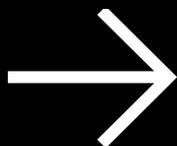


# DART

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## Digital Assets Risk and Trustworthiness Assessment

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# PROJECT INFORMATION

## **Bittensor**

**Project Category:** Machine Learning Protocol

**Official Website:** <https://bittensor.org/>

**Blockchain/Platform:** Polkadot Network.

**Brief Description:** Bittensor is revolutionizing machine learning platforms by decentralizing development and establishing a peer-to-peer market for machine intelligence. This approach enables AI models to collectively form a digital hive mind, facilitating rapid knowledge expansion. By utilizing distributed networks and incentivizing collaboration, Bittensor propels innovation and advances the frontiers of machine learning. The Bittensor protocol transforms machine intelligence into a tradable commodity, promoting innovation from a diverse global community of developers through an open and accessible network.

**Prelude:** This review presents the risk factors associated with the given project and provides an analysis and respective overall risk rating as per a prescribed methodology.



# TEAM COMPOSITION

The Bittensor team is comprised of the following individuals:

**Jacob Robert Steeves - Co-Founder:**

Jacob Robert Steeves, based in Peru, is the co-founder of Bittensor. He earned a Bachelor of Applied Science (BASc) in Mathematics and Computer Science from Simon Fraser University. Jacob began his career as a Machine Learning Researcher at Knowm Inc. in 2015 before working as a Software Engineer at Google from 2016 to 2018. He co-founded Bittensor in 2016.

**Ala Shaabana - Co-Founder:**

Ala Shaabana, the Canadian-based co-founder of Bittensor, received a BS in Computer Science from the University of Windsor in 2006 and subsequently earned a Ph.D. in Computer Science from McMaster University. He began his career as a software developer and engineer at various tech companies before transitioning to machine learning research. From 2020 to 2021, Ala served as an Assistant Professor at the University of Toronto and a Postdoctoral Fellow at the University of Waterloo. In 2019, he co-founded Bittensor with Jacob Robert Steeves.

# TEAM

## The Bittensor team structure

The Bittensor team, as mentioned on their official website, includes the pseudonymous "Yuma Rao," whose existence remains uncertain. The foundation is supported by publicly recognized individuals, including former Google employees and researchers. It values diversity, allowing any engineer or group to improve models and achieve advanced results. Only two team members are publicly named on the official website.

## The Bittensor supporters

RoundTable21 serves as an advisor to the Bittensor protocol, offering guidance, expertise, investment, and hands-on assistance to blockchain startups. The Bittensor Protocol is also supported by Digital Currency Group (DCG), GSR, Polychain Capital, and FirstMark, as detailed on their website.

## The Bittensor connections

Bittensor is collaborating with Nous Research on the Leaderboard Subnet to promote competition and collaboration among AI developers. They have also partnered with Cerebras to create the Bittensor Language Model (BTLM), a 3-billion parameter model designed for mobile and edge devices, aiming to make advanced AI widely accessible.

## The Bittensor concerns

Despite the impressive credentials of the co-founders, the team's overall transparency is limited, as only two members are fully detailed.

The project also mentions affiliations with reputable organizations like DCG and Polychain Capital and the advisory role of RoundTable21, but there are inconsistencies in verifying these claims. The pseudonymous "Yuma Rao" adds uncertainty about the team structure and composition, further limiting transparency.

In July 2024, Bittensor suffered a significant security breach, resulting in the theft of over \$8 million worth of TAO tokens. This led to a network shutdown and the implementation of "safe mode" to contain the attack. The breach, suspected to be caused by a private key leak, followed a similar incident the previous month, raising concerns about the platform's security and reliability. Ala Shaabana publicly announced the shutdown and led the containment efforts alongside Jacob Robert Steeves.

# GITHUB & CODE QUALITY

The Bittensor Protocol is an open-source project, meaning its codebase is publicly accessible for anyone to view, use, modify, and contribute to. This fosters a collaborative environment where developers from around the world can participate in the project's development and improvement. The Bittensor Protocol has 41 repositories and 2 projects, indicating a substantial amount of work and various sub-projects under the main initiative. This structure typically suggests a modular approach, with different repositories potentially handling different aspects of the protocol. The level of GitHub activity is described as good, implying regular updates and continuous development. Frequent commits are a positive indicator of an active project, showing ongoing improvements, bug fixes, and feature additions. Although the number of members is not directly visible due to the organization's privacy settings, the good level of activity suggests a healthy number of active contributors. An active contributor base is essential for maintaining and advancing the project, ensuring a diverse range of ideas and expertise.

The documentation for the Bittensor Protocol is of good quality. High-quality documentation is crucial for any open-source project as it helps new contributors understand the codebase, facilitates easier onboarding, and provides comprehensive guidance for using and contributing to the project. Good documentation typically includes getting started guides for new users and contributors, API references with detailed explanations of the available functions, classes, and methods, code examples demonstrating how to use the software, and contribution guidelines with instructions on how to contribute to the project, report issues, and follow coding standards.

The Bittensor Protocol employs a variety of accepted software development practices, as inferred from its use of multiple programming languages and good documentation quality. The project uses a range of programming languages, including TypeScript, JavaScript, Python, Rust, and Shell. This diverse set of languages suggests that the Bittensor Protocol likely involves various components that serve different purposes, such as frontend interfaces, backend services, and system-level programming. The Bittensor Protocol is a well-maintained and actively developed open-source project with good documentation and adherence to accepted software development practices. Its modular approach, regular activity, and diverse programming languages indicate a robust and dynamic development environment. The open-source status and quality documentation make it accessible for new contributors, fostering a collaborative and innovative community.

# SOCIAL MEDIA & COMMUNITY

## Community size and activity

The Bittensor Protocol boasts a sizable and active community across various platforms, characterized by diverse levels of engagement. On Telegram, the Bittensor Protocol has over 6,000 members, while its Discord server has an even larger following, with over 28,000 members. The community on Discord is noted for its rapid responses, which are crucial for maintaining an active and engaged community. The project's verified X (formerly Twitter) handle has over 70,000 followers, exhibiting moderate engagement in terms of likes, comments, reposts, and post impressions.

## Quality of interactions

The quality of interactions within the Bittensor Protocol community is generally positive, thanks to proactive measures taken by administrators and moderators. On Telegram, administrators maintain a welcoming environment and clearly communicate guidelines, fostering positive interactions. Despite some scam reports, the proactive communication significantly mitigates risks. Similarly, on Discord, community moderators are noted for their rapid responses, contributing to a high-quality interaction environment.

## Red Flags and Risks

There are several concerns and red flags within the Bittensor Protocol community. The administrators emphasize that they do not initiate direct messages, request mnemonic phrases or seeds, or ask users to verify or resolve account issues via direct messages, which helps mitigate scam risks. Despite these efforts, occasional scam reports involving impostors persist. Additionally, an expired Discord invite link on the official account poses a challenge for new users, potentially hindering community growth. The lack of an official Reddit account limits engagement among users who prefer Reddit, and the absence of the X handle on the official website increases the risk of misinformation, which can diminish the handle's credibility and reach.

# BUSINESS MODEL

The Bittensor Protocol operates through a decentralized network where AI models and knowledge are traded as commodities. This model offers several key strengths: it reduces reliance on centralized entities, democratizes access to AI resources, rewards participants with TAO tokens, and implements connectivity-based regularization to prevent collusion, ensuring a fair ranking system. However, the success of this model depends on broad adoption and effective management of the decentralized network. Challenges include ensuring the integrity of peer rankings, preventing gaming of the system, and maintaining network security.

The Bittensor Protocol offers significant value to various stakeholders. Developers and researchers gain access to a diverse range of AI models and datasets, enhancing their projects. Both large and small companies can reduce costs associated with AI training and leverage the collective intelligence of the network to improve their models. Contributors earn TAO tokens for their contributions, monetizing their work in a new and potentially lucrative way. The decentralized nature of the platform also encourages innovation and knowledge sharing, breaking down barriers between siloed AI models and fostering a collaborative environment.

The Bittensor Protocol has strong growth potential, driven by several factors. As more participants join the network, the collective intelligence and available resources will grow exponentially. The increasing demand for AI and machine learning solutions across industries provides a large potential market. By reducing the need for massive computational resources and data, the protocol can attract companies looking to optimize their AI development costs. However, achieving profitability will depend on the adoption rate, effective tokenomics, and maintaining a healthy balance between supply and demand for TAO tokens.

The Bittensor Protocol has a clear strategic vision: creating an open, accessible network where AI models can be traded; using TAO tokens to reward contributors and encourage ongoing participation; and implementing mechanisms to ensure fair and accurate peer rankings. Financial planning will be crucial in ensuring the long-term sustainability of the project. This includes establishing a robust and transparent token economy to manage the distribution and value of TAO tokens, identifying and developing revenue streams such as transaction fees, premium services, or partnerships with major AI users, and efficiently managing operational costs, including network maintenance, development, and security.

However, the success of the decentralized network heavily relies on achieving a critical mass of participants. Without sufficient adoption, the network's value proposition weakens, and the marketplace for AI models may not be as robust as needed.



# CONCLUSION AND SCORE

## Conclusion

Based on our comprehensive review of the Bittensor Protocol, several strengths and areas for improvement have been identified. The Bittensor Protocol stands out with its innovative business model that decentralizes machine learning development through a peer-to-peer marketplace, leveraging blockchain technology to trade machine intelligence as a commodity. This approach not only reduces reliance on centralized entities but also incentivizes collaboration and democratizes access to AI resources. Supported by a team with solid industry experience, including backgrounds at Google and academic institutions, the protocol benefits from credible leadership and technical expertise.

However, there are notable areas for improvement. While the project shows moderate activity on GitHub with sufficient documentation, there is room to enhance code quality and further adopt best practices to attract a broader developer community. Community engagement, while active across platforms like Telegram and Discord, could benefit from clearer integration strategies and better visibility on platforms like Reddit. Moreover, ensuring the security and integrity of its decentralized network remains a critical concern.

## Score

Due to the aforementioned reasons, the Bittensor Protocol falls into the **Moderate Risk** category. Investors and stakeholders should monitor developments closely, particularly improvements in code quality, community engagement strategies, and network security. Despite these challenges, the project's strong business model and team foundation suggest significant potential for growth and impact in the field of decentralized AI development. As always, stakeholders are advised to conduct further research and stay updated with the project's official communications to make informed decisions.

# CONTACT US

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[Discord Community](#)



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