



# Evolution of Space Risks Opportunities & Challenges

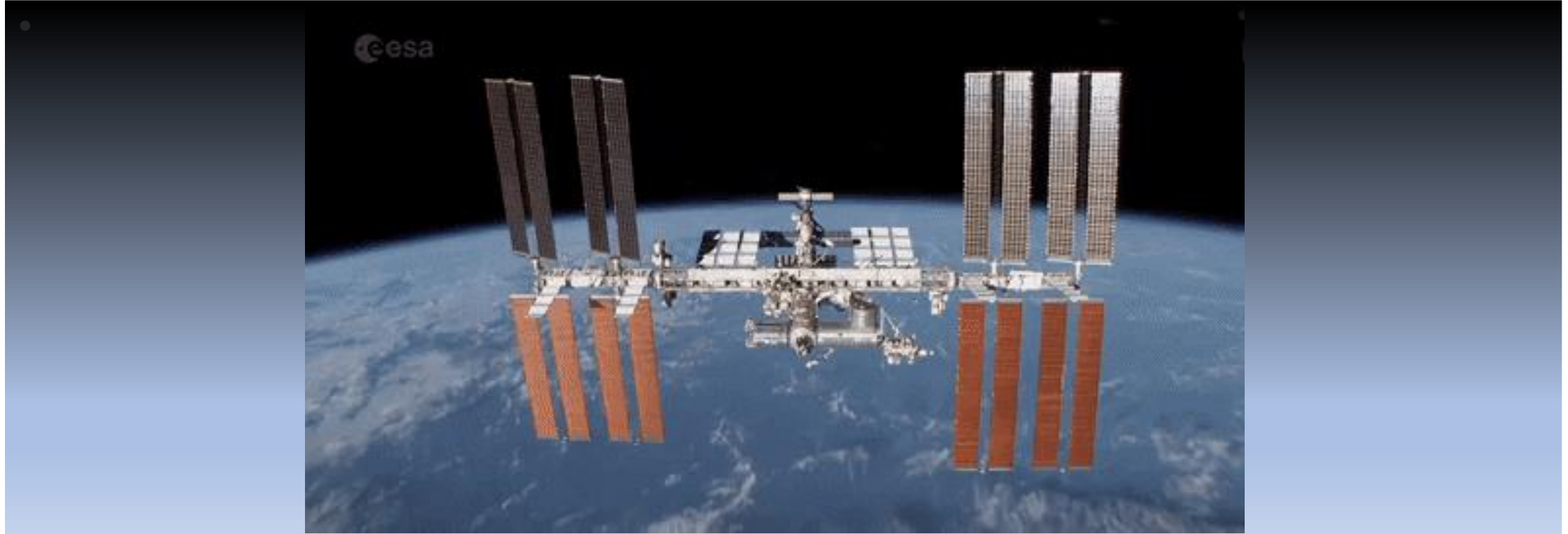
Jan Schmidt, Head of Space, Helvetia Insurance



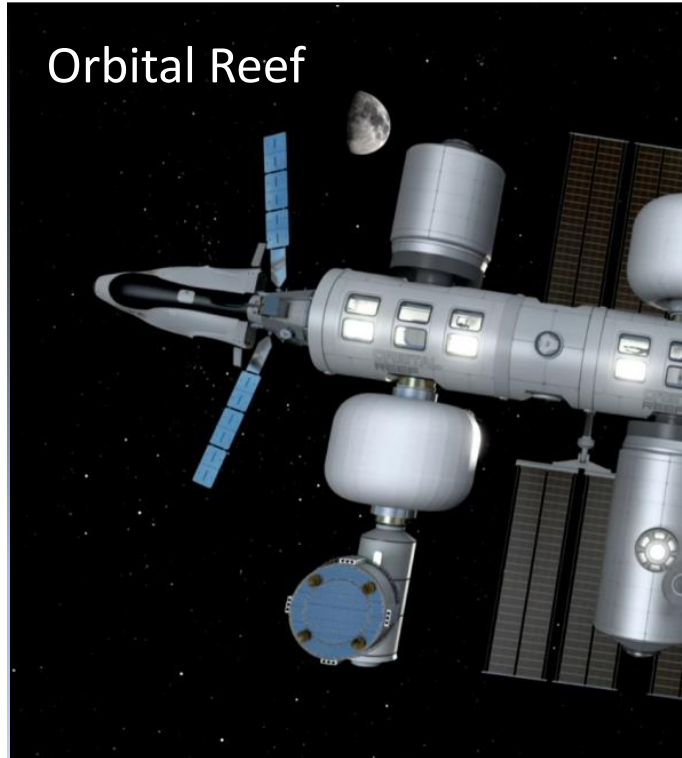
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# Space Stations – present vs. future



# Space Stations – present vs. future



Orbital Reef

Blue Origin / Sierra Space



Free Flyer

Northrop Grumman



Nanoracks / Voyager Space / LM



# Evolution of Insured Space Risks



# Evolution of Space Insurance Coverages



## Traditional Coverage for LEO / MEO / GEO satellites

- Pre-launch
- Launch Vehicle Flight
- Launch and In-orbit
- In-orbit
- Launch Liability
- In-orbit Liability



## Evolved Coverage for:

- Engine Testing
- Crew Re-supply (incl. loading, docking, re-entry and landing)
- LEO Constellations
- In-orbit Satellite Servicing
- Manned Space Flight
- Moon and Mars Missions



# Opportunities & Challenges



Broader Palette of Risks  
Diversification  
Additional Business



Insurable Risk?  
Risk Assessment  
Pricing



# Risk Assessment



## Prerequisite for an insurable risk:

- Sharing of all relevant technical data for a thorough assessment of risk.
- Adequate underwriter's knowledge and ability to assess the risk.
- Minimum level of technical margins and redundancies.
- Minimum level of overall mission reliability and mission success rate.

# Conclusion

- The underwriting community is being approached to underwrite more diverse satellite applications.
- Broader risk palette provides welcome diversification of our book of business.
- Supplementary business in addition to the standard GEO satellite launch and in-orbit business provides welcome additional premium income.
- Supplementary business may compensate for lack of GEO satellites to be launched annually.
- Risk assessment and pricing of complex new space missions can be challenging.
- Adapting our product offerings and policies to client's needs is essential and will increase the value of insurance.

