

Introduction to Strategic Importance of Space Infrastructure

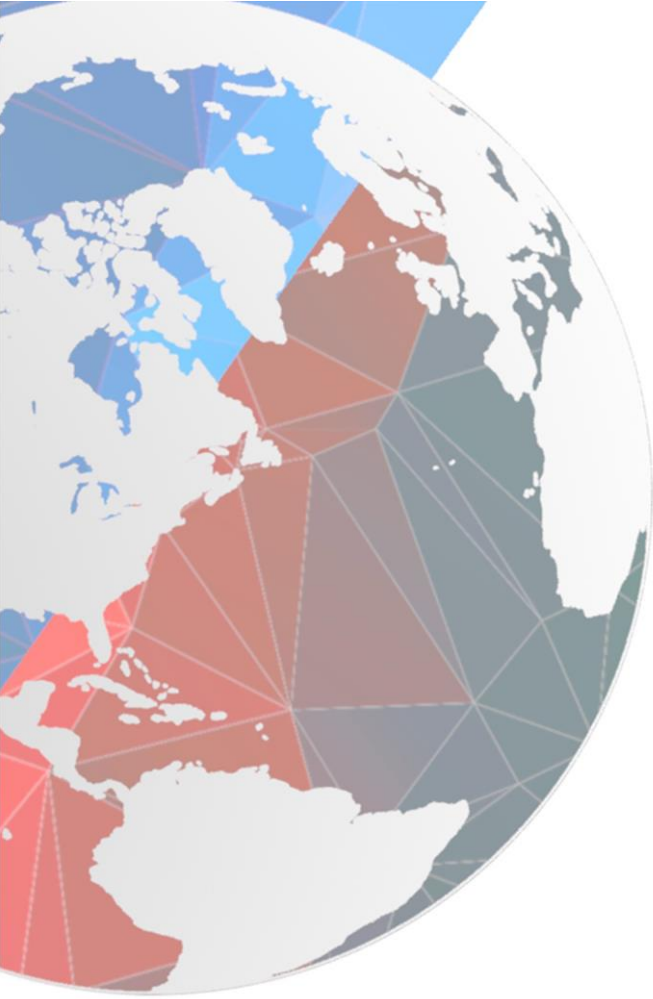
Bohumil Doboš



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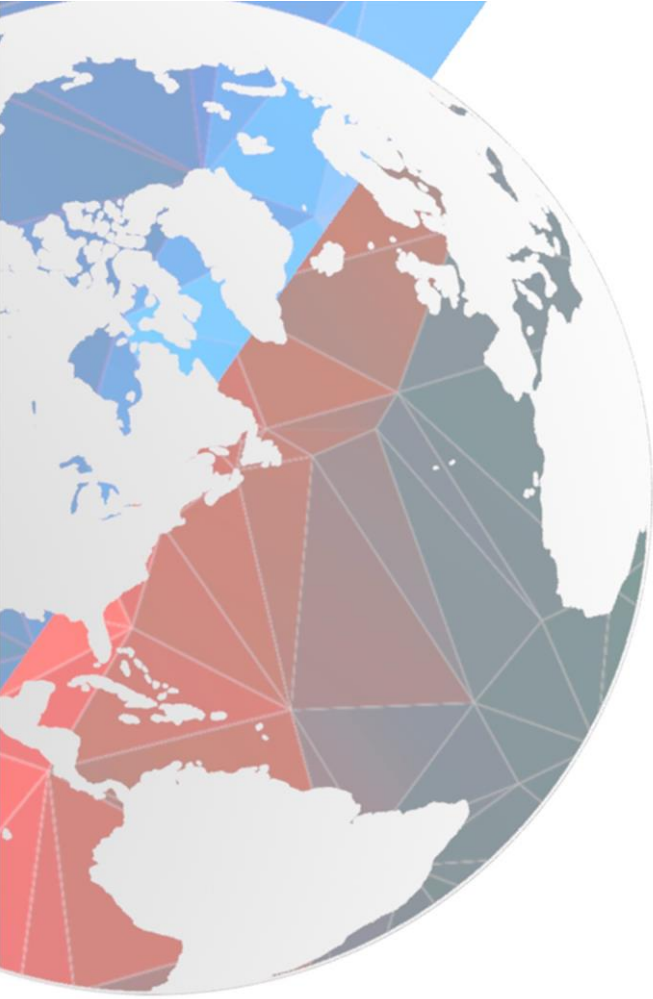
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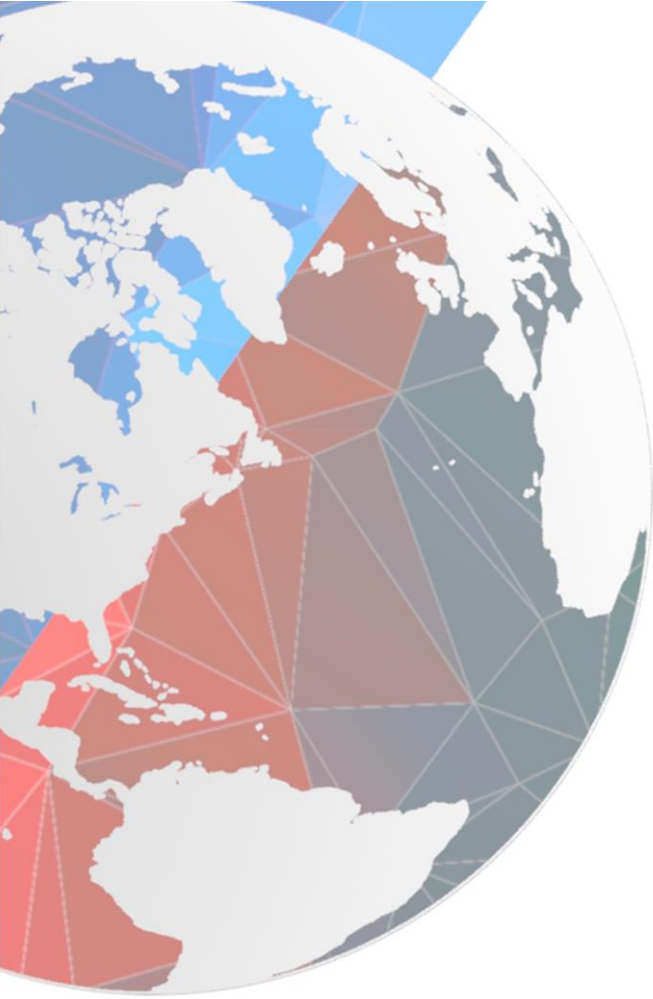
Civilian importance

- Transportation
- Banking
- Natural disasters
- Agriculture
- Spin-off



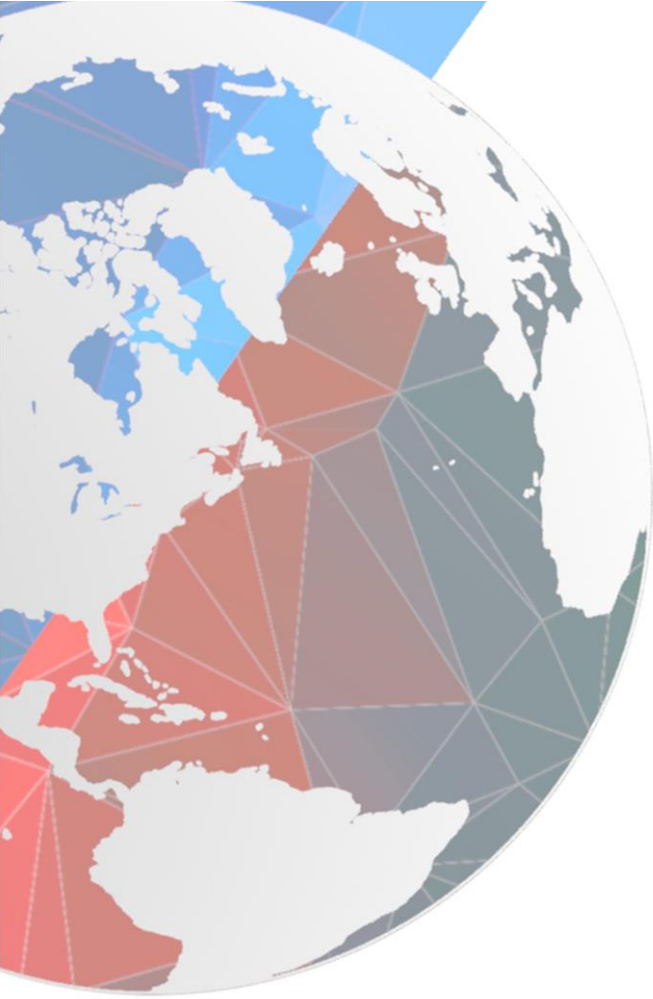
Military importance

- Navigation
- Communication
- Surveillance
- Weather forecast



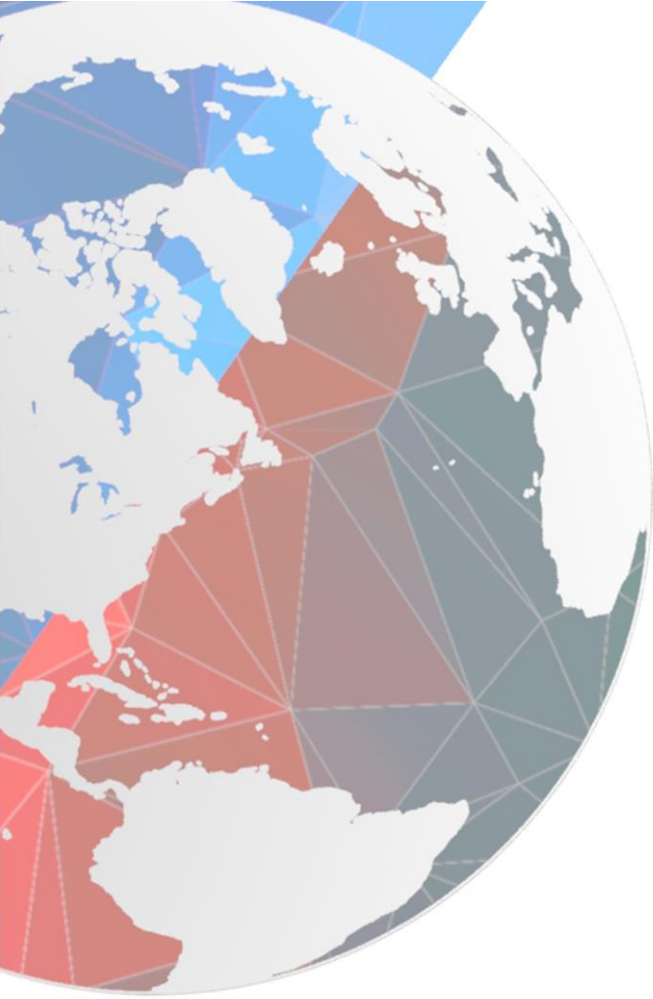
Dual-use capability

- Same technologies for military and civilian activities
- Beside (some) scientific missions and counterspace technologies all assets dual-use
- Military x Civilian – Purpose not technological difference



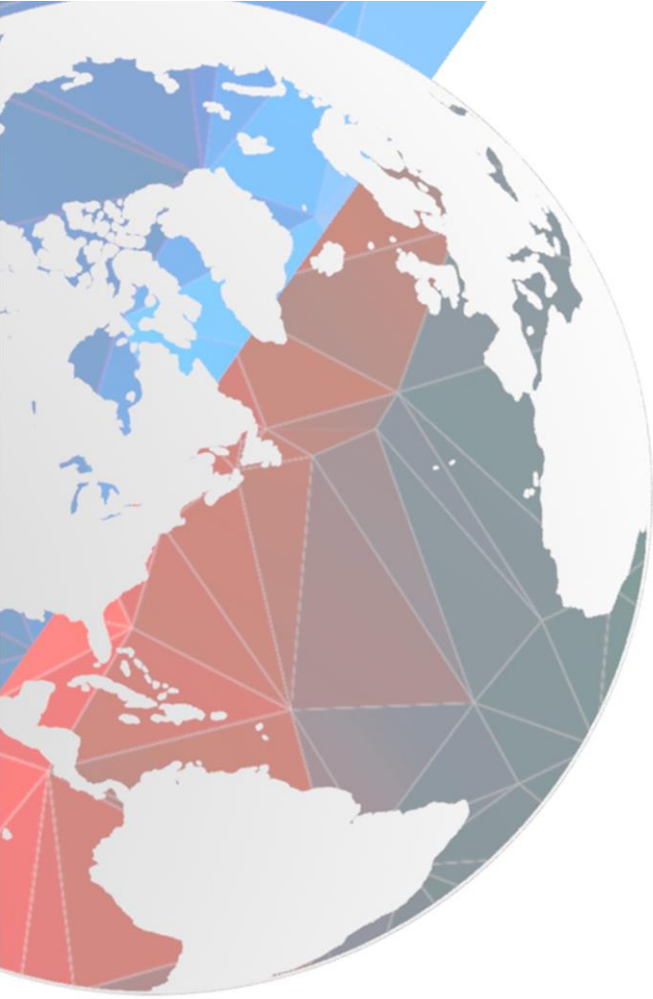
Commercialization/NewSpace

- Prestige/military x commercial/economic
- Cooperation between states/commercial ventures (e.g. Commercial human space launch in the US)
- Commercial dual-use capabilities (telecommunication, SPOT, navigation?)
- Private infrastructure secure and available?



Sustainability

- Intentional vs. Non-intentional threats
- Space traffic management
- Common threats vs. Lack of common framework
- Kinetic conflict – ultimate spoiler

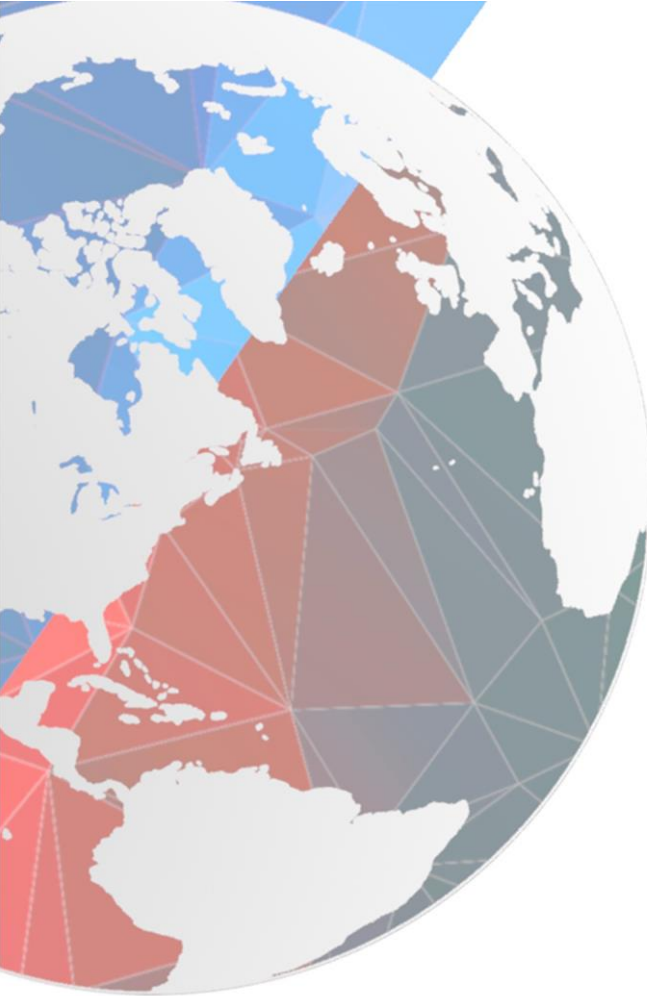


Debris

Manmade junk

Uncontrollable pieces of assets or depleted satellites etc.

“(s)pace debris also known as orbital debris, are all man-made objects, including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional IADC



LEO alone around 750.000 pieces larger than 1cm

Possible exponential growth in case of collision of two medium/large pieces

1991 first natural collision

1996 first observed natural collision + HAPS explosion

2007 Chinese ASAT created 25% increase in number of debris

2009 Iridium 33 - Cosmos 2251 collision

Number of debris to increase even without new launches

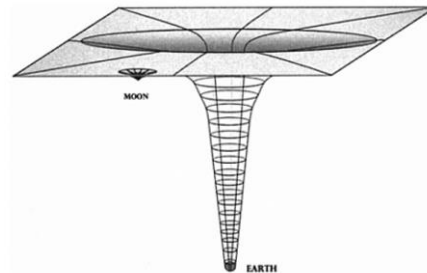
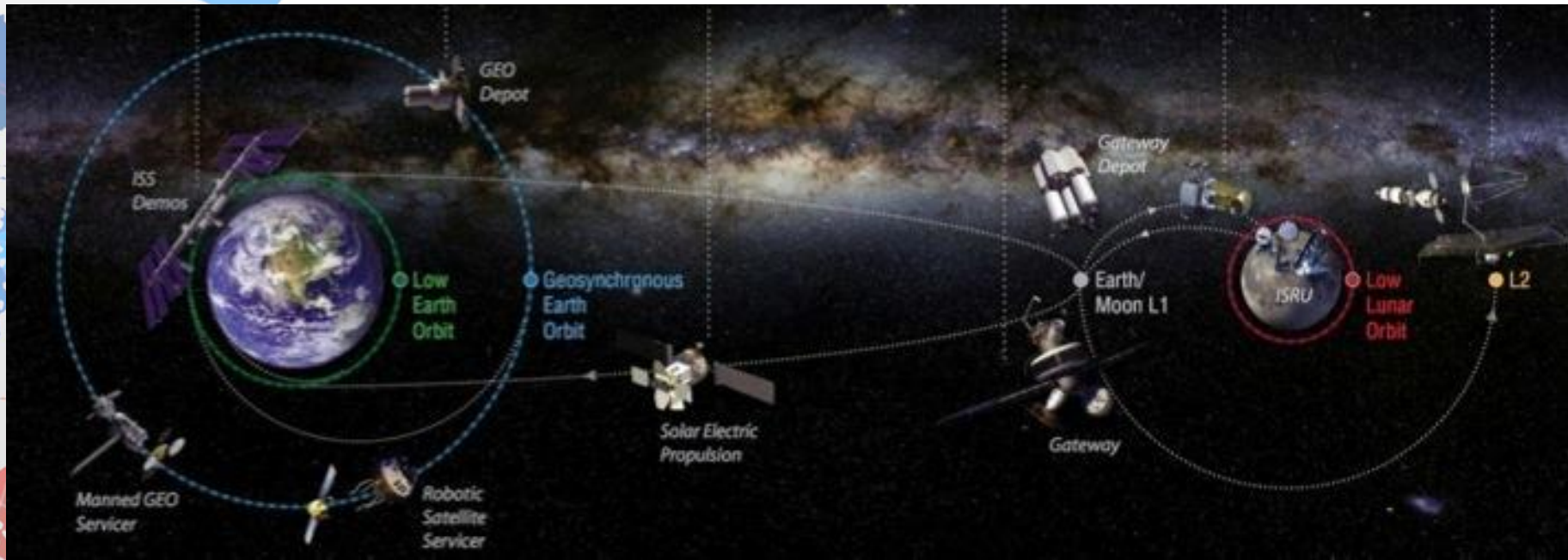
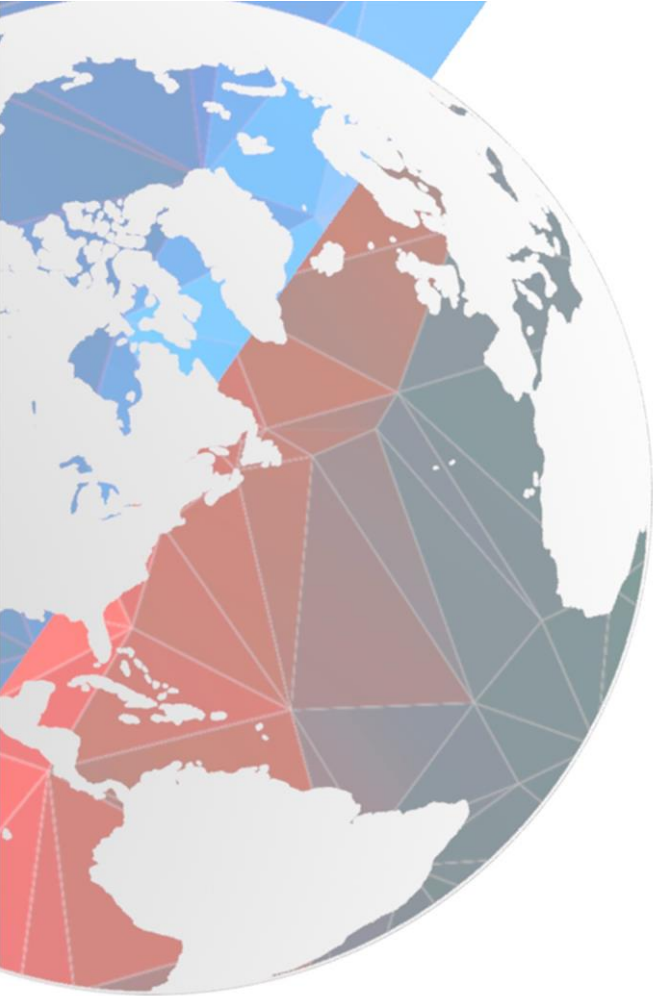


Figure 3.8: Earth-Moon gravity well comparison

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Questions?



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