

## How will space exploration be sustained?

Decentralized Manufacturing (DeMan) will sustain space exploration by leveraging public blockchains and 3D printing to move manufacturing outside the four walls of the factory to space stations, space colonies and space factories. Using digital supply chains, DeMan pushes digital designs to the point of use while enabling manufacturing at the time of need.

### Use Cases



Space requires flexible approach to supply chain management.



Harsh environment. Need parts now.



No room for spare parts.



\$950K to fly 1 pound to the moon.



Part availability issues and terrestrial suppliers.



Shorter production processes. Design and push to space.



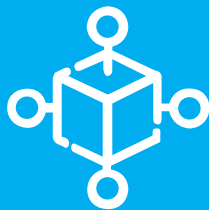
Lot size of 1...no need for bulk manufacturing.



Circular supply chain with 3D printing.

### Traditional vs. Decentralized Manufacturing (DeMan™)

#### Traditional

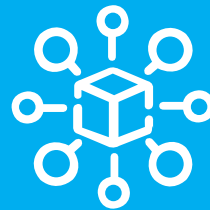


Centralized

Long Logistics Tails

Lacks Trust

#### DeMan



Decentralized

Design on Earth  
Print in Space

Trust is a Must

### Challenges



Lack of Material Properties & Standards for Space



High Consequence of Failure

### Future of Decentralized Manufacturing (DeMan)

- DeMan will create new space business models and value.
- Blockchain will be key to data, process & performance integrity.
- Space Industry will accelerate 3D solutions for light weighting.
- Space and near space industrial exploration will accelerate.
- Companies will use space to create new products.

