HealthDataNet

Part 1 - Proposal Submission

Name of Project: HealthDataNet

Proposal in one sentence:

To network with senior healthcare executives of companies that provide services to major U.S. health systems to understand their data storage and analytics problems and lay the groundwork for providing data solutions using the Ocean Protocol tech stack.

Description of the project and what problem is it solving:

Under US law (HIPAA, Hitech Act), health care provider companies are required to maintain protected health information (PHI) and provide it to the patient on request. This is a burden / cost to these providers with no returns generated. Furthermore, this data is locked within individual company data silos and the companies have no mechanism to cooperate with each other to analyze this data for clinical insights. We propose to help unlock the value of this data while maintaining a strict commitment to patient rights and privacy.

Our end goal is to align with / become an Ocean Protocol based b2b marketplace for healthcare data assets and analytic solutions while ensuring patient rights and privacy. The US healthcare focused marketplace will catalyze healthcare innovation by unlocking these data silos. Funds requested in this proposal will allow us to initiate networks of provider company executives, understand their data needs and identify the problems which can be solved using the Ocean Protocol tech stack.

Grant Deliverables: (Provide us with a check-boxed list of deliverables for the funding provided.)

- [ ] Questionnaire development for allied health company executives regarding data pain points
- [ ] Detailed survey meetings with senior executives from large allied health companies where we will listen to their current problems involving data and introduce Ocean Protocol
- [ ] Follow up meetings with engaged executives to outline possible solutions using Ocean Protocol technology and highlight its advantages
- [ ] social media (LinkedIn) posts about the new data economy and Ocean Protocol
- [ ] Final report with analysis of the findings

Which category best describes your project? Pick one.

- Outreach / community / spread awareness

Which Fundamental Metric best describes your project? Pick one.

- Other - Our end goal is to unlock the enormous value in US healthcare data silos with Ocean Protocol based technology. As a first step, we will engage senior executives of allied health companies in this proposal. This engagement is qualitative (cannot measure it accurately) but directly influences Ocean's ROI. This outreach will bring valuable potential customer feedback to the Ocean Protocol developer community and allow them to craft solutions to real world problems in healthcare.
- Market WAU: By generating awareness amongst these executives, of Ocean's unique capabilities and, helping them discover attractive new revenue streams using data which currently is just a cost for them, we will unleash a win-win scenario for these companies. This should prompt them to explore and likely consume data and algorithms within the Ocean Protocol ecosystem.

What is the final product?:

A report including survey results, analysis and preliminary sentiments of allied health leaders regarding Ocean Protocol based data analytic solutions.

How does this project drive value to the "fundamental metric" (listed above) and the overall Ocean ecosystem? This is best expressed as Expected ROI

As part of our grant deliverables, we will generate critical feedback for the Ocean developer community to understand current data needs and problems as understood by senior allied healthcare executives.

Expected ROI:

Anecdotal reports from a health data company CEO (the Health Unchained podcast, episode 7, Jul 2, 2018) suggest a single health PHR (personal health record) was being sold for ~ 1200 USD in data marketplaces. The legality of these transactions are questionable, but indicates the value of such data.

The largest neurophysiology companies can provide services in ~ 100,000 cases a year, and the combined case coverage for major companies based in the US Northeast is at least 200,000 cases.

Although the total case volume is large, the types of cases (e.g. neck, thorax, low back, brain aneurysms, tumors etc) being covered are many and the patient population is varied. Hence an individual company lacks the ability to collect sufficient data for machine learning.

Assuming a theoretical total size of 200,000 cases a year, the total market size is 280.8 million Ocean (assuming 1 USD = 0.85 Ocean) considering data assets alone. The hypothetical ROI following this model results in a value of >90,000 (bang/buck) with a 100% chance

of success, >40,000 with a 50% chance, >18000 with a 20% chance, >9000 with a 10% chance, > 900 with a 1% chance of success.

expected ROI > 900 with a 1% chance of success

These are ball park estimates based on anecdotal data, and the true price of individual PHRs after becoming part of a dataset used in machine learning remains to be discovered.

(We thank the Coral Market team in round 10 for their estimated ROI calculation. We have based our ROI on their logic.)

Funding Requested: USD 3000/-

PLEASE NOTE: The amount requested is in USD, but the amount paid is in OCEAN token. The conversion rate is the market price on the given Round's Proposal Due By Deadline. This determines how many OCEAN will be awarded if a proposal is voted to receive a grant.

Proposal Wallet Address: (must have minimum 500 OCEAN in wallet to be eligible. This wallet is where you will receive the grant amount if selected). ***TBD***

Have you previously received an OceanDAO Grant: No

Discord Handle (if applicable): @mnkyntigr

Project lead Contact Email: aghatpande@gmail.com

Country of Residence: United States

Part 2 - Team

Core Team

For each team member, give their name, role and background such as the following.

Ambarish S. Ghatpande, PhD

- **Role:** community outreach, co-ordinator, researcher
- **Relevant Credentials** (e.g.):
  - **LinkedIn:** https://linkedin.com/in/ambarishghatpande
  - **Github:** https://github.com/aghatpande

- **Experience and Background:**
  - Statistical analysis and machine learning using R/RStudio
  - Surgical neurophysiologist III with SpecialtyCare 2016 - 2021
  - Surgical Neurophysiologist Sentient Medical Systems 2015 - 2016
  - Research Associate University of Maryland 2011 - 2012
  - Senior Research Scientist Lupin Ltd 2011
  - Research Associate at Monell Chemical Senses Center 2005-2011
  - Postdoctoral fellow at the University of Colorado 2000 - 2005
  - PhD dissertation in ion channel biophysics 1993 - 2000

Tara Stewart, PhD

- **Role:** community outreach, co-ordinator
- **Relevant Credentials** (e.g.):
  - **LinkedIn:** https://www.linkedin.com/in/tara-stewart-phd/

- **Background/Experience:**
  - CEO Cetera Vitae 2021 - present
  - Co-founder IONM Life, LLC 2018-2021

- Neurodiagnostic Manager Sidra Medical and Research Center 2014 - 2017
- Neurodiagnostic Specialist Miami Childrens Hospital 2007 - 2013
- Neuromonitoring technologist 2006 -2007
- Adjunct Faculty University of Virgin Islands 2005 - 2006
- PhD Neuroscience University of British Columbia 1996 - 2003

Advisers

Dr Prakash Kamaraj, MBBS

- **Role:** advisor
- **Relevant Credentials**:
  - **LinkedIn:** https://www.linkedin.com/in/drprk
  - **Github** : https://github.com/drprk
  - **Recent Web3 experience**: Led a project submission at Solana India hackathon

- **Background/Experience:**
- Currently a member of the Ocean Ambassador community; outreach ship
- Technology background in Health data-science and AI products in the MedTech industry
- Co-founding member of Deep Medicine Labs, a HealthTech solutions in the AI space
- Advisor and Tech product Consultant to multiple MedTech companies

Part 3 - Proposal Details

Allied health care providers range from anesthesiology service provider companies all the way to environmental services provider companies in the United States. A vast army of these companies provide services to U.S. hospitals. Many different types of companies are involved in direct patient care and are required to store PHI data by law.

Surgical neurophysiology companies are an example of allied health provider companies. Large neurophysiology companies are unique in having nationwide coverage. Surgical neurophysiology companies provide their services for surgeries involving the brain, spinal cord, peripheral nerves and many types of vascular (involving heart, major blood vessels including those in the brain) surgeries. There are approximately 200,000 such surgeries performed annually in the United States [ref **TBD**].

During surgery, the surgical neurophysiologist present in the operating room records neurophysiological data from the patient and runs tests at the request of the surgeon. This allows the surgeon to operate without permanently injuring vital neural tissue. For example, during brain tumor surgeries, a surgeon needs the neurophysiologist to guide him by identifying brain areas involved in movement, sensation, vital bodily functions (breathing etc). Large amounts of neurophysiological data are collected and needs to be stored as PHI (protected health information) by the company that employs the neurophysiologist.

The outcome of these types of surgeries are dependent on several features of the patient's medical history as well as the intra-operative course of the surgery. Potentially, this data when subject to machine learning, will unlock new insights into surgical outcomes. Unfortunately, machine learning models are data hungry, and no individual company can generate sufficient data on the many different types of surgeries performed. They need to collaborate amongst each other but are wary of this due to competition. We hope to eventually provide this mechanism and simultaneously provide a new revenue stream for each company in our marketplace. In addition, machine

learning developers and other entities (e.g. insurance companies) will also benefit from compute-to-data access to real patient data.

Using their experience and connections in the surgical neurophysiology field, the core team intends to network with large and small nation-wide surgical neurophysiology company executives. The US Northeast, where the core team is based, is at the forefront of this field and sets the ‘standard of service’ for other regions of the country.

The core team (Dr Stewart and Dr Ghatpande) have many years of experience working in these companies and have developed personal connections. This will allow the team to network with these companies and understand the unique technical problems involving neurophysiological data. The networking will specifically aim at identifying the pain points for these companies, with respect to data storage, handling and analytics.

Using these inputs and after consultation / collaboration with the Ocean Protocol developer community, the team will outline legal and realistic solution/s to these problems and propose possible analytic solutions in subsequent one-on-one meetings with these executives. These solutions will be based on the strengths of the Ocean Protocol tech stack, including immutability, access tracking and compute-to-data capabilities that preserve patient privacy. This will allow us to develop novel data products which can serve as a revenue stream for data providers and lay the groundwork for a US healthcare focused data marketplace based on Ocean technology.

Project Deliverables - Roadmap

- *Any prior work completed thus far?* The core team have actively engaged with senior neurophysiological executives for several years and hope to leverage those connections for this proposal.
- *What is the project roadmap? That is: what are key milestones, and the target date for each milestone.*

- Questionnaire development for allied health company executives regarding data pain points : end of November 2021
- In person / virtual detailed survey meetings with senior executives from large allied health companies where we will listen to current problems involving data : November / December 2021
- Follow up meetings with engaged executives to outline possible solutions using Ocean Protocol technology and highlight its advantages: December 2021
- social media (LinkedIn) posts about the new data economy and Ocean Protocol : December 2021
- Final report with analysis of the findings : January 2022

- Please include the team's future plans and intentions.

    - We believe a successful implementation of data solutions in the neurophysiology field will kindle interest amongst other types of health provider companies (e.g. anesthesia providers that typically work closely with surgical neurophysiologists in the operating room) and stimulate their adoption of Ocean technology.
    - Our end goal is to align with / become an Ocean Protocol based b2b marketplace for healthcare data assets and analytic solutions while ensuring patient rights and privacy.