Believing in Bold IDEAS!
Vision of Space and NASA in 2050 and 2100
MSFC Space 2100
Amy Sivak
November 2014
TVIW

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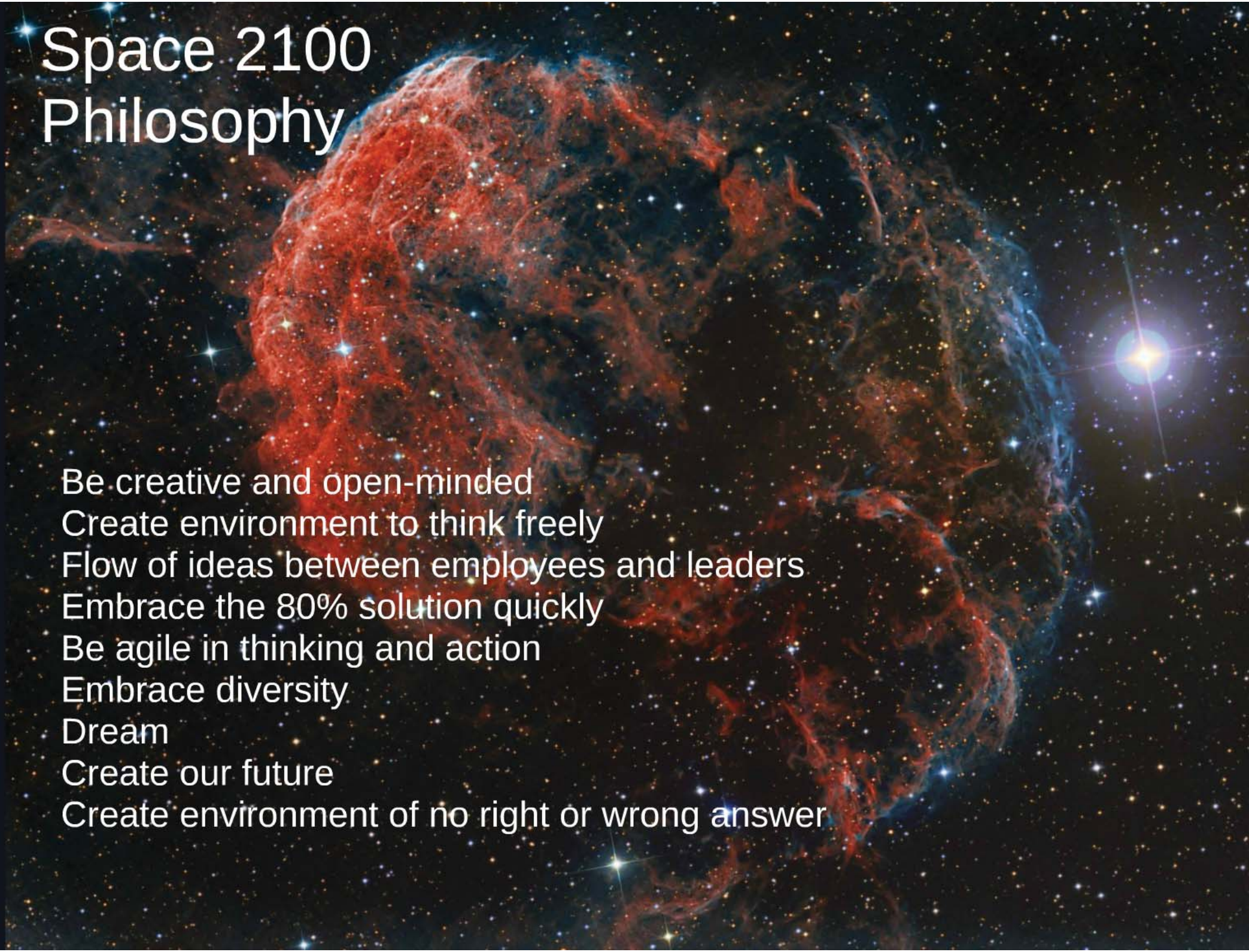
Space 2100 Philosophy

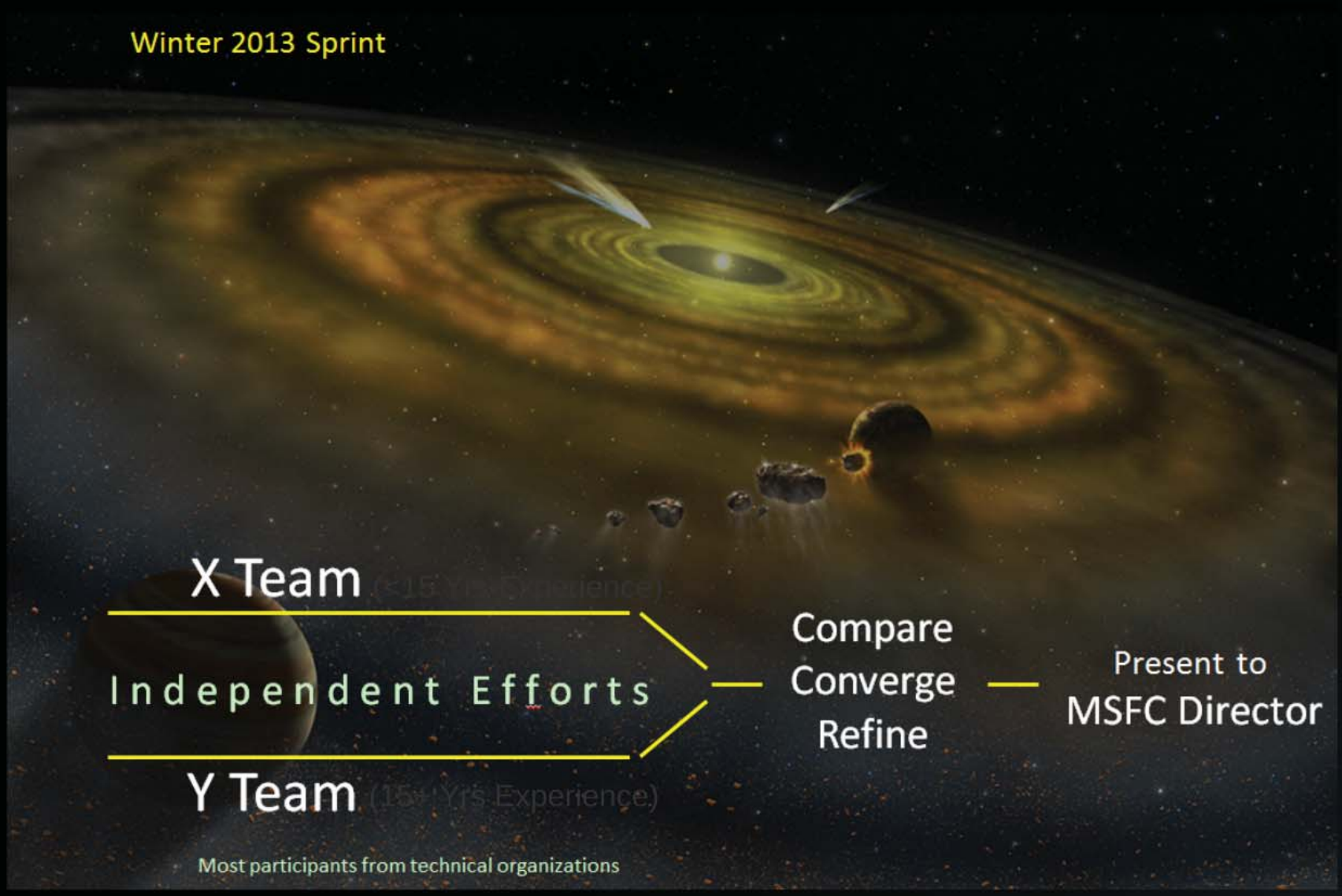


Be creative and open-minded
Create environment to think freely
Flow of ideas between employees and leaders
Embrace the 80% solution quickly
Be agile in thinking and action
Embrace diversity
Dream
Create our future
Create environment of no right or wrong answer

2013 Winter Sprint

1. **What will the world look like in 2100?**
   - **What technologies will be online?**
   - **How will we be working?**
   - **What grand challenges will the world be facing?**

2. **What will the world be doing in space in 2100?**
   - **What might NASA's role look like?**
   - **What pieces seem "naturally" MSFC?**


Winter 2013 Sprint
X Team
Independent Efforts
Y Team
(15+ Yrs Experience)
Most participants from technical organizations
Compare
Converge
Refine
Present to
MSFC Director

Breakthroughs since 1900 have changed our world

Air travel and space exploration routine

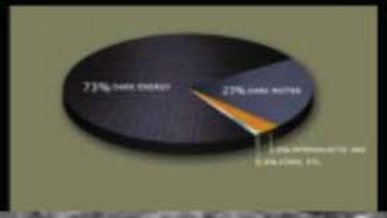
Gigaflop computational capabilities

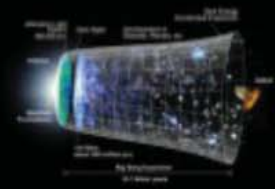
Nuclear energy available globally

Global communications

Artificial body parts, vaccines, antibiotics, molecular biology

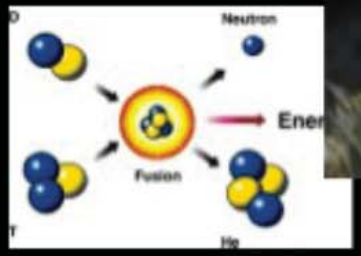
Evolving understanding and map of the universe



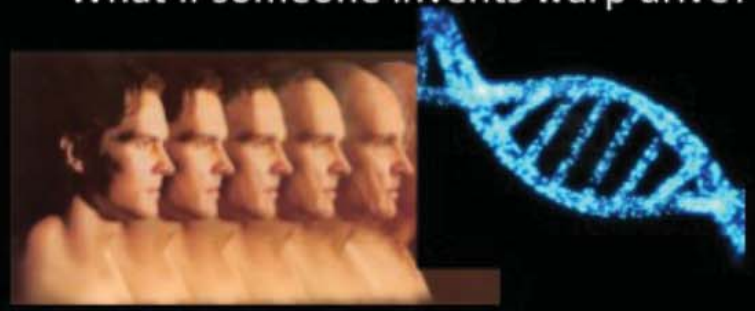


Breakthrough: "Any significant or sudden advance, development, achievement, or increase, as in scientific knowledge, that removes a barrier to progress"

What if someone invents warp drive?



Will clean and abundant energy be possible?



What if we learn to control aging?

Will humans and machines merge?

We don't know what's possible – breakthroughs are, by their very nature, unpredictable…

Winter 2014 Sprint

2050 Cis-Lunar Econosphere

Phase I
2050 CLE *Snapshot*
(More detail than
2013 Sprint)

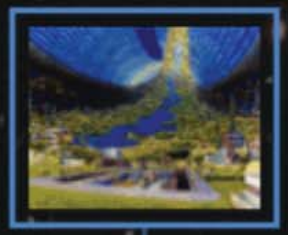
Phase II
How to Get There?
Barriers and Enablers?
What to Start Doing Now?

2 Independent Teams
Mostly New Members
Diverse Disciplines

Compare
Converge
Refine

Present t
MSFC
Center
Director

2050 CIS-LUNAR ECONOSPHERE
What if?



Lunar Base
In Construction

10 GW Solar Power Satellite,
SPS, In Construction using ISRU

SPS Demo

Beginning
Large Habitat
Construction
Using ISRU

300 person
Bolo Habitat

Asteroid Mining

GEO

LEO

L1

L2

SLS

Way stations

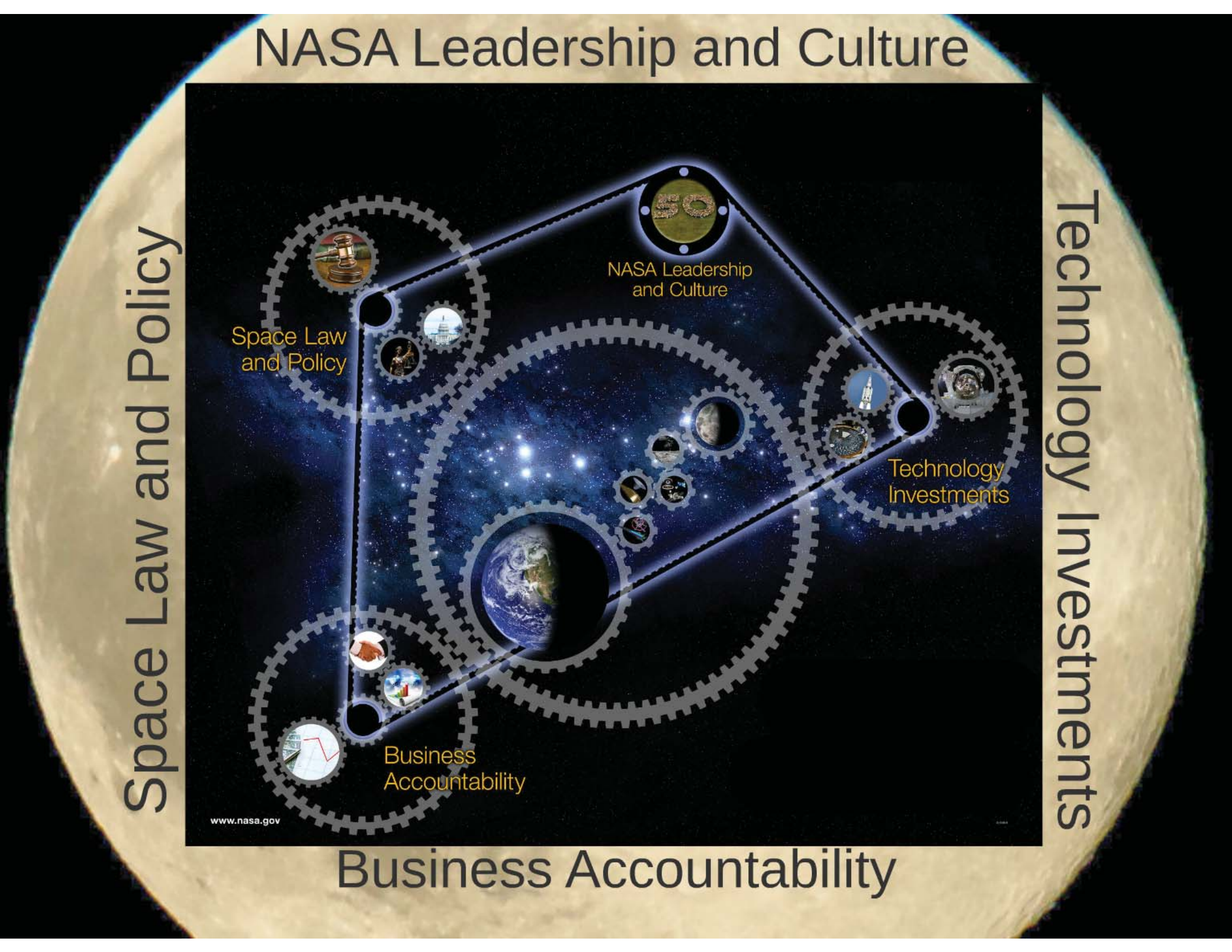
LEO Hotel

Space Liner to LEO

Operational
Lunar Mining
Outpost

P.A. Curnet 2014

2014 Winter Sprint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Space Law and Policy
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Business Accountability
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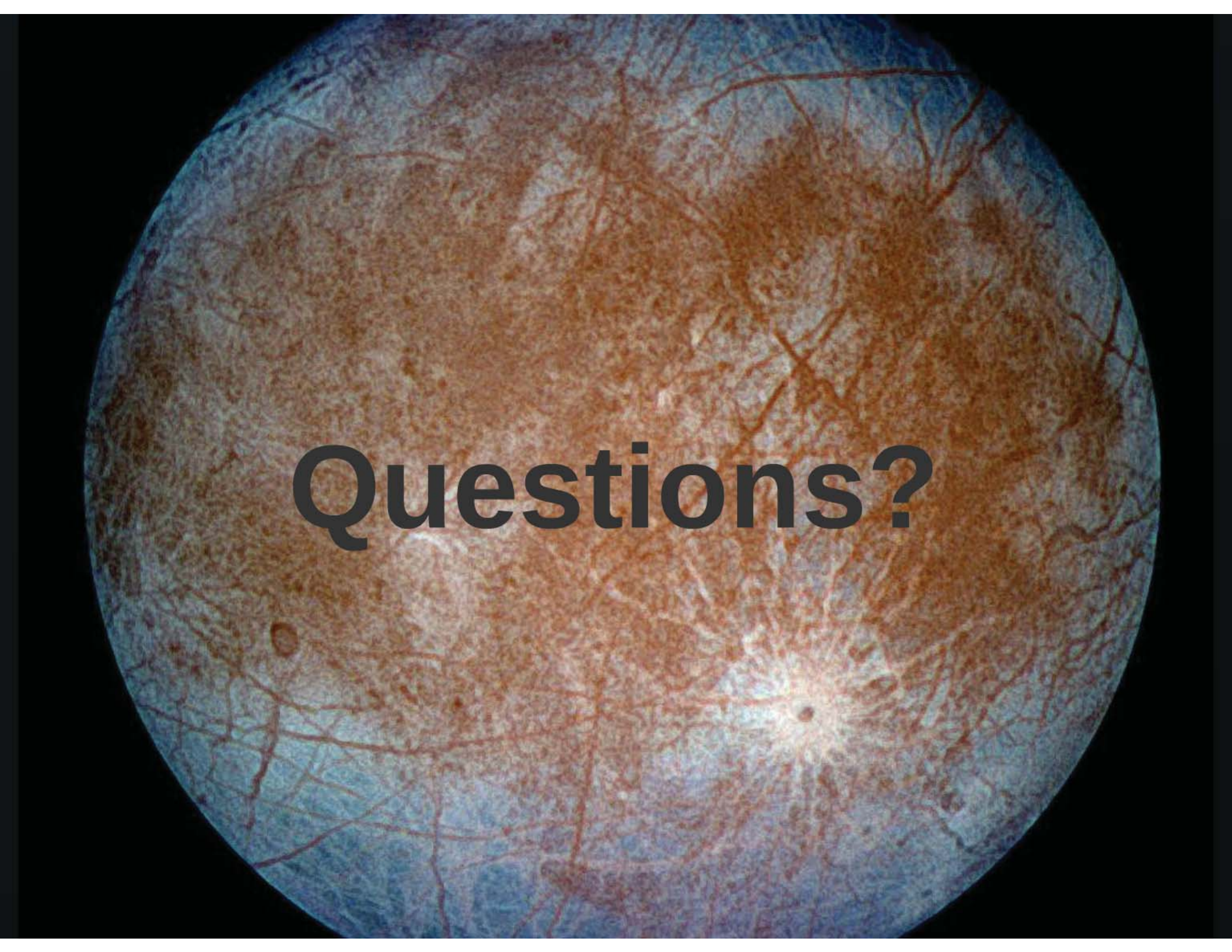
Key messages from the 2100 story:

- Leverage but question what we know
- No technological unobtainium
- Know when to lead and when to follow
- Continue to retool our culture to creative-collaborative when appropriate
- Break down barriers (process, communication, etc.)


Questions?