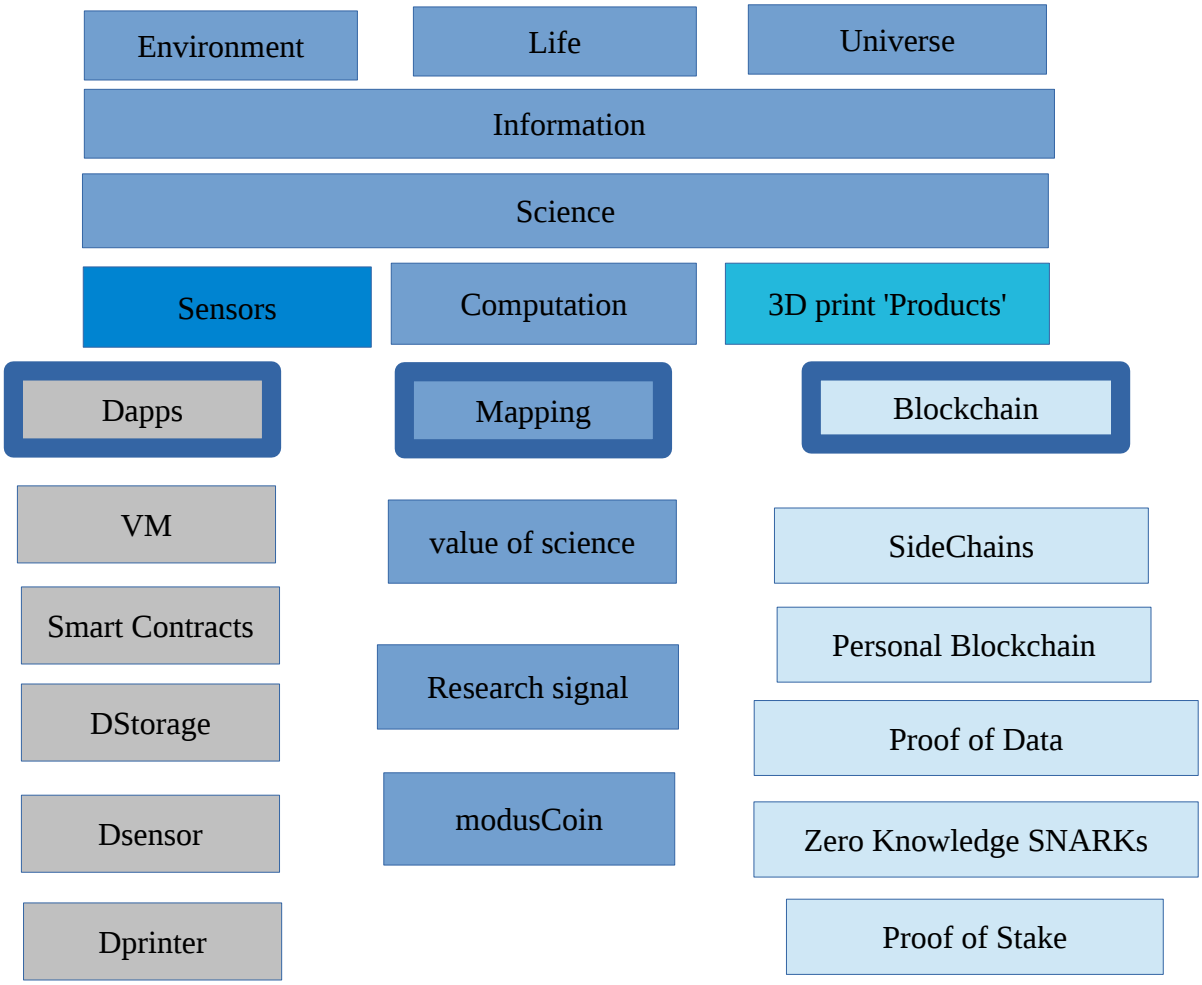
Modus :The Measure of Science – blockchain ideas, principals, objectives, big picture draft 1



1 Introduction

The complexity of the Worlds problems are growing, be it in understanding Life, the Universe or our Environment. For example, sensor data will allow the measurement of the environment like never before and with the Modus protocol anyone at any time or location can start contributing sensors or computational models to solve the challenges we have before us.

1.1 Emotional pull

Science is the foundation of technology and at the heart of human civilization advancement. Combine scientific endeavor with blockchain methodology and this gives the potential to accelerate science research discovery and thus evolution of the human species.

The big problems of our time; environment of planet earth and our survival on it. The conscious human control over life, cure aging or DNA modification and finally understanding the cosmos at large. Today, these complex problems are being addressed by very few humans. Humans centralized around government projects or scientific research labs of private corporations or non-profits. Computation power and software code being run on centralized computer infrastructure. The value of such research broadcast out. A science protocol would be open to all, contributing sensor data, computation power and software code (research) and then the value is personalized first and then

aggregated across the network to give the worldwide view.

1.2 Authority
Scientific method recognized across the planet. Putting it on a blockchain and liberating it to all is yet to be fully communicated or understood.

1.3 Technical
The technology now exists, networks, computation and mathematical trust mechanisms to propel the scientific endeavor forward, faster, better etc.

- Environment
    climate change: carbon dioxide, pollution(smog),

- Life
    cure aging, understand consciousness

- Universe (cosmos at large)
    laws governing creation and unfolding of a universe

2 Information
Science is showing that information is weaved in to the fabric of everything in the Universe.

3 Science
Science is the human construct to gain understanding that addresses the complexity of the problems.

4 Sensors
Range from electronics to human and those of other life forms.

5 Computation
Combing existing information to produce new through the use of computers.

6 3D Print (products)
The universal way of creating material objects.

7 Dapps (VM)
A second major push to decentralize the Internet protocol is underway. A Dapps communication and computation infrastructure using blockchain methodologies to render trust in the logic of mathematics. The Dapps environment is where network participants can contribute their own data and science research in the form of computer code to the network, Peer to Peer.

The key components of the Dapps are:

7.1 VM (virtual machine ptop)
The communication and messaging system and rules for shared computation peer to peer.

7.2 Smart contracts
Contract terms and condition written in computer logic.

7.3 Dstorage
The utility capability of having the data reliably available and privacy controlled by any peer.

7.4 Dsensor
Utility library to allow all sensors to interact with Dapps

7.5 Dprinter
Utility library to allow any printing of material object in the universe.

8 Mapping
The connecting glue between data, peers on the network and information across the universe is called mapping. In a science blockchain miners are called Mappers. The purpose of the network is to “map out' the environment, life and the Universe at large. Each peer in the network has the right to participate in mapping activities, whether that be sensor data recording, computation or 3D printing. Mapping activities will be 'rewarded' by a value or voting outcome granted by each individual peer on the network. The proof of data mechanism on the blockchain preventing the gaming of mapping.

8.1 Value of Science
Two forms on science value needs to be mapped out. Existing knowledge in the form of information and scientific hypothesis set out in information. A mechanism to map both types will be required.

8.2 Research signal
This will replace price (as in monetary) signal as the governing number for the network to guide its collaboration activities. For example, this will give sensor makers the insight on where to innovate for greater granularity of measurement or highlight areas not being measured, or on the computation side, focus energies on the urgency of problems needing solved or an indication to the entire network of the complexity of a problem etc.

8.3 modusCoin
This will be a Infocurrency. Crytpocurriencies reward that act of mining, an Infocurrency will reward the act of mapping. An Infocurrency differs from all monetary (fiat or crypto) currencies in that 'pricing' is context specific and the underpinning information in that context is actionable i.e. can be used directly in any computation.

9 Blockchain (Personal)
The primary role of the blockchain is to facilitate trust and reach universal consensus across the network.

9.1 Blockchain

9.1.1 Sidechains
This proposed as the next evolution of the blockchain technology. This allows more advanced scripting in contracts i.e. computer code written rules to describe the 'law' of the terms of a contract.

9.2 Personal Blockchain
An autonomous way for a peer to collect, manage and compute their data to a degree of privacy they choose.

9.3 Proof of Data
The governing mathematical techniques and methodologies applied to provide trust in data and computation. This gives the ability for all data to be known to be verifiable captured from a sensor at some point in time and space and allow for unlimited sharing of the data across the network.

9.4 Zero Knowledge Proofs / SNARKs
A profound set of mathematical theorems that provide a set of properties when operated on a computer.

9.5 Proof of Stake
The creation of infrastructure properties e.g. prime numbers to support the growth of the network.

10 DAO
The Governship for the building of the code to make the Modus Protocol operational.