

Combined Space Settlement Economics Slides



ARCHON 46

[Gateway Center](#)

30 Sep 2023

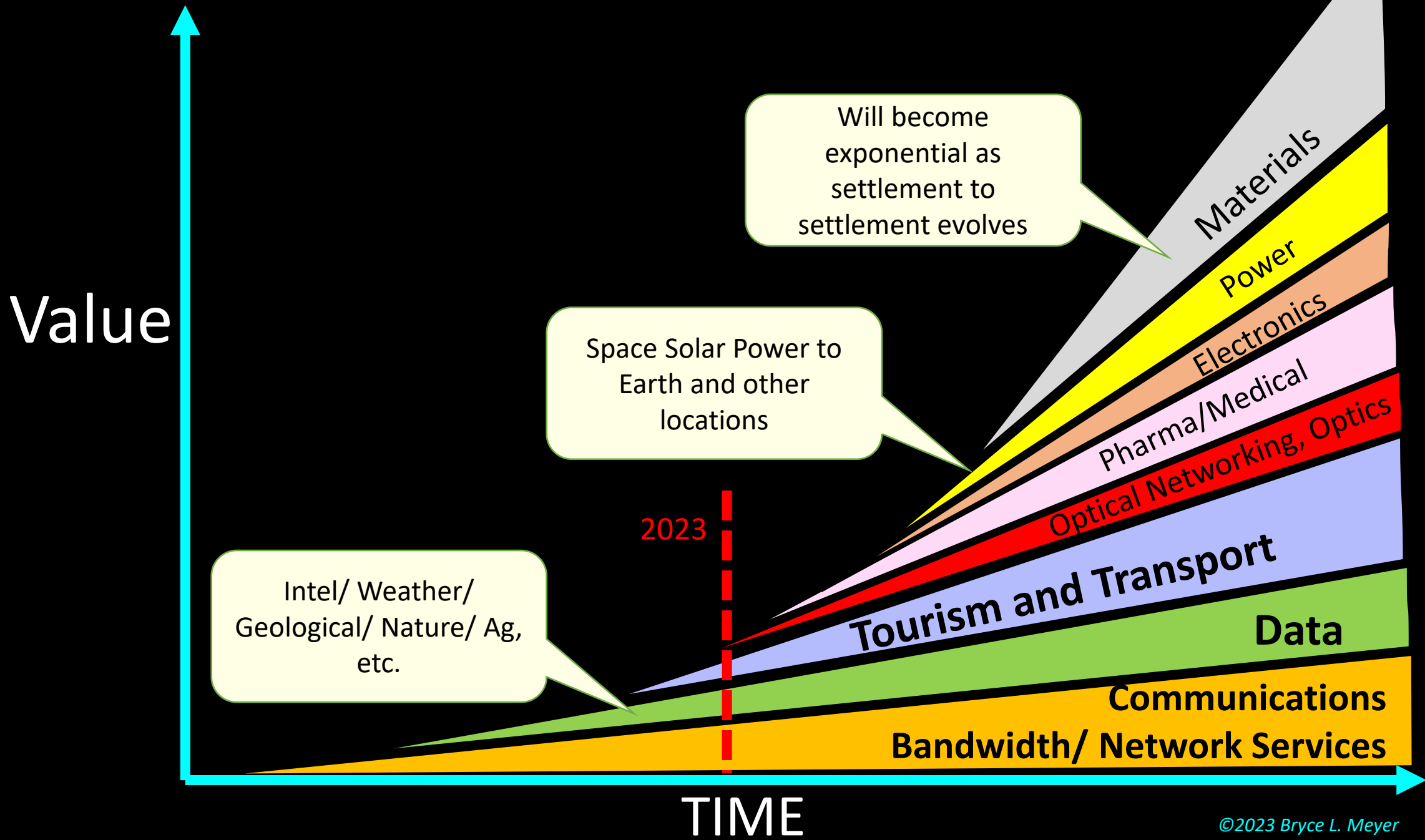
by Bryce L. Meyer



Topics:

- **The Profitability of Settlements in Outer Space**
- **Space & Entrepreneurship**

SPACE Products (next 50-75 years)

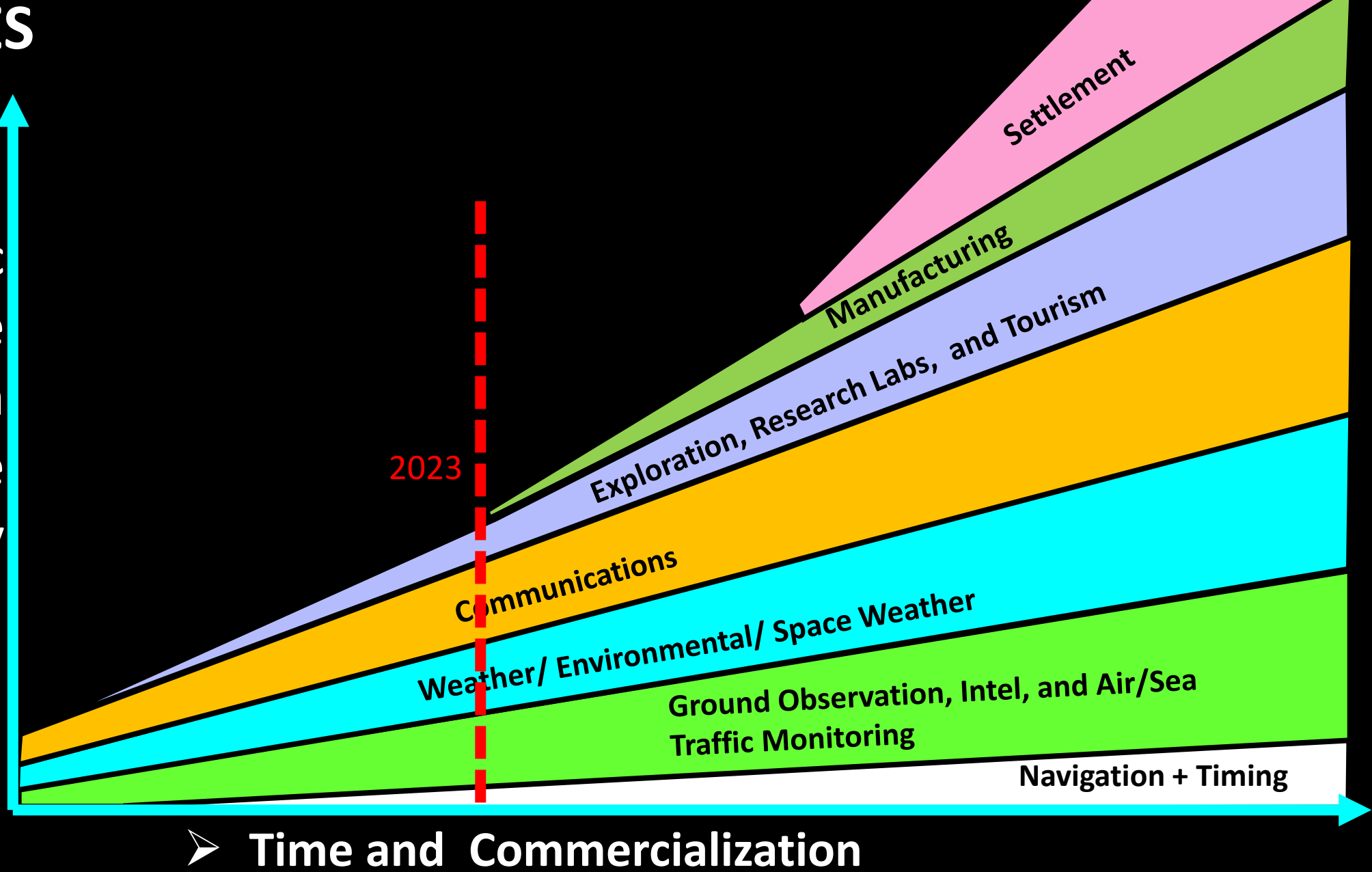


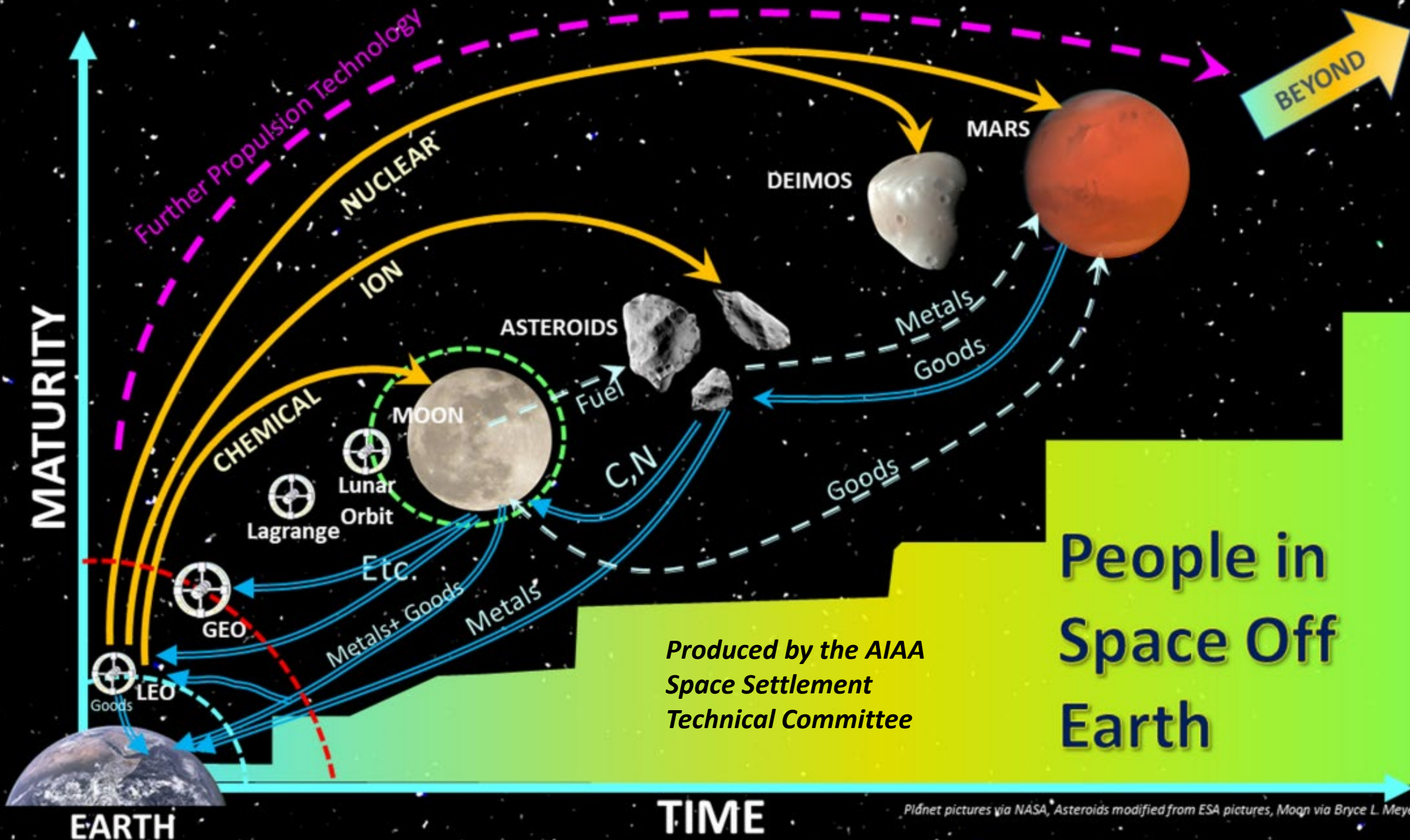
Settlement Money Makers

- Research and Tourism
- Luxury Goods
- Data and Information
- Banking?
- Business hosting?
- Fuel and Spacecraft services
- Industry Products, Materials for Earth, eventually other settlements
- Agriculture goods for other settlements and ships
- Raw/Processed materials for other settlements and Earth

SPACE USES

- Economic Value
- People in Space
- Criticality





Produced by the AIAA
 Space Settlement
 Technical Committee

People in Space Off Earth

Planet pictures via NASA, Asteroids modified from ESA pictures, Moon via Bryce L. Meyer

The Profitability of Settlements in Outer Space



ARCHON 46

30 Sep 2023

1:00-2:00PM

[Gateway Center](#) - Salon 1



Topic: "Settlements on the Moon and in orbit will be profitable."
-- Gerard K. O'Neill. Lunar outposts will mature into self-sufficient lunar settlements with mining and manufacturing which in turn will enable profitable space settlements. Is it ethical to commodify any future settlements, or is that the natural progression?

Space & Entrepreneurship



ARCHON 46

30 Sep 2023

3:00-4:00 PM

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Topic: Space & Entrepreneurship is the theme of this year's World Space Week, taking place October 4-10. What opportunities are there in space for entrepreneurship? Should this entrepreneurship only allowed to be public (world-wide) or private, as well?

BACKUP

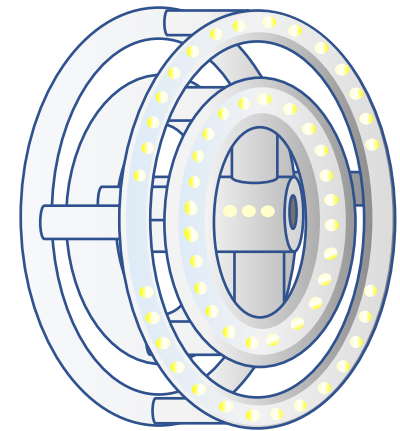


Near-Term Industries in Space

1. Uncrewed: Navigation, Intel, Communications
2. Uncrewed: Automated Factories and similar:
 1. Communications: Fiber Optics and Amplifiers
 2. Chemistry: Crystallization of pharmaceuticals, key compounds and metals
 3. Complex High Value Items that can be 3d Printed
 1. Microelectronics
 4. Items or processes that are bad to make on Earth, but good for commercial use
 1. Many chemical processes!
 5. Collection of materials for later use: He 3, etc.
3. Items in #2 eventually drive need for on-site workers, due to latency and repair
4. Experimentation for Earth: Experiments that need local control
5. Space Tourism: Same people
6. Crews that run Cruise Ships, Hotels, except in space

Long-Term Industries in Space

1. Space Tourism
2. Orbital and Lunar Factories
3. Lunar Mines
4. Scientific Bases
5. Settlements



Evolution of who goes to space

#	Driver	Type	Roles	Fitness
1	Very difficult to control spacecraft, complex space ops, harsh conditions, high risk	Test Pilots/Engineers (Pilots or Aircrew with Graduate Engineering Background)	Pilot, Ops	High Athlete
2	Scientific Exploration, Medical, or Engineering in moderately austere conditions, risky	Scientists, Medical, and Engineers with PhD/MD and well known in field	Mission Specialists	Middle Athlete
3	Experimentation for pre-planned experiments, some space assembly less austere conditions	Scientists and Engineers with graduate degrees, but also process oriented	Mission Specialists, Factory	Fit
4	Need for crew to perform manual technical work or process work (Plumbers, Kitchen, Servers, Welders, etc.)	Technicians with experience in area, detail oriented, and ability to adapt to space conditions	Many crew roles, Factory	Fit enough to tolerate launch and work in space
5	Tourists/Dependents	Anyone who can tolerate space environment, can pay attention to notices and warnings (as on airplanes and cruise ships)	Tourist or none	Fit enough to tolerate launch and life in space

Base or settlement types for spacefarers

