

Competing Visions

- A Brief Historical Review
and the Challenges of Tomorrow

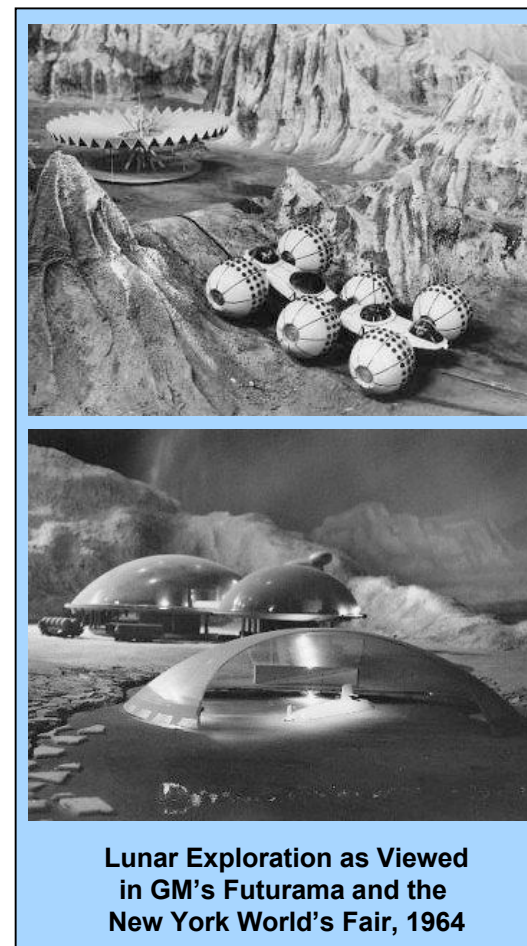
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The Three Models

- **Three space programs have existed since the 1940s:**
 - **The Civil Vision:**
 - **PRIMARY** - biased by the Von Braun vision of large, complex systems
 - In second place, a scientific vision of exploring the cosmos
 - **The Military Vision:**
 - **PRIMARY** - a reactive vision tied to the necessity of dealing with the technological aftereffects of World War II – rockets and nuclear weapons
 - In second place, the strategic importance of exploiting space for military purposes (weather, communication, intelligence gathering)
 - **The Commercial Vision:**
 - **PRIMARY** – the Big Money – e.g., television and communications
 - In second place, the visionary entrepreneur fighting for markets e.g., remote sensing, transportation
- **The three primary visions were more or less symbiotic and generated huge national investments:**
 - **Secondary themes have been competing ever since**

The Civil Space Vision – Viewing Today from Yesterday

- **We were to be living on the Moon and traveling to Mars... instead:**
 - We're stranded in LEO with unsustainable systems
 - Struggling to build infrastructure evolved from systems nearly 50 years old
 - Lost relevancy – the result is lean budgets
 - Lean budget slow the pace and a slow pace makes it very difficult to maintain a skilled staff
- **Civil Space Program:**
 - Defensive
 - Elitist
 - Failing to Excite
 - Antagonistic to perceived competitors



It's Time to Reconsider the Primary Role for Civil Space

...AND NURTURE AN ALTERNATIVE VISION OF PRIMACY:

- **The von Braun vision as bankrupt and unsustainable**
- **Scientific exploration as a powerful source of inspiration**
- **Entrepreneurialism as a precious resource (exemplified by American research entrepreneurial icons - Frank Malina, Gerard O'Neil)**
- **Civil-Military-Commercial partnerships as an economic necessity**

Competing Models: Profoundly Different Futures

Von Braun Paradigm:

- Earth-centric surveillance platforms – bureaucratic driven
- Military/civil driven space vehicles for elites
- Drastically reduced American industrial base
- Antarctic-analogues on a few planetary surfaces (driven by national security and science)

Malina/O'Neill Paradigm:

- Robust entrepreneurial efforts – innovation driven
- Tendency to mistake technical possibility for market opportunity (numerous failures, occasional success)
- Disruptive technologies and “transformative capitalism”
- NASA – R&D source, smart buyer of products and services

Each day strengthens the realization that the Von Braun Paradigm no longer best serves U.S. interests

Next Generation: Anything is Possible

