



8th Prague Space Security Conference
**Space Security Economy
and Capabilities: From Policies to Action**
Prague, 15–17 June 2025

**CONFERENCE SUMMARY
REPORT**



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8TH PRAGUE SPACE SECURITY CONFERENCE SUMMARY REPORT

Since 2011, the Prague Security Studies Institute has organized the prestigious Prague Space Security Conference. Hosted graciously at the seat of the Ministry of Foreign Affairs of the Czech Republic—Černín Palace. The 8th iteration of the Prague Space Security Conference was welcomed under the auspices of the Czech Ministries of Foreign Affairs, Defence, and Transport, along with the patronage of the President of the Czech Republic. Convening on June 16,

2025, the 8th Prague Space Security Conference was opened by Minister of Foreign Affairs Jan Lipavský. Over the next two days, industry, policy, and military leaders from across Europe, America, and Asia discussed the imminent need to move beyond policy and toward action with respect to the growing importance of the space domain. In the report below, you will find their crucial insights, segmented by panels.



The 8th Prague Space Security Conference's distinguished speakers & partners gather outside the main conference hall



INTRODUCTORY REMARKS: MINISTER JAN LIPAVSKÝ



Speaker: Jan Lipavský, Minister of Foreign Affairs of the Czech Republic

On Monday morning (16 June 2025), Jan Lipavský, Minister of Foreign Affairs of the Czech Republic, inaugurated the 8th Prague Space Security Conference, underscoring space as a critical pillar of both national and global security. In his opening remarks, Minister Lipavský referred to the ongoing war in Ukraine as a stark reminder of how developments in space are increasingly intertwined with defense and deterrence. He drew particular attention to reports concerning Russia's alleged pursuit of nuclear weapons in orbit, warning that such activities would represent a profound threat to international stability.

The Minister emphasized the importance of norms, transparency, and trust in safeguarding the peaceful use of outer space. He further reaffirmed the Czech Republic's active role within the European Union and NATO, while commending the dynamism and growing capabilities of the country's space industry. Minister Lipavský was introduced by Roger W. Robinson Jr., Chairman and Co-Founder of PSSI, who cautioned that

global instability has reached a critical juncture, citing ongoing conflicts in the Middle East and Europe, as well as China's naval and space ambitions. He noted that the strategic competition for the Moon is far from theoretical, warning that a Chinese foothold at Shackleton Crater could replicate the precedents established in the South China Sea.

Mr. Robinson called for the launch of a new "Manhattan Project" for space security—a transatlantic initiative to mobilize the full range of political, industrial, and financial resources necessary to preserve shared strategic access to outer space. He also highlighted a documentary series entitled "Underwriting the Enemy," which exposes Western financial flows supporting China's military space program and the modernization of its People's Liberation Army (PLA), as a vital instrument for raising public awareness of the financial and technological dependencies that exacerbate vulnerabilities within the space domain.



SUMMARY OF KEY FINDINGS

- Space is a core pillar of national and global security, increasingly linked to defense and deterrence.
- Strengthening norms, transparency, and trust is vital to safeguarding space.
- Global instability is intensifying amid conflicts and China's expanding space ambitions.
- Strategic competition for the Moon carries precedents reminiscent of the South China Sea.
- A new transatlantic "Manhattan Project" is needed to secure shared access to outer space.
- Exposing and countering Western financial flows to China's military space program remains an urgent priority.
- The Czech Republic plays active role within the EU and NATO, and is advancing a dynamic domestic space industry.



PANEL 1: UPDATES ON SPACE DOMAIN AWARENESS AND THREAT MITIGATION



Panel 1 Speakers: Dr. Peter Hays Adjunct Professor of Space Policy and International Affairs at George Washington University; Dr. Holmes Liao, Senior Advisor to the Taiwan Space Agency (TASA); Dr. John Huth, Chief, Office of Space & Counterspace, U.S. Defense Intelligence Agency (DIA); Pascal Faucher, Chairman of the EU Space Surveillance and Tracking (EUSST); Paul Graziani, Chief Executive Officer of COMSPOC

The panel was chaired by Dr. Peter Hays, Adjunct Professor of Space Policy and International Affairs at George Washington University. He underscored the distinctive value of the Prague Space Security Conference, emphasizing its intimate, policy-driven environment that facilitates substantive exchange between participants and speakers. He drew attention to the conference's overarching theme, "From Policies to Action", and highlighted the urgent need to translate analysis into operational and political measures.

Paul Graziani, Chief Executive Officer of COMSPOC, followed with a comprehensive technical overview of emerging space threats and recent orbital developments. Drawing on both commercial and governmental data sources, he detailed

several notable incidents:

- Russia's Cosmos 2553 satellite losing attitude control amid suspicions of nuclear linkage;
- China's SJ-21 spacecraft executing aggressive rendezvous and debris-removal maneuvers; and
- The SJ-25 mission, believed to demonstrate on-orbit refueling capabilities.

He also described Russian satellite clusters engaged in close-proximity operations and Chinese deployments into highly elliptical orbits, raising questions about dual-use intent. Graziani observed that U.S. satellites have likewise conducted inspection missions of foreign spacecraft, illustrating a competitive environment



of mutual surveillance. He concluded by recalling General John Hyten's warning that, while China and Russia have advanced rapidly in the past decade, the United States and its allies have not kept pace, exposing strategic vulnerabilities that adversaries could exploit to disable space systems without overt escalation.

Dr. Holmes Liao, Senior Advisor to the Taiwan Space Agency (TASA), provided a regional perspective on China's activities. Presenting video evidence of Shi Yan satellites engaging in "dogfighting" maneuvers, he warned that these operations likely serve as precursors to future co-orbital anti-satellite missions. Liao emphasized the political and military implications of such demonstrations, which communicate China's capacity to impose costs in a crisis.

He outlined TASA's initiatives to enhance national space domain awareness (SDA), including:

- The construction of a domestic sensor network and integration of military radar assets;
- Partnerships with commercial providers such as LeoLabs and COMSPOC; and
- The creation of a national surveillance and data-analysis center for early-warning and trajectory monitoring.

Taiwan is also investing in resilience measures through CubeSat and MicroSat development, micro-GEO projects, and advanced communication technologies. Liao concluded that Taiwan cannot safeguard its space assets in isolation and must therefore strengthen alliances with the United States, Europe, Japan, and other like-minded partners.

Offering the European perspective, Pascal Faucher, Chairman of the EU Space Surveillance and Tracking (EUSST), noted that Europe stands at a strategic crossroads in determining the scope and ambition of its future space situational awareness program. The EUSST partnership,

currently comprising 15 member states and potentially expanding to 20, is entering a decisive implementation phase. Faucher reported national investments exceeding €500 million in new sensors and underlined the EU's commitment to cultivating a robust commercial SSA industry, with over €100 million in projects already contracted and additional calls underway.

He emphasized that EUSST now delivers 24/7 operational services supporting more than 75 operators worldwide, including missions from Taiwan. Faucher concluded that Europe's pursuit of strategic autonomy demands close coordination among governments, institutions, and industry, alongside responsible behavior and transparency in space operations.

Dr. John Huth, Chief of Space and Counterspace at the Defense Intelligence Agency (DIA), provided a global assessment of current trends. He reported that nearly 2,900 spacecraft were launched worldwide in 2024, over 85 percent of them commercial, highlighting the sector's exposure to systemic risk. China, he noted, has tripled its annual launches within a decade, expanded its orbital fleet fivefold, and is testing reusable space planes and advanced ASAT systems. Russia continues to engage in extensive jamming operations in Ukraine, pursue orbital counterspace testing, and most alarmingly, develop a satellite intended to carry a nuclear payload—a step that would devastate all space-faring nations through prolonged radiation effects. Huth further warned that economic, financial, and technological exploitation remains a major concern, with China and Russia circumventing sanctions and acquiring sensitive technologies via commercial front companies. He urged greater vigilance not only in operational security but also across financial and industrial sectors where adversaries seek advantage.

Peter Hays returned to underscore the catastrophic implications of any nuclear detonation in



orbit, recalling the 1962 Starfish Prime test, which disabled even vacuum-tube satellites within months. He noted that today's far more sophisticated spacecraft would fail almost immediately, with initial damages exceeding half a trillion U.S. dollars and cascading global economic losses in the trillions.

In the ensuing discussion, panelists identified systemic trends rather than isolated incidents and as the most pressing threats:

- The long-term strategic execution of Chinese and Russian space programs;
- The emergence of refuelable, maneuverable satellites; and
- The lack of comparable allied progress.

Participants also cited the opacity of Chinese satellite operations, the absence of communication channels for conjunction warnings, and the need to modernize shared technical standards beyond the outdated two-line element system.

In conclusion, the panel emphasized that advancing from policy to action requires:

- Alignment of national and allied space strategies,
- Support for commercial innovation, and
- The establishment of modern standards for transparency and data sharing.

Speakers cautioned that adversaries' disciplined, long-term execution contrasts with the slower consensus-based pace of democratic alliances, making coordination and collective resilience urgent strategic priorities.

SUMMARY OF KEY FINDINGS

- China and Russia continue to advance counterspace capabilities—including co-orbital ASAT systems, on-orbit refueling, jamming, and potential nuclear options—while the U.S. and its allies risk falling behind in pace and preparedness.
- A nuclear detonation in orbit would devastate low-Earth orbit for years, potentially disabling thousands of satellites and causing economic losses estimated at USD 500 billion to 3 trillion—the single most catastrophic contingency for the global space domain.
- Taiwan is developing resilient SDA/SSA and satellite networks amid intensifying Chinese maneuvers, while Europe, through the EUSST partnership, is undertaking major national investments and commercial collaborations to advance strategic autonomy and operational capacity.
- With over 85 percent of spacecraft launched in 2024 belonging to the commercial sector, industry is now both the most exposed target and a critical enabler of space situational awareness, resilience, and innovation.
- Sovereignty constraints, outdated data standards, and fragmented governance continue to impede allied cooperation. Progress from policy to action demands unified strategies, shared data frameworks, and robust, interoperable space architectures.



PANEL 2: ALLIED SPACE SECURITY PRIORITIES IN A NEW TRANSATLANTIC SETTING



Panel 2 Speakers: Tony Frazier, CEO, Leo Labs; Janice Starzyk, Acting Director, U.S. Office of Space Commerce; Peggy Hollinger, International Business Editor, Financial Times; Dr. Kazuto Suzuki, Professor, University of Tokyo; Regina Peldszus, Policy Officer, European External Action Service (EEAS)

This panel examined how allied space security priorities are adapting to a rapidly changing geopolitical landscape marked by strategic competition, technological disruption, and shifting alliances. With a focus on transatlantic and transpacific partnerships and the role of the commercial sector, the discussion featured Tony Frazier (CEO, LeoLabs), Regina Peldszus (Policy Officer, European External Action Service), Janice Starzyk (Acting Director, U.S. Office of Space Commerce), and Professor Kazuto Suzuki (University of Tokyo). The session was moderated by Peggy Hollinger, who opened by noting that space has evolved from a peripheral concern to a central element of national and collective defence. She invited panelists to assess whether current political turbulence is eroding trust

among allies or instead producing new alignments.

EUROPEAN PERSPECTIVE

Regina Peldszus described a European strategic environment defined by both uncertainty and opportunity. She emphasized that the EU-U.S. space partnership remains strong, supported by more than a decade of regular transatlantic space security dialogues, while Europe simultaneously consolidates its own policies and capabilities.

NATO continues to serve as the primary guarantor of defence for EU member states, yet Brussels is also deepening cooperation with partners



such as the United Kingdom, Norway, Canada, Japan, and others. Peldszus underscored that Europe aims to be a reliable and predictable partner, backed by advanced programs including Galileo, Copernicus, growing investments in space situational awareness (SSA), and forthcoming secure-communications systems.

She clarified that European strategic autonomy is not isolationist, but rather the capacity to assume responsibility through credible capabilities and to contribute meaningfully to shared security and burden-sharing.

UNITED STATES PERSPECTIVE

Janice Starzyk provided the U.S. civil-space perspective, highlighting how commercial innovation has become a core instrument of space diplomacy. The Office of Space Commerce, she explained, is focused on enabling economic growth and technological leadership, with its new civil space traffic coordination system representing a major milestone in separating safety functions from military operations—mirroring the civil-military structure of air-traffic control.

She noted close transatlantic cooperation, including weekly technical coordination to ensure interoperability with European partners. Starzyk acknowledged that the market dominance of a few U.S. companies in launch and satellite communications creates both strategic advantages and potential vulnerabilities, emphasizing that policy aims to preserve competition and prevent overreliance on single providers. She cited SpaceX's transformative role in reshaping the launch market, while calling for balanced regulation and diversification to sustain innovation without dependency.

INDUSTRY PERSPECTIVE

Tony Frazier offered the commercial viewpoint, describing LeoLabs' global radar network that

tracks orbital activity and provides space domain intelligence to governments and private operators alike. He noted that despite growing geopolitical tension, demand for allied collaboration in space security is rising sharply. LeoLabs works closely with members of the Combined Space Operations Initiative and contributes to the U.S. Space Force's Joint Commercial Operations Cell.

Frazier observed that many allied nations now seek hybrid models—maintaining sovereign control over select systems while leveraging broader commercial networks. This mirrors practices in geospatial intelligence, where governments buy dedicated capacity within commercial constellations. The trajectory, he argued, is toward hybrid architectures that balance sovereignty, burden-sharing, and interoperability.

He cautioned, however, that U.S. and Chinese investors dominate global space financing, while European investment remains limited. Closer coordination among allied investors, he proposed, could direct capital toward strategic priorities, such as resilient communications and space domain awareness infrastructure.

INDO-PACIFIC PERSPECTIVE

Professor Kazuto Suzuki highlighted the strength and stability of the trans-Pacific alliance, contrasting it with uncertainty in transatlantic relations. Facing intensifying pressure from China, Japan has integrated space into its national security strategy for the first time (2022) and is developing autonomous surveillance and reconnaissance capabilities in support of U.S. and regional operations.

He noted expanding Japan-South Korea-Taiwan cooperation and a regional trend toward selective autonomy, where nations build limited independent capabilities—particularly in communications resilience and surveillance—while relying on trusted partners for shared services. Suzuki



emphasized that strategic autonomy must be viewed in relative terms: absolute independence is neither realistic nor desirable, but measured autonomy combined with strong partnerships enhances deterrence and stability.

POINTS OF CONVERSION AND FORWARD-LOOKING PRIORITIES

The discussion repeatedly turned to China's expanding influence. Panelists examined whether Europe's approach aligns with Washington's focus on countering Chinese malevolent activities. Peldszus stressed that Europe's space security pivot pre-dates Russia's invasion of Ukraine and already reflects concerns over China's behavior. She reminded participants that the EU regards China as both a partner and a systemic rival, having already sanctioned Chinese satellite firms for supporting Russian military aggression. Starzyk added that the Belt and Road Initiative and Chinese investment

in less developed countries underscore the need for greater allied coordination in countering influence in the Global South—a sentiment echoed across the panel.

In closing, each panelist identified a single priority for the coming year to advance allied space security. Frazier urged allies to play to their respective strengths in different orbital regimes:

- Tony Frazier: Strengthen burden-sharing by leveraging allied strengths across different orbital regimes.
- Janice Starzyk: Enhance joint efforts to counter Chinese influence in third countries.
- Regina Peldszus: Enable Europe to exercise strategic agency through deliberate policy choices and capability development.
- Kazuto Suzuki: Advance Japan's emerging guidelines on collision avoidance and on-orbit servicing as potential international safety standards.

SUMMARY OF KEY FINDINGS

- Allies increasingly favor hybrid models that combine sovereign capabilities with commercial and coalition-based systems, maintaining autonomy without sacrificing interoperability or resilience.
- The growing dominance of U.S. space firms brings both innovation and dependency risks, highlighting the need for redundancy, fair competition, and diversified supply chains.
- Heightened tensions with China are shaping allied strategies, emphasizing the need to counter its influence in the Global South and strengthen both transatlantic and transpacific cooperation.
- The panel called for clearer international norms, better capital coordination, and greater investment in strategic capabilities—including space-domain awareness, resilient communications, and civil-military traffic management systems.



SPECIAL PANEL: ANNUAL UPDATE ON MILITARY PARTNERSHIPS



Special Panel: Jan Jireš, Director General, Defence Policy and Strategy Division, Ministry of Defence of the Czech Republic; Lt. Gen. Thomas L. James, Deputy Commander, U.S. Space Command; Brig. Gen. Marcin Górká, Director, Department of Innovation, Polish Ministry of National Defence of the Republic of Poland; Maj. Gen. Michael Traut, Commander, German Space Command

The special panel on military partnerships brought together senior representatives from the US, Germany, and Poland: Brigadier General Marcin Górká, Director, Department of Innovation, Polish Ministry of National Defence of the Republic of Poland, Lieutenant General Thomas L. James, Deputy Commander, U.S. Space Command; and Major General Michael Traut, Commander, German Space Command. The session was chaired by Jan Jireš, Director General, Defence Policy and Strategy Division, Ministry of Defence of the Czech Republic. The discussion provided an annual update on national developments, NATO's evolving role in space, and the shared challenges of innovation, integration, and cooperation.

U.S. PERSPECTIVE

Lieutenant General James opened the session by tracing the evolution of U.S. military space operations—from his early career during Desert Storm to his current role in the U.S. Space Command. He described space as no longer a supporting asset but a fully integrated warfighting domain, highlighting three key responsibilities:

1. Delivering space-based capabilities to joint and allied forces;
2. Protecting those capabilities on orbit; and
3. Defending allies against space-enabled attacks.



James emphasized that Russia's and China's rapid expansion in space is heightening vulnerabilities and accelerating the need for stronger partnerships and faster innovation. Integration, he stressed, must happen before conflict, not during it. He cited Operation Olympic Defender as an example of how allied coordination is moving from planning to real operational collaboration.

GERMAN PERSPECTIVE

Major General Traut outlined Germany's new strategic direction, noting that space is now a formal national priority for the first time. The federal government has created a dedicated ministry for space research and technology, and the armed forces are developing a multi-orbit, multi-purpose constellation to support all-domain operations by 2029.

Germany is also undergoing a cultural shift—moving away from a slow, risk-averse procurement model toward agile experimentation that accepts early failure as part of innovation. Within NATO, Traut highlighted the role of the Allied Space Centre of Excellence and the Combined Space Component Command in Ramstein as key enablers of interoperability and standardization. Germany's ambition, he stressed, is not isolationist autonomy but to be a sovereign and capable partner within a broader Western coalition.

POLISH PERSPECTIVE

Brigadier General Górká presented Poland's rapid progress in building its national space capabilities, noting that the effort began almost from scratch. Initially dependent on commercial systems, Poland is now transitioning toward a sovereign, tiered space strategy that distinguishes between:

- Fully national systems;
- Capabilities with partial external support; and
- Cooperative or commercial assets.

Current priorities include ISR (intelligence, surveillance, and reconnaissance), resilient satellite communications, and space domain awareness. Space-related functions have been consolidated under the geospatial intelligence branch, and around fifteen new satellites are expected to be launched within the next two to three years. Górká also emphasized the importance of human capital development to ensure that personnel are trained to operate complex space systems.

COMMON THEMES

Across all presentations, space was recognized as an integral component of multi-domain operations. The war in Ukraine was repeatedly cited as a turning point, demonstrating both the indispensability of space-based capabilities and the reliance on commercial providers. However, this dependence introduces new risks, as commercial assets that deliver military effects may be considered legitimate targets by adversaries. Panelists discussed potential mitigations, including enhanced information-sharing and incentivizing commercial actors to adopt protective technologies.

Another key takeaway was that space transparency reduces strategic surprise, elevating tactical actors to strategic importance.

NATO's primary value lies in developing doctrines, standards, and interoperability frameworks. Yet, participants agreed that European procurement processes remain too slow, constraining innovation and responsiveness to emerging threats. All panelists called for a more agile, risk-tolerant approach to maintain a competitive edge.

The panel concluded that space power has become the backbone of modern warfare, not an optional capability. Sustaining strategic advantage will require:



- Rapid innovation and acquisition,
- Effective integration of commercial and national systems, and
- Deepened allied cooperation.

NATO's evolving structures provide a critical foundation, but success will depend on the speed, cohesion, and determination of member states to deliver capabilities, share information, and act collectively in an increasingly contested domain.

SUMMARY OF KEY FINDINGS

- Space has fully transitioned from a support role to a core operational domain essential to multi-domain operations.
- Reliance on commercial systems enhances capability but increases exposure, necessitating stronger resilience planning and collaboration with industry.
- Maintaining strategic advantage demands faster procurement, greater risk tolerance, and deeper cooperation among allies to counter adversaries such as China and Russia.



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PRESENTATION BY JUN KAZEKI, DIRECTOR GENERAL, NATIONAL SPACE POLICY SECRETARIAT, JAPAN



Speaker: Jun Kazeki, Director General, National Space Policy Secretariat, Japan Prime Minister's Office

Jun Kazeki framed Japan's contemporary space policy within the context of a more severe Indo-Pacific security environment, emphasizing the deliberate fusion of economic vitality, societal resilience, and national defense. Since 2022, Japan's National Security Strategy, National Defense Strategy, and Defense Buildup Program have elevated space as essential national infrastructure. The 2023 Basic Plan on Space Policy integrates security, industrial competitiveness, and scientific advancement to secure assured access to space, harden vital space-based services (PNT, communications, meteorology), and drive innovation toward a surge-capable commercial ecosystem.

Kazeki underscored that Japan has transitioned from policy formulation to implementation.

A 2023 economic stimulus package is accelerating dual-use capability development and start-up growth. In 2024, the H3 launch restored confidence in Japan's launch cadence, while the SLIM precision lunar landing demonstrated high technological credibility. The 2024 Space Technology Strategy now links research and development directly to operational requirements and industrial competitiveness, ensuring that technological progress translates into fielded capability.

Japan also treats space sustainability as a security imperative. National efforts are expanding in debris mitigation and active removal, regulatory modernization, and the advancement of SSA/STM capabilities. Through public-private demonstrations and pragmatic data-sharing frameworks, Japan aims to translate principles



of "responsible behavior" into the daily operations of space actors.

Internationally, Japan is deepening cooperation with like-minded partners and regional actors across technology development, hosted payloads, ground integration, and cross-training. Diplomatically, it continues to promote norms of responsible behavior and voluntary limits on destabilizing actions. Kazeki described Japan's strategic aim as achieving "interoperable autonomy" developing national depth where it matters

most, while maintaining tight integration with allies to strengthen deterrence and crisis response.

Domestically, Japan is reinforcing the foundations of a resilient and innovative industrial base by diversifying critical components, securing supply chains, creating predictable demand signals, and streamlining prototype-to-procurement processes. Efforts also focus on linking start-ups and SMEs with prime contractors and expanding university pipelines to ensure sustainable growth in the sector.

SUMMARY OF KEY FINDINGS

- Since 2022, Japan has elevated space across its core national strategies, constructing a multi-orbit, multi-layered national security architecture centered on space domain awareness (SDA), protected SATCOM and PNT, rapid reconstitution, and resilient C2.
- Milestones such as the H3 launch, SLIM lunar landing, the 2023 dual-use R&D acceleration, and the 2024 Space Technology Strategy mark Japan's shift from strategic planning to the delivery of operational capabilities and industrial competitiveness.
- Japan treats sustainability, SSA/STM, and modernized regulation as integral to national security, while pursuing "interoperable autonomy" through allied cooperation, norm-setting, and the strengthening of its industrial base and supply chains.



PANEL 3: SECURITY DIMENSIONS OF BURGEONING SPACE ECONOMY



Panel 3 Speakers: Václav Kobera, Director, ITS and Space Activities, Research, Development and Innovations Department, Ministry of Transport of the Czech Republic; Phil Carrai, President, Space, Training & Cybersecurity Division, Kratos Defense & Security Solutions; Dr. Deganit Paikowsky, Senior Lecturer in the Department of International Relations at the Hebrew University of Jerusalem; Dr. Namrata Goswami, Professor, Johns Hopkins University; Senior Advisor for Security Information and Synergies between Space, Defence and Civil Industries, Directorate-General for Defence Industry and Space (DG DEFIS), European Commission

Panel 3, moderated by Dr. Deganit Paikowsky, Senior Lecturer in the Department of International Relations at the Hebrew University of Jerusalem, explored how commercial space ecosystems are reshaping national and international space security policy. Dr. Paikowsky opened the discussion by noting the shift in global space discourse from state-centric programs and national champions to more holistic ecosystem approaches. She invited panelists to consider what "ecosystem" means from governmental, academic, and commercial perspectives.

Christophe Morand, Senior Advisor for Security Information and Synergies between Space, Defence and Civil Industries at the European

Commission's DG DEFIS, highlighted the geopolitical pressures driving Europe's evolving space policy—notably Russia's aggression in Ukraine and mounting concerns about its strategic behavior. He underscored the EU's increasing emphasis on autonomy, resilience, and defense preparedness, referencing forthcoming initiatives such as the EU Space Act and major investments in secure services, including Public Regulated Service (PRS) and Infrastructure for Resilience, Interconnectivity and Security by Satellite (IRIS²). Europe, he argued, is facing a "perfect storm" that demands not only greater funding but also deeper structural coordination across civil, defense, and commercial spheres. Commercial assets, he noted, are no longer optional; they



have become essential components of national infrastructure.

Dr. Namrata Goswami, Professor at Johns Hopkins University, examined the growing convergence of commercial space and national security through three lenses: economic power, military utility, and geopolitical signaling. She described how commercial capabilities—including rapid imaging and intelligence—have transformed strategic communication and strengthened global deterrence by enabling states to counter disinformation in near real time. Drawing a comparison with China's 2014 commercialization policy, she highlighted Beijing's approach of treating all space assets—civil, military, and commercial—as strategic infrastructure the protection of which extends even to extraterritorial domains such as the Moon and Lagrange points. She emphasized that if Western governments expect commercial firms to withstand political or military pressure, they must articulate a clearer grand strategy that defines roles, risks, and expectations.

Phil Carrai, President of Kratos Defense, brought a market-focused perspective, urging policymakers to distinguish between commercial products embedded in government programs and services sold directly to governments. He cautioned against over-romanticizing the "commercial ecosystem," noting that healthy competition does not necessarily require a proliferation of firms but depends on predictable demand, clear policy signals, and stable industrial conditions. Carrai underscored the disruptive value of new entrants such as SpaceX while warning that certain functions—such as missile tracking—remain fundamentally governmental and unlikely to be outsourced. He stressed the importance of supply-chain transparency, cyber resilience, and contractual clarity, particularly in crisis scenarios.

Dr. Václav Kobera, Director for ITS and Space Activities at the Czech Ministry of Transport, provided the viewpoint of a mid-size European

state. He emphasized the need for collective resilience and observed that Europe's long-standing assumptions about the civilian character of space infrastructure are rapidly giving way to dual-use realities. While welcoming the EU's regulatory initiatives, he underscored the importance of trust, transparency, and long-term public-private partnerships in developing reliable national and regional capabilities. Kobera highlighted the Czech Republic's support for pooling-and-sharing mechanisms such as GovSatCom, and he praised the growing role of the EU Space Programme Agency (EUSPA), headquartered in Prague.

The panelists converged on several key points regarding commercial asset protection. Dr. Goswami called for greater doctrinal clarity on deterrence, legal responsibilities, and operational expectations, arguing that commercial actors can only support national objectives when funding, purpose, and risk-sharing are transparent. Carrai agreed, emphasizing that commercial companies must anticipate being targeted in crises and therefore build hardened systems—while recognizing that only governments can conduct offensive operations in war. He noted the inherent limits of relying on private actors for mission-level services. Dr. Goswami concluded that commercial entities must be assured of state support if they are to be fully integrated into national security architectures—while also accepting a measure of self-reliance and technical resilience.

In closing, Christophe Morand advocated for a partnership-based approach rather than rigid divisions of responsibility, particularly as the EU prepares its next Multiannual Financial Framework and deepens cooperation with NATO and Indo-Pacific partners. Václav Kobera echoed this sentiment, stressing that cooperation, communication, and coordination remain the foundations of democratic resilience in periods of strategic tension.



SUMMARY OF KEY FINDINGS

- Commercial space actors have become indispensable to national security, yet their integration requires clearer alignment with state strategies—particularly regarding legal protection, funding mechanisms, and delineated responsibilities during crises.
- Geopolitical tensions are accelerating the transition from civilian-oriented space programs to defense-integrated space ecosystems. In Europe, this shift is reflected in new regulations, investment priorities, and an intensified focus on resilience, autonomy, and preparedness.
- Effective public-private partnerships depend on transparency, trust, and sustained coordination. Governments must provide strategic direction while commercial actors deliver innovation, capacity, and rapid technological advancement.
- Western democracies face the challenge of preserving openness and competitiveness while protecting critical space infrastructure. Safeguarding commercial assets against cyber, electronic warfare, and kinetic threats must be balanced with preserving the agility needed to innovate, experiment, and compete in an increasingly contested space domain.



PANEL 4: IMPLICATIONS OF ALLIED FUNDING OF THE AUTHORITARIAN SPACE POWERS



Panel 4 Speakers: Christian-Marc Lifländer, Head, Defence Policy Section, Defence Policy and Planning Division, NATO HQ; Yuka Kobayashi, Associate Professor, School of Oriental and African Studies (SOAS), University of London; British Academy Fellow, German Council for Foreign Relations (DGAP); Juliana Süß, Associate, German Institute for International and Security Affairs (SWP); Kari Bingen, Director, Aerospace Security Project, Center for Strategic and International Studies (CSIS); Sangho Kim, Vice President, International Cooperation Division, The Korean Academy of Space Security (KASS)

The final panel of the day, moderated by Juliana Süß, Associate at the German Institute for International and Security Affairs (SWP), examined how authoritarian states—particularly China, Russia, North Korea, and Iran—use space investments and terrestrial partnerships to expand geopolitical influence. Rather than focusing on capabilities alone, the panel explored strategy, narrative, and the broader implications of deepening authoritarian space collaboration in configuring global norms.

Kari Bingen, Director of the Aerospace Security Project at the Center for Strategic and International Studies (CSIS), opened with a comprehensive overview of China's meteoric rise in the

commercial space sector. She highlighted not only the scale of China's satellite manufacturing ambitions—potentially 5,000 satellites per year by 2025, and up to 10,000 with further industrial investment—but also the fundamentally state-directed nature of this growth, embedded in military-civil fusion and the broader "space dream". China is aggressively pursuing mega-constellations in SATCOM, expanding remote sensing capabilities, and leveraging automated production and digital twins to accelerate output. Bingen cautioned that China's ambitions extend beyond capacity building: Beijing aims to undercut Western firms globally, shape information environments, and infuse space into national identity—contrasting sharply with declining



U.S. public investment and policy coherence.

Turning to the Korean Peninsula, Sangho Kim, Vice President for International Cooperation at the Korean Academy of Space Security (KASS), outlined how North Korea's evolving space program—particularly its reconnaissance satellites and GPS-jamming capabilities—poses growing risks to South Korean security. He underscored the tight interdependence between North Korea's missile and space programs and highlighted the strategic implications of Russian assistance, which has enabled Pyongyang's recent progress. South Korea, he explained, is responding through investments in space situational awareness, cybersecurity, and multilateral norm-building, complemented by efforts such as founding KASS to strengthen coordination across defense, academia, and industry.

Both Bingen and Kim noted that the once-perceived "transactional" triangle between Russia, North Korea, and Iran is evolving into deeper strategic convergence, reinforced by sanctions-driven isolation and shared geopolitical interests. Russia's support for North Korea's satellite program, Iran's procurement of Russian remote sensing services, and broader patterns of intelligence and technology cooperation signal the emergence of an authoritarian tech bloc in space.

Dr. Yuka Kobayashi, Associate Professor at SOAS and British Academy Fellow at DGAP, offered a deeper strategic lens on China's normative ambitions. She argued that space now sits at the center of China's grand strategy—not merely as infrastructure, but as a tool of prestige, influence, and global rule-setting. Chinese space diplomacy is woven through initiatives such as the Digital Silk Road and Space Information Corridor under the Belt and Road Initiative. Kobayashi emphasized that China's distinction between public and private sectors is largely artificial: even "commercial" firms remain tightly aligned with party-state goals. While Western govern-

ments focus on "de-risking" or "decoupling," China is rapidly securing loyalty across the Global South by offering subsidized technology, training, and infrastructure. Its Confucian, evolutionary approach to norm-setting stands in contrast to more legalistic Western models, enhancing its appeal among emerging economies.

Providing a defense-policy perspective, Christian-Marc Lifländer, Head of NATO's Defence Policy Section, warned that Allied investment in space capabilities remains insufficient relative to the threat landscape. Adversaries increasingly operate "left of bang," using cyber and counter-space tools below the threshold of armed conflict, exploiting legal grey zones, and eroding nascent norms. Lifländer argued that resilience alone is inadequate; NATO must adopt a more proactive posture in shaping norms, aligning defense planning processes with commercial capabilities, and leveraging new funding opportunities through the EU and national governments. He also stressed the need for stronger signaling and diplomatic engagement to counter authoritarian influence among strategically important swing states.

Kobayashi added that China has spent two decades cultivating influence through education, training, and infrastructure partnerships in the Global South—areas where Western engagement has often been late or inconsistent. Bingen warned that without sustained public investment and industrial support, Western companies risk losing ground to China's subsidized, high-volume space sector.

On talent and education, the panel highlighted China's deliberate efforts to embed space into its national identity—an area where many Western states lack comparable strategies. Bingen and Lifländer emphasized the importance of STEM education, workforce pipelines, and more imaginative recruitment models.



SUMMARY OF KEY FINDINGS

- China is rapidly scaling its commercial space sector through state-directed industrial policy, enabling mass satellite production, mega-constellation deployment, and global market disruption – while blurring the line between commercial and military space.
- Authoritarian states are deepening strategic space cooperation, with growing alignment among Russia, North Korea, Iran, and China through technology transfers, intelligence sharing, and mutual support designed to counter Western influence.
- Norm-shaping and global influence are central to China's space strategy, as Beijing promotes its own rules and standards through the Belt and Road Initiative, training programs, and infrastructure investments across the Global South.
- Authoritarian regimes increasingly integrate space into national identity and soft power, especially China, while Western nations risk lagging in talent development, public engagement, and the alignment of commercial and national security space efforts.
- NATO and Western allies are underinvesting in space relative to the pace of authoritarian advancements. Resilience is necessary but insufficient without proactive engagement, industrial mobilization, and coordinated deterrence strategies.



INTRODUCTORY REMARKS: MINISTER MARTIN KUPKA



Speaker: Martin Kupka, Minister of Transport of the Czech Republic

Martin Kupka, Minister of Transport of the Czech Republic, opened the second day of the conference with a forceful address highlighting the deepening intersection of space, security, and international cooperation. He reaffirmed the Czech Republic's commitment to sustainable, responsible, and secure space activities, stressing that the era of merely discussing policy has passed—concrete action is now essential.

As space becomes increasingly congested, competitive, and geopolitically tense, Minister Kupka underscored the urgency of protecting critical orbital infrastructure. He called for stronger transparency, regulatory frameworks, and mitigation of risks such as space debris and irresponsible state behavior. He emphasized that the Czech Republic is not a passive observer but an active contributor to global solutions, citing its role in ESA's Space Safety Programme, the EU Space Surveillance and Tracking (EU SST) initia-

tive, and the UN Committee on the Peaceful Uses of Outer Space (COPUOS). Through these efforts, the Czech Republic positions itself as a credible actor across both security and sustainability of space.

Beyond security, Minister Kupka highlighted the transformative potential of space for national innovation and economic development. He pointed to the "Czech Journey to Space" initiative as a platform designed to nurture high-value industries, accelerate technological progress, and enhance the country's international competitiveness.

His address served simultaneously as a national commitment and an appeal for shared global responsibility—a call to collective action to ensure space remains a domain of peace, opportunity, and long-term prosperity.



SUMMARY OF MINISTER KUPKA'S REMARKS

- Kupka stressed that discussions must now translate into concrete measures to address space debris, irresponsible behavior, and rising geopolitical risks in orbit.
- The Czech Republic actively engages in multilateral initiatives—including via ESA, EU SST, and UN COPUOS—to promote transparency, peaceful use, and collective responsibility in space governance.
- Through initiatives such as the Czech Journey to Space, the country aims to harness space technologies to drive economic transformation and strengthen its global standing.



PANEL 5: WHAT IS TO BE DONE? – PUBLIC SECTOR LEADERSHIP



Panel 5 Speakers: Rodrigo da Costa, Executive Director, EU Agency for the Space Programme (EUSPA); Lt. Col. Caitlin B. Diffley, Deputy Chief of Staff and Chief of Innovation Branch, NATO Combined Force Space Component Command

Panel 5 examined how governments and international institutions are adapting to a new era marked by strategic urgency, commercial innovation, and intensifying geopolitical competition in space. Moderated by Hermann Ludwig Moeller, Director of the European Space Policy Institute (ESPI), the discussion brought together Rodrigo da Costa, Executive Director of the EU Agency for the Space Programme (EUSPA); Lt. Col. Caitlin B. Diffley, Deputy Chief of Staff and Chief of Innovation Branch, NATO Combined Force Space Component Command; Isabelle Duvaux-Bechon, Senior Adviser for Strategy and Security, European Space Agency (ESA); and Deanna L. Ryals, Director of Space International Affairs, U.S. Air Force (SAF/IA).

The session opened with an assessment of

Europe's complex governance architecture—described as both a structural challenge and a source of resilience. Moeller highlighted the rapid proliferation of national civil and defense space strategies and argued that Europe must scale up its investments to remain competitive. While the United States spends roughly 0.24% of GDP on space, Europe remains well below that threshold. Moeller called for doubling European investments to reach 0.15% of EU GDP, stressing that political momentum is finally building.

Deanna Ryals underscored that partnerships are the strategic center of gravity for addressing space threats. She emphasized the importance of shaping a unified narrative that drives policy decision-making and resourcing, warning that adversaries—particularly China—are advancing



on timelines that outpace traditional Western cooperation mechanisms. She described a new U.S. Space Force international strategy focused on force design, force development, and force employment, calling for early integration of partners, shared design philosophies, and transparent information sharing. Trust and interoperability, she argued, must be embedded across every phase from planning to operations.

Rodrigo da Costa outlined how flagship EU programs—Galileo, Copernicus, and the upcoming GovSatCom service—are increasingly designed to meet both civilian and security requirements. He stressed the growing importance of operational resilience amid cyber threats, jamming, and orbital congestion. EUSPA's expanded role in space surveillance and tracking (SST) and its close cooperation with member states demonstrate Europe's ability to move quickly once political consensus exists. GovSatCom, accelerated from industry initiative to near-operational status in under a year, was cited as evidence of Europe's capacity for rapid delivery.

Lt. Col. Caitlin Diffley provided NATO's operational perspective, explaining the mission of the Combined Force Space Component Command in coordinating space operations for the Alliance. She called for breaking down institutional silos and highlighted NATO's evolving approach to commercial integration, exemplified by the new Effects Leverage Nexus (11)—a mechanism inspired by U.S. models such as the Commercial Integration Cell. She stressed the value of experimentation, rapid prototyping, and industry engagement, noting that commercial participation not only accelerates innovation but also helps allies align capabilities through shared operational insights and collaborative testing environments.

Isabelle Duvaux-Bechon emphasized ESA's longstanding leadership in civilian space activities, while acknowledging the increasingly dual-use

nature of space infrastructure. She described how ESA's Strategy 2040 incorporates security and resilience as core priorities and highlighted the agency's €1 billion European Resilience from Space proposal for CM25. This initiative—building on ESA's "Civil Security from Space" program—adopts a system-of-systems approach to address crisis response, national sovereignty, and societal resilience, informed directly by the needs of responders, humanitarian actors, and national authorities.

A recurring theme throughout the discussion was the necessity of complementarity across national, EU, and allied efforts. Redundancy, the speakers argued, is not inefficiency but a feature of resilient architecture—exemplified by the coexistence of Galileo and GPS. Ryals emphasized that Europe and the United States must align force design and interoperability standards to stay ahead of adversaries, leveraging commercial markets and shared architectures. Given the global nature of space-based threats, "homeland defense" must be understood as a cooperative, multinational endeavor.

The panel concluded that space has fully entered the "internet age of space" —a phase defined by deep economic integration, geopolitical stakes, and the need for interoperable, resilient, and multinationally built architectures. The clear message: the window for action is now.



SUMMARY OF KEY FINDINGS

- Addressing space threats from actors such as China and Russia requires coordinated public leadership and joint responses among allied nations.
- Effective space strategy depends on trusted partnerships, shared architectures, and interoperable capabilities across national, institutional, and commercial actors.
- Europe is advancing through Galileo, Copernicus, GovSatCom, and IRIS², but remains under-resourced relative to the United States. Sustained investment combined with political ambition is essential to succeed.
- Integration of commercial actors early in planning, design, and procurement enables rapid innovation, experimentation, and operational resilience.



PANEL 6: WHAT IS TO BE DONE? – PRIVATE SECTOR CAPABILITIES



Panel 6 Speakers: Petr Boháček, Co-Owner, TRL Space; Peter Marquez, Head of Policy for Global Security, Government & Aerospace, Amazon Web Services (AWS); Kevin O'Connell, Former Director of the Office of Space Commerce, U.S. Department of Commerce; Founder and Chief Executive Officer, Space Economy Rising, LLC; Tomotaka Ishikawa, President Associate, Strategy & Business Development, IHI Aerospace;

This panel convened senior industry leaders to examine what must be done on the private-sector side of space security, innovation, and international cooperation – particularly as global competition accelerates under China's state-driven model. The panelists sought to encourage even greater use of commercial actors' technological innovation and operational agility, helping overcome the public sector's bureaucratic constraints, risk aversion, and rigid appropriation cycles. The panelists agreed that leveraging private-sector capabilities can no longer be just a policy preference—it is a strategic necessity.

Kevin O'Connell, Former Director of the U.S.

Office of Space Commerce and CEO of Space Economy Rising, underscored the comparative advantage of private-sector innovation over civil-military fusion approaches like China's. He emphasized that while industry can anticipate future needs and move at speed, governments must follow through on commitments, align budgets, and remove institutional frictions that disincentivize private engagement. Failure to deliver on public-private partnership promises weakened national capabilities, eroded investor confidence, and entrepreneurial momentum.

Petr Boháček, Co-Owner of TRL Space, described his company's growth from a three-person



start-up to a 100-plus-person firm, noting that geopolitical alignment and clear mission narratives are crucial for attracting capital and building durable partnerships. He offered an unvarnished assessment of Europe's fragmented venture landscape and regulatory bottlenecks, contrasting it with U.S. procurement mechanisms—such as commercial services contracts—that accelerate outcomes and signal credibility to investors.

Boháček also emphasized the importance of Western presence in Africa, where Chinese projects often dominate not due to superior value but due to a lack of meaningful Western engagement. TRL Space's activities in Ukraine and Africa, he stated, illustrate how private companies can influence geostrategic outcomes and create alternative development pathways.

Peter Marquez, Head of Policy for Global Security, Government & Aerospace at Amazon Web Services (AWS), outlined key imperatives for success—the implementation of existing policies; embedding economic and technical advisors into leadership teams; harnessing industrial scale through reviving mechanisms such as WWII's "Freedom's Forge" to operationalize national strategy.¹ He warned against risk-averse inaction, citing an example where a low-cost commercial capability was sidelined for years while a government program consumed hundreds of millions with minimal progress—illustrating the opportunity cost of ignoring commercial solutions.

Tomotaka Ishikawa, President Associate for Strategy & Business Development at IHI Aerospace, seconded the requirement of international cooperation across government and industry.

He highlighted responsive launch and space domain awareness (SDA) as areas where multinational coordination can deliver speed and resilience, especially during crises. Japan's efforts to expand launch capacity and integrate global supply chains reflect a broader need to reduce national vulnerabilities and strengthen industrial interoperability.

A recurring theme was the necessity for regulatory environments that support innovation without compromising safety or sustainability. O'Connell and others stressed that regulation must be grounded in honest assessments of national capabilities and comparative advantages—not political aspirations. Regulatory approaches must prevent duplication, avoid "dual regulation" traps that hinder startups, and enable cross-border collaboration. Poorly calibrated export controls, certification processes, and licensing regimes can undermine competitiveness and delay critical capabilities.

The panel also touched upon the financial dimension of space competition. The U.S. model—where early government contracts signal credibility to investors has been difficult to replicate in Europe or Japan, although this is changing. Europe's Global Gateway and Japan's more deliberate sovereign investment efforts represent steps toward coordinated, values-based engagement abroad. Panelists agreed that sustaining Western influence, particularly in emerging regions such as Africa, requires credible alternatives to China's Belt and Road Initiative. As Marquez emphasized, the world responds to meaningful partnerships and executed projects—not moral appeals. Delivering infrastructure, capabilities, and long-term engagement is the only viable counter-strategy.

¹ *Freedom's Forge* refers to the extraordinary mobilization of American industry during World War II, when private companies—guided but not controlled by the government—rapidly transformed the U.S. economy into the world's most productive war machine. Enabled by flexible procurement authorities, empowered industrial leaders, and a government posture focused on outcomes rather than micromanagement, this model demonstrated how public-private collaboration at scale can deliver unprecedented speed, innovation, and industrial capacity.



The panel concluded that the future of space security—and broader geopolitical influence—will be shaped by execution, partnership, and the ability to act faster, smarter, and in

closer concert. Private-sector leadership is central to that effort, but only if governments modernize procurement, improve regulatory environments, and adopt a mindset focused on outcomes rather than process.

SUMMARY OF KEY FINDINGS

- Move beyond public strategy documents to fully implement existing policies to enable effective public–private collaboration in space innovation and defense.
- Streamline procurement, adopt commercial services models, and reduce regulatory friction to harness the private industry's innovation and investment.
- Modernize international partnerships through complementary capabilities and real interoperability—particularly in critical areas such as Space Domain Awareness (SDA) and responsive launch.
- Employ risk-informed, innovation-aligned, and non-duplicative regulatory frameworks to fuel competitiveness.
- To remain credible globally, allies and partners need to offer long-term, value-based alternatives to China-led space sector capture, grounded in real projects and sustained engagement.



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