

ATLAS: A Digital Token Supporting an Open-Source Medical Encyclopedia

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Abstract. Mobile devices and the Internet have changed how caregivers in Western medicine access critical knowledge. Subscription-based online resources now contain the best information for doctors to treat patients. Large publishing houses have monetized this valuable content with paywalls. We propose an open-source online medical encyclopedia with peer-reviewed information available free of charge worldwide. The ATLAS token will be an NEP-5 asset registered on the NEO blockchain used to reward creators of articles and algorithms useful to medical professionals. ATLAS tokens will also be used to redeem continuing medical education (CME) credits awarded to doctors and other professionals. In this manner, PeerAtlas can offer a high-quality medical resource created by paid professionals without selling advertising or limiting access with subscriptions.

1. Introduction

The ATLAS token represents the permanent destruction of the world's most unethical paywall: cutting-edge medical knowledge has been separated by money from its physicians and the general public. Timely and well-researched medical advice has great value to caregivers in the rapidly changing world of Western medicine. Realizing this, large publishing companies have cornered the market and erected paywalls to extract high subscription fees. These paywalls keep the highest standard of care away from any patients whose providers cannot afford their prices. Paywalls directly increase the already high cost of health care and medical education. They withhold valuable knowledge, second opinions, and advice from direct access by patients and the general public.

New drugs, medical devices, clinical research, and techniques are transforming the practice of Western medicine more quickly than the rate at which new doctors are trained. This fast-moving academic environment, as well as the rise of computers and the Internet, has led to the rapid adoption of electronic references to aid the clinical decisions of caretakers. Electronic medical resources have quickly matured and now represent the gold standard of Western medical knowledge. They are constantly updated clinical tools that allow doctors to quickly reference today's medical evidence to make the best possible treatment decisions for their patients.

Medical resources are more expensive to create and maintain than other types of Internet libraries, because they require constant attention from a limited pool of highly trained and highly paid professionals. Because of these costs, most of today's best online medical resources still rely on advertising revenue or subscription fees to fund their operations.

Many common ethical vulnerabilities are absent by design in the PeerAtlas ecosystem. These conflicts of interest could include reliance on advertising revenue, reliance on subscription revenue, financial relationships with drug companies or the manufacturers of medical devices, and founders compromised by fiscal or ideological dependence. Because of its highly independent design, the PeerAtlas foundation can direct its community to reward qualified individuals that help its mission in a transparent and ethical manner.

The mission of PeerAtlas is to instantly spread the most modern techniques and knowledge in healthcare, free of charge, worldwide.

2. ATLAS

PeerAtlas will register its digital token, ATLAS, as an NEP-5 asset on the NEO blockchain. Issuing ATLAS enables a business model that seeks to give PeerAtlas the easy availability of a free medical resource and the high quality of a paid project.

ATLAS will transact in two major pathways that directly benefit the project. Firstly, direct donations of ATLAS will be enabled for verified creators of medical articles and algorithms that the community finds useful. This allows contributing professionals to receive compensation for their time and effort. Secondly, medical professionals using the site will accumulate continuing medical education (CME) credits that will be redeemable through the site in exchange for ATLAS tokens.

ATLAS tokens will be minted by the execution of a smart contract on the NEO blockchain. This will create a supply of 100,000,000 NEP-5 tokens. ATLAS tokens cannot be created or destroyed after this genesis event, so total supply is fixed at 100 million. The ATLAS token will be divisible and transferrable to the fourth decimal place (0.0001 ATLAS).

Distribution of the 100 million ATLAS will be approximately as follows, subject to minor change: 30% retained by the PeerAtlas foundation, 3% held by PeerAtlas founders, 17% sold to selected pre-ICO buyers, and 50% in the ICO crowdsale. Tokens retained by the PeerAtlas foundation will be issued frozen and then unlocked in stages of 10 million tokens at 3, 36, and 120 months after the ICO. The 3 million tokens retained by the founders will be issued frozen and unlocked after 12 months.

The ATLAS token is intentionally made simple for medical professionals that may be new to blockchain technology.

3. Website

PeerAtlas is an open-source medical encyclopedia offering evidence-based support for clinical decisions with medical articles and algorithms. It is currently compatible with mobile and desktop browsers.

PeerAtlas is designed for medical professionals and made freely available to the general public. Civilians and professionals may have questions regarding specific

algorithms or other content. There will be an individual talk page or forum thread available for community discussion of each article and algorithm.

4. Community

Identity verification similar to the existing KYC protocols on digital token exchanges will be instituted for the site's medical professionals. In addition, PeerAtlas will explicitly verify the degree status of its medical professionals.

Civilians (non-medical professionals) may use their real name or a pseudonym to interact with the site if they choose to. Users will be granted read-only access to the site's content without signing up or logging in. This policy benefits anyone that may need rapid access to medical information during an emergency.

Physicians and other healthcare professionals who have not yet verified their identity with PeerAtlas are welcome to interact with the site as a civilian.

Physicians and other degreed healthcare professionals that have completed identity verification may publicly display their name and healthcare degree alongside a blue checkmark on the site. Verified healthcare professionals are eligible to submit original content to PeerAtlas. They may also start earning continuing medical education (CME) credits through their use of the site, which may be redeemed in exchange for ATLAS tokens.

Paying upfront for world-class medical content is expensive, but it should enable rapid acquisition from carefully selected and highly qualified medical contributors. This is an appropriate strategy to employ when creating or rapidly expanding the library into new disciplines.

However, another technique is more sustainable and should build a stronger PeerAtlas community. Personal ATLAS token wallet addresses of content creators who were not

paid upfront may be posted at the bottom of medical algorithms and other content following approval by staff. These direct transfers of ATLAS from the community are the best long-term strategy for PeerAtlas to offer paid content for free.

PeerAtlas also plans to generate revenue by redeeming its professionals' CME credits with their licensing authorities in exchange for users' ATLAS tokens.

5. Support

There are four primary methods by which supporters may help the PeerAtlas mission.

1. Qualified professionals may submit medical articles, algorithms, and other content that helps the site's mission.
2. Anyone may obtain and hold ATLAS. This may increase demand for ATLAS while reducing its freely available supply.
3. Anyone may send ATLAS tokens to the creators of useful medical content to encourage its creation.
4. Professionals seeking redemption of CME credits earned through their use of the site may redeem them through the foundation in exchange for ATLAS tokens.

6. Skims

PeerAtlas may not receive a portion of the ATLAS donations that its contributors receive. This is to avoid indirect donations to PeerAtlas from drug companies and other special interests that would benefit from influencing the library. It might be best for the site to remain financially independent in the future by refusing to accept donations altogether. Regardless of its future donation policies, PeerAtlas should not

accept any future sources of revenue that are connected to or induced by specific types of content or recommendations.

This is why compensation for the site's staff should never depend on their specialty's acceptance rate of new content, or the type of content that they decide to accept.

7. Shadows

The site's founders and staff must be beholden in the present and future only to themselves, and categorically disavow present and future financial ties to any special interest that could profit from influencing the recommendations of the library.

PeerAtlas Co-Founder Ling Wu is currently employed by a pharmaceutical company as a chemist, and will submit her resignation at the completion of crowdfunding. The team has no other disclosures.

Failure to disavow or failure to disclose these ties, for any possible reason, always justifies immediate dismissal and replacement of the team member. Because this rule enforces patient safety, there can never be an exception.

8. Frontiers

As milestones pass, new frontiers arise.

The most urgent task after completion of crowdfunding is to hire full-time programmers to expand on and polish Dr. Mattson's code. Mobile apps will be added at this time as well.

It is possible that ATLAS will realize long-term benefits from hosting its own blockchain using NEO's efficient dBFT consensus technology with private bookkeeping nodes hosted by doctors around the world. In this way, the ATLAS token could achieve true decentralization with stake-based community governance. However, there are

immediate logistics and community benefits to remaining as an NEP-5 asset on the NEO blockchain. The ATLAS token will remain within the NEO ecosystem into the foreseeable future.

It is the 5-15 year goal of PeerAtlas to integrate its operations with existing EMR (Electronic Medical Records) databases after its medical library and peer review systems are in place. There are significant barriers to entering this market, including evolving government regulations, hospital administration and caregivers with a cautious outlook towards new technology, strict patient privacy laws, and the current lack of an overwhelming market leader in EMR technology.

Over a 20-40 year time span, PeerAtlas anticipates a shifting focus towards the use of AI (Artificial Intelligence) to create individualized treatment recommendations and algorithms for specific patients through the use of the patient's existing EMR data. AI could work with anonymized EMR data to offer a worldwide live rolling clinical trial for evidence-based recommendations.

9. Skins

The site's founders are physicians as well as entrepreneurs. They will not be judged solely by yearly profits of the foundation. They operate in the presence of their peers' subjective judgement and that of the general public as well. If the practice of medicine is imagined as a grand three-ring circus, then PeerAtlas is probably a highwire.

An executive acting in a manner contrary to the best interests of the site's healthcare providers and their patients, or who gives the impression of having acted in such a manner, will deliver themselves an unhappy triad of social, occupational, and financial damages.

10. Compensation

The site's acting founders will jointly authorize and receive payment for their labors each year, and will also authorize the employment, deployment, and possible compensation of all other positions.

Signing bonuses are usually appropriate for new founders. It is expected that proper administration of PeerAtlas will be time-consuming for the founders and prevent a full-time career in medicine. Legally, these signing bonuses may always come from the foundation's resources. However, the founders wish to begin an unusual tradition of funding the signing bonus of their replacements directly from the pockets of the existing founders. In this manner, executive power could be handed off even at a moment's notice with minimal financial strain to the site. The founders expect that their yearly salary may, or may not, be essentially ceremonial or even nonexistent at times, depending on various circumstances and their best judgement.

Front-loading the executive salaries also makes graceful, lawyer-free exits more probable. Back-loaded executive salaries, exit bonuses, and "golden parachutes" harm the site's financial independence and should be avoided.

11. Replacement

Before the issue arises, founders should contact an interim physician that is likely to be willing and able to perform as a temporary replacement if needed. Permanent replacement founders will assume the title of co-founder and assume responsibilities as a 'founder' even if they did not, in fact, co-found the site. Persons holding power of attorney over a founder may submit the founder's resignation. All future founders will be degreed physicians.

Founders should moderate their politics and temperament when they are contemplating the replacement of personnel.

When in doubt, the show should go on.

12. Hippocrates

“...Now if I carry out this oath, and break it not, may I gain for ever reputation among all men for my life and for my art; but if I transgress it and forswear myself, may the opposite befall me.”

13. Team

Brad Mattson, M.D., Founder

Colin Closser, M.D., Co-Founder

Ling Wu, Ph.D., Co-Founder

Arjun Patel, Full-Stack Designer



PeerAtlas