To:

Date : 29 june 2020

Japan Aerospace Exploration Agency (JAXA)

Mr. Hiroshi Yamakawa, President

Ochanomizu sola city,

4-6 Kandasurugadai, Chiyoda-ku, Tokyo 101-8008

Japan

Request letter of support "Space waste management using Blockchain technology"

Dear Mr. Yamakawa,

We would like your support in using blockchain technology for mapping out space debris and managing space waste.

Blockchain technology presents significant potential for secure sharing and improving the robustness of data collection of space debris and space waste management among the numerous projects & different stakeholders.

This is a joint letter on behalf of **Aratos Group**, **Blockchain2050 BV, SpaceChain UK and LTO Network.**

We believe that a decentralized, hybrid blockchain, would enable secure sharing between different stakeholders and ensure no degradation or loss of the critical data collected by different vehicles and devices in space. The blockchain technology could be used to design a secure and decentralized infrastructure for sharing and processing the massive data for space debris and space waste management and related solutions. Furthermore, the infrastructure could also facilitate the integration of AI and deep learning-based data analysis. Under such a Blockchain network, spacecrafts, on-board computers, ground high-performance computers and data centres, joint with companies and government agencies, would all be nodes in a network. Communication among various nodes would be secure yet strongly federated.

The research community improved the data collection in space by adding space-based IoT satellite systems into that mix along with the use of ***LTO Network's Live Contracts*** technology. This technology has been executed in waste management processes in the European Union already. Being both space and earth-based makes an IoT blockchain combo more secure than traditional terrestrial-based systems. Data and blockchain ledgers can be backed up off planet which increases Big Data security, utility and longevity. This is especially important when servicing ultra-high volume applications that require low bandwidth and low service costs.

Aratos Group has developed a series of products and services based upon satellite technology and remote Earth Observation techniques. Our works vary among full disaster management systems, being addressed to local governments and Civil Protection groups, to environmental monitoring solutions and real-time alerting systems for citizens. We emphasize on the enormous potentials of the acquired information so as to deliver effective insights upon the selected areas of interest worldwide.

The founder **Dr. Nikos Bogonikolos** comes with more than 30 years of experience in the Information Technologies sector with leadership of many innovative solutions like internet applications using AI, space applications for society..

Blockchain 2050 BV is a dynamic SME that implements the latest improvements in Blockchain technology into secure and innovative solutions with the use of standard open source implementations and provide the needed transparency. Our headquarters is located in CIC Rotterdam the MIT business ecosystem the company is **member of Aratos Group**. We have offices in Athens,Greece and Sofia,Bulgaria.

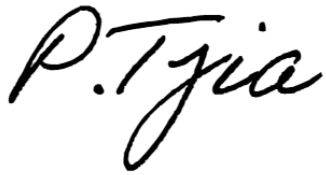
LTO Network a Amsterdam bases company that has build a platform for optimized timestamping and efficient collaboration using Live Contracts. We are a contributor to ISO/TC307 in order to define the ISO standards on blockchain and DLT. In addition to that, we announced 2019 the partnership with NEN, the Dutch Standardisation Institute and member of the ISO party. This partnership involves the storage of standardisation certificates on the blockchain.

Based in Harwell, Oxfordshire, **SpaceChain UK** leverages UK's world-leading position in technology development and taps on resources from renowned universities, such as Cambridge, Oxford, University College London, London School of Economics and Imperial College London. SpaceChain UK contributes important expertise in space technology research and development, which are vital to SpaceChain's missions and launches.

SpaceChain is building the world's first open-source satellite network to enable a next-generation infrastructure for blockchain industry. This mesh node constellation of low earth orbit micro-satellites will serve as a decentralized infrastructure for the blockchain industry. SpaceChain's open-source operating system — SpaceChain OS — converts single-operator satellites into multi-tenant ones, allowing users to develop different types of space-based applications on a single satellite.

SpaceChain UK has already developed a multi-signature satellite wallet application, a blockchain-based wallet system deployed on satellites with security guaranteed by satellite communication. The current development includes projects on secure data transmission, Earth Observation IP protection and research on the protocol of decentralised satellite network. Here are some of the technology SpaceChain UK is working on: Blockchain and distributed ledger technology platform for EO data, Blockchain platform for fintech, In-orbit demonstration program, Multi-signature wallet payload, Deep learning for space data.

Yours sincerely,



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