



**Presentation for the Expert Workshop: Space –
Exploring NATO’s Final Frontier**

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**Economic & Financial Dimensions of Space
Security**

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Presentation Overview



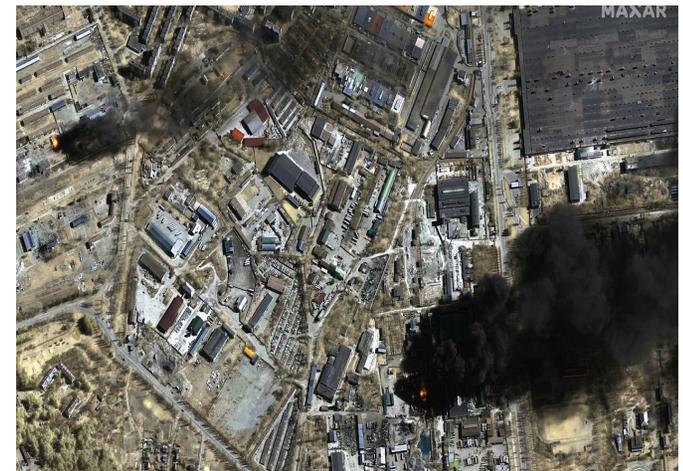
- Important Trends
- Update of Space Threat Environment
- Economic & Financial (E&F) Dimensions of Space Security
- Deterrence Via Economic & Financial Statecraft
- Considerations Going Forward

Important Trends

- Ever greater dependency on space-based technologies and services in the developed world for socioeconomic and security/defense-related needs;
- Increasingly diverse environment with more nations seeking space-derived benefits and indigenous space capabilities and new private actors entering the space domain;
- Greater public enthusiasm for human space travel and habitation;
- Pressure to improve space domain awareness (SDA);
- Intensification of threats to space operations due to the development of sophisticated counterspace capabilities, heightened geopolitical tensions and the ability to deliver asymmetric, strategic effects;
- Both passive and active space operations of malevolent actors, including what PSSI labels “ground-based space race”.
- The war in Ukraine has demonstrated the significant role of the space private sector in shaping the battlespace which will likely only grow in the post-war environment.

Update of Space Threat Environment

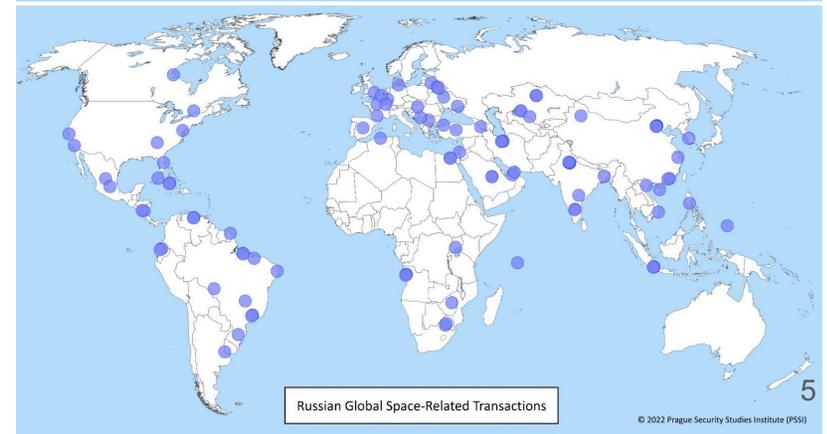
- War in Ukraine has highlighted the critical nature of space and real-time information flows, as well as the importance of industrial supply chains;
- Some commercial space companies (HE360, Maxar, etc.) providing conflict support (e.g., imagery, communications, RF mapping) and some have been targeted by Russia (ViaSat, Starlink);
- Operating in an increasingly contested, congested and competitive environment, the allies need to protect intellectual property, enforce treaties, agreements and sanctions, and construct robust Space Domain Awareness (SDA), in part, to enable verification and compliance with behavioral norms.



Burning oil storage tanks and an industrial area in Chernihiv, Ukraine during the Russian invasion
(Source: Maxar Technologies)

Economic & Financial Dimensions of Space Security

- Economic and financial inducements offered to aspiring space nations by authoritarian space powers are designed to lure them into dependency-creating transactions, compromised space sectors and sole-source contracts.
- Allies need to utilize the global economic and financial domain to forestall proliferation of state-led economic models and strong-arm tactics design to recruit countries to support an alternative – authoritarian -- brand of standards and norms at multilateral fora and elsewhere.
- Capital market sanctions must be part of the allied tool kit to deter or penalize hostile, reckless and/or irresponsible actions in space by adversaries.



Economic & Financial Dimensions of Space Security

6th PSSI Space Security Conference (June 2022) focused on the nexus of security, markets, and sanctions.

- *“There is a global competition for influence. When China develops space, it always considers its economic aspects.” (Namrata Goswami, Strategic Analyst)*
- *“We need a whole set of toolkits to support industry, including in the issue of the space partnership competition” (Kevin O’Connell, CEO of Space Economy Rising LLC)*
- *If we don’t change our space ecosystem in Europe, including open interfaces, we may not survive into the next decade (Vaclav Kobera, Director of ITC and Space Activities, Czech Ministry of Transport)*



Economic & Financial Dimensions of Space Security



6th PSSI Space Security Conference (June 2022) focused on the nexus of security, markets, and sanctions (continued):

- *"Global space competition has evolved from strategic weapons monitoring and delivery and the pursuit of manned and unmanned spaceflight for national prestige to an ecosystem that impacts all instruments of national power including, increasingly, the economic component."* (John Huth, Defense Intelligence Officer for Space and Counterspace, US Defense Intelligence Agency)
- *"Leadership has to also be built by a strong economic partnership among the allies. There, we have our shared principles and norms, which we should jointly establish and apply to the whole global space economy."* (Kai-Uwe Schrogl, Special Advisor for Political Affairs, European Space Agency)



Deterrence via Economic & Financial Statecraft



- Deterrence involves denial of benefits, proper signaling, rapid attribution, and adequate credibility. Space is an integral part of broader deterrence strategy comprised of diplomatic, intelligence, military, and economic capabilities;
- Debris-creating hostilities in space cannot be safely responded to in kind, hence the need to react in a different domain, such as economic and financial penalties or political isolation;
- Possessing deterrent capabilities does not equate to stopping an act of aggression;

Deterrence via Economic & Financial Statecraft

- Cross-domain response options via E&F policy tools have the potential to deter an adversary from seeking to deliver asymmetric effects in, or via, space or penalize such a state actor convincingly without endangering the delicate space environment;
- China, Russia, and other authoritarian space actors can be made aware (privately or publicly) that their hostile behavior in space can put at risk elements of their domestic political stability and viability in global capital markets and other elements of the international trading and financial system;
- Authoritarian space actors generally value their companies' reputations/brands and global market acceptance of their state-controlled enterprises which contribute mightily to their respective military space programs thereby creating Western leveraging opportunities.

Considerations Going Forward

- Given the strong temptation of adversary space powers to exploit asymmetric space vulnerabilities, the loss or degradation of these space capabilities will likely disrupt daily life and possibly put at risk critical military and intelligence capabilities.
- The private sector has a significant role in military planning and execution
- Two important aspects of the E&F domain in relation to space security:
 - Significant asymmetric risks and threats to global standards and norms are stemming from the predatory E&F practices of authoritarian space powers.
 - E&F domain represents a major new source of deterrence and leverage and can serve as response to malevolent space behavior.
- The allies have not, as yet, translated these lessons into effective rule-making, common policies, coordinated investments and "rapid-response" actions.



Thank you.

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