially exploit commercially the rights in return for services provided to the author (peer review, copy-editing, marketing etc.).

For open access journals, authors retain copyright and release the work under a Creative Commons license or similar, which allows use and reuse, but imposes conditions, such as attribution of the author, which will depend on copyright.

8 Tokenomics

8.1 Science Token

Within the Scienceroot ecosystem, **Science Tokens** (ST) will be used by our members to gather funding, exchange tokens for services, publish articles, tip authors and store content. There will be a limited supply of 500.000.000 Science Tokens. No



further tokens will ever be created after the initial token offering. During the Token Generation Event (subsection 8.2) 300.000.000 ST will be sold, yet 400.000.000 are destined for public use.

Science Tokens are based on the Waves⁵ blockchain platform. Waves uses a Proof-of-Stake (PoS) consensus algorithm. This means that the Tokens you own (or that have been leased to you) reflect your mining power. The more you own, the higher the chances of processing transaction blocks, and receiving transaction fees as a reward. Essentially it's a form of interest on your balance. In comparison to the Proof-of-Work consensus algorithm, which requires mining with expensive hardware, the PoS consensus is more energy efficient and only requires masternodes⁶ to validate transactions.

Another main advantage of Waves is that they have a decentralized exchange (DEX) where you are in control of your private key. Science Tokens (ST) can therefore be easily exchanged for any currency listed on the Waves DEX. There is no risk of losing your funds in the event of hacking, which has happened on almost all popular centralized exchanges. You retain complete control over your funds when trading on the Waves DEX. The DEX is powered by a matcher, which stores user's orders and sends token exchange transactions for fulfilled orders.

Another advantage of using the Waves blockchain, is the possibility to support the Scienceroot network and earn up to 5% per year on your staked balance, enabling us to fund science by sustaining the blockchain network. This functionality will be offered to institutions and companies that want to support and promote the advancement of science.

The use cases of Science Tokens will be as follows:

- Incetivized Q&A Forum - bounties on questions and tipping
- Decentralizd Scientific Marketplace - exchange of scientific services
- Scientific Repositories - storing scientific content on the blockchain
- Crowdfunding Research Ideas - contribute to research projects
- Rewarding Mechanism for Reviewers and Authors
- Decentralized Publishing framework - established publishing businesses can use our blockchain to time-stamp manuscripts and articles
- Node Hosting - any company/institution who will integrate a 3rd party software will be required to stake coins

⁵Waves is a Proof of Stake Blockchain that let's you Issue, store, manage, trade, and analyze your digital assets safely with Waves blockchain platform and decentralized exchange. <https://wavesplatform.com/>.

⁶A masternode is a computer who runs a wallet which is always connected to the network and keeps the full copy of the blockchain in real-time.



Scienceroot offers a collective unique currency which has the same value all around the world. The users will not need to worry about cross-currency transactions anymore. They will be able to exchange Science Tokens(ST) regardless of their location and use them as payment in the Scienceroot ecosystem.

8.2 Token Sale

The development and adoption of Scienceroot will be funded through a crowdsale. During the Token Generation Event (TGE) 500.000.000 Science Tokens will be generated and no more will be created afterwards. The TGE will range over a period of two years with four rounds of funding. A total of 300.000.000 **ST** will be sold to the public.

We came up with the idea of a progressive TGE based on the traditional venture capital rounds, so we can show and prove that we are capable of delivering what we aim to create. By taking this approach we create more trust between Scienceroot and tokensale participants, by having a steady development process and raising funds based on the product delivery status.

The progressive TGE will be organized as follows:

- **Round 1 (Seed Round) 15.07.2018-15.08.2018:** 12.500.000 Science Tokens* will be sold at the price of 0.04 EUR for an equivalent of 500.000 EUR.
- **Round 2 15.01.2019-15.02.2019:** 33.000.000 Science Tokens* will be sold at the price of 0.06 EUR for an equivalent of 1.980.000 EUR.
- **Round 3 15.07.2019-15.08.2019:** 93.750.000 Science Tokens* will be sold at the price of 0.08 EUR for an equivalent of 7.500.000 EUR.
- **Round 4 15.01.2020-15.02.2020:** 160.750.000 Science Tokens*,** will be sold at the price of 0.1 EUR for an equivalent of 16.075.000 EUR.

* The amount of tokens we decide to sell can vary based on development needs. This information will be available prior to the funding round.

** Any unsold tokens after the last Round will be burned.

8.3 Token Allocation and Use of Proceeds

After the TGE event ends, 60% of the total amount of tokens will sold. Another 20% are destined for public usage, which adds to a total of 80% of the entire token pool. The remaining 20% will be held in the Scienceroot Fund to be used as stake in the network to sustain the blockchain. Only the rewards generated in form of fees will be used to fund scientific research, projects, grants, rewards, partnerships and overall platform sustainment. The token allocation and use of proceeds is described in [Figure 12](#).

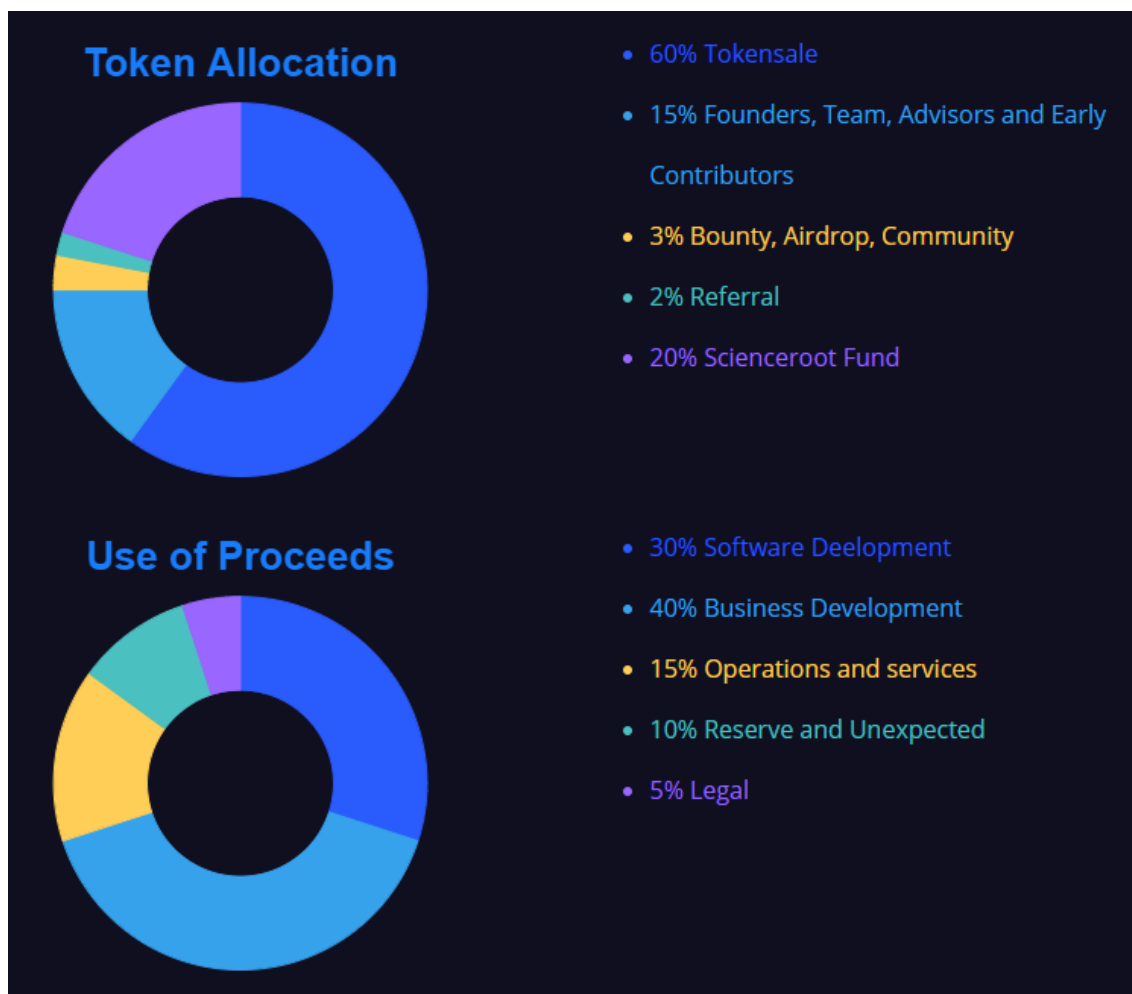


Figure 12: Token allocation and use of proceeds.

8.4 Team and Advisors Vesting Period

The tokens destined for our team members will be vested for two years. The tokens will be locked down and released in 25% increments every 6 months. The tokens for our advisors will have a vesting period of one year with a lock-down period of 6 months. In the next 6 months their tokens will be released in 25% increments every 1 and 1/2 months.

9 Vision and Roadmap

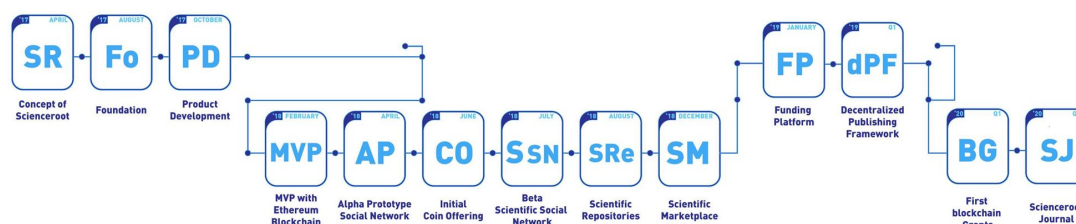


Figure 13: Roadmap. The dates are an approximate estimate of the planned releases.

Scienceroot is not only aiming to transform the current scientific publishing model but also revolutionize and improve the scientific community in all aspects possible. We are creating a scientific publishing model which will reward and sustain researchers instead of maximizing our profits. We believe that this model will not just bring benefits to scientists and researchers, but also improve the quality of their work and motivate them to push science to new boundaries. By interconnecting it with our own collaboration and funding platform we can create a unique scientific ecosystem where science will prosper.

First, we will start off as a collaboration and funding platform for scientists, researchers and academicians. Having divided platforms for different purposes makes one lose sight over all the possibilities. This will serve as a go-to ecosystem for scientists to find peers, discuss ideas and gather funding for their research. By centralizing all global funding opportunities into one platform, we are making it easier for scientists, researchers and academics to find and apply for grants. Making use of the blockchain technology, we will create a transparent, intuitive, safe and user friendly platform.

Second, we will focus on building a decentralized publishing framework for journals to improve some of the inefficient aspects of traditional academic publishing. The process of publishing a scientific paper can take up to several months. Using AI, we will assist the editors with content review to establish whether the article is worth sending for peer-reviewing or not. Once it goes through the editorial process, the article will be further sent to peer-review. Every article submission will be time-stamped on our blockchain to create an immutable open access archive of all publications. No single individual or group will have control over the system, and all information will be clearly accessible to everyone. The Scienceroot Journal will provide the reviewers with a monetary incentive for their time and reward the authors for their contributions. This will not only ensure speeding up the process, but will also solve the problem of not having enough reviewers. New companies or established journals will have the possibility to adhere to blockchain technology, by adopting our decentralized publishing framework within the Scienceroot ecosystem.



Our goal is to give as much as possible back to the academic community. In this way, we will ensure that fellow researchers are also able to reap the benefits of their work.

DISCLAIMER: Everything presented in this document may be subject to change since this is not the last draft version and we will update it in the course of the development.

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