Connecting the Dots:

Linking Space, Finance and Society

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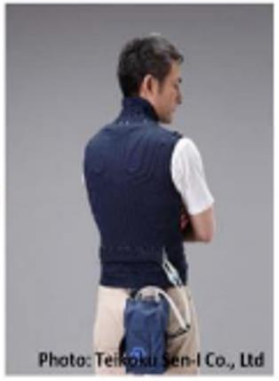
Space R&D Has Always Led to Terrestrial Innovation & Products

Space products and safety standards have been copied on the ground…

Spacesuit Research

Cooling Vest Undergarment



Food safety

Software independent/formal verification/validation

Space Technology in the Financial Sector

- Credit process:
  - ✓Remote decision making on credit risk profiles
  - ✓Support loan portfolio monitoring
- Payment process:
  - ✓Enabling transactions in remote areas with satellite communications
- Insurance process:
  - ✓Support risk modelling to better tailor insurance policies
  - ✓Improving portfolio monitoring and risk mitigation
  - ✓Allowing remote decision-making for verification of claims
  - ✓Facilitating the design of efficient index-based insurance products

Use Case 1: Integrating Space and Blockchain Technologies – SpaceChain

SPACECHAIN

SpaceChain Callisto

A programmable hardware board that enables developer communities worldwide to participate in advancing next-generation decentralized infrastructures for blockchain and fintech applications using space technologies.

NOW AVAILABLE!

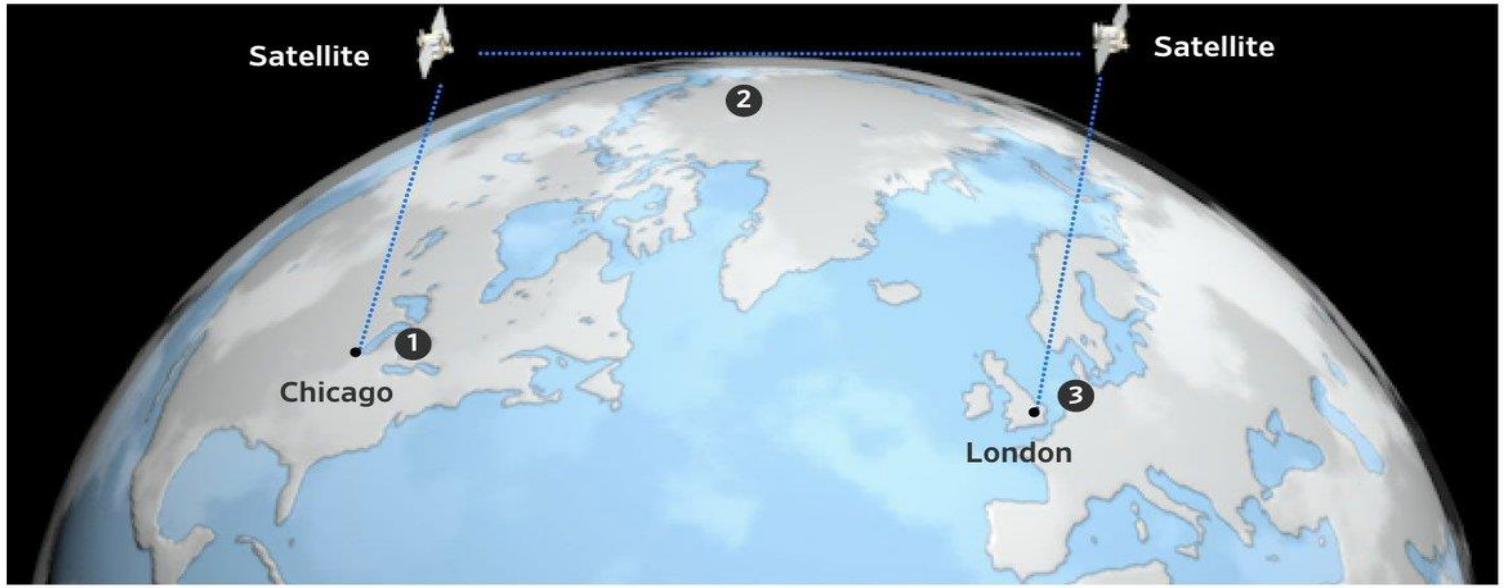
Source: https://spacechain.com

Use Case 2: Satellite Network for High-Frequency Trading

Masters of the Universe

Satellite networks could speed up data transmission for high-frequency trading firms.

Potential technology



1. A radio antenna in Chicago sends data up to a satellite.

2. The satellite receives the data and relays it via laser to another satellite, which then transmits it towards London.

3. The data arrives in London. It is not yet known how long this will take, but one satellite operator has touted speeds of less than 29 milliseconds.

Source: Wall Street Journal

Combining Space & Sustainable Finance for Achieving Sustainable Development Goals

- UN Office for Outer Space Affairs created in 1958 to promote greater international collaboration in the outer space
- Different space technologies and fintech applications can help us achieve SDGs across different dimensions:
  - ✓ Telecommunications access
  - ✓ Financial inclusion
  - ✓ Access to education
  - ✓ Improved agricultural yields and better food safety
  - ✓ Disaster risk reduction and humanitarian crises
  - ✓ Health applications
  - ✓ Natural resources and environment management
- Combining satellite imagery and machine learning techniques for automated mapping in the field of:
  - ✓ Education/schools (e.g. www.unicef.org/innovation/school-mapping)
  - ✓ Urban poverty, etc.

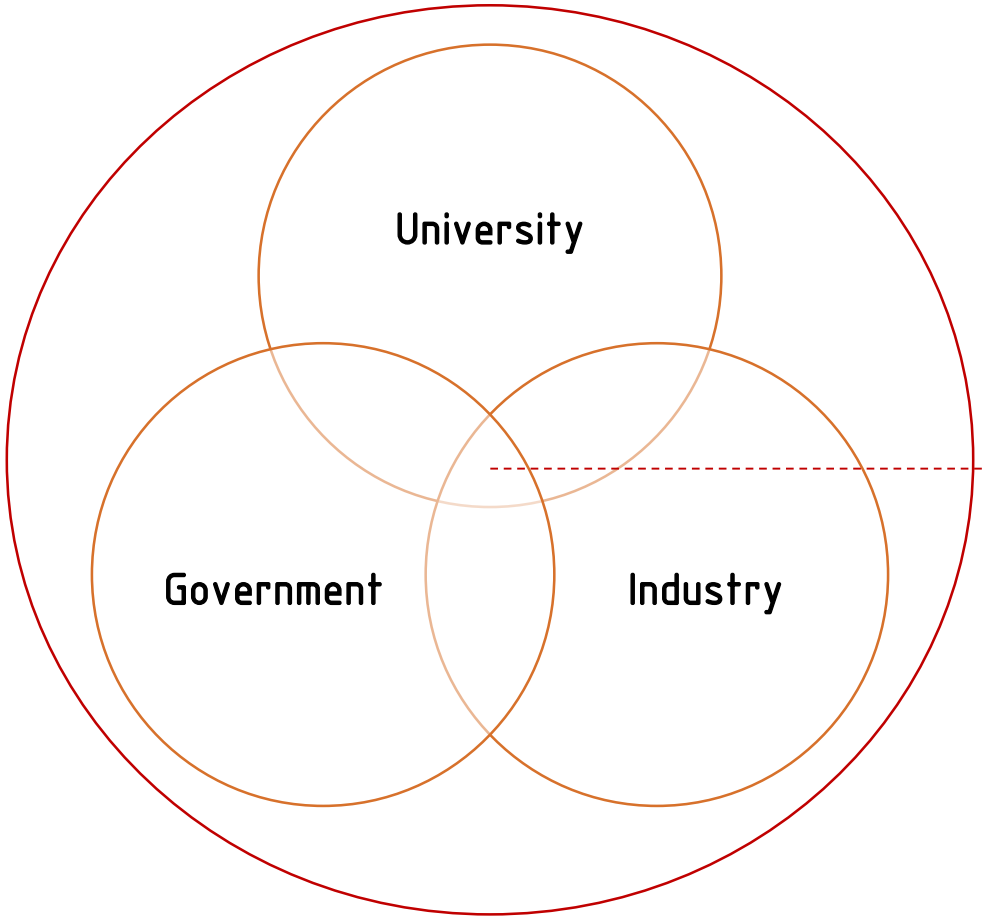
There is a clear convergence between **space technology** and **sustainable finance** for improving **society** at large…

New Space Lowers Capital Barriers for Accessing Space Technology

From Stanley Kubrick's *2001: A Space Odyssey*

- While commercial space travel remains capital intensive, and to be developed, cost of accessing satellite communications and imagery is dropping…
- Traditional (private) financial actors are scrutinizing the maturation of space technology as a new frontier for investing:
  - ✓ Venture capital/private equity
  - ✓ ETF providers/capital markets
  - ✓ Entrepreneurial philanthropy
- (International) public and private partnerships remain a key component of space infrastructure development
- Sovereign and geopolitical interests are increasingly weighing in

University-Industry-Governement: the Triple Helix in the Space Sector



Space agencies as the interface
within the 'triple helix' of successful innovation

Thank you for your attention !

Source: Ezkowitz 2008: 12-13