



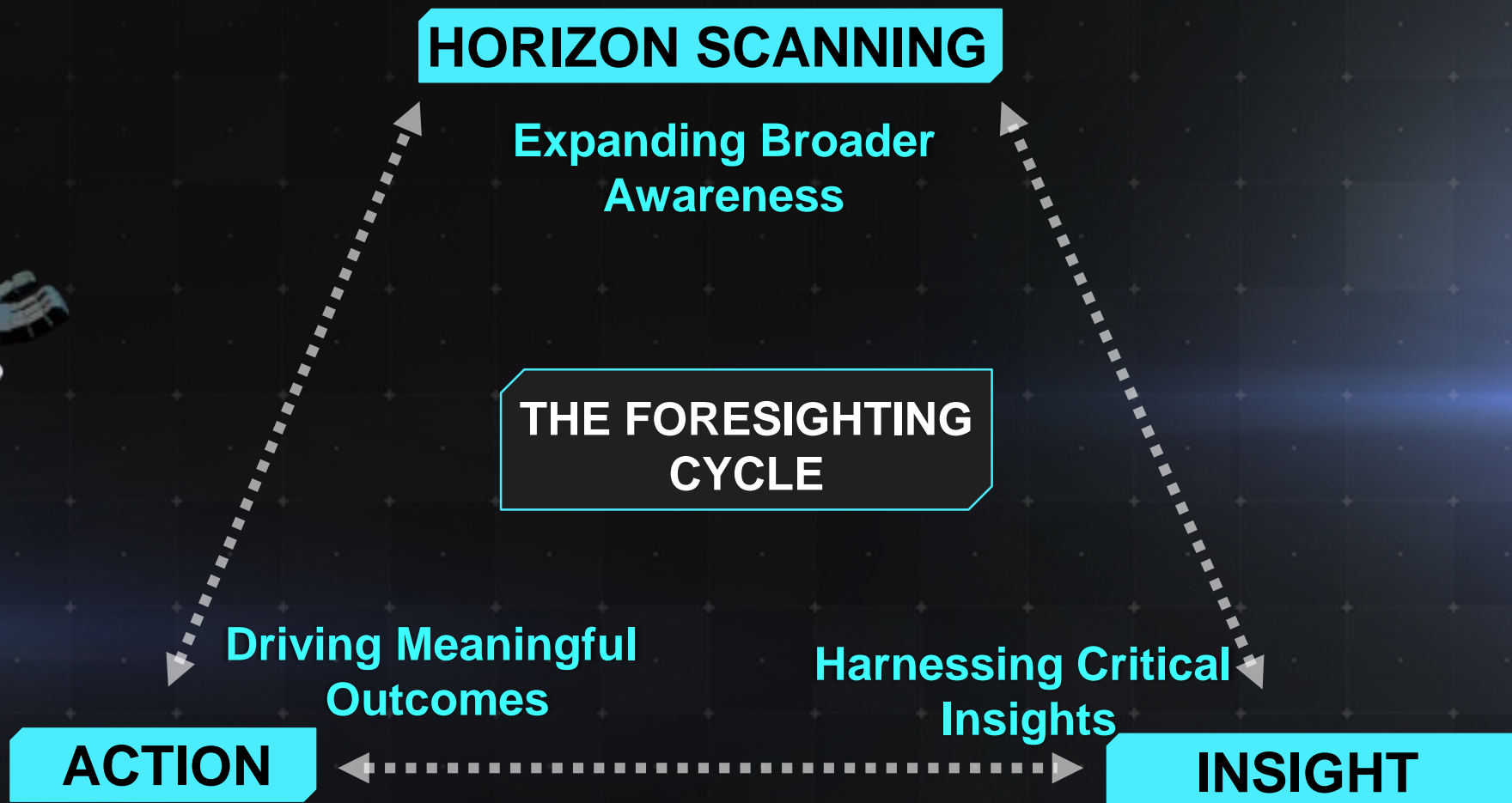
# ***Foresight for Space: A Journey Through the Unknown***

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# What is Foresight?

Foresight is a diverse and structured set of tools, techniques, and methods that generate greater awareness about plausible outcomes in the future so that we can make better decisions today

# VALUE OF FORESIGHTING



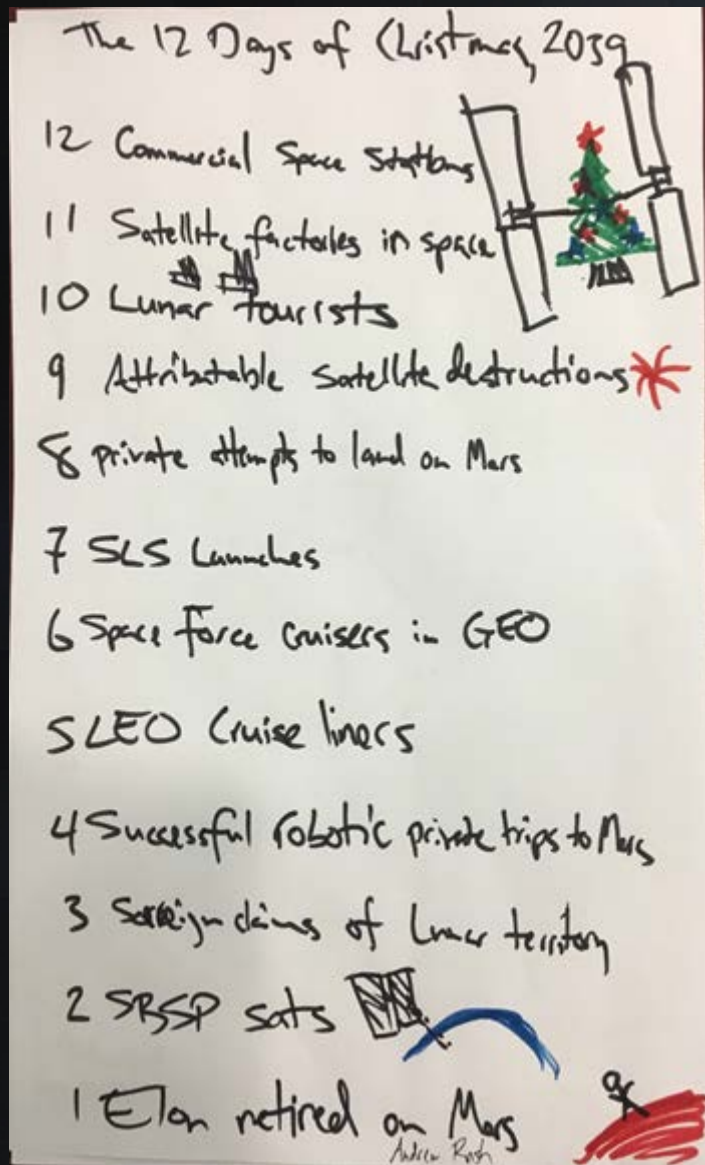




# Horizon Scanning for the Space Logistics and Manufacturing Community

- Why are we going, where will we be, and what do we need to build, organize, and deliver?
  - Commerce
  - Science
  - Defense
  - Living (habitats, art, recreation, etc.)
- A Few Notable Signals to Watch
  - Open-source code ruled free speech  
(<https://www.wired.com/story/a-landmark-legal-shift-opens-pandoras-box-for-diy-guns/>)
  - Generative design  
(<https://www.youtube.com/watch?v=E2SxqUvtplk>)
  - Stretchable electronics  
(<https://www.electronicshobby.com/>)
  - Liquid metal tendons for robots  
(<https://www.digitaltrends.com/cool-tech/liquid-metal-tendons-healing-robot/>)

**Know/anticipate your why before you build the what!**





# Watch Out!

## *Futuring Traps*

- Bias towards “precision metrics”
  - *Large uncertainty domains are largely intractable*
  - *Decision-makers are incentivized to lock in requirements based on optimized answers*
  - *Predictions work until they don't...*
- Technology and more innovation will solve the problem
  - *All problems are primarily people problems*
  - *Innovation only matters if it's solving a people problem*
  - *Push AND pull drive the future*
- Perhaps COVID-19 serves as wake-up call to show us we need to think differently
  - *Approach problem framing with multiple future mindsets*
  - *Capability vs. requirements approaches*
  - *Anticipatory decision-making*

*“There are no future facts”*  
—Jim Dator

***Foresight can help us navigate inevitable uncertainty that faces us***



# PATHFINDER'S GUIDE TO THE SPACE ENTERPRISE



<https://aerospace.org/aerospace-presents-pathfinders-guide-space-enterprise>

# HISTORY OF MANKIND





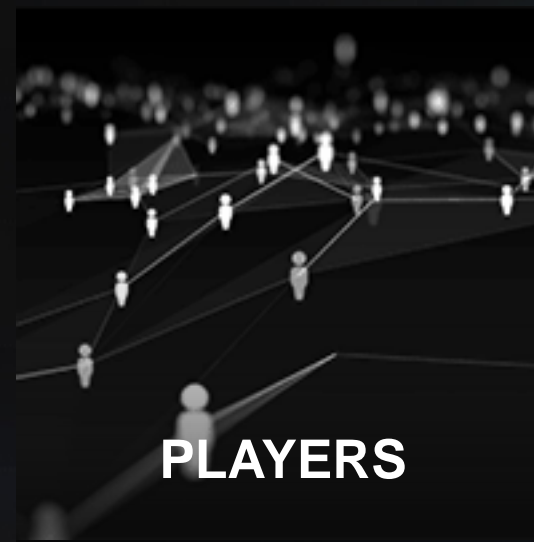
# 7 CORE THEMES



**INTELLIGENCE  
INFRASTRUCTURE**



**CONFLICT**



**PLAYERS**



**WORKFORCE**



**RESOURCES**



**ACCESS**



**EXPLORATION**



# WHAT IF?

## CELESTIAL-GRAPHIC SOCIETY FOUNDED

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"Your subscription to *Celestial-Graphic* helps fund explorers on Mars, photographers and storytellers on the moon, astronomers at the Lagrange One space station, and our mission of convening and connecting people with the wonders of our universe."



## ETHEREAL RESORT AND SPA ORBITING MARS IS HIRING!

Ethereal is looking for zero-g medical spa specialists, and Class 3 human security guards with cybernetic capabilities for strength and scanning.

## THE GREAT INVERSION

Unlimited Reverse Launch of On-Orbit Manufactured Goods is Now Available via Annual Membership



Timeshare robots dominate lunar and Martian marketplaces



## SPACE WORKERS UNION STRIKE

Members of the largest union of space-based workers walked off the job today on Moon Base Alpha. "Work in outer space exposes us to hazardous conditions that aren't recognized by corporate executives in their Earth-bound offices," said a spokesperson. Market-watchers speculate that one concern of space workers is the increasing use of robots and AI for in-space and moon-based assembly.



## Denial-of-Service Brings Down Space Combat Cloud

## SPACE RABBIT



Beautiful Minds: Online space gig marketplace opens for high school students, allowing industry to tap world's most creative workforce.

Emotionally tuned AI keeps people happy in space.

Floating cislunar safety sanctuary base saves family from solar storm on their return from lunar park.

## SPACE POWER HITS \$0.02 PER KWH

Space-generated power is now the cheapest power around. Power beamed from the L3 orbiting power station to Earth has dropped below all terrestrial sources of power.

## STAR WARS MEETS JUNK WARS: WHO OWNS SPACE JUNK?



# SPACE SHOCKS



GLOBAL PANDEMIC

KINETIC  
EVENT

ASTEROID  
IMPACT

UNBREAKABLE  
ENCRYPTION

WARP DRIVE

MAGNETIC  
FLIP

UNOBTAINIUM  
FOUND

CLIMATE  
COLLAPSE

SPACE BUBBLE  
BURSTS

CARRINGTON  
EVENT

ALIEN LIFE

SYSTEMIC SUPPLY  
CHAIN FAILURE

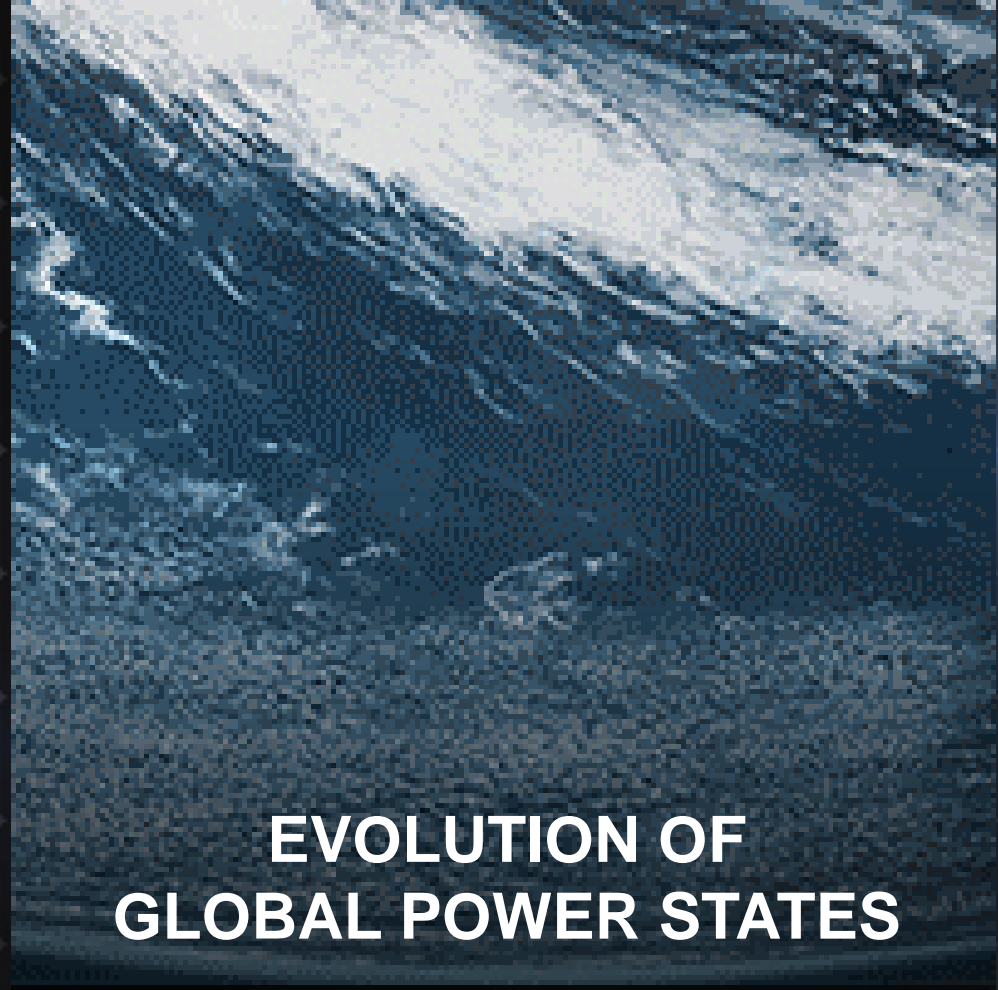
UNEXPECTED  
SCIENTIFIC  
BREAKTHROUGH



# CRITICAL UNCERTAINTIES



**COMMERCIALIZED SPACE**



**EVOLUTION OF  
GLOBAL POWER STATES**

# Leap frogs





# KEY TAKEAWAYS



**HOMO DEUS**



**JEWELS OF SPACE**

*The Future of Space is YOU*



***“THE MOST AMAZING THING ABOUT THE  
FUTURE WON’T BE THE SPACESHIPS, BUT  
THE BEINGS FLYING THEM.”***

*-Yuval Noah Harari*





# Got Foresight?

Additional Resources to Check Out

[Space Policy Show E12: Foresight for National Security and Space w/ Josh Kerbel and Jake Sotiriadis](#)



[Fast Company, March 2021](#)



[Space Agenda 2021: Foresight Chapter](#)

[Space Policy Show E54: Constructive Visioning for the Space Enterprise w/ Jim Dator](#)



[Army MadSci Podcast: Beyond Space](#)



***To Boldly Go!***

Drop us a line anytime [Futures@aero.org](mailto:Futures@aero.org)